

COLUMN

Scanning the Global Literature

In each issue of Global Advances in Health and Medicine, we publish summaries of and commentaries on select articles from journals our editors and other contributors to the journal are reading.

THE PROFESSIONAL ROLE OF MASSAGE THERAPISTS IN PATIENT CARE IN CANADIAN URBAN HOSPITALS

Massage therapy is used by many Canadians for general wellness as well as specific health conditions and is recognized as a regulated health profession in 5 of the 10 provinces of Canada. This sequential mixed methods study explored and described the professional role of registered massage therapists in the context of urban Canadian hospitals. The initial quantitative phase consisted of a descriptive survey sent to the 5% of urban Canadian hospitals that offer massage therapy services to patients. Of these 16 hospitals, 15 responded to the survey, and all were public healthcare institutions, with the exception of one private hospital. The hospitals were located across 4 provinces: Alberta, Ontario, Quebec, and Nova Scotia. Six were teaching hospitals, 5 were large community hospitals, and 4 were small community hospitals, with massage therapy services having been provided for a wide range of time: less than 1 year to more than 20 years. Nine hospitals were affiliated with a university. Eight provided focused care including HIV/AIDS, cancer, pediatrics, and women's health, while the remaining 7 hospitals provided care for a diverse range of patient populations. The number of massage therapists practicing in these settings ranged from 1 to 9 per site, for a total of 42 massage therapists, and all were invited to participate in the subsequent qualitative phase of the study.

Twenty-five therapists across 12 sites completed in-depth interviews focused on describing their perceptions of their professional role in the hospital. In addition to the primary role of healthcare provider, other aspects included team member, providing administrative support such as billing and scheduling, educating staff members about massage and teaching patients and caregivers simple massage techniques for self-management, promoting the massage therapy profession, and engaging in research activities. The role of healthcare provider was common across all participants, while other role components were highly variable across the study sites, suggesting that the role of massage therapist in the hospital setting has yet to be clearly defined or fully developed.



Commentary by Martha Brown Menard, PhD, LMT

These findings are consistent with those of previous studies on the self-perceptions of other healthcare professions such as nursing, occupational therapy, and midwifery. Although exploratory, this study pro-

vides a useful descriptive and contextually situated account of the professional role of Canadian massage therapists in a variety of hospital settings. The relatively small number of participating hospitals reflects the low prevalence of massage therapy in urban hospitals located in the regulated provinces, which is surprising given the much greater use of massage therapy in private settings by consumers in those provinces. Clearly, the role of massage therapist as a member of hospital care teams is a new one that will continue to evolve.

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Kania-Richmond A, Reece BF, Suter E, Verhoef MJ. The professional role of massage therapists in patient care in Canadian urban hospitals—a mixed methods study. *BMC Complement Altern Med.* 2015 Feb 7;15:20.

MINDFULNESS MEDITATION AND IMPROVEMENT IN SLEEP QUALITY AND DAYTIME IMPAIRMENT AMONG OLDER ADULTS WITH SLEEP DISTURBANCES

Sleep disturbances are common in older adults and often go untreated. An estimated 50% of adults aged 55 years and older have some form of sleep problem, including initiating and maintaining sleep. This is a significant medical and public concern given the association of sleep disturbance with deficits in daytime functioning, disturbed mood including depressive symptoms, and reduced quality of life. While previous studies have demonstrated that Tai Chi and cognitive behavioral therapy can improve sleep quality in older adults, this was the first study of a non-movement form of meditation. In this randomized controlled trial, Black et al randomized 43 participants to one of two groups: a 6-week, 2-hour class in mindfulness meditation or a 6-week 2-hour, group-based class in sleep hygiene and education. The primary outcome evaluated Pittsburgh Sleep Quality Index (PSQI). The mindfulness meditation group showed significant improvement relative to the sleep hygiene group in the sleep quality (effect size of 0.89) as well as in symptoms of depression and fatigue. Differences were not observed for anxiety, stress, or biomarkers of inflammation.



Commentary by Mary Jo Krietzer, PhD, RN, FAAN

The findings of this study are consistent with other studies that have demonstrated significant improvements in sleep quality associated with mindfulness practices. Given the prevalence of sleep distur-

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bances and insomnia and their medical and financial implications, a group-based intervention that is relatively low-cost and accessible in the community should be considered in advance of pharmacological interventions that are costly and have side effects. Moreover, mindfulness practices might also be considered as a primary prevention strategy given the frequency with which older adults experience sleep disturbances and insomnia.

REFERENCE

Black DS, O'Reilly GA, Olmstead R, Breen EC, Irwin MR. Mindfulness meditation and improvement in sleep quality and daytime impairment among older adults with sleep disturbances: a randomized clinical trial. *JAMA Intern Med.* 2015 Apr 1;175(4):494-501.

