


SERVICE EVALUATION OPEN ACCESS

Social Return on Investment of Musculoskeletal Physiotherapy in the National Health Service

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ABSTRACT

Background: Social return on investment (SROI) may present a method for demonstrating the social value of healthcare interventions. It has not previously been measured in musculoskeletal (MSK) physiotherapy but is being used in the procurement and performance management of healthcare services. The aim of the study was to measure SROI in one provider of MSK physiotherapy in the United Kingdom's National Health Service (NHS).

Methods: A retrospective single arm online survey-based service evaluation was carried out to calculate the SROI of an NHS adult MSK physiotherapy service using the Housing Association's Charitable Trust Social Value Calculator.

Results: 237 respondents (35.6%) completed the survey and a mean SROI of £4.13 for every £1 invested was demonstrated. There were sub-group variations based on symptom location and discharge location.

Discussion: This is the first time SROI has been calculated in an MSK physiotherapy setting. This service evaluation raises new questions about the variations observed in subgroups and the applicability of this methodology in individuals with MSK conditions who receive physiotherapy.

Conclusion: MSK physiotherapy is an intervention which offers a positive SROI across a range of MSK conditions and contributes towards improved wellbeing. This is the first study to use the HACT Social Value Calculator when evaluating a physiotherapy service and further research is required to validate the results.

1 | Background

Social value is the principle of championing the holistic wellbeing of current and future generations across three principal areas: social, economic and environmental (UK Cabinet Office 2021). Since 2018, the United Kingdom (UK) Government has been evaluating social value as a key component of supplier selection in major public service contracts, including those in healthcare, as a function of the Public Services (Social Value) Act 2012. NHS England have issued guidance on the evaluation of social value in the contracts that are awarded for services delivered under its banner (NHS England 2022).

Musculoskeletal (MSK) conditions impact affected individuals across all three principal areas of social value: social, economic and environmental. It has been demonstrated that individuals with MSK conditions are associated with loneliness and insufficient social support in older adults and strong associations have been seen in widespread pain (Nicolson et al. 2021). Additionally, MSK conditions lead to loss of independence (Milte and Crotty 2014) and loss of function; highlighted by 29% of hip fracture patients not regaining their pre-fracture level functional capacity (Bertram et al. 2011). The economic impact of MSK conditions has been demonstrated both at population level, due to their influence on people's ability to work (A.

This Study was conducted at Allied Health Professionals Suffolk Community Interest Company, Hartismere Hospital, Castleton Way, Eye, Suffolk, IP23 7BH.

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Woolf 2022), as the greatest reason for absenteeism from the workplace (Crawford et al. 2020), the third largest of NHS spending in England (NHS England 2019) and as a common cause for and significant burden on healthcare utilisation (Jordan et al. 2014; MacKay et al. 2010; A. D. A. D. Woolf, Erwin, and March 2012). The economic effect is also felt by individuals with MSK condition; income can be affected by around £8000 per year for patients with rheumatoid arthritis or ankylosing spondylitis (Franke et al. 2009). It has also been observed that economic factors and healthcare utilisation vary between subgroups of populations with MSK conditions: variations include higher numbers of pain sites, decrease in employment status and lower levels of reported social participation for those with the highest utilisation of healthcare services (Mose et al. 2021). Exploration of environmental factors relevant to musculoskeletal presentations is in its infancy, but the environmental impact of healthcare provision and greenhouse gas emission has been estimated to be between 1 and 5% of the total global impact (Lenzen et al. 2020). Reduced reliance on healthcare for individuals with MSK conditions should therefore result in an environmental benefit; however, it is yet to be established the extent to which MSK conditions contribute or the impact of different treatment modalities have on greenhouse gas emissions or other environmental factors (McKenzie et al. 2022).

