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BREATH-BODY-MIND INTEGRATION: A HOLISTIC AND CREATIVE APPROACH TO REFRACTORY BREATHLESSNESS

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PEOPLE WITH BREATHLESSNESS ARE EXPERTS BY EXPERIENCE. MEDICAL FRAMEWORKS ARE REDUCTIONIST AND DO NOT CURRENTLY INCLUDE PATIENT AND FAMILY CAREGIVERS' VIEWS AND UNDERSTANDINGS IN DESCRIPTORS OF SYMPTOMS

Macnaughton J, Oxley R, Rose A, Russell A, Dodd JW, Carel H. Chronic breathlessness: re-thinking the symptom. *European Respiratory Journal* Jan 018, 51 (1) 1702331; DOI: 10.1183/13993003.02331-2017.

Summary

This article - from the interdisciplinary Life of Breath project - suggests that medical language is not adequate to describe the variety, context and emotional component of the individual breathlessness experience. The paper goes on to suggest research into the critical role language, metaphor and meaning play in both living with and treating breathlessness.

Comments

This article sets out the context of my work with *Life of Breath*

OBSERVING BREATHLESSNESS ELICITS FEELINGS OF BREATHLESSNESS, ANXIETY AND NEUROBIOLOGICAL CHANGES - WHAT ARE THE IMPLICATIONS FOR CAREGIVERS AND CLINICIANS?

Herzog M, Sucec J, Van Diest I, Van den Bergh O, Chenivresse C, Davenport P, Similowski T, von Leupoldt A. Observing dyspnoea in others elicits dyspnoea, negative affect and brain responses. *European Respiratory Journal* 2018 51: 1702682; DOI: 10.1183/13993003.02682-2017.

Summary

The article demonstrates that observing dyspnoea in others elicits mild-to-moderate dyspnoea, negative affect, and increased brain responses in the absence of respiratory changes. This vicarious dyspnoea has clinical relevance as it might increase suffering in the family and medical caregivers of dyspnoeic patients.

Comments

I relate this article to why breathlessness may be so hard to 'be alongside' for caregivers and clinicians, developing the argument for the need for a more nuanced

understanding of the effects of this symptom, and how to meet those needs.

AFFECT REGULATION SYSTEMS; DRIVE, THREAT AND SAFETY/CONNECTION

Gilbert P. The origins and nature of compassion focused therapy. *Br J Clin Psychol*. 2014;53(1):6-41. doi:10.1111/bjc.12043.

Summary

Compassion focused therapy highlights the importance of developing people's capacity to (mindfully) access, tolerate, and direct affiliative motives and emotions, for themselves and others, and cultivate inner compassion as a way for organizing our human 'tricky brain' in prosocial and mentally healthy ways.

Comments

I use Gilbert's theory of affect regulation to suggest that addressing feelings and behaviours associated with threat and fear may be key to addressing the affective component of breathlessness.

BREATHING, THINKING, FUNCTIONING - THE "VICIOUS AND VIRTUOUS" CYCLES OF BREATHLESSNESS MANAGEMENT

Spathis A, Booth S, Moffat C, Hurst R, Chin C, Burkin J. (2017). The Breathing, Thinking, Functioning clinical model: a proposal to facilitate evidence-based breathlessness management in chronic respiratory disease. *npj Primary Care Respiratory Medicine*. 27. 10.1038/s41533-017-0024-z.

Summary

Refractory breathlessness is a highly prevalent and distressing symptom in advanced chronic respiratory disease. Its intensity is not reliably predicted by the severity of lung pathology, with unhelpful emotions and behaviours inadvertently exacerbating and perpetuating the problem. Improved symptom management is possible if clinicians choose appropriate non-pharmacological approaches, but these require engagement and commitment from both patients and clinicians. The Breathing Thinking Functioning clinical model is a proposal, developed from current evidence, that has

the potential to facilitate effective symptom control, by providing a rationale and focus for treatment.

Comments

I argue that there may be a missing piece to this model, particularly with patients who may not be able to engage with the BTF approach (based on cognitive behaviour therapy), and that the affective component of breathlessness (feelings) is an important area to consider.

EXPLORATION OF BREATHLESS PATIENTS' RELATIONSHIP WITH THEIR "HEALTH OBJECTS" IN A PALLIATIVE CARE SETTING

Binnie K, McGuire C, Carel H. *Objects of safety and imprisonment: breathless patients' relationship with health objects. Journal of Material Culture* 2020 DOI: 10.1177/1359183520931900.

