



## THE EFFECTIVENESS OF ACUPUNCTURE ON ORTHOPAEDIC PAIN WITHIN A VOCATIONAL REHABILITATION SETTING

### EFEKTIVITAS AKUPUNKTUR TERHADAP NYERI ORTOPEDI DALAM SETTING REHABILITASI VOKASI

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Research Report  
Penelitian

#### ABSTRACT

**Background:** Acupuncture is rapidly rising in popularity within western populations since its development and consequently there is increasing interest from a variety of clients. **Purpose:** To evaluate the effectiveness of acupuncture on orthopaedic pain within a vocational rehabilitation setting in London, United Kingdom. **Method:** A retrospective service evaluation design. A pre- and post-acupuncture questionnaire was utilised as the data collection tool. **Result:** Eighty-six clients were included in this evaluation because they met the criteria for inclusion. Analysis on the age differences between males and females were not statistically significant ( $p=0.05$ ). The conditions that were most frequently seen at the clinic included: 57% (49/86) spinal pain; 28% (24/86) upper limb pain; and 15% (13/86) lower limb pain. The mean number of treatment sessions for acupuncture was three (range=1-6). Overall each session of treatment lasted on average twenty minutes (range=15-30). The total number of needles used during each session of treatment averaged five (range=3-8). The reported benefit of treatment was 44% (38/86) excellent, 49% (42/86) good, and 7% (6/86) poor. **Conclusion:** This evaluation has demonstrated that acupuncture is effective on orthopaedic pain within a vocational rehabilitation setting. Repeat audits and larger sample sizes are needed for confirmation the findings.

#### ABSTRAK

**Latar belakang:** Akupunktur meningkat pesat popularitasnya di populasi barat sejak perkembangannya dan akibatnya ada peningkatan minat dari berbagai klien. **Tujuan:** Untuk mengevaluasi efektivitas akupunktur pada nyeri ortopedi dalam pengaturan rehabilitasi kejuruan di London, Inggris. **Metode:** Desain evaluasi layanan retrospektif. Kuesioner sebelum dan sesudah akupunktur digunakan sebagai alat pengumpulan data. **Hasil:** Delapan puluh enam klien dimasukkan dalam evaluasi ini karena mereka memenuhi kriteria untuk dimasukkan. Analisis perbedaan usia antara laki-laki dan perempuan tidak signifikan secara statistik ( $p=0,05$ ). Kondisi yang paling sering terlihat di klinik meliputi: 57% (49/86) nyeri tulang belakang; 28% (24/86) nyeri tungkai atas; dan 15% (13/86) nyeri tungkai bawah. Jumlah rata-rata sesi pengobatan untuk akupunktur adalah tiga (kisaran =1- 6). Secara keseluruhan setiap sesi pengobatan berlangsung rata-rata dua puluh menit (kisaran =15-30). Jumlah total jarum yang digunakan selama setiap sesi pengobatan rata-rata lima (kisaran = 3- 8). Manfaat pengobatan yang dilaporkan adalah 44% (38/86) sangat baik, 49% (42/86) baik, dan 7% (6/86) buruk. **Kesimpulan:** Evaluasi ini telah menunjukkan bahwa akupunktur efektif pada nyeri ortopedi dalam pengaturan rehabilitasi kejuruan. Audit berulang dan ukuran sampel yang lebih besar diperlukan untuk konfirmasi temuan.

#### ARTICLE INFO

Received 11 June 2021  
Revised 14 November 2021  
Accepted 26 March 2022  
Online 28 March 2022

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#### Keywords:

Acupuncture, Evaluation, Vocational rehabilitation, Orthopaedic, Pain

#### Kata kunci:

Akupunktur, Evaluasi, Rehabilitasi vokasi, Ortopedi, Nyeri



## INTRODUCTION

The earliest practice of acupuncture is estimated to be around 2000 B.C. in China (Lehman, 2013). Acupuncture is rapidly rising in popularity within western populations since its development, consequently there is increasing interest from a variety of clients worldwide (Zhuang *et al.*, 2013). Acupuncture is a procedure that incorporates inserting fine needles into clients at points that are specifically within a meridian line with the purpose of providing pain relief, often with various manipulation techniques (Lin and Tung, 2017). The increasing recognition of the benefits of acupuncture has contributed to its broader acceptance worldwide. International organisations such as the World Health Organisation (WHO), the National Institutes of Health (NIH) in the United States of America (USA) and the British Acupuncture Council in the United Kingdom (UK) have all endorsed acupuncture as a therapeutic intervention within complementary medicine (Aijaz and Boon, 2019). In Australia acupuncture is reported as the most common form of complementary treatment that clients seek when conventional medicine fails to address their pain experience (Zheng, 2014).