Social return on investment (SROI), a framework developed in 1996 by the Roberts Enterprise Development Fund (Emerson and Cabaj 2000), is a measure of social value, developed from social accounting, which has been recommended by the UK Department of Health and Social Care (Millar and Hall 2013) as a useful measure of a value derived from health and social care service provision. SROI describes value creation in society through the attributed costs of providing intervention (Rotheroe and Richards 2007) and differs from economic evaluations such as cost effectiveness analysis, cost utility analysis and cost benefit analysis as it does not measure a financial output or outcome of the intervention studies. Elements of a cost-benefit analysis are used when calculating SROI, but emphasis is placed on stakeholder engagement that is patient driven measures to calculate the monetary value of an intervention (Rotheroe and Richards 2007). It has been recommended for use in healthcare settings (Banke-Thomas et al. 2015; Laing and Moules 2017), highlighting the flexibility of the measure and the potential for clear articulation of value to decision makers. The value of SROI for social prescribing (Makanjuola et al. 2022; Skinner et al. 2023), nature based activity (Hartfiel et al. 2023) and counselling (Anthony, Hartfiel and Edwards 2023) interventions has already been documented in the literature.

MSK conditions have been shown to negatively influence wellbeing when traditionally measured (Gettings 2010) and with the capability approach (Péntek et al. 2021). The capability approach is an alternative to welfare economics and evaluates the capability of people to live lives they value. The measure explores how individuals convert opportunities, resources and freedoms into a 'functioning'. This is in contrast to the traditional approach to evaluation of welfare, which only measures the freedom to achieve a life a person might value but not the conversion into functions (Robeyns and Byskov 2011). The Housing Associations Charitable Trust (HACT) Social Value Calculation (Fujiwara et al. 2017) relies on a measure of

wellbeing as a method of attributing value creation to the outcome of an intervention.

Physiotherapy aims to classify MSK presentations and through management strategies, improve symptoms and function. Physiotherapists employ a holistic approach to managing MSK conditions, often selecting multimodal treatments (Walker et al. 2017). Musculoskeletal assessment and management is provided as an NHS outpatient service in the UK, free at the point of care. In the year 2021/22, the NHS reported spending over £34 million on physiotherapy outpatient services. The evaluation metrics of these services have typically focused on activity, clinical outcome and patient experience. The clinical and cost effectiveness of physiotherapy has already been established in several MSK conditions such as back pain (Critchley et al. 2007). To date, evaluation of SROI provided by an MSK physiotherapy service has been extremely limited and reflected by a relative absence from the published evidence base. Therefore, the aim of this service evaluation was to extend this evidence base and determine whether SROI derived from an NHS MSK physiotherapy service could be determined from an online survey completed post-intervention.

It was hypothesised that the MSK physiotherapy service provides social value through the outcomes of improved MSK health, which leads to improved wellbeing and socioeconomic activity of those who are cared for. This extends beyond the employment opportunities it creates or the additional non-care activities provided by the service.

2 | Methods

A retrospective single arm online survey-based service evaluation was carried out to calculate the SROI of an NHS adult MSK physiotherapy service.

2.1 | Setting

The service which hosted the evaluation operates in mixed rural and urban locations in England providing NHS services as a social enterprise and community interest company. It serves a population of approximately 750,000 individuals. The service was accessible via self or healthcare led referrals and accepts all MSK conditions amenable to physiotherapy interventions for treatment, including, but not limited to, osteoarthritis, tendinopathies, spinal pain, rheumatoid arthritis, joint sprains, post-operative and fracture rehabilitation. The service had short waiting times at the time of sampling (mean 18 working days) and each patient would have been offered a choice of in-person or remote consultations.

2.2 | Participants and Sample

Respondents to an existing patient satisfaction survey who had indicated their consent to further surveys were invited to participate via an electronic online form. 665 respondents during November and December 2023 were invited to take part in

the current study. Invitations were conducted by email in January 2024 and included a brief description of the reason for surveying and a contact with the evaluation lead. No indication of anticipated outcome was provided.

2.3 | Survey

The survey collected baseline information including the anatomical quadrant in which symptoms were experienced, the outcome of physiotherapy and the participant's improvement on a 10-point scale covering no improvement to completely resolved. This arbitrary scale was included to identify the patients' views on the success of physiotherapy treatment and establish whether there were trends associated with improvement and SROI.

