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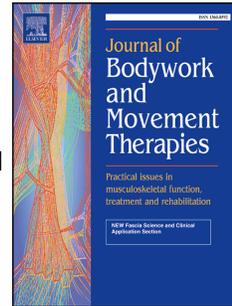
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# Accepted Manuscript

Is there an association between women's consultations with a massage therapist and health-related quality of life? Analyses of 1,800 women aged 56-61 years

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**Is there an association between women's consultations with a massage therapist and health-related quality of life? Analyses of 1,800 women aged 56-61 years**

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**Abstract**

**Background:** The use of complementary and alternative medicine (CAM) is commonplace in Australia with massage being a popular CAM modality.

**Methods:** This is a sub-study from the Australian Longitudinal Study on Women's Health (ALSWH). A total of 2,120 mid-age (56-61 year old) women who consulted a CAM practitioner were invited to participate in this study. The Short-Form (SF-36) questionnaire was used to measure women's health-related quality of life.

**Results:** A total of 1,800 women returned the questionnaire generating a response rate of 85.0%. Overall, 912 (50.7%) women visited a massage therapist in the previous 12 months. Women with lower quality of life scores in terms of bodily pain ( $p=0.012$ ) and/or emotional health ( $p=0.029$ ) were more likely to consult a massage therapist than those with higher scores.

**Conclusion:** The implications of these associations are important for informing healthcare providers in providing effective and coordinated care for patients with pain and mood symptoms.

**Keywords:** Manual therapies, massage, quality of life, complementary medicine, SF-36

## Introduction

The use of complementary and alternative medicine (CAM) – a group of diverse medical and health care systems, practices and products not traditionally considered part of conventional medicine (Adams et al 2012) – has increased world-wide in recent years (Barnes et al 2008; Frass et al 2012; Posadzki et al 2013). The acceptance and utilisation of CAM in Australia has increased in parallel with other Western countries, with bodywork modalities demonstrating particular popularity (Xue et al 2007). Women are key users of CAM (Adams et al 2012; Barnes et al 2008), with previous research showing that in particular mid-age women (45-50 years) compared to women aged 18-23 years and women aged 70-75 years, are more likely to use the service of a CAM practitioner if they report poorer health status, have an increased number of illnesses and symptoms, reside in a rural or regional location, and are higher users of conventional health care services (Adams et al 2003).

Massage therapy is one of the largest CAM professions in Australia and massage therapists are considered one of the most popular CAM practitioner types visited by both males and females (Wardle et al 2015; Xue et al 2007; Zhang et al 2007). Research suggests that between 20.0% and 30.0% of Australians visited a massage therapist at least once in a 12-month period (Xue et al 2007; Zhang et al 2007). A recent study investigating CAM practitioner utilisation found that, of the women who consulted a CAM practitioner during the previous 12 months, 63.9% visited a massage therapist (Adams et al 2011a). In addition, pain relief is considered a primary driving motivation for seeking the service of a massage therapist, with 7.0% to 41.4% of women living with chronic back pain visiting a massage therapist for this condition (Broom et al 2012; Cherkin et al 2002; Murthy et al 2014).

Previous research has investigated the associations between women's quality of life and their use of CAM, including massage therapy for particular health conditions such as diabetes (Garrow & Egede 2006; Sibbritt et al. 2015), arthritis (Feinglass et al. 2007; Unsal & Gozum 2010), fibromyalgia (Gauffin et al. 2013), breast cancer (Brems et al. 2013), and depression and anxiety (Bar-Sela et al. 2015) worldwide. However, there has been no examination of the association between the use of massage therapy and health-related quality of life factors in a non-clinical population of women. As massage is one of the most common CAM modalities utilised in the general community (Xue et al. 2007; Zhang et al. 2007), it is necessary to examine the impact of women's health status and quality of life on consultations with a massage therapist. In response, this paper investigates the association between women's self-reported quality of life and consultations with a massage therapist in a large, mid-age cohort of Australian women.