Summary

This paper considers breathless adults with advanced non-malignant lung disease and their relationship with health objects. This issue is especially relevant now during the Covid-19 pandemic, where the experiences of breathlessness and dependence on related medical objects have sudden and global relevance. These objects include ambulatory oxygen, oxygen concentrators and inhalers, and non-pharmacological objects such as self-monitoring devices and self-management technologies. The authors consider this relationship between things and people using an interdisciplinary approach employing psychoanalytic theory (in particular Winnicott's theory of object relations and object use), Science and Technology Studies (STS) and phenomenology. This collaborative approach allows the authors to relate patient use of health objects to ways of thinking about the body, dependency, autonomy, safety and sensemaking within the context of palliative care. The authors illustrate the theoretical discussion with three reflective vignettes from therapeutic practice and conclude by suggesting further interdisciplinary research to develop the conceptual and practice-based links between psychoanalytic theory, STS and phenomenology to better understand individual embodied experiences of breathlessness. They call for palliative care-infused, psychoanalytically informed interventions that acknowledge breathless patients' dependence on things and people, concomitant with the need for autonomy in being-towards-dying.

BREATHING AS A TOOL FOR MANAGING EXISTENTIAL DISTRESS IN END-OF-LIFE SETTINGS

Binnie K. *Being Human: using breath in psycho-spiritual care in end-of-life settings. Thresholds (BACP journal)* 2019.

Summary

This article sets out the rationale and early groundwork for Breath-Body-Mind integration (BBMi) and explores the relationship between breathing and spirituality (in its broadest sense) within the context of end of life care. The article explains how I have brought together aspects of psychodynamic theory including attachment and regulation theory, with practical tools from the traditions of yoga and mindfulness to develop a way of working with patients and families that is "holistic" and "heuristic". In addition, the article describes a consultation process with clinical teams who work with the dying, and early piloting of BBMi training.

OTHER ARTICLES OF INTEREST

Below are BLOGS from the Wellcome-funded "Life of Breath" project (2015-20). These blogs describe my clinical work and research with COPD patients in the community and receiving hospice care.

<https://lifeofbreath.org/2020/03/breathing-in-isolation-support-with-anxiety-breathlessness-during-lockdown/>

<https://lifeofbreath.org/2019/07/the-copd-support-group/>

<https://lifeofbreath.org/2016/07/breath-the-conductor-of-the-body-mind-orchestra/>

<https://lifeofbreath.org/2016/06/the-first-and-last-breath-reflections-from-palliative-neonatal-care/>

<https://lifeofbreath.org/2015/10/i-need-security-to-survive/>

This is a SOUNDSCAPE – a recorded "tapestry of breaths" which I made in 2017 to explore and promote the importance of breath throughout the lifespan. This was recorded as part of a collaboration with <https://www.ndcn.ox.ac.uk/research/breathe-oxford> (University of Oxford department of clinical neurosciences) and released as a podcast.

<http://podcasts.ox.ac.uk/kate-binnie-first-and-last-breath-soundscape>

“SINGING” APPROACHES TO BREATHLESSNESS MANAGEMENT

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THE EFFECT OF SINGING ON HEALTH-RELATED QUALITY OF LIFE AND BREATHLESSNESS IN PEOPLE WITH COPD

McNamara RJ, Epsley C, Coren E, McKeough ZJ. Singing for adults with chronic obstructive pulmonary disease. *Cochrane Database of Systematic Reviews* 2017, Issue 12. Art. No.: CD012296. DOI: 10.1002/14651858.CD012296.pub2.

Summary

This systematic review included three studies (total n=112); participants were randomised to singing group or control group. The frequency of the singing intervention ranged from 1 to 2 times a week over a 6-24 week period; each singing session lasting 60 minutes. All studies included participants diagnosed with COPD; mean age range 67 to 72 years. Mean forced expiratory volume in one second (FEV1) range 37% to 64% of predicted values

There was no significant change in the St George's Respiratory Questionnaire total score between groups. (mean difference (MD) -0.82, 95% confidence interval (CI) -4.67 to 3.02, 2 studies n =58). A statistically significant improvement greater than the minimal important difference of 4 units was found in the SF-36 Physical Component Summary (PCS) score (MD 12.64, 95% CI 5.50 to 19.77, 2 studies, n = 52)

There was no statistically significant improvement in the HADS anxiety score (MD -1.09, 95% CI -3.02 to 0.83, n = 52) or HADS depression score (MD -0.87, 95% CI -2.16 to 0.42, 2 studies n = 52)

There were no significant differences in dyspnoea; pulmonary function expiratory muscle pressure and inspiratory muscle strength and no improvement in anxiety, depression, exercise capacity or physical activity level following singing.

Comments

1. Three out of four studies met the inclusion criteria for this review, all reporting on a small sample size (43;33;36 respectively) and all three studies reported some attrition and loss to follow-up between 22% to 30% further challenging interpretation of findings.
2. The quality of the evidence was further impacted by an inability to blind the study population due to the physical nature of the intervention.