To determine SROI, the HACT Social Value Calculation (Fujiwara et al. 2017) was employed. This approach uses the short form of the Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS), which includes 7 statements scored on a 5-point Likert scale to evaluate respondents' wellbeing. Scores ranged between 7 and 35, with high scores representing better wellbeing. This scale has been validated in UK populations (Tennant et al. 2007) and correlates to other established measures of wellbeing and mental health (Shah et al. 2021). SWEMWBS has been successfully used in the evaluation of wellbeing in MSK conditions (Björnsdóttir, Jónsson and Valdimarsdóttir 2014). Respondents were asked retrospectively to provide a pre-intervention SWEMWBS and then a post-intervention SWEMWBS within the same survey. Each SWEMWBS was displayed on a separate page and clearly described in easy read terminology.

The survey was designed by Joseph Russell and was reviewed by the Allied Health Professionals Suffolk CIC Patient Experience Team, which included healthcare professionals and administrative staff members. All comments were reviewed by the group and agreement was reached for the final version of the survey.

The survey was administered using Microsoft Forms (Microsoft, WA, USA). Results were collected anonymously.

2.4 | Analysis

Descriptive analysis was conducted on all results. SWEMWBS scores were categorised and assigned a fiscal value as per the calculation protocol (Table 1). These categories cover a range of 2 points each, which given the minimal detectable change for SWEMWBS is reported between 1–3 points (Shah et al. 2018) allows for meaningful differences between pre- and post-intervention scores to be reflected in the social value attributed to the score. The value of intervention was calculated by deduction of pre-intervention value from post-intervention values. A deadweight deduction of 27% was applied in line with the prescribed methodology, although variation is evident in published literature, for instance a deduction of 10% has been reported (Laing and Moules 2017). This deduction accounts for

TABLE 1 | SWEMWBS categories and model values (from Fujiwara et al. 2017).

Category	Overall SWEMWBS score	Full model value
1	7–14	£0
2	15–16	£9639
3	17–18	£12,255
4	19–20	£17,561
5	21–22	£21,049
6	23–24	£22,944
7	25–26	£24,225
8	27–28	£24,877
9	29–30	£25,480
10	31–32	£25,856
11	33–34	£26,175
12	35	£26,793

a proportion of the population who would have achieved a health benefit regardless of the intervention.

SROI was calculated using costs for the average treatment cost for an episode of care in the MSK outpatient physiotherapy service of £294.24. This cost included all employment costs and operational running costs for the service in which the study was conducted and was based on the NHS National Cost Collection for the most recently published financial year 2021/22 (NHS England 2023). The treatment course was based on an average of 1.7 follow-up consultations for each initial consultation conducted in the sampled time frame.

2.5 | Ethical Considerations

NHS Research Ethics Authority guidance confirmed this evaluation did not require formal ethical approval. Organisation approval was granted by the Patient Experience Team in October 2023.

3 | Results

Two hundred thirty-seven survey responses (35.6%) were returned after a single round of email-based invitations.

3.1 | Respondent Analysis

The majority of responses were from lower limb patients (46.4%), and upper limb (27.9%) and spinal patients (25.7%) were similar in their response rates. These proportions align with the profile of conditions seen in the MSK service.

Patient outcomes are presented in Table 2. The majority of respondents were discharged home after treatment, typically with self-management strategies and signposting in case of symptom escalation (69.62%). A smaller proportion were referred to another service (26.58%). A small proportion (3.79%) of

TABLE 2 | Profile of outcome responses.

Outcome	Number of patients	Percentage
Discharged home or with the option to return	165	69.62
Referred on to another service	63	26.58
Other	9	3.79
Grand total	237	100.00

TABLE 3 | Improvement, all respondents.