TWO-WEEK CHANGE IN DIET HAS A PROFOUND EFFECT ON CANCER RISK IN AFRICANS AND AMERICANS

Colon cancer is the second-leading cause of cancer-related death worldwide. Lifestyle and the microbiome play a key role in health and disease (see the May 2014 issue of *Global Advances in Health and Medicine*) and are key factors in carcinogenesis of the colon. A 13-fold higher incidence of colon cancer has been observed in African Americans (AA) compared to rural South Africans (SA) (65 vs 5 per 100,000), though they are ethnically related. This has been attributed to substantial differences in diet: AA eat 2 to 3 times more animal protein, more fat, and much less soluble fiber, while the rural SA eat more vegetables, carbohydrates, and fiber.

This study investigated the influence of a short-term diet change on cancer risk in these populations. Twenty AA and 20 SA were enrolled. Participants were 50 to 65 years old, and a similar number of participants in each group were obese. Baseline colonoscopies revealed that half of the AA, but none of the SA, had polyps. AA also had higher rates of mucosal proliferation (Ki67 staining, a biomarker of cancer risk). Groups exhibited profound differences in gut microbiota, with AA being *Bacteroides*-dominant vs SA being *Prevotella*-dominant. The latter has higher proportions of carbohydrate fermenters and butyrate producers, both considered to be anti-inflammatory and anti-carcinogenic. After baseline evaluations, participants' diets were switched for a period of 2 weeks. SA received a western-style, high-fat, reduced fiber, low carbohydrate, increased protein diet. AA received a high fiber, high-carbohydrate, low-fat diet. Fecal and colon content reexamined after 2 weeks revealed colon and microbiome characteristics more typical of the diet's origin vs the participant's origin. Butyrate production increased 2.5 times in AA and decreased in SA. Mucosal proliferative rates and markers of inflammation decreased in AA while they increased in SA.

Commentary by Gunver Kienle, Dr med

Although the experimental diet change in this study was brief, it had remarkable effects on colonic microbiota, metabolome, and mucosal proliferation and thus potentially on cancer risk. These results need to be con-



firmed in larger and longer-term longitudinal studies. Nevertheless, this result is an important link in the chain of evidence showing the importance of lifestyle and diet on preserving health and preventing disease. It also supports concern about the increasing worldwide westernization of the diet. Lifestyle, diet, and the microbiome are essential characteristics of whole person integrative health care. Addressing these complex issues will require a system approach to healthcare along with well-coordinated translational research strategies.

REFERENCE

O'Keefe SJ, Li JV, Lahti L, et al. Fat, fibre and cancer risk in African Americans and rural Africans. *Nat Commun.* 2015 Apr 28;6:6342.

SELF-CARE STRATEGIES FOR EMOTIONAL DISTRESS AMONG YOUNG ADULTS IN CATALONIA

Much previous research has identified a substantial proportion of health-seeking behavior and decision-making as taking place in the community and beyond the gaze (and in most cases knowledge) of formal healthcare professionals. In this paper, Martorell-Poveda et al report findings from qualitative fieldwork (interviews) undertaken in Catalonia, Spain, examining the self-care strategies of young people with regard to emotional distress. Self-care strategies for emotional distress of 105 young people were elicited through participants' narratives using in-depth semi-structured interviews. The data were analyzed using hermeneutic theory and ethnographic methods. The research identifies a range of self-care strategies sought out by the young people, ranging from personal resourcefulness (drawing strength from their self-directed activities and perspectives) to social networking and the benefits and support gained from others. Another finding was how the young people engaged in a whole range of creative, sensory, and artistic activities that help connect their internal and external worlds.

Commentary by Jon Adams, PhD



Importantly, the analyses the authors present show that these young people experience distress as their own responsibility (hence the self-care strategies undertaken). This key finding informs clinical care and research strategies. It supports the need for improving the health outcomes of this patient population and also illustrates the ability of qualitative investigation to unearth fundamental issues that can help with community and patient participation and cultural change. The paper raises a number of big-picture health services research questions, not least of which is how can those providing formal care harness and promote such self-care strategies where relevant? And how can we ensure that self-

care strategies are undertaken in tandem with professional help and care where sought? Addressing these important questions requires further rich investigation of self-care examining behaviors and decision-making and assessing the quality of self-care strategies (for users and beyond). Such work first requires extensive mapping of what until now often remain “hidden” activities and practices for a host of patient populations, communities, and health issues. Martorell-Povedo et al have provided an excellent first step with regard to young people and emotional distress and have illustrated the vital contribution qualitative research can make in this important enterprise.

REFERENCE

Martorell-Poveda MA, Martínez-Hernández A, Carceller-Maicas N, Correa-Urquiza M. Self-care strategies for emotional distress among young adults in Catalonia: A qualitative study. *Int J Ment Health Syst.* 2015 Mar 10;9:9.