3. The authors acknowledge that singing may be subjectively beneficial to people with COPD but conclude there is currently insufficient evidence to advocate singing as an effective intervention to achieve clinically significant health outcomes.
4. Further randomised controlled trials or longitudinal observational studies are needed with meaningful primary and secondary end points to determine the effect of singing on health-related quality of life and breathlessness management in people with chronic lung conditions

A QUALITATIVE ASSESSMENT OF GROUP LEADERS DELIVERING BRITISH LUNG FOUNDATION (BLF) SINGING FOR LUNG HEALTH (SLH) PROGRAMMES

Lewis A, Cave P, Hopkinson NS. Singing for Lung Health: a qualitative assessment of a British Lung Foundation programme for group leaders *BMJ Open Respiratory Research* 2017;4:e000216. doi: 10.1136/bmjresp-2017-000216.

Summary

The British Lung Foundation (BLF) has provided training and funding to singing leaders to set up and run SLH groups since 2015. Leaders receive an initial 2 days of training, further peer-to-peer training day and mentoring. No data exist on the effectiveness of SLH training and how this is reflected in the actual delivery of SLH groups. In this qualitative study a convenience sample of 15 singing leaders who had received BLF SLH training participated in semi structured interviews lasting 26 - 44 minutes.

Fifteen singing groups were observed, and leaders rated 0 to 10 by two independent observers on their ability to lead physical warm-up, breathing exercises, vocal warm-ups, rhythm and pitch games, repertoire and relaxation. 10 representing best practice. There was moderate agreement (K=0.42) between observers. Nine of 15 groups achieved a score > 40. Inductive analysis of the qualitative data identified the following themes: Training is valuable but intense; SLH is beneficial; Group composition; SLH is complicated; SLH's as treatment.

Study findings highlight that running an SLH group is different from generic singing for well-being or community choirs and specialist training is required to competently

manage inherent complexities in a group of individuals with heterogenous respiratory diseases

Comments

1. The observational data demonstrated that leaders' delivery of SLH in practice is consistent with the competency-based training delivered. Differences in the observer scores have resulted in recommendations to the BLF to further improve their SLH training programme
2. SLH is complicated and could be viewed as a multicomponent self-management intervention. Leaders require sensitive judgement to adapt their approach for individuals' or groups' levels of breathlessness.
3. This study confirms previous findings that people with respiratory disease benefit from having a space where their condition is not talked about as a disease, and where their breathlessness is treated through song.
4. Establishing the fidelity of SLH interventions will inform future clinical trials and commissioning SLH as a healthcare intervention.

A SYSTEMATIC REVIEW OF THE LITERATURE AND CONSENSUS STATEMENT ON SINGING FOR LUNG HEALTH

Lewis A, Cave P, Stern M, Welch L, Taylor K, Russell J, Russell AM, Doyle AM, McKee H, Clift S, Bott J, Hopkinson NS. Singing for Lung Health – a systematic review of the literature and consensus statement. *npj Primary Care Respir Med* 2016; 26; 16080; DOI:10.1038/npjpcrm.2016.80.

Summary

This systematic review set out to enquire if singing improves the health of people with respiratory diseases, including COPD, bronchiectasis, ILD, OSA and asthma. An assessment of risk of bias was performed at study level using the Cochrane Collaborative Tool. No meta-analysis or combining results was performed, and no summary measures were used because of a lack of repeated outcome measures across all studies. Outcomes included measures of lung function, health status, quality of life and functional exercise capacity.

Six studies were included: four RCTs and two cohort studies. Three studies were performed in the United Kingdom, one in Brazil, one in Canada and one in Australia. This systematic review concluded that there is considerable qualitative data to support participation in singing groups as a safe and potentially valuable strategy for people with COPD.

A consensus group, involving the BLF, health professionals (physiotherapy, nursing, health psychology, music therapy, respiratory physician) and arts practitioners with an interest in this area, was convened to review the

available evidence, and concluded that larger controlled trials are needed to establish the impact of SLH on patient relevant outcomes—physical and psychological health status, exercise capacity and health resource utilization. Potential areas for further research identified are included below.

Comments

1. Which aspects of singing training are most important for an effective programme which is attractive to patients?
2. What are the objective physiological changes in people who participate in singing?
3. What value-based outcome measures are required to demonstrate the impact of SLH programmes on patients' physiological, psychological and social well-being, over a sufficient duration of follow up, necessary to persuade commissioners to provide sustainable funding for this intervention?
4. What impact does SLH have on health resource utilisation and what is the most effective way to train and support singing group leaders?
5. What is the best way to integrate singing programmes into PR and other aspects of integrated health care and what is the optimal duration and capacity of singing classes?

MEDICAL HUMANITIES; SINGING FOR LUNG HEALTH AND 'PULMONARY REHABILITATION'

Oxley R, Harrison SL, Rose, Macnaughton J. (2019). The meaning of the name of 'pulmonary rehabilitation' and its influence on engagement with individuals with chronic lung disease. *Chronic Respiratory Disease*. <https://doi.org/10.1177/1479973119847659>

Summary

This article draws upon information from collected activities of the Life of Breath project, including literature and narrative studies, and empirical, ethnographic participant observation research and semi-structured interviews with those involved in community fitness groups living with breathlessness. Specifically, the breath Lab: a special interest group of clinical and non-clinical people, including patient representatives to think through issues pertinent to breath, breathing and breathlessness in a non-clinical environment.