Improvement	All respondents	Respondents discharged home	Other outcome
1—no improvement	21.10%	7.27%	52.78%
2	4.22%	4.85%	2.78%
3	6.33%	5.45%	8.33%
4	4.22%	3.03%	6.94%
5	8.02%	8.48%	6.94%
6	7.17%	7.88%	5.56%
7	14.77%	17.58%	8.33%
8	20.68%	26.67%	6.94%
9	10.55%	15.15%	0.00%
10—completely resolved	2.95%	3.64%	1.39%
Grand total	100.00%	100.00%	100.00%

respondents were unable to be classified and so were grouped under 'other', this included patients who had treatment cancelled or were continuing treatments and some patients who had declined treatment. The profile of this sample is similar to the discharge profile of the service.

Improvement appears to have a bimodal distribution with peaks in very low (1 out of 10) improvement and at high (8–9 out of 10) improvement when the results are observed across the whole population (Table 3). These peaks appear to represent different discharge outcomes, with the moderate improvement peak only appearing in the subgroup discharged home. The low improvement peak appeared only in the remaining subgroups. Overall, 56.1% of respondents reported an improvement of over 50%, which increased to 70.9% in those discharged home.

3.2 | SWEMWBS and SROI Analysis

Reported SWEMWBS scores, pre- and post-intervention, were assigned a fiscal value as per the calculation protocol and the deadweight deduction was applied to return the SROI (Fujiwara et al. 2017). The SROI figure indicates the fiscal value of each £1 invested in the service.

Differences in wellbeing and associated SROI appeared to vary by symptom location, with the highest results being reported in respondents with spinal symptoms equating to £6.32 for every £1 invested (Table 4). SROI for each outcome was evaluated; higher wellbeing score changes and SROI were demonstrated by those discharged home, equating to £5.51 for every £1 invested, compared with those being referred on to further treatment

(Table 5). Respondents who could not be classified demonstrated negative wellbeing changes and SROI (Table 5).

Changes in wellbeing and SROI appear positively associated with improvement decile in the overall population (Table 6). Evaluation of data from respondents with an improvement of 6/10 or above indicated high SROI. The SROI peaks at £9.36 for each £1 invested for patients in responding 8/10 improvement and is above the mean for scores above 8/10.

4 | Discussion

This evaluation of SROI for MSK physiotherapy services in the NHS was novel. No previous comparable studies were identified; therefore, this exploration aimed to consider if this model was appropriate and has potential for future studies. In this pilot study, the average social return on investment was £4.13 for every £1 invested in MSK physiotherapy. As such, it appears that it is possible to calculate SROI using the presented methodology. The results, however, do raise interesting questions about the potential social value of MSK physiotherapy and the factors that warrant consideration to ensure future studies adopt a robust methodology.

4.1 | Is There More Social Value to Be Derived From Certain Sub-groups of MSK Patients Than Others?

The location of a respondents' symptoms appears to influence the effect of physiotherapy on their wellbeing and as such on the derived SROI, with spinal symptoms demonstrating the highest

TABLE 4 | SWEMWBS by location of symptoms.

Location of symptoms	Average SWEMWBS pre-intervention	Average 'pre-intervention value'	Average SWEMWBS post-intervention	Average 'post-intervention value'	Average change in SWEMWBS	Average 'social value'	SROI
Spinal	22.2	£18,923.97	25.3	£21,471.25	3.1	£1859.51	£6.32
Lower limb	24.6	£20,922.48	26.4	£22,188.87	1.8	£924.47	£3.14
Upper limb	24.3	£21,465.79	26.3	£22,980.64	2.0	£1105.84	£3.76
Grand total	23.9	£20,559.40	26.1	£22,224.66	2.2	£1215.64	£4.13

TABLE 5 | SWEMWBS by outcome.