## **Methods**

### ***Sample***

This research was a sub-study of the Australian Longitudinal Study on Women's Health (ALSWH). The ALSWH was designed to investigate multiple factors affecting the health and well-being of women over a 20-year period. Women in three age groups were randomly selected from the national Medicare database and invited by mail to participate. Medicare is a government-funded scheme that provides access to medical and hospital services for all Australian residents. The focus of this study is women from the 1946-51-cohort, now aged 56-61 years, details of this sample are described elsewhere in more detail (Adams et al 2011b). At survey 1, 14,779 women consented to participate and through comparison to census data, respondents were shown to be broadly representative of the national population of women in the target age group despite some overrepresentation of women with a tertiary

education and underrepresentation of some groups of immigrant women (Brown et al 1999). For this sub-study, 2,120 women who had indicated in Survey 5 that they consulted a CAM practitioner were mailed a questionnaire, of these women 1,800 (85%) returned completed questionnaires.

### ***Consultations with a massage therapist***

Participating women were asked to indicate how many times they have consulted a massage therapist in the previous 12 months. The response included four categories: none; 1 or 2; 3 or 4; 5 or more.

### ***Health Status***

The Short-Form 36 (SF-36) Quality of Life questionnaire was used to produce a measure of health status and quality of life as previous studies have demonstrated the reliability and clinical validity of this questionnaire (Mishra & Schofield 1998; Garratt et al 1993). Results of the SF-36 were reported in eight domains: general health, physical functioning, role physical, bodily pain, role emotional, social functioning, vitality, and mental health (Ware 2000). Possible scores for each domain range from 0-100, with higher scores indicating a better health status (Busija et al 2011). Women were also asked if they had experienced a number of common symptoms, including allergies/hay fever/sinusitis, breathing difficulties, headaches/migraines, severe tiredness, stiff or painful joints, back pain, hot flushes, night sweats, episodes of intense anxiety, and palpitations. Finally, they were asked if they had been diagnosed or treated for a number of conditions including diabetes, arthritis, heart disease, hypertension, stroke, iron deficiency, asthma, bronchitis, osteoporosis, cancer, depression, and anxiety.

### *Demographic characteristics*

The women were asked about their current marital status (married/de facto; never married; divorced; separated; widowed) and about their area of residence (urban or rural). They were also asked how they managed on their available income (impossible or difficult all the time, difficult some of the time, not too bad or easy).

### *Statistical analyses*

All continuous variables were checked for outliers and data errors prior to statistical analyses. Comparisons between the means scores on the SF-36 dimensions and the four massage consultation groups (*none, 1 or 2, 3 or 4, 5 or more*) were made using linear regression, with adjustment for marital status, income, area of residence, number of diagnoses, and number of symptoms. To ensure that the regression models were appropriate, each model was checked to ensure they met the regression assumptions via residual plots and multi-collinearity (i.e. variance inflation factor) (Kleinbaum et al 1998). A Bonferroni adjustment was made to account for multiple comparisons. Statistical significance was set at  $p\text{-value} < 0.05$ . All analyses were conducted using statistical program Stata 13.1 (Stata Statistical Software: College Station, TX: StataCorp LP).

### **Results**

A total of 1,800 women were included in the analysis. Of those 912 women (50.7%) indicated that they consulted a massage therapist within the previous 12 months. Of those who consulted with a massage therapist: 334 (36.6%) consulted a massage therapist 1 or 2 times; 194 (21.3%) consulted a massage therapist 3 or 4 times; and 384 (42.1%) consulted a massage therapist 5 or more times in a 12 month period.