Empirical work undertaken on the project revealed that patients and healthcare providers are often at odds in the words they use to express, define and approach breathlessness and its care including PR, impacting early intervention, diagnosis and treatment.

A Singing for Lung Health (SLH) approach uses terminology that points to the lungs, but the focus is on the learning of breathing control and postural techniques that enable effective singing, emphasizing singing for

breathlessness and its care including PR, impacting early intervention, diagnosis and treatment.

A Singing for Lung Health (SLH) approach uses terminology that points to the lungs, but the focus is on the learning of breathing control and postural techniques that enable effective singing, emphasizing singing for breathing, rather than for breathlessness. Singing allows for patients who often experience their breath as negative and limiting, to reinterpret this association through the 'positive achievement of song.'

The medical humanities perspective endorsed through Life of Breath considers that scope is needed to research the potential of SLH to be shaped to encourage participation from diverse communities, acknowledging that culturally meaningful connections improve PR uptake.

Comments

1. There are continuing challenges regarding uptake and engagement in PR services despite its recognised benefits in improving quality of life, enhancing functional exercise capacity, reducing symptoms of anxiety and depression and preventing hospital readmissions in those who attend and complete, approximately 20 -60% of those eligible do not complete programmes.
2. The number of individuals able to complete PR programmes is further diminished (9%) in those who have recently suffered an acute exacerbation
3. People are hesitant to pursue PR due to a lack of clarity as to what the programme involves and what this means for individuals
4. Further research including a phenomenological toolkit and interdisciplinary investigation of SLH and dance movement initiatives is needed where a range of expertise can explore their cultural, linguistic and subjective relevance.
5. Outcome and performance measures, standardised within PR and wider respiratory care require some rethinking and could benefit from being informed by a patient-led, medical humanities methodology

OTHER ARTICLES OF INTEREST

The Life of Breath Project Durham and Bristol Universities, UK. <https://lifeofbreath.org/> (accessed 14th July 2020).

Gick ML, Daugherty C. **Changes in spirometry, quality of life and well-being in persons with asthma following singing, diaphragmatic breathing, and singing and diaphragmatic breathing: a pilot study.** *Music Med.* 7, 40–49 (2015).

Skingley A, Page S, Clift S, et al. **'Singing for Breathing': Participants' perceptions of a group singing programme for people with COPD.** *Arts Health* 2014; 6:59–74.doi:10.1080/17533015.2013.840853

Morrison I , Clift S, Page S, et al . **A UK feasibility study on the value of singing for people with chronic obstructive pulmonary disease (COPD).** *UNESCO Observatory Multi-Disciplinary Journal in the Arts.* 2013;3:1–19.

Lord VM, Hume VJ , Kelly JL , et al . **Singing classes for chronic obstructive pulmonary disease: a randomized controlled trial.** *BMC Pulm Med* 2012; 12:1–7. doi:10.1186/1471-2466-12-69

Lord VM, Cave P, Hume VJ, et al. **Singing teaching as a therapy for chronic respiratory disease—a randomised controlled trial and qualitative evaluation.** *BMC Pulm Med* 2010; 10:41.doi:10.1186/1471-2466-10-41

Carel H. **Phenomenology as a resource for patients.** *J Med Philos* 2012; 37(2): 96–113.

REIKI AND OTHER COMPLEMENTARY HEALTH APPROACHES FOR PAIN AND ANXIETY MANAGEMENT IN CRITICAL CARE AND PEDIATRIC PATIENTS

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MEDICAL COMPLEXITY OF CHILDREN RECEIVING PALLIATIVE CARE

Thrane SE, Maurer SH, Cohen SM, May C, Sereika SM. Pediatric palliative care: A 5-year retrospective chart review study. *J Palliat Med.* 2017;20(10):1104-1111. doi:10.1089/jpm.2017.0038.

Summary

This 5-year retrospective chart review included 256 children ages 2-16 years who received palliative care at one large children's hospital palliative care service. Of the 256 children, 53% were male and 47% were female, 22% were 2-4 years old, 23% were 5-8 years old, 29% were 9-12 years old, and 26% were 13-16 years old.

The mean age at referral to palliative care was 9.5 years (range 2-16.9 years), mean age at diagnosis of referring illness was 5.3 years (range -13 days to 16.9 years), and mean time from diagnosis to referral to palliative care was 4.4 years (range 0 days to 16.9 years). The referring diagnoses included cancer (42%), congenital or genetic illness (38%), transplant (solid organ and bone marrow, 9%), trauma (6%) and other (5%).

Fifteen of the most commonly occurring diagnoses were counted for all 256 children. Children had a mean of 5 of the 15 diagnosis (range 1-13). Sixty percent of the children had pain. Of those with pulmonary conditions, 55% had pain and 57% had a mood disorder (depression or anxiety). Of those children with a mood disorder (17% of total sample), 75% had pain. Children receiving palliative care have multiple complex conditions.

