

Collected Scientific Research Relating to the Use of Osteopathy with Health-related quality of life generally

Important:

1) Osteopathy involves helping people's own self-healing abilities to work better, rather than focussing primarily on particular conditions.

2) Each person is different, and osteopathy treats them differently.

Therefore people respond to osteopathic treatment in different ways. Treatments that work for one person cannot be guaranteed to work for another person in the same way. The fact that there is scientific research supporting a treatment in a group of people does not mean that it will always work in the same way (which is probably true of all research).

A number of things make research into osteopathy challenging. These include the two aspects of osteopathy mentioned above, and also the lack of major commercial interests to provide funding in expectation of financial returns. At the same time, there is an emerging body of research demonstrating the usefulness of osteopathic treatment.

More research is being done all of the time. I am not aware of any research which shows that osteopathic treatment, delivered by a qualified osteopath, is ineffective in relation to this area. If you are aware of any studies that show that, please bring them to my attention.

Please note: there is room for debate about the classifications used for these studies. Please let John Smartt know if you believe that any of these classifications are incorrect.

These studies are from peer-reviewed journals

Number
of studies:
18

Clinically and statistically significant results

Number
of studies:
16

Systematic reviews

Number of studies: 1

Saracutu M, Davies H, Edwards DJ 2018 **The effects of osteopathic treatment on psychosocial factors in people with persistent pain: A systematic review** The effects of osteopathic treatment on psychosocial factors in people with persistent pain: A systematic review March, Volume 27, Pages 23–33 [https://www.journalofosteopathicmedicine.com/article/S1746-0689\(16\)30116-X/abstract](https://www.journalofosteopathicmedicine.com/article/S1746-0689(16)30116-X/abstract)

"Persistent pain is considered a complex biopsychosocial phenomenon whose understanding and management is yet to be improved. More research is needed to determine the common paths that lead to developing persistent pain, to identify the populations most at risk and to develop and evaluate interventions. The last decades have seen a shift in pain management, from the biomedical model to a biopsychosocial model. There is also a significant body of evidence emphasizing the effects of osteopathy in persistent pain management. Given the relevance of psychosocial factors in aetiology and maintenance of pain, it is essential to investigate whether osteopathy has an influence on depression, anxiety, fear avoidance or pain catastrophizing. This review will identify and synthesize relevant primary research focused on the effects of osteopathic interventions on psychosocial factors in patients living with different pain conditions."

"A total of 16 RCTs were selected. Two out of five reported significant differences in depression; in regards to anxiety, all the four trials found significant effects; two out of three trials reported a significant reduction in fear avoidance while six out of seven trials found a significant enhancement of health status and three out of four found an increase in quality of life. The findings of this review are encouraging; suggesting that osteopathic treatment may have some effects on anxiety, fear avoidance, quality of life and general health status in populations living with persistent pain."

Schwerla F, Wirthwein P, Rütz M, Resch K-L 2014 **Osteopathic treatment in patients with primary dysmenorrhoea: A randomised controlled trial** *International Journal of Osteopathic Medicine* 17 (4), pp. 222-231 [http://www.journalofosteopathicmedicine.com/article/S1746-0689\(14\)00028-5/fulltext](http://www.journalofosteopathicmedicine.com/article/S1746-0689(14)00028-5/fulltext)

"Design and settings: Multi-centered randomised controlled trial with an osteopathic intervention group and an untreated ("waiting list") control group. Subjects: Women aged 14 years and older with a regular menstrual cycle, diagnosed with primary dysmenorrhoea. Intervention: Six osteopathic treatments over a period of three menstrual cycles or no osteopathic treatment. At each treatment session, dysfunctional structures were tested and treated based on osteopathic principles. In both groups, pain medication on demand was allowed, but was documented. Outcome measures: Primary outcome measures were average pain intensity (API) during menstruation, assessed by the Numeric Rating Scale (NRS), and days of dysmenorrhoeal pain exceeding 50% of NRS maximum (DDP). Main secondary outcome measure was health-related quality of life. Results: A total of 60 individuals (average age 33 years) were randomised, seven patients dropped out. API decreased in the intervention group from 4.6 to 1.9 (95%CI=-1.9 to -3.5), and from 4.3 to 4.2 in controls (95%CI=-0.7 to 0.5); between group difference of means (BGDoM): 2.6, 95%CI=1.7 to 3.6; p<0.005. DDP decreased from 2.2 to 0.2 days in the intervention group (95%CI=-2.5 to -1.3), and from 2.3 to 1.9 in controls (95%CI=-1.0 to 0.2); BGDoM 1.5; 95%CI=0.6 to 2.3; p=0.002. A positive impact on quality of life (physical component score) could be observed in the osteopathic treatment group only. Conclusions: A series of osteopathic treatments might be beneficial for women suffering from primary dysmenorrhoea." "The most frequent osteopathic dysfunctions were observed in the area of the pelvic floor (100% of patients) and respiratory diaphragm (92% of patients) as well as within the lumbar spine (80% of patients) and the association of the bones of the head (76% of patients)."