Outcome	Average SWEMWBS pre-intervention	Average 'pre-intervention value'	Average SWEMWBS post-intervention	Average 'post-intervention value'	Average change in SWEMWBS	Average 'social value'	SROI
Discharged home or with the option to return	24.5	£21,292.13	27.2	£23,513.36	2.8	£1621.50	£5.51
Referred on to another service	22.9	£18,939.56	24.0	£19,845.86	1.1	£661.60	£2.25
Other	21.2	£18,464.78	19.7	£15,250.00	-1.6	-£2346.79	-£7.98
Grand total	23.9	£20,559.40	26.1	£22,224.66	2.2	£1215.64	£4.13

TABLE 6 | Social value by improvement, all respondents.

Improvement decile	Average SWEMWBS pre-intervention	Average 'pre-intervention value'	Average SWEMWBS post-intervention	Average 'post-intervention value'	Average change in SWEMWBS	Average 'social value'	SROI
1	21.7	£17,806.40	21.3	£17,088.64	-0.4	-£523.96	-£1.78
2	23.4	£20,765.80	22.3	£20,254.90	-1.1	-£372.96	-£1.27
3	23.9	£19,109.67	24.6	£20,657.20	0.7	£1129.70	£3.84
4	22.5	£19,075.40	23.3	£19,713.10	0.8	£465.52	£1.58
5	24.7	£22,377.47	26.5	£23,247.37	1.8	£635.02	£2.16
6	23.5	£20,173.41	26.8	£23,474.41	3.3	£2409.73	£8.19
7	26.3	£23,010.09	28.6	£24,768.66	2.3	£1283.76	£4.36
8	23.6	£20,401.08	28.0	£24,174.96	4.3	£2754.93	£9.36
9	25.5	£22,494.32	29.8	£25,246.68	4.3	£2009.22	£6.83
10	25.4	£23,102.29	30.9	£25,695.14	5.4	£1892.79	£6.43
Grand total	23.9	£20,559.40	26.1	£22,224.66	2.2	£1215.64	£4.13

derived SROI. This is consistent with the known burden of spinal symptoms such as low back pain, which affected 619 million people globally in a 2020 estimate. Low back pain is the leading cause of years lived with disability (Ferreira et al. 2023) and is the highest cause of workplace absences. In the UK, the Department of Health and Social Care has targeted remaining in work or returning to work from MSK related absences as a key component of the Major Conditions Strategy (Department of Health and Social Care 2023). Physiotherapy is considered an effective treatment for back pain (Lorimer 2002) in the domains of pain, function and quality of life. Although this is also the

case for upper (Pieters et al. 2020) and lower limb (Bennell et al. 2005; Vinicius Cunha and Nicholas 2013) symptoms, this study suggests that patients appear to derive less social value from physiotherapy interventions. It is unclear whether this is due to differences in the initial burden of a condition, the treatment received, or the efficacy of that treatment. Psychosocial factors and their relevance to low back pain patients' pathways have been well documented (Meints et al. 2019; Moseley and Butler 2015). It could be proposed that the impact of physiotherapy intervention on mental well-being for these spinal patients has been particularly significant and reflected in

the high SROI. Existing frameworks to classify spinal patients into sub-groups (Foster et al. 2013; Hill et al. 2008), provide opportunities to explore this further with the aim of identifying those most likely to benefit from physiotherapy management and also those who would have low SROI, potentially indicating alternative management strategies are required.

The study results have been unable to directly compare SROI and clinical outcomes or experience; however, there appears to be an association between clinical outcome and social value derived from treatment. It could be argued that this is a predictable association but certainly presents an avenue for further investigation. The range of outcome measures that evaluate specific presentations or elements of general health and well-being could be utilised to further explore the relationship between SROI and physiotherapy related healthcare outcomes.

4.2 | Is Social Value a Comparable Measure?