Comments

1. Children receiving palliative care have multiple, complex medical conditions.
2. Pain and anxiety are related.
3. Children with congenital or genetic conditions, the second-most common diagnosis category, have on average 8 serious, chronic health conditions, resulting in very complex care.
4. Pulmonary conditions commonly occur with other chronic conditions in children receiving palliative care.

EFFECT OF REIKI ON PAIN AND ANXIETY IN ADULTS

Thrane SE, Cohen SM. Effect of Reiki Therapy on Pain and Anxiety in Adults: An In-Depth Literature Review of Randomized Trials with Effect Size Calculations. *Pain Manag Nurs.* 2014;15(4):897-908. doi:10.1016/j.pmn.2013.07.008.

Summary

The objective of this systematic review was to look at randomized controlled trials that examined pain or anxiety using Reiki therapy, had a Reiki group and either a usual care or other intervention as a comparison group in adults. Effect sizes were calculated for pain and anxiety within and between groups. When this article was published, there were no published studies examining Reiki with children. The article also explores some possible theories on how Reiki may work.

Seven studies fit the criteria: three studies looked at cancer patients, two studies looked at surgical settings, and two looked at Reiki in community dwelling adults. Three studies included pain and anxiety and two each either pain or anxiety.

Almost all studies and variables achieved statistical significance. For within Reiki group differences for decreased pain, effect sizes ranged from $d=0.36$ (small) for a group of diabetic patients with peripheral neuropathy to $d=2.08$ (large) for community dwelling adults. Between group differences for decreased pain in the Reiki group ranged from $d=0.32$ for post-chemotherapy patients for a rest week to $d=4.5$ for the community dwelling adults. Similar results were obtained for anxiety. Reiki was statistically and clinically significant for adults for both pain and anxiety.

Comments

1. Reiki is a light touch therapy that has no contraindications and is suitable for everyone.
2. We are unsure how Reiki works but one theory posits that quantum physics may explain the mechanism of Reiki energy.
3. Most people find Reiki relaxing and these randomized controlled trials with adults show statistical evidence and clinical effectiveness within and between groups for pain and anxiety.
4. Larger randomized controlled trials using a three-group design (Reiki, sham Reiki, and usual care) using a standardized protocol are needed in a variety of populations to show further scientific evidence.

PROFESSIONALLY DELIVERED REIKI FOR CHILDREN RECEIVING PALLIATIVE CARE AT HOME

Thrane SE, Maurer SH, Ren D, Danford CA, Cohen SM. Reiki therapy for symptom management in children receiving palliative care: A pilot study. *Am J Hosp Palliat Med*. 2017;34(4):373-379. doi:10.1177/1049909116630973.

Summary

Reiki is a light touch, non-invasive therapy that most people find relaxing. We know from previous research that pain is reported in 50-75% and anxiety is reported in about 30% of children receiving palliative care. A mixed-methods single group pilot study examined whether professionally delivered Reiki therapy was feasible, acceptable, and whether the outcomes of pain, anxiety, and relaxation (operationalized as heart rate and respiratory rate) would decrease in children 7-16 years receiving palliative care at home.

Two 24-minute Reiki sessions were delivered within one week in the home. Sixteen children (8 verbal and 8 non-verbal) participated in the study. Non-significant decreases were observed for all values, likely due to small sample size, pre- to post-treatment for both sessions. Most outcome variables showed medium to large clinical effects, calculated by Cohen's *d*.

Limitations include no comparison group, small sample size, and the PI was also the interventionist. However, the children and their mothers gave positive feedback during short interviews conducted by an assistant and all mothers said they would participate in the study again. This was the first study examining Reiki with children receiving palliative care at home and only the second study reported with children. Further study is ongoing.

Comments

1. Reiki is a light touch therapy suitable for anyone, including children who have developmental delays and are unable to communicate.
2. Reiki may be a good adjunct therapy to help children manage symptoms without increasing medications that may interfere with their ability to interact with family and friends.
3. While this study did not have significant results, clinical effect sizes for pain, anxiety, heart rate, and respiratory rates were mostly medium to large suggesting future study with larger samples sizes may show significant results.
4. Further research is needed to add scientific evidence for this non-invasive, promising complementary therapy.

NON-PHARMACOLOGIC TREATMENT OF PROCEDURAL PAIN FOR YOUNG CHILDREN

Thrane SE, Wanless S, Cohen SM, Danford CA. The assessment and non-pharmacologic treatment of procedural pain from infancy to school age through a developmental lens: A synthesis of evidence with recommendations. *J Pediatr Nurs*. 2016;31(1):e23-32. doi:10.1016/j.pedn.2015.09.002.