Molski P, Kruczyński J, Molski A, Molski S. 2013 **Manual lymphatic drainage improves the quality of life in patients with chronic venous disease: a randomized controlled trial.** *Arch Med Sci Jun* 20;9(3):452-8 <http://www.ncbi.nlm.nih.gov/pubmed/23847666>

"The MLD [manual lymphatic drainage] alone significantly reduced FV [fluid volume] in patients with CVD [chronic vascular disease], also improving their QoL [quality of life]. The MLD applied in CVD patients at the preoperative stage results in better surgical outcome, which is demonstrated by reduced disease progression, FV reduction and improvement in the QoL."

Voigt K, Liebnitzky J, Burmeister U, Sihvonen-Riemenschneider H, Beck M, Voigt R, Bergmann A, 2011 **Efficacy of Osteopathic Manipulative Treatment of Female Patients with Migraine: Results of a Randomized Controlled Trial** *The Journal of Alternative and Complementary Medicine* March 17(3): 225-230 <http://online.liebertpub.com/doi/abs/10.1089/acm.2009.0673>

"The intervention group received five 50-minute osteopathic manipulative treatments (OMT) over a 10-week period. The control group did not receive OMT, sham treatment, or physical therapy. Patients of this group only filled the questionnaires. Both groups continued with previously prescribed medication."

"The total MIDAS [migraine disability assessment] score, pain intensity, and disturbance in occupation due to migraine as well as number of days of disablements were also significantly reduced. The control group showed insignificant differences in these areas."

"This study affirms the effects of OMT [osteopathic manipulative therapy] on migraine headache in regard to decreased pain intensity and the reduction of number of days with migraine as well as working disability, and partly on improvement of HRQoL [health related quality fo life]."

Stringer J, Swindell R, Dennis M 2008 **Massage in patients undergoing intensive chemotherapy reduces serum cortisol and prolactin.** *Psychooncology* Oct;17(10):1024-31

"OBJECTIVE:

The objective is to identify whether single 20 min massage sessions were safe and effective in reducing stress levels of isolated haematological oncology patients.

DESIGN:

Based on a randomised controlled trial, 39 patients were randomised to aromatherapy, massage or rest (control) arm.

MEASURES:

The measures were serum cortisol and prolactin levels, quality of life (EORTC QLQ-C30) and semi-structured interviews. Primary outcome measure was the fall in serum cortisol levels.

RESULTS:

A significant difference was seen between arms in cortisol ($P=0.002$) and prolactin ($p=0.031$) levels from baseline to 30 min post-session. Aromatherapy and massage arms showed a significantly greater drop in cortisol than the rest arm. Only the massage arm had a significantly greater reduction in prolactin than the rest arm. The EORTC QLQ-C30 showed a significant reduction in 'need for rest' for patients in both experimental arms compared with the control arm, whereas the semi-structured interviews identified a universal feeling of relaxation in patients in the experimental arms.

CONCLUSION:

This pilot study demonstrated that in isolated haematological oncology patients, a significant reduction in cortisol could be safely achieved through massage, with associated improvement in psychological well-being. The implications are discussed."

Ekici G, Bakar Y, Akbayrak T, Yuksel I. 2009 **Comparison of manual lymph drainage therapy and connective tissue massage in women with fibromyalgia: a randomized controlled trial.** *Journal of Manipulative and Physiological Therapeutics* Feb;32(2):127-33 <http://www.ncbi.nlm.nih.gov/pubmed/19243724>

"The score for FIQ-2 (feel good) ($P = .036$) was higher, the score for FIQ-9 (anxiety) ($P = .019$) was lower in the MLDT group than in the CTM group"

"For this particular group of patients, both MLDT [manual lymphatic drainage technique] and CTM [connective tissue massage] appear to yield improvements in terms of pain, health status, and HRQoL [health-related quality of life]."