It is proposed that social value is a useful measure in commissioning and performance monitoring of healthcare services, but its uptake within the NHS has been limited to date (Millar and Hall 2013). There are no comparable SROI figures for other MSK or physiotherapy services and only a limited number of other health interventions which have been investigated to this point using the HACT Social Value Calculation (Laing and Moules 2017). Given the different interventions provided by these other services, direct comparison is unwarranted. It has been demonstrated that SWEMWBS is able to differentiate between subgroups on large scale populations (Ng Fat et al. 2017), is comparable to other common measures of mental health (Shah et al. 2021) and is responsive to change (Shah et al. 2018). The current evidence base to support the use of SROI as a comparative measure between services is extremely limited, so caution is needed to minimise risk and error. Factors that warrant consideration include variations in patient demographics between services and individual features, including the referral pathways into each service provider and interventions offered. Diversity of service models and provision exists within the NHS in the UK and variations with international frameworks must be acknowledged but it appears, there is potential for reviewing SROI for MSK physiotherapy services. This measure may have a role for individual services to evaluate their pathways and to promote innovation and efficiency as proposed in published literature (Laing and Moules 2017; Millar and Hall 2013; Skinner et al. 2023). Further research is required to determine the value of this metric.

Despite uncertainty regarding optimal outcome measure selection, it is clear that MSK physiotherapy is an effective intervention that positively affects patients' pain experience, their function, quality of life and also wellbeing. As a result of this, the impact extends to benefits at the population level - through social return on investment. This is particularly pertinent with a globally ageing population, with increasing levels of obesity and decreasing levels of physical activity predisposing more people to MSK conditions (Versus Arthritis 2021). These population risks combined with stretched healthcare funding in the UK require clear evidence for interventions, such as that presented

here, on the value so that health services can be designed and commissioned effectively. Caution, however, needs to be taken as the results of this study are considered. This should not be confused with an economic evaluation as there is no material return on investment for the service provider or commissioner. Similarly, care should be taken with procurement processes so that this metric alone is not used to limit service delivery. It is possible that a physiotherapy intervention is beneficial to the patient without improving their wellbeing, for example as a prehabilitation stage prior to surgery or in the ongoing management of a long-term condition such as osteoarthritis. It is not currently understood whether patient pathways which span multiple specialities and settings could be evaluated using this method.

4.3 | Strengths and Limitations

The present study provides a novel approach to measuring the impact of physiotherapy interventions at a population level with several strengths. The approach to measuring this has taken a developmental approach and provides a methodology for future studies to verify and build upon. The study has presented novel data that generated new areas for investigation which could not have been foreseen at the outset of the study.

This evaluation is limited by several factors. The methodology's post-hoc nature of surveying has the possibility of introducing self-selection bias. There is potential for over- or under-estimation of the SROI; however, there is no current available literature on the impact of this approach when using the SWEMWBS. Previous studies have largely been unclear in their approach to data collection, although some have used multiple collection points (Hartfiel et al. 2023) and some have used a similar single point assessment (Makanjuola et al. 2022). Furthermore, the SWEMWBS has not been validated in an MSK cohort previously and therefore it cannot be assumed that this is able to differentiate differences in those with MSK conditions, however it has been validated in large population level datasets where differences could be discerned (Ng Fat et al. 2017). Future investigations should consider these points when designing their methodologies and should seek to validate and build upon the methodology used in this study to answer the questions posed in this study.

4.4 | Conclusion

This is emergent evidence on the social value of MSK physiotherapy service offered as part of the NHS, offering a SROI of between £3.76 and £6.32 depending on the type of condition treated with an average SROI of £4.13. Evaluation of SROI is underpinned by patient experience and the impact of the healthcare management on their perceived wellbeing. This approach aligns with many contemporary healthcare priorities and may have the potential to contribute to service development, procurement processes and pathway optimisation. The methodology used requires validation both in its approach to data collection and in the sampled population. Furthermore, there are interesting potential subgroups presented here for

future analysis which may inform care provision. Caution should be taken, however, when considering the use of SROI as a measure by which to evaluate service performance due to these subgroup variations.

Author Contributions

Joseph Russell: conception and design of investigation, acquisition of data, data analysis, drafting and revision of manuscript. **Sue Innes:** drafting and revision of manuscript.

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Ethics Statement

Ethics approval was obtained from the Allied Health Professionals Suffolk CIC Patient Experience Team. The nature of the study did not require an NHS Research Ethics Authority application.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The authors have nothing to report.

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