PLACE TABLE 1 HERE

Table 1 presents the results of the comparison of the SF-36 domains between women who had not consulted with a massage therapist, and women who had consulted with a massage therapist 1-2, 3-4 and 5 or more times. Results indicate that women who consulted a massage therapist 5 or more times had a significantly lower score on the bodily pain domain of the SF-36 (mean=62.2, SE=1.0), compared to women who did not consult a massage therapist (mean=65.5, SE=0.7), ( $p=0.012$ ). Scores on emotional role function were significantly lower for those who consulted a massage therapist 1 or 2 times (mean=79.7, SE=1.8) or 5 or more times (mean=80.1, SE=1.7), compared to those who did not consult with a massage therapist (mean=85.2, SE=1.1), ( $p=0.029$ ). Prior studies indicate that the minimal clinical important difference for SF-36 subscales is three points (Lauridsen et al 2006). The differences in our sub-scales were at least three points, and thus can be considered clinically relevant. No significant differences were found for the remaining six SF-36 domains for any of the consultation frequencies.

## Discussion

This paper reports the results from a large sample of women aged 56-61 years examining the association between the women's consultations with a massage therapist and their health-related quality of life. Our findings indicate that more than half of the respondents visited a massage therapist in the previous year, with just over 20% of women visiting a massage therapist 5 or more times during that period. Previous Australian population studies have indicated that between 20.0% and 30.0% of the general population visited a massage therapist during the previous 12 months (Xue et al 2007; Zhang et al 2007). Consultations with massage therapists were found to be significantly higher in our cohort than these previous findings, and whilst our results do not indicate why, there are two possible explanations. Our sample contained women only and as such our findings can only be applied to women.

Women are known to be high users of CAM (Adams et al 2012; Barnes et al 2008) and this may have had an impact on our findings in relation to prevalence. Secondly, women in our cohort were aged 56-61 years and women in this age range have been shown to be significantly more likely to consult a CAM practitioner than women in younger and older age ranges (Adams et al 2003). Further, this may extend specifically to the use of massage therapists as evidenced by research that demonstrates that adults under the age of 65 years consult massage therapists more commonly than adults over the age of 65 (Zhang et al 2007).

Women in our study who consulted a massage therapist 5 or more times in the past 12 months reported significantly worse quality of life in terms of bodily pain compared to women who did not consult a massage therapist frequently. The association between increased visits to a massage therapist and bodily pain may indicate that women consult with a massage therapist to manage bodily pain (Brosseau et al 2012). Back pain is one of the most common complaints in general practice with a lifetime prevalence of up to 75% (Cherkin et al 2002; Murthy et al 2015). A recent review of the literature demonstrated that women with back pain are high users of CAM with up to 62.7% consulting a massage therapist (Murthy et al 2015). Massage may be effective for the management of lower-back pain in adults. A recent randomised controlled trial investigated the efficacy and safety of two types of massage for the relief of chronic lower back pain in 401 adults (Cherkin et al 2011). The authors found that visits to massage therapists for both relaxation and structural massage provided effective relief of back pain with benefits evident for at least 6 months. Further, a Cochrane review reported that massage therapy may reduce low-back pain without adverse events (Furlan et al 2008). It is therefore conceivable that back pain (and possibly other forms of bodily pain as well) may be driving women to consult a massage therapist.

Women who consulted a massage therapist regularly also reported significantly lower emotional health compared to women who did not consult a massage therapist. It is conceivable that in addition to relieving bodily pain, the immediate effects of inducing relaxation and improving mood may be common reasons for consulting a massage therapist (Cambron et al 2007; Cherkin et al 2002). However a previous small study, conducted in the US, found that elderly (mean age = 67.4 years) chronic pain patients who have used massage in the previous 12 months showed significantly higher quality of life scores (including emotional health) compared to non-users (Munk et al 2011). Women in our sample were younger and did not necessarily suffer from chronic pain syndromes, therefore it could not be determined if such an association exists; further research is required to fully explore the inter-relationships between chronic pain, aging, emotional health and consultations with a massage therapist.