"However, MLDT was found to be more effective than CTM according to some subitems of FIQ (morning tiredness and anxiety) and FIQ total score. Manual lymph drainage therapy might be preferred"

Hundscheid HW, Pepels MJ, Engels LG, Loffeld RJ. 2007 **Treatment of irritable bowel syndrome with osteopathy: results of a randomized controlled pilot study.** *J Gastroenterol Hepatol* Sep;22(9):1394-8 <http://www.ncbi.nlm.nih.gov/pubmed/17716344>

"Effective treatment for irritable bowel syndrome (IBS) is not yet available. Osteopathy is a manual treatment which relies on mobilizing and manipulating procedures in order to relieve complaints. In the present study, a randomized controlled trial was carried out to evaluate the effects of osteopathic treatment for IBS."pubmed

"Eligible IBS patients were randomized between osteopathy and standard care. Follow-up was 6 months and validated means of follow-up were used. After 1, 3 and 6 months an overall assessment of symptoms was noted and a symptom score was obtained on a 5-point Likert scale. Quality of life (QOL) was scored with the standardized IBSQOL 2000 questionnaire and the Functional Bowel Disorder Severity Index was used."

"Twenty patients were randomized into the osteopathy group (OG) and 19 patients were included in the standard care group (SCG). Sixty-eight percent of patients in the OG noted definite overall improvement in symptoms and 27% showed slight improvement. One patient (5%) was free of symptoms at the end of the study. In the SCG, 18% noted definite improvement, 59% showed slight improvement, and in 17% worsening of symptoms was present. The difference in change in overall symptomatic improvement was statistically

significant in favor of the osteopathic treatment ($P < 0.006$)."

"Osteopathic therapy is a promising alternative in the treatment of patients with IBS. Patients treated with osteopathy overall did better, with respect to symptom score and QOL."

Haller H, Lauche R, Cramer H, Rampp T, Saha FJ, Ostermann T, Dobos G 2016 **Craniosacral Therapy for the Treatment of Chronic Neck Pain: A Randomized Sham-controlled Trial** Clin J Pain May;32(5):441-9 <http://www.ncbi.nlm.nih.gov/m/pubmed/26340656/#ft>

"MATERIALS AND METHODS: A total of 54 blinded patients were randomized into either 8 weekly units of CST or light-touch sham treatment. Outcomes were assessed before and after treatment (week 8) and again 3 months later (week 20). The primary outcome was the pain intensity on a visual analog scale at week 8; secondary outcomes included pain on movement, pressure pain sensitivity, functional disability, health-related quality of life, well-being, anxiety, depression, stress perception, pain acceptance, body awareness, patients' global impression of improvement, and safety.

RESULTS: In comparison with sham, CST patients reported significant and clinically relevant effects on pain intensity at week 8 (-21 mm group difference; 95% confidence interval, -32.6 to -9.4; $P=0.001$; $d=1.02$) and at week 20 (-16.8 mm group difference; 95% confidence interval, -27.5 to -6.1; $P=0.003$; $d=0.88$). Minimal clinically important differences in pain intensity at week 20 were reported by 78% within the CST group, whereas 48% even had substantial clinical benefit. Significant between-group differences at week 20 were also found for pain on movement, functional disability, physical quality of life, anxiety and patients' global improvement. Pressure pain sensitivity and body awareness were significantly improved only at week 8. No serious adverse events were reported.

DISCUSSION: CST was both specifically effective and safe in reducing neck pain intensity and may improve functional disability and the quality of life up to 3 months after intervention."

Other controlled clinical trials

Number of studies: 1

Raviv G, Shefi S, Nizani D, Achiron A 2009 **Effect of craniosacral therapy on lower urinary tract signs and symptoms in multiple sclerosis** Complementary Therapies in Clinical Practice 15; 72-75 <http://www.ncbi.nlm.nih.gov/pubmed/19341983>

This was a before-and-after comparison, with no control group.

"Inclusion criteria were: (1) diagnosis of definitive MS; (2) LUTS [lower urinary tract symptoms] duration of at least 3 months; (3) failure of past antimuscarinic treatment for LUTS; and (4) OAB-V8 questionnaire score

"One hundred consecutive MS patients followed at the Sheba Medical Center MS Center were assessed for participation in this study. Twenty four MS females and four men met eligibility criteria and were included in this study. "

"Mean PVR decreased from 15 [post voiding residual] 0.9 ml before CST to 66.1 ml after CST ($p < 0.01$, t-test). Both voiding frequency and urinary urgency episodes were significantly reduced from 5.1

"Comparison of post voiding residual volume, lower urinary tract symptoms and quality of life before and after craniosacral therapy revealed a significant improvement ($0.001 > p > 0.0001$). CST [cranio sacral therapy] was found to be an effective means for treating lower urinary tract symptoms and improving quality of life in MS patients."