Summary

This narrative review examines pain assessment and non-pharmacologic interventions for infants through early school-age children during painful procedures including vaccinations by developmental stage. Although it is accepted that children feel pain, they still suffer unnecessary pain. Besides the immediate pain experience, these episodes can rewire children's brains, resulting in long-term changes and a greater likelihood that these children will have poor coping strategies and chronic pain as adults. Many non-pharmacologic interventions are easy to do but they are not implemented.

For infants, the main interventions include swaddling, sucking, and taking advantage of the infant's need of attachment and implementing skin-to-skin contact. For toddlers, distracting techniques such as peek-a-boo, looking at books, or blowing bubbles are helpful. Another key point with children beginning with toddlers is to avoid exaggerated reassurances which children will know are false. For pre-schoolers using interactive distraction such as playing video games or passive distractions such as watching cartoons can be helpful. In early school age children, the most important piece of coping with a painful procedure is parental confidence and assurance coupled with a distraction: worried parents cause worried children while calm parents help children remain calm.

Comments

1. Children continue to experience pain during routine medical procedures.
2. Easy to implement non-pharmacological interventions can help infants and children cope with painful procedures.
3. Interventions such as swaddling, sucking, listening to music or singing, peek-a-boo, blowing bubbles, watching cartoons or videos, counting games, and playing video games are a few of the low-to-no cost easy-to-implement techniques for coping with painful procedures in young children.
4. Taking the time to help children cope in the moment will not only alleviate suffering but prevent rewiring their brains and exaggerating their pain responses throughout life.

NON-PHARMACOLOGICAL INTERVENTIONS FOR PAIN AND ANXIETY IN CHILDREN WITH CANCER

Thrane S. Effectiveness of Integrative Modalities for Pain and Anxiety in Children and Adolescents With Cancer: A Systematic Review. *J Pediatr Oncol Nurs.* 2013;30(6):320-332. doi:10.1177/1043454213511538.

Summary

Children receiving cancer treatments often experience painful procedures such as bone marrow aspirations (BMA), lumbar punctures (LP), accessing implanted ports, and venipunctures on a regular basis. Medications aimed at decreasing pain and anxiety should certainly be administered. However, non-pharmacologic interventions can help children cope with the pain and anxiety these procedures cause before, during, and after the procedure.

Studies were included that used any type of non-pharmacologic intervention except vitamins or herbs, used randomization, and had a control group of some type. Interventions included hypnosis, mind-body techniques such as breathing exercises, distraction, parental coaching, and relaxation techniques, virtual reality, creative arts therapy, massage, and listening to music. Hypnosis was used for venipuncture, LP, and BMA: all studies found statistical significance for pain and anxiety and very large effect sizes ($d > 1.0$). Mind body techniques were also statistically and clinically effective for BMA, LP, and venipuncture as were virtual reality and creative arts therapy during chemotherapy. Massage was statistically significant and clinically effective ($d=1.08$) for general physical, mental and emotional wellbeing. Finally listening to music before and during an LP was significant and clinically effective for pain during and after the LP and for anxiety before and after the procedure.

Comments

1. Non-pharmacologic interventions can help children cope with painful procedures as well as general treatment conditions after a cancer diagnosis.
2. Implementing non-pharmacologic interventions can help decrease medication use and decrease recovery time after an intervention.
3. Interventions such as hypnosis, massage, and simply listening to music can help children cope with cancer treatments and painful procedures as well as improve general wellbeing.

MINDFUL MOVEMENT THERAPY FOR PULMONARY PATIENTS

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MINDFUL MOVEMENT (TAI CHI AND QI GONG) EFFECTS ON LUNG FUNCTIONS, FUNCTIONAL CAPACITY, AND DYSPNEA IN COPD: SYSTEMATIC AND META-ANALYSIS REVIEW

Wu LL, Lin ZK, Weng HD, Qi QF, Lu J, Liu KX.

Effectiveness of meditative movement on COPD: A systematic review and meta-analysis. *Int J Chron Obstruct Pulmon Dis.* 2018;13:1239-1250.

Summary

This meta-analysis review of 16 studies evaluated the impact of meditative movement (MM) on lung function, functional exercise capacity, dyspnea, and QOL in patients with COPD. Seven studies explored the effect of Yoga; 4 explored Tai Chi; 3 explored Qigong, and 2 investigated the Tai Chi and Qigong combined. The intervention ranged from 12 weeks to 9 months, 2-7 times/week, and 30-90 minutes in session length. A total of 1176 participants included that ranged 10-206/ study with an age range from 45-74.1 years.

There was a significant improvement in 6MWD in the MM group vs. non-exercise group at 3-month (8 studies, n=644) and 6-month (4 studies, n=455). There was no difference between the MM group vs. walking exercise group at 3-month (2 studies, n=224) and 6-month (4 studies, n=430).

There was a significant improvement in FEV1 in the MM group vs. non-exercise group at 3-month and 6-month (4 studies, n=489; n=453). There was no difference when compared MM group vs. walking exercise group at 3-month and 6-month (2 studies, n=226).