TAI CHI ARRESTS POTENTIAL CANCER-RELATED PROINFLAMMATORY PROCESSES

A growing body of research supports that mind-body therapies may benefit quality of life and symptom management in cancer survivors. However, evidence regarding the potential of mind-body therapies to impact cancer-related disease processes is more limited. This study sought to determine whether tai chi might reduce systemic, cellular, and genomic markers of inflammation associated with cancer progression within the context of a randomized relative efficacy trial of tai chi chih (TCC) vs cognitive behavioral therapy for insomnia (CBT-I). Ninety breast cancer survivors with insomnia were assigned to TCC or CBT-I for 2-hour sessions weekly for 3 months. At baseline and post-intervention, blood samples were obtained for measurement of C-reactive protein and toll-like receptor (TLR)-4-activated monocyte production of interleukin-6 (IL-6) and tumor necrosis factor- α (TNF); a random subsample ($n=48$) was also analyzed by genome-wide transcriptional profiling. At 3 months, levels of C-reactive protein did not change in either the TCC or CBT-I groups. In contrast, levels of TLR-4-activated monocyte production of IL-6 and TNF showed clear reductions in TCC but not CBT-I ($P<.02$; effect size 0.50). Additionally, data from genome-wide transcriptional profiling of circulating peripheral blood mononuclear cells indicated a 9% greater reduction over time in proinflammatory gene transcripts in TCC vs CBT-I ($P=.001$). Bioinformatic analyses implicated reduced activity of the proinflammatory transcription factor, nuclear factor- κ B, in structuring these differences.



Commentary by Peter Wayne, PhD

Insomnia is one of the most prevalent behavioral complaints in breast cancer survivors, and insomnia and sleep disruption are known to negatively impact multiple inflammatory processes that may contribute to poorer cancer survi-

vorship. Prior research by a research group at University of California Los Angeles has documented benefits of tai chi and other mind-body therapies for both sleep quality and immunological health. This study is the first to directly evaluate the impact of tai chi on multiple interrelated immune function markers in breast cancer survivors with insomnia. The findings support that tai chi and related mind-body exercise therapies have the potential to regulate important immune system processes that are associated with cancer survivorship. More generally, this elegant study provides a model for translational research using leading-edge molecular techniques and transcriptional analyses to evaluate the evidence base for promising traditional therapies.

REFERENCE

Irwin MR, Olmstead R, Breen EC, et al. Tai chi, cellular inflammation, and transcriptome dynamics in breast cancer survivors with insomnia: a randomized controlled trial. *J Natl Cancer Inst Monogr.* 2014 Nov;2014(50):295-301.

TARGETING SOCIAL NETWORKS FOR PUBLIC HEALTH INTERVENTIONS

How to best disseminate public health interventions within communities is an important but understudied question. Kim and colleagues performed a cluster randomized controlled trial in 32 rural villages of Honduras promoting 2 public health initiatives: multivitamins to correct micronutrient deficiencies and chlorine to purify drinking water. Villagers received 5 vouchers for the multivitamin or chlorine (1 for themselves and 4 for friends) that could be redeemed at a local designated store. When a voucher was redeemed, the participant would receive 4 new vouchers for distribution to friends or family. Villages were randomized to 3 different methods of distributing the vouchers: (1) Indegree strategy—asking all adult village residents to name who is most influential in the community and targeting the top 5% most frequently named individuals; (2) Nominated strategy—asking 5% of randomly-selected villagers to nominate 1 friend and targeting the identified friends only; and (3) Random strategy—targeting 5% of randomly chosen villagers. Across all villages, 5773 residents participated. For multivitamins, the nominated strategy achieved the greatest level of adoption (74%) compared to the random (66%) or indegree (61%) strategies. However, for adoption of chlorine packets to purify drinking water, the investigators observed no differences in adoption rates among the 3 strategies.



Commentary by Rob Saper, MD, MPH

The result that the nominated strategy achieved the greatest adoption of multivitamins counters conventional wisdom that targeting the most influential people in a network will achieve the greatest

impact. The authors explain this as the friend paradox of social networks: “Your friends have more friends than you do.” The nominated strategy is less resource intensive to conduct and therefore potentially more scalable. In contrast, the indegree strategy requires extensive resources to map out the entire network. However, the nature of the intervention and context are important—similar results were not seen for the water-purifying intervention. The authors suggest this may be due to the greater complexity in adopting chlorine for water purification compared to the simpler task of consuming a multivitamin.

A whole-person, whole-systems approach to health will require a range of public health interventions to address key lifestyle factors such as physical activity, nutrition, stress, and tobacco use. Study designs such as the one used by Kim et al can help determine how best to leverage the power of social networks—both face-to-face and virtual—in catalyzing change in real-world settings.

REFERENCE

Kim DA, Hwang AR, Stafford D, et al. Social network targeting to maximise population behaviour change: a cluster randomised controlled trial. *Lancet*. 2015 Apr 30. [Epub ahead of print]



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