Cerritelli F, Verzella M, Barlafante G. 2014 **Quality of life in patients referring to private osteopathic clinical practice: a prospective observational study.** *Complementary Therapies in Medicine* Aug;22(4):625-31 <http://www.ncbi.nlm.nih.gov/pubmed/25146065>

"Health improvement is one of the main priorities of both public and private health systems. In recent years, more attention has been given to the use of complementary and alternative medicines, including osteopathic manipulative treatment (OMT), as possible effective interventions in increasing patients' health reported outcomes. With regard to OMT, very little research was focused on its effectiveness in enhancing health in the general population."

"25 osteopaths from Central and Southern Italy participated in the study. Self-referred patients, with a diagnosed musculo-skeletal disorder and older than 18 years of age, who did not undergo any OMT session in the previous 12 months and/or contemporarily additional manual therapies were enrolled."

"1000 patients with primary diagnosis of musculo-skeletal disorder were initially enrolled. 988 patients completed the study. After 4 weeks, mean general health score was 14.7 points higher (95% CI 13.9-15.6; Cohen's $d=0.84$). Similarly, physical and mental component scores increased (11.5; 95% CI 10.8-12.1; $d=0.87$ and 9.6; 95% CI 8.6-10.5; $d=0.61$ respectively). No association between SF36 domains and socio-demographic exposures was found to be statistically significant."

"Positive changes on various quality of life dimensions were reported by patients receiving osteopathic treatment."

Degenhardt BF, Johnson JC, Gross SR, Hagan C, Lund G, Curry WJ. 2014 **Preliminary findings on the use of osteopathic manipulative treatment: outcomes during the formation of the practice-based research network, DO-Touch.NET.** *J Am Osteopath Assoc* Mar;114(3):154-70 <http://www.ncbi.nlm.nih.gov/pubmed/24567269>

"Retrospective data were collected from 2569 office visits, and prospective data were collected from 299 office visits (patient age range, 18-93 years). In the medical record review, 17 of the top 25 diagnoses (68%) were related to musculoskeletal conditions. In the prospective study, 18 of the top 24 medical diagnoses (75%) were related to musculoskeletal conditions. Immediately after OMT [osteopathic manipulative treatment], patients at 271 of 296 office visits (92%) felt better or much better; those at 5 (<2%) felt worse. After 7 days, patients at 126 of 175 office visits (72%) felt better or much better, and those at 10 (6%) felt worse."

"There was decreased interference of symptoms with quality of life from before OMT to 7 days after OMT in usual/general activities, sleep, mood, and relationships (all $P \leq .05$)."

Licciardone J, Gamber R, Cardarelli K. 2002 **Patient satisfaction and clinical outcomes associated with osteopathic manipulative treatment.** J Am Osteopath Assoc Jan;102(1):13-20 <http://www.ncbi.nlm.nih.gov/pubmed/11837337>

"A patient survey was used to measure and explain patient satisfaction and clinical outcomes associated with osteopathic manipulative treatment (OMT). Participating in the survey were 459 people who attended an ambulatory OMT specialty clinic from March 1998 through September 1998 and who had received OMT there at least twice previously."

"Subjects perceived OMT to be highly efficacious (0.74 +/- 0.34) and reported significant relief from pain or discomfort (P < .001) and improvement in mobility (P < .001). Of all the respondents, 8.6% attributed an adverse reaction to OMT. Perception of OMT efficacy was significantly associated with all dimensions of patient satisfaction (P values ranged from less than .001 to .003). Relief from pain or discomfort was significantly associated with overall satisfaction (P < .001)."

Licciardone JC, Herron KM. 2001 **Characteristics, satisfaction, and perceptions of patients receiving ambulatory healthcare from osteopathic physicians: a comparative national survey.** J Am Osteopath Assoc Jul;101(7):374-85 <http://www.ncbi.nlm.nih.gov/pubmed/11476027>

"A national telephone survey was conducted in 1998 using random-digit dialing and the first Osteopathic Survey of Healthcare in America (OSTEOSURV-I) instrument to determine patients' satisfaction with their healthcare, as well as their perceptions of osteopathic medicine."

