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Brief Report

Chiropractic - Is it Worth the Taxpayer's Expense as an NHS Service?

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ABSTRACT
Chiropractic remains a service provided outside the NHS in the United Kingdom and the argument for inclusion has been ongoing since the 90's. There are significant patient-reported benefits from chiropractic backed by evidence in specific use-cases as cervicogenic headaches and there are significant potential cost-savings from the inclusion of chiropractic as an NHS service. The evidence, however, does not particularly favour the use case of chiropractic, especially in the context of Low Back Pain (LBP) and the benefits of chiropractic are unclear. Considering the potential cost-savings for the NHS and the society, there should be consideration for its inclusion. However, the evidence will need to be clearer to argue for inclusion of chiropractic in the NHS spectrum of services, especially for spinal services.

Keywords: Chiropractic, Spinal Manipulation, Nhs, Physical Therapy, Low Back Pain.

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BACKGROUND

What is chiropractic?

Chiropractic has been historically defined as 'a science of healing without drugs' as ascribed to Daniel David Palmer (1845-1913). It has been most recently been defined as the US National Center for Complementary and Alternative Medicine (NCCAM) as 'A form of healthcare that focuses on the relationship between the body's structure (primarily of the spine) and function'. With its roots stemming from quasi-mythical concepts, the practice continues to be mired in conflict with mainstream medical science and is still considered alternative.[1,2] Despite this, it remains a popular healthcare approach, with up to 4,000 students graduating each year in the United States. In the UK, there are at least 5,099 chiropractors registered with the general chiropractic council as at 2020.[3]

Chiropractic is said to 'stand at the crossroads of mainstream and alternative medicine' and in some parts of the world, is integrated into mainstream government-funded or insurance programs, and is taught in many government universities. In many other parts of the world, it is practiced completely outside of mainstream healthcare.[4] Chiropractic remains important in the context of chronic pain which has been reported to occur in nearly a third of adults, resulting in a total cost burden of approximately $600 million/year in the United States.[5] The burden of chronic pain is also highlighted in the extent of the ongoing opioid epidemic with opiates among the top 10 most prescribed medications in the United States.[5] In this article, we compare the evidence and evaluate the factors for and against the inclusion of chiropractic as an NHS service.

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What is the evidence?

84% of patients who experience *chronic* low back pain expect to improve with treatment. 67% of individuals who experience debilitating back pain seek chiropractic services on that account.[6] The use of chiropractic, even in chronic pain, has remained controversial. In a systematic review involving 137 patients, chiropractic (in combination with medical care with or without interprofessional collaboration), was shown to be superior to medical care alone.[7] While the study has some significant limitations, it does perhaps lend an argument towards the incorporation of chiropractic services into mainstream medicine. Specifically, the argument to introduce chiropractic as an NHS service has been ongoing since at least 1990, when a non-blinded RCT comparing standard outpatient management to chiropractic treatment in 741 patients, showed outstanding benefits in the chiropractic group.[8] A 2014 systematic review by Clar *et al.* showed that chiropractic did not make any difference to outcomes in patients with LBP (but demonstrated some benefit in rotator cuff disorders, cervicogenic headaches, 'miscellaneous headache', as well as in breast cancer survivors).[9] On the other

Box 1: Physiotherapy and Chiropractic.

'On the other hand, physiotherapists are also able to help with back pain as they specialize in musculoskeletal injuries. They place more emphasis on working with individual tissues which have been injured, rather than the entire body as an interconnected system. They do not have the same amount of required education and training as chiropractors, but they still have effective pain management strategies.'[11]

hand, it can be argued that manipulation (which is the basis of chiropractic) is already available as an NHS service from specialized physiotherapists who arguably cover the services that chiropractors supposedly do.[10] It has been strongly maintained by the chiropractic community that physiotherapy is not equivalent to chiropractic, see box 1.

However, there has been limited evidence to back the above claim(s). A randomized-controlled trial which compared chiropractic to physiotherapy in 323 patients showed no difference at 6-month follow-up.[12] A different trial involving 714 patients also showed no difference between the two therapies in the short- or long-term-up to 2 years.[13] Table 1 summarizes the key arguments for and against the inclusion of chiropractic as part of spinal services in the NHS.

What is the cost of chiropractic services?

In the UK, booking a chiropractic session costs between £30 and £80, although this varies across the country.[2] It is estimated that each patient requires about 9 sessions for optimal benefit, with the basic costs thus ranging between £270 to £720. However, the cost of back pain, which is one of the more common reasons people seek chiropractic services is immense. About 70% of the adult population experiences back pain and 15% of sick leave requests are due to back pain.[6,14] Chronic pain, to which osteoarthritis and low back pain combined contribute more than half of cases, accounts for 4.6 million GP appointments per year in the United Kingdom, at a cost of approximately £69 million. Only 8% of the patients in this cohort are typically referred on to a pain clinic, and thus the burden of their management rests with the GP.[15] While most back pain is managed conservatively, a small proportion of these patients have a surgical lesion that may require an operative procedure.[14] Table 2 summarizes the available evidence for chiropractic and its specific case-uses (by year).

What are the health economics of chiropractic services?