There was a significant improvement in QOL-CRQ (fatigue and dyspnea domains) in the MM group vs. non-exercise group at 3-month and 6-month (2 studies, n=24).

Comments

1. This analysis reports health outcomes at three months and six months post-intervention; it also distinguishes clinical outcomes comparison b/w MM vs. non-exercise and MM vs. walking exercise group.
2. Consistent with other mind-body interventions, there is variability in intervention duration, frequency, session length.
3. This analysis is well-represented by country: 5 conducted in India, three from Hong Kong/China, two from the US, and two from Australia.

4. The number of total participants might not be powered to show the statistically significant results with "drilled down" analysis.
5. This study was a systematic meta-analysis review and followed the standard for data extraction, quality appraisal, and risk of bias assessment (Joanna Briggs QI assessment score = 9)

MINDFUL MOVEMENT (TAI CHI AND QI GONG) EFFECTS IN LUNG FUNCTIONS, FUNCTIONAL CAPACITY, FATIGUE, AND DYSPNEA IN COPD: SYSTEMATIC REVIEW

Reychler G, Poncin W, Montigny S, Luts A, Caty G, Pieters T. Efficacy of Yoga, tai chi and qi gong on the main symptoms of chronic obstructive pulmonary disease: A systematic review. *Respir Med Res.* 2019;75:13-25.

Summary

This systemic narrative review of 18 studies retrieved from 3 databases since inception until 2017 summarized that MM demonstrated improvements in lung function (FEV1, VC), dyspnea, QOL, and functional capacity (6MWD) in patients with COPD. Six studies explored the impact of Yoga; 12 explored the effects of Tai Chi and Qigong separately or in combination. The intervention ranged from 6 weeks to 6 months in duration, 2-7 times/week in frequency, and 30-90 minutes in session length. The number of participants included was 10-206 persons (n=1893), age range from 40-80 years of age.

There was an improvement in 6MWD in 11 out of 12 studies evaluated.

There was a significant improvement in FEV1 in 9 studies reviewed. However, in 4 out of 5 studies that used yoga intervention, there was no significant improvement in FEV1. In all studies that evaluated VC (n=4), there was an improvement in VC as a result of MM. With regards to dyspnea outcome, there was an improvement in all studies; however, between groups comparison was significant only in 50% of the studies (n=3).

There was an improvement in the QOL outcome in 60% of the studies.

Comments

1. This review employed a narrative systematic review approach without meta-analysis.
2. Consistent with most mind-body intervention, there is variability in intervention duration, frequency, session length.

3. This article followed the standard for data extraction, quality appraisal, and risk of bias assessment (Joanna Briggs QI assessment score = 7)

MINDFUL MOVEMENT (YOGA) EFFECTS ON LUNG FUNCTIONS, FUNCTIONAL CAPACITY, AND DYSPNEA IN COPD: META-ANALYSIS REVIEW

Cramer H, Haller H, Klose P, Ward L, Chung VC, Lauche R. The risks and benefits of Yoga for patients with chronic obstructive pulmonary disease: A systematic review and meta-analysis. *Clin Rehabil.* 2019;33(12):1847-1862.

Summary

This study reports a systematic and meta-analysis review of 14 articles with the primary aims in evaluating the risks and benefits of Yoga for patients with COPD. To assess the clinical impacts of Yoga on lung function, the authors included 11 RCTs (n=587) in the analysis evaluating functional exercise capacity, dyspnea, and QOL. The median duration of yoga practice was 12 weeks. The median frequency of intervention was five sessions/week. The analysis differentiated the impact of the Yoga intervention with or without breathing emphasis that shows superior effects of the breathing-based Yoga (Pranayama).

There was a significant improvement in 6MWD (7 studies), FEV1 predicted (2 studies), and FEV1 (3 studies).

The synthesis indicated that there was a significant impact in QOL only in the studies that used the COPD Assessment Test (CAT)(n=3). While no effect was noted in dyspnea outcome, including all studies in the analysis, the authors found significant improvement in dyspnea if the synthesis was limited to the studies that employed breathing-focused Yoga. Only the effect on exercise capacity (6MWD) was robust against methodological bias among these studies.

Comments

1. Dyspnea improvement appears to be related to the breath-focused practice of Yoga.
2. Consistent with Wu's and Reychler's analysis, significant differences found in functional exercise capacity (6MWD), functional lung capacity (FEV1, FEV1 predicted).
3. This review did not include any studies from China/Hong Kong, possibly related to the rarity of yoga practice in some countries.
4. This systemic meta-analysis review that included more recent publication up to 2019, and followed the standards for data extraction, quality appraisal, and risk of bias assessment (Joanna Briggs QI score = 9).
5. Like Wu's analysis, significant QOL difference was found in studies that used CAT assessment.