"Patients of osteopathic physicians reported the highest levels of satisfaction in 8 of the 11 elements studied when compared with patients of allopathic physicians, chiropractors, and nonphysician clinicians other than chiropractors. Respondents perceived osteopathic manipulative treatment (OMT) to be beneficial for musculoskeletal disorders (P < .001)."

"In general, the most favorable perceptions of osteopathic medicine were reported by current patients of osteopathic physicians, followed by former patients of such physicians. The least favorable perceptions came from patients who had never been patients of osteopathic physicians."

Other qualitative studies

Number of studies: 1

Mulcahy J, Vaughan B 2014 **Sensations Experienced and Patients' Perceptions of Osteopathy in the Cranial Field Treatment** Journal of Evidence-Based Complementary & Alternative Medicine October ; vol. 19, 4: pp. 235-246. <http://www.ncbi.nlm.nih.gov/pubmed/24816765>

"The Patient Perception Measure–Osteopathy in the Cranial Field was internally consistent (Cronbach's $\alpha = .85$). The most frequently experienced sensations of osteopathy in the cranial field patients were "relaxed," "releasing," and "unwinding." Satisfaction With Life and Meaningfulness of Daily Activity were positively associated with Patient Perception Measure–Osteopathy in the Cranial Field scores. Negative associations were observed between the Patient Perception Measure–Osteopathy in the Cranial Field and depression." [Note: a negative association with depression, in this context, means that the depression decreased as the Patient Perception Measure increased.]

Goyal K, Goyal M, Narkeesh K, Samuel AJ, Sharma S, Arumugam N 2016 **The effectiveness of osteopathic manipulative treatment in an abnormal uterine bleeding related pain and health related quality of life (HR-QoL) - A case report** Journal of Bodywork and Movement Therapies <http://dx.doi.org/10.1016/j.jbmt.2016.08.010> [http://www.bodyworkmovementtherapies.com/article/S1360-8592\(16\)30180-2/fulltext?rss=yes](http://www.bodyworkmovementtherapies.com/article/S1360-8592(16)30180-2/fulltext?rss=yes)

"Abnormal uterine bleeding is characterized by painful and/or excessive menorrhagia, chronic pelvic pain due to the endometriosis (Em). Osteopathic treatment is commonly used in the gynecological dysfunctions. The aim of the present case study was to explore the effect of osteopathic treatment (OT) for a woman with abnormal uterine bleeding related pain and quality of life (QoL). We reported a case of 29 year old female who presented with chief complaints of increased flow during periods, lower abdominal pain, leukorrhoea, lower back pain and with occasional constipation for the last 3 years. Patient is a mother of 6 years old male child born with normal delivery. On diagnostic ultrasonography the uterus was found bulky with insignificant endometriosis and no other abnormality was detected. She did not have any relevant past medical and surgical history. The pre and post osteopathic treatment measurements were measured using Visual Analog Scale (VAS) and the health related quality of life (HR-QoL) questionnaire called short form Endometriosis Health Profile Questionnaire (EHP) – 5. In the present case the pain due to the endometriosis was treated with the osteopathic treatment consists of all the major diaphragms' release (release of pelvic diaphragm, abdominal diaphragm, thoracic outlet release and hyoid diaphragm) during the first session and in the second session gastro-esophageal (GE) junction release, sigmoid colon release, cranial therapy to the occiput, sacral release and dural tube rocking. Following that improvement of pain from VAS 8.3/10 to 3.9/10 and QoL improvement from EHP-5, 72/100 to 26/100 was noted. Osteopathic manipulative approach (OMA) in the patient with Em might improve the abnormal uterine bleeding related pain and health related quality of life (HR-QoL)."

Leach J 2008 **Osteopathic support for a survivor of gastric cancer: A case report** International Journal of Osteopathic Medicine Volume 11, Issue 3, September , Pages 106–111 <http://www.sciencedirect.com/science/article/pii/S174606890800031X>

"An older male patient received eight consultations over a period of 10 months, some three years after his cancer diagnosis and treatment. Osteopathic management included manual treatment to improve musculoskeletal mobility, cranial osteopathic treatment to release tension in the deeper fascia, discussion of dietary strategies and advice and education about the origin of his symptoms due to a total gastrectomy and cancer chemotherapy. After treatment his physical symptoms were reduced. His neck pain was reduced. Nausea and discomfort after eating disappeared. Frequency of diarrhoea, breathlessness and fatigue were improved. He gained weight and resumed social activities. "

"Osteopathic consultations provide time to engage in complex problems that may benefit from a holistic approach. The touch and body work involved in osteopathy can help the patient come to terms with altered body image and to talk openly about anxieties. The Hay approach to diet appeared to be valuable in improving the quality of life for this particular patient after his gastrectomy."