The effects of acupuncture on pain relief are well documented (Kelly and Willis, 2019; Vickers *et al.*, 2018; Yang *et al.*, 2012). In chronic pain syndromes, it was found that acupuncture is more effective than a placebo (Mayor, 2013). A systematic review of non-specific low back pain concluded that acupuncture is more effective than no treatment (S. and Sethy, 2015). Other systematic reviews highlighted the effectiveness of acupuncture at short-term pain relief of tennis elbow (Chang *et al.*, 2014) and chronic knee pain (Li, 2015). The use of acupuncture was also found to be a suitable alternative to pain medication in people with osteoarthritis (Manyanga *et al.*, 2014).

When acupuncture is delivered by trained and experienced professionals, it is usually safe. Sterile and clean needle techniques must be used at all times. When it is delivered improperly, adverse effects can occur. These include infections and/or accidents or negligence on the part of the practitioner (Gnatta *et al.*, 2013). The main source of infection is the use of needles that are contaminated (Gnatta *et al.*, 2013). The procedure of acupuncture is generally considered as a safe procedure as highlighted by a systematic review of case reports (Xu *et al.*, 2013). However, although it is considered safe, the rates of infection have increased over that last decade (Xu *et al.*, 2013). The practice of strict infection control measures is recommended to eliminate or decrease infection rates (Xu *et al.*, 2013).

An acupuncture session can typically last for 10-30 minutes, in which the inserted needles are intermittently stimulated with various manipulation techniques such as rotation, shaking and plucking (Lin and Tung, 2017). The purpose of these manipulation techniques is to accomplish de-qi within the acupuncture treatment session which is a feeling of sensation at the site of needling (Aung and Chen, 2007). In Chinese acupuncture

the observance of de-qi is more important compared to Western acupuncture where it is not considered as a necessary part of the acupuncture treatment (Park *et al.*, 2013).

This pragmatic evaluation was undertaken in order to determine the impact of acupuncture in clients presenting with orthopaedic pain treated by a vocational rehabilitation physiotherapist. This evaluation will provide important information about the effectiveness of the use of acupuncture within a vocational rehabilitation setting that is involved in the management of different types of orthopaedic conditions. Furthermore, it will ascertain whether or not there is any value with the addition of an acupuncture service to complement the traditional exercise-based management of orthopaedic clients within this setting. More specifically, this evaluation is focused on determining the demographic characteristics of clients referred, how they respond to treatment, and their outcome to treatment.

## MATERIAL AND METHOD

This evaluation was undertaken at a vocational rehabilitation clinic based within a National Health Service (NHS) Trust in London, UK. The vocational rehabilitation physiotherapist manages a wide variety of orthopaedic cases resulting from or impacting on work. The service accepts both self and manager referrals. In the case of manager referrals, a fitness for work report is sent to the referring manager once the client consents. This report does not include any confidential medical information. In addition to the vocational rehabilitation service, the clinic consists of consultants, nurses, clinical psychologists and administrative support staffs. All clients that presented to the vocational rehabilitation clinic with orthopaedic pain were offered acupuncture as a treatment option and those that accepted it were asked to complete an initial screening questionnaire. Clients with red flags on the initial questionnaire were excluded from receiving acupuncture treatment and those that were accepted for a course of acupuncture were asked to complete a pre- and post-acupuncture questionnaire. The questionnaire consisted of demographic data, duration of symptoms, treatment used, adverse reactions, and outcome of treatment.

An acupuncture spreadsheet was used as the data collection tool. It is both a valid and reliable tool to evaluate the outcome of acupuncture treatment and has been widely used in the UK and internationally. Clients received treatment from only one senior vocational rehabilitation physiotherapist, therefore there was no concern about treatment approach differing according to the different therapist involved. Data were coded anonymously and entered onto a Microsoft Excel spreadsheet. The data were cleaned and analysed initially by the vocational rehabilitation physiotherapist providing the service, and then double checked by the clinic manager for any bias and errors. Descriptive statistics were used to analyse the data.