The details surrounding the role of massage therapy within women's broader health service utilisation are largely unknown; however, it appears that some women use the services of both a conventional health practitioner and a massage therapist. An Australian study found that women experiencing chronic bodily pain prefer a concurrent multi-modality approach (accessing conventional treatments alongside massage therapy) to cope with their condition, and suggest that women may consult a massage therapist if they are unsatisfied with conventional treatment (Walker et al 2004). Another study found that over three-quarters of surveyed general practitioners (GPs) practicing in rural areas of Australia (76.6%) had referred a patient to a massage therapist at least a few times per year, with 12.5% of GPs referring at least once per week (Wardle et al 2013). GPs in the study were more likely to refer a patient to a massage therapist if they had obtained their medical training in Australia,

perceived a lack of other treatment options, believed massage was effective or had witnessed the positive results of massage as reported by other patients.

Women's own preference in relation to individual CAM modalities may also play a role in the relatively high prevalence of visits to massage therapists. A recent integrative review demonstrated that friends and family influence women's decision-making on CAM use for back pain, including consultations with a massage therapist (Murthy et al 2015). Similarly, it could be that family and friends base their recommendations upon their own experience and/or word-of-mouth assessments, to recommend consulting a massage therapist to better manage ongoing bodily pain.

Two important limitations of our study should be noted. Firstly, our data collection relied on women recalling the details of their consultations with a massage therapist during the previous 12 months, which may lead to recall bias. Additionally, the SF-36 questionnaire asks women to rate their health currently and there may be some discrepancy between time periods. Secondly, women included in this study were aged 56-61 years and the results may not be generalizable to all ages of women. Despite these limitations, this research provides an opportunity to draw upon such a large sample of women from a nationally representative study to examine their self-reported quality of life and consultations with a massage therapist.

## **Conclusion**

Our results indicate an association between consultations with a massage therapist and certain quality of life factors, namely bodily pain and emotional health in women aged 56-61 years of age. Whilst these results are perhaps preliminary, they point to the very specific and important role of massage therapists within the broader health care system. Additional

surveys, observational studies and randomised controlled trials (RCTs) are required to further expand our understanding of why women consult a massage therapist and to determine the degree to which massage is efficacious to improve chronic bodily pain and emotional health.

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**Table 1 Mean SF-36 domain scores across number of consultations with a massage therapist.**

SF-36 Domains	Number of Consultations With a Massage Therapist				p-value
	0	1 or 2	3 or 4	5 or more	
	(n=888)	(n=334)	(n=194)	(n=384)	
	Mean (SE) *	Mean (SE) *	Mean (SE) *	Mean (SE) *	
General Health	71.5 (0.6)	74.3 (0.9)	72.7 (1.2)	72.6 (0.9)	0.082
Physical Functioning	79.6 (0.6)	81.8 (0.9)	80.5 (1.2)	78.9 (0.9)	0.141
Role Physical	75.5 (1.1)	76.6 (1.8)	73.4 (2.4)	73.9 (1.7)	0.632
Bodily Pain <sup>B</sup>	65.5 (0.7)	67.2 (1.1)	65.3 (1.5)	62.2 (1.0)	0.012
Vitality	61.7 (0.6)	60.9 (0.9)	61.8 (1.3)	61.6 (0.9)	0.910
Social Functioning	84.1 (0.7)	83.2 (1.2)	84.2 (1.5)	81.9 (1.1)	0.394
Role Emotional <sup>A, B</sup>	85.2 (1.1)	79.7 (1.8)	83.6 (2.4)	80.1 (1.7)	0.029
Mental Health	76.9 (0.5)	76.9 (0.8)	77.8 (1.1)	76.8 (0.8)	0.888

\* mean scores adjusted for marital status, income, area of residence, number of diagnoses, number of symptoms

<sup>A</sup> statistically significant difference between 0 visits and 1 or 2 visits (p<0.05)

<sup>B</sup> statistically significant difference between 0 visits and 5 or more visits (p<0.05)