Li C, Liu Y, Ji Y, Xie L, Hou Z. Efficacy of yoga training in chronic obstructive pulmonary disease patients: A systematic review and meta-analysis. *Complement Ther Clin Pract.* 2018;30:33-37.

Summary

This article reports on the systematic and meta-analysis review of 10 articles evaluating the effects of Yoga in patients with COPD. The analysis included studies published before June 2017. Eight studies included were RCTs, and 2 were non-RCTs.

There was a statistically significant impact of 6MWD (6 studies), which involved n=312 intervention group and n=157 control group. There were statistically significant impacts of Yoga on FEV1 (3 studies), FVC (2 studies), and PaCO₂ (2 studies). There was no significant impact of Yoga on FEV1/FVC value or FEV1 % predicted. There was a significant impact on the Borg Dyspnea scale (2 studies), SGRQ (3 studies), and CAT (3 studies); all were considered as measurements of QOL.

Comments

1. The review included small numbers of studies (and 2 were non-RCTs) focused on Yoga intervention, not MM.
2. Overall outcomes reported are consistent with Wu's, Reychler's, and Cramer's in demonstrating effects on 6MWD, lung functions, and QOL.
3. This systematic meta-analysis review and followed the standard for data extraction, quality appraisal and risk of bias assessment (Joanna Briggs QI assessment score = 9).

MULTICOMPONENT CHA: URBAN ZEN INTEGRATIVE THERAPY (UZIT) FOR SYMPTOM MANAGEMENT IN PH

Von Visger, T. T. et al. The Impact of Urban Zen Integrative Therapy on Symptoms and Health-Related Quality of Life for Patients with Pulmonary Hypertension. *J Palliat Med.* 2019, doi:10.1089/jpm.2019.0359.

Summary

This pre-post pilot study explored the impact of a multicomponent complementary health approach (CHA), Urban Zen Integrative Therapy (UZIT) on symptoms, and QOL in patients with PH. Fourteen patients recruited from a single center received six sessions of weekly UZIT. UZIT session includes a combination of essential oil, gentle-body movement, restorative pose, body-awareness meditation, and Reiki.

Mixed-effects modeling with repeated measures was used to estimate differences in mean symptom scores pre/post individual sessions. Cohen's d effect sizes were used to evaluate the impact of the UZIT program on symptoms and QOL. Mean scores for pain (F(1, 105) = 19.99, p < .001), anxiety (F(1, 96) = 24.64, p < .001), fatigue (F(1, 120) = 15.68, p < .001), and dyspnea (F(1, 68) = 16.69,

$p < .001$) were significantly reduced after UZIT sessions. Effects were moderate to large for symptom severity ($d = 0.59 - 1.32$) and moderate for symptom burden ($d = 0.56$) and fatigue ($d = 0.62$), and small for QOL ($d = 0.33$) after the 6-week UZIT program.

Comments

1. This study demonstrates the preliminary efficacy of a UZIT, which included the MM (gentle-body movement) on symptoms and QOL in a small sample of patients with PH.
2. This study focused more on symptom burden and QOL outcomes rather than on physiologic parameters such as lung function and functional capacity, likely due to the early phase research in this population.
3. The study design is vastly different from the previous four studies with the aim of feasibility, acceptability, and preliminary efficacy determination. Therefore, it is limited in the generalizability of the results.

OTHER ARTICLES OF INTEREST

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Donesky-Cuenco D, Nguyen HQ, Paul S, Carrieri-Kohlman V. **Yoga therapy decreases dyspnea-related distress and improves functional performance in people with chronic obstructive pulmonary disease: A pilot study.** *J Altern Complement Med*. 2009;15(3):225-234.

Kaminsky DA, Guntupalli KK, Lippmann J, et al. **Effect of yoga breathing (pranayama) on exercise tolerance in**

patients with chronic obstructive pulmonary disease: A randomized, controlled trial. *J Altern Complement Med*. 2017;23(9):696-704.

Papp ME, Wandell PE, Lindfors P, Nygren-Bonnier M. **Effects of yogic exercises on functional capacity, lung function and quality of life in participants with obstructive pulmonary disease: A randomized controlled study.** *Eur J Phys Rehabil Med*. 2017;53(3):447-461.

Ranjita R, Hankey A, Nagendra HR, Mohanty S. **Yoga-based pulmonary rehabilitation for the management of dyspnea in coal miners with chronic obstructive pulmonary disease: A randomized controlled trial.** *J Ayurveda Integr Med*. 2016;7(3):158-166.

Wang L, Wu K, Chen X, Liu Q. **The effects of tai chi on lung function, exercise capacity and health related quality of life for patients with chronic obstructive pulmonary disease: A pilot study.** *Heart Lung Circ*. 2019;28(8):1206-1212.

Yeh GY, Roberts DH, Wayne PM, Davis RB, Quilty MT, Phillips RS. **Tai chi exercise for patients with chronic obstructive pulmonary disease: A pilot study.** *Respir Care*. 2010;55(11):1475-1482.

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