Research governance approval and permission from the relevant authorities was granted prior to commencement of this evaluation. Clients were assured of the voluntary nature of the evaluation, that no incentives were being offered for participation, their responses would remain anonymous and be treated confidentially, and their decision to participate or not would not impact on the care they were currently receiving or any future care they may receive at the vocational rehabilitation clinic. This approach was taken to ensure that clients responded honestly and freely.

## RESULT

From the original 133 screening questionnaires that were reviewed, 86 met the inclusion criteria, and all accepted and completed a course of acupuncture

treatment. Seventy two percent (62/86) were female and 28% (24/86) were male. The mean age of the clients was 43 years. A t-test analysis on the age differences between males and females were not statistically significant ( $p=0.05$ ). The conditions that were most frequently seen at the clinic included: 57% (49/86) spinal pain; 28% (24/86) upper limb pain; and 15% (13/86) lower limb pain. The duration of the pain ranged between a few days and 2 years, with 30% (26/86) of clients being symptomatic for over six months. The mean number of treatment sessions for acupuncture was three (range=1-6). Overall, each session of treatment lasted on average twenty minutes (range=15-30). The total number of needles used during each session of treatment averaged five (range=3-8). The reported benefit of treatment was 44% (38/86) excellent, 49% (42/86) good, and 7% (6/86) poor. Table 1 depicts a summary of the results.

**Table 1.** Summary of results

Variables	N	%
All clients	86	100
Mean age	43	
<b>Gender</b>		
Male	24	28
Female	62	72
<b>Site of pain</b>		
Spinal	49	57
Upper limb	24	28
Lower limb	13	15
<b>Outcome</b>		
Excellent	38	42
Good	42	49
Poor	6	7

## DISCUSSION

This evaluation has demonstrated the efficacy and benefits of acupuncture on orthopaedic pain within a vocational rehabilitation setting. In terms of response to acupuncture treatment, the majority of patients reported a good or excellent response to the acupuncture treatment. A follow-up study is needed to determine how long these reported benefits last. Over two-thirds of the clients treated with acupuncture were female and this reflected the population within the NHS Trust. The relationship between the age of the client and the reported benefits of the acupuncture treatment was not significant.

Overall, each session of treatment lasted on average twenty minutes. Moreover, the standard vocational rehabilitation treatment session is 30 minutes, thus, the acupuncture treatment sessions fitted comfortably

within this session. Clients that visited the vocational rehabilitation clinic for acupuncture treatment averaged three visits. This is largely comparable to other papers evaluating the effectiveness of acupuncture treatment (He *et al.*, 2018; Marx *et al.*, 2012; Zhang and Wang, 2020). The more sessions of acupuncture treatment that are provided will obviously have implications in terms of financial cost to the NHS Trust. However, determining the cost-effectiveness of the acupuncture treatment was not feasible within this evaluation because this is an extensive area to evaluate and requires many factors to be taken into consideration, such as General Practitioner visits, the costs of medication or drugs, the number of adverse events and the total number of referrals into secondary care. The prevalence of conditions treated accurately reflects the types of orthopaedic conditions seen within the vocational rehabilitation clinic, with spinal pain being the most prevalent. This is consistent

with other services where spinal pain (i.e. back and neck pain) were the most common orthopaedic conditions reported (Chetty, 2020; Gellhorn *et al.*, 2012; Pizzari and Megan, 2013; Addley *et al.*, 2010; Ernst, 2000).

The limitation of this evaluation is that the results of this work represent data collected from a single organisation. Furthermore, the success of the acupuncture treatment within the vocational rehabilitation clinic as reported by the clients has contributed to the popularity of this service, and subsequently the demand has increased. Unfortunately, the vocational rehabilitation clinic does not have an allocation of specific funding for acupuncture treatment, and therefore only a limited number of treatment sessions can be offered within the opening hours of the clinic.

## CONCLUSION

This evaluation has demonstrated that acupuncture is effective on orthopaedic pain within a vocational rehabilitation setting. Repeat audits with larger sample sizes are needed in order to confirm the findings of this paper.

## ACKNOWLEDGMENTS

The author wishes to acknowledge the support of the vocational rehabilitation clinic and the clients that completed the acupuncture evaluation questionnaire. The author received no financial support for the research, authorship, and/or publication of this article. The author declared no competing interests with respect to the research, authorship, and/or publication of this article.

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