Mixed results (significant for some outcomes, not others)

Number
of studies:
2

Jäkel A, von Hauenschild P 2012 **A systematic review to evaluate the clinical benefits of craniosacral therapy**. *Complementary Therapies in Medicine* Dec;20(6):456-65

"OBJECTIVE:

Craniosacral therapy (CST) is an alternative treatment approach, aiming to release restrictions around the spinal cord and brain and subsequently restore body function. A previously conducted systematic review did not obtain valid scientific evidence that CST was beneficial to patients. The aim of this review was to identify and critically evaluate the available literature regarding CST and to determine the clinical benefit of CST in the treatment of patients with a variety of clinical conditions.

METHODS:

Computerised literature searches were performed in Embase/Medline, Medline(®) In-Process, The Cochrane library, CINAHL, and AMED from database start to April 2011. Studies were identified according to pre-defined eligibility criteria. This included studies describing observational or randomised controlled trials (RCTs) in which CST as the only treatment method was used, and studies published in the English language. The methodological quality of the trials was assessed using the Downs and Black checklist.

RESULTS:

Only seven studies met the inclusion criteria, of which three studies were RCTs and four were of observational study design. Positive clinical outcomes were reported for pain reduction and improvement in general well-being of patients. Methodological Downs and Black quality scores ranged from 2 to 22 points out of a theoretical maximum of 27 points, with RCTs showing the highest overall scores.

CONCLUSION:

This review revealed the paucity of CST research in patients with different clinical pathologies. CST assessment is feasible in RCTs and has the potential of providing valuable outcomes to further support clinical decision making. However, due to the current moderate methodological quality of the included studies, further research is needed."

Papa L, Mandara A, Bottali M, Gulisano V, Orfei S. 2012 **A randomized control trial on the effectiveness of osteopathic manipulative treatment in reducing pain and improving the quality of life in elderly patients affected by osteoporosis.** Clin Cases Miner Bone Metab Sep;9(3):179-83 <http://www.ncbi.nlm.nih.gov/pubmed>

Introduction

In the elderly population, a decrease in bone mineral density (osteoporosis) is often associated with a decrease in quality of life and an increase in self reported body pain. This pain originates from the musculoskeletal system and can potentially affect different areas of the body.

Aim

The aim of this study was to investigate the effect of osteopathic manipulative treatment (OMT) on self reported pain and quality of life in an elderly population.

Design

Randomized placebo controlled trial.

Methods

Patients were recruited from the Geriatric Department, Bassini Hospital (Milan, Italy). Patients were randomly assigned to either 6 sessions of OMT (n = 37 patients) or an equivalent number of sham manipulative treatment (SMT) (n = 35 patients). The main outcome variables were QOL measured by QUALEFFO -41 and overall bodily pain measured using a visual analog scale (VAS). Data were analyzed using a two factor ANOVA (treatment × time) for repeated measurements with an α level set at $p \leq 0.05$.

Results

Main result of this study was that OMT compared to SMT showed a significant decreased of disability. This effect was demonstrated by a significant interaction in the overall disability score ($p = 0.001$) and the Mental wellbeing ($p = 0.058$), Health perception ($p = 0.005$) and Pain ($p = 0.003$) QUALEFFO -41 subscales, while no significant difference (no interaction) for pain as measured by VAS and for the Daily activities, Walking, Household cleaning and Leisure time activities QUALEFFO -41 subscales ($p > 0.05$) was found. No adverse effects were recorded during the study.

Discussion

This study demonstrated that, in a group of elderly subjects affected by osteoporosis OMT was able to increase self reported QOL while the effect on body pain perception is unclear. This overall improvement in QOL appears to be caused by an improvement in psychological factors (i.e Mental wellbeing and Health perception) rather than physical factors. In fact, all QUALEFFO -41 subscales related to physical function demonstrated no significant interaction. The effect of OMT on Pain perception is less clear. In fact, there was no effect on pain as assessed by VAS while a significant improvement was observed when the QUALEFFO -41 subscale was used. This could be due to the metric properties of the two pain measurement methods; an alternative explanation could be that VAS measures mainly pain quantity while QUA-LEFFO -41 subscales measures mainly pain quality. The lack of effect of OMT on physical function needs to be confirmed by more direct measurements of this variable."