The cost per QALY gained following an average of 8 treatments was about $1,042 with a potential cost saving of between $2,022 and $6,135 from general practice appointments not taken in a three-month period-over 75% of patients who were receiving chiropractic during the study period in this cohort did not visit their primary care provider.[6] The estimated cost for a fully-funded

Table 1: A summary of the key arguments for and against chiropractic.

Theme	For chiropractic	Against chiropractic
Cost	A significantly reduced burden to primary care in the United Kingdom (and possibly reduced NHS costs).	Arguably similar to physiotherapy with no significant difference in outcome. It is unclear if these cost-savings are worth it long-term.
Alternative therapy	The UK-BEAM trial showed a small improvement in back function with a combination of physical therapy methods (including spinal manipulation).[17]	No clear difference between chiropractic and other forms of physical therapy (as per earlier trials).
Patient satisfaction	Self-reported improvement in symptoms according to patients, may contribute towards improved well-being.	
Benefit	The UK BEAM trial demonstrated a 'small but significant' improvement in back function for patients who underwent spinal manipulation (by itself, and combined with exercise).[17] May be associated with improvement in certain musculoskeletal conditions- including rotator cuff disorders, and cervicogenic headache.[9] Most benefit associated with chiropractic is found in acute pain.	Older trials showed no difference in outcome when chiropractic is compared to other forms of physical therapy. There is no clear evidence that chiropractic is of clinically significant, long-term benefit to patients with low-back pain or other spinal disorders.

Table 2: A summary of the evidence for chiropractic.

Author/Year	Study focus	Key finding(s)
Meade *et al*. (1990)[8]	Compared chiropractic and hospital outpatient treatment for low back pain (of mechanical origin).	Chiropractic was associated with a comparative 7%-point improvement in the Oswestry scale for patients with chronic or severe back pain (statistically significant).
Skargren *et al*. (1997)[12]	Cost and effectiveness analysis of chiropractic versus physiotherapy for low back and neck pain.	The effectiveness and total costs were similar at 6 months to reach the same treatment results.
Cherkin *et al*. (1998)[13]	Compared McKenzie method of physical therapy, chiropractic, and minimal intervention.	There was no statistical difference between the McKenzie and chiropractic groups at 12 weeks follow-up. The minimal intervention group had the worst functional scores at 1 month follow-up.
UK BEAM Trial Team (2004)[17]	To estimate the effect of adding spinal manipulation to 'best care' for patients consulting general practices with back pain.	Spinal manipulation results in a small to moderate improvement in back function at 3 months, as well as 1 year-but by a much smaller margin.
Clar *et al*. (2014)[9]	Systematic review that updated the 'UK evidence report'.	Inconclusive evidence for improvement in low back pain. Favourable evidence for cervicogenic headache, and rotator cuff disorders (moderate).
Goertz *et al*. (2017)[7]	Compared medical care alone with chiropractic combined with medical care.	There was an improvement in self-reported mean average low back pain at 12 weeks (not statistically significant).
Emary *et al*. (2019)[6]	To evaluate costs and consequences of a back pain service in North America.	Adding chiropractic services to usual medical care was associated with improved outcomes at a reasonable cost with potential cost savings of up to $6,000 (~£4,800).

chiropractic service during the same period would have been approximately $4,000.[6] Considering the UK NICE £20,000 - £30,000 threshold per QALY gained, these costs would indicate that chiropractic services are likely to save the NHS a great deal of money.[16] This is also not considering the cost-savings implications at the society level-about 50% of patients in the Emary *et al*. study cohort returned to work after the 90-day study period.[16]

NICE guidelines now espouse the provision of spinal manipulation in the management of low-back pain, but clariy that this should be combined with exercise ± psychological therapy.[18] From an economic perspective, it is reasonable to consider including chiropractic as an NHS service considering the potential cost savings that may be achieved as a result. As far as we know, chiropractic is not a threat to patient safety, and most available research acknowledges patient-reported benefit. Although from an evidence perspective, there are very few clinical, evidence-based arguments for inclusion especially considering that this would come at the tax-payer's expense, especially not at a time when the NHS is crumbling due to chronic underfunding.[19]

CONCLUSION

Whether chiropractic should be therefore included within the package provided by the NHS, and how best to include these services-either as a support service for primary care or spinal surgery services would require further evaluation for decision-making purposes.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ABBREVIATIONS

QALY: Quality-adjusted life years; **RCT:** Randomised-controlled trial; **LBP:** Low back pain; **NHS:** National Health Service (United Kingdom); **UK:** United Kingdom; **GP:** General Practice; **NICE:** National Institute for Health and Care Excellence (United Kingdom).

AUTHORS' CONTRIBUTIONS

IO is a currently a junior training fellow in Neurosurgery at the Royal Stoke University Hospital who is particularly interested in global neurosurgery with a focus on health inequalities in surgery. CK is a consultant neurosurgeon who is passionate about training and whose research focuses on opportunities on the training landscape and clinical neurosurgery. IO and CK conceived the article. IO produced the first draft and CK reviewed all drafts. They drew on existing research in a number of international training contexts to evaluate the issues raised in the article.

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