REPORT

Building the economic case for social prescribing

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National Academy for Social Prescribing

About The National Academy for Social Prescribing

The National Academy for Social Prescribing (NASP) is a national charity that champions social prescribing. We support and connect people, communities and organisations so that more people across the UK can enjoy better health and wellbeing.

Evidence and Evaluation at NASP

NASP's Evidence and Evaluation team is working to build the evidence base for social prescribing and ensure that social prescribing work is evidence-led. We support research which measures the impact of social prescribing on mental and physical health, wellbeing, and the health system.

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Todd Henkin is a singer songwriter and teaching artist currently researching the wellbeing benefits of songwriting for parents of children with developmental disabilities. He has worked through song to teach ESL to immigrants and refugees, wellbeing to trade school college students, songwriting with parents/caregivers, and love songs with older hospital patients. Besides his own creative output, Todd has worked for the last three years as one of Carnegie Hall's international lullaby artists and is now completing a postgraduate masters (MASc) in Creative Health at UCL.

Dr Hannah Waterson is Research and Policy Manager at the National Centre for Creative Health. After completing a PhD related to health promotion and policy, she worked in policy research and media roles before returning to the University of Manchester as a lecturer in health care sciences, working in research and evaluation on a range of projects related to public health and health inequalities. There she developed an interest in creative health, co-developing and delivering a course on arts and public health, and joined the team at NCCH in January 2022.

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Contents

Definitions[1]

Cost-benefit analysis (CBA)	Compares the costs and benefits of an intervention, procedure or programme in monetary terms.
Cost description analysis (CDA)	Assessment of changes of GP visit, A&E attendance, medication use, or other health service use over time.
Cost-effectiveness analysis (CEA)	Costs are compared with a treatment's common therapeutic goal, expressed in terms of one main outcome measured in natural units (e.g., improvement in blood pressure or cholesterol level). CEA approaches use QALYs.
Cost-utility analysis (CUA)	A method of evaluation that measures health benefits in preference-based non-monetary units such as QALYs, DALYs, or WELLBYs. ICERs are often used with QALYs.
Disability Adjusted Life Years (DALYs)	The number of years lost due to ill-health, disability or early death. One DALY represents the loss of the equivalent of one year of full health.
Incremental Cost Effectiveness Ratios (ICERs)	The difference in cost between two possible interventions, divided by the difference in their effect. They are often used with QALYs to summarise the cost-effectiveness of a health care intervention.

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1 The definitions provided in the table are taken and adapted from A Guide to Health Economics for Those Working in Public Health A concise desktop handbook[8].

Multi Criteria Decision Analysis (MCDA)	Approach that allows competing priorities (economic, social and environment) to be systematically evaluated.
Quality	A measure of the value of health outcomes combining length of life and quality of life into a single number. One QALY equates to one year in perfect health, scores range from 1 (perfect health) to 0 (dead).
Adjusted Life Years (QALYs)	A type of CBA analysis that results in a ratio of benefits to costs, estimating the social value created for every £1 invested.
Wellbeing-adjusted Life Years (WELLBYs)	A measure of well-being that combines life satisfaction and length of life. One WELLBY is a change in life satisfaction of 1 point on a scale of 0 to 10 over the course of a year.

Introduction

Understanding the economic impact of social prescribing remains an urgent priority for the National Academy of Social Prescribing (NASP). As yet it is unclear how much data exists within the different systems to enable economic analyses of the impact of social prescribing schemes to be conducted.

The complexity in understanding the economic impact of social prescribing—and indeed all non-clinical community-based approaches to health—is compounded by the multisector nature of social prescribing. Furthermore, a variety of approaches are being used to test similar but different understandings of both cost and value, including social value, cost, benefit and economic value.

There are a growing range of reports and peer-reviewed publications that focus on the impact of social prescribing on health and social care demand, some of which have economic analyses and some which remain as potential data sets for economic analyses. At least one third of all outcomes (if not more) are directly related to the social determinants of health[1,2] (SDH) which are not taken into account with economic analysis focused only on health service usage.

This range of outcomes experienced by service users[2-4] is driving many researchers to conduct economic analyses that attempt to assign value to outcomes beyond the health sector, for instance using social return on investment (SROI) and proxy values. Other researchers have discussed the evolution in economic analyses at length and suggest additional components to existing methodologies, e.g., multi criteria decision analysis (MCDA) to account for additional complexity of social prescribing[5]. Further developments are also being trialled such as the Wellbeing-adjusted Life Years (WELLBY) to understand the economic value attached to wellbeing[6], as opposed to the Quality Adjusted Life Years (QALY), which reports the economic value of quality of life.

We are entering an era of providing personalised support to people in integrated and multidisciplinary systems with different local population needs. As such, there is a need to evolve the approaches to

determining cost and value of social prescribing, and to reach agreements on methodologies that all sectors are willing to accept as sound approaches. Furthermore, as discussed by McDaid and colleagues in 2019[7], there is a need to move beyond the immediate benefits of social prescribing and to explore the longer-term benefits of sustained engagement in non-clinical activities and provision of support to address issues linked to the SDH. This would enable more data to inform the preventative role and economic impact that social prescribing may have, which is currently an evidence gap.

This rapid scoping review was commissioned by NASP and additional roundtables were supported by the National Centre for Creative Health and UKRI/AHRC's 'Mobilising Community Assets to Tackle Health Inequalities' research programme (led by University College London). It aims to provide an update to the first economic evidence review from NASP and explore economic data and health and social care usage data in more detail.

This rapid scoping review aims to ascertain:

- What the current literature indicates in terms of cost or value of social prescribing schemes or parts of the social prescribing scheme.
- If there are potential data sets that report the impact of social prescribing on health service usage that could have economic analysis applied to them.
- Stakeholder opinions on the methodological approaches for creating the current economic evaluation evidence base for social prescribing and potential future developments that are needed.
- How these findings can inform a larger programme of research that is needed to establish the economic impact and value of social prescribing across all relevant sectors in the community.

As this report contains three separate elements to it, each element will be reported with methods and results, and then key themes will be brought together with recommendations.

1. Economic analyses of social prescribing

Methods

A rapid scoping review is defined as exploring a range of relevant literature and studies, including emerging evidence, to shape an understanding of the current state of knowledge on a given topic. The aim of including a diversity of evidence that captures both published literature and evidence of real-world projects and services is to give the most up-to-date insight in a rapidly evolving area[9]. This can then inform decision-making about new developments in practice and policy including critical ingredients for delivering defined and emergent outcomes and highlight gaps for future research.

A rapid evidence review methodology was used to produce this evidence synthesis. Rapid evidence reviews streamline the systematic review process to produce evidence in a shortened time frame[10]. We searched PubMed, Google Scholar, and All Cats Grey for grey literature. The review process was managed in Rayyan.ai, a free systematic review software package.

Search terms were identified through scoping existing literature.

- Terms used for economic evaluation methods were; "cost-benefit analysis" and "cost-effectiveness analysis" as Medical Subject Heading (MeSH) terms "SROI" and "Social Return on Investment" (non-MeSH terms).
- For interventions, the terms "social prescribing" and "social prescri*" were used for one search. MeSH terms for "creativity", "art" and "parks, recreational" for a second search, in order to reach the breadth of evidence.
- Database searches were limited to the last 5 years, since 2018, due to the breadth and volume of literature - particularly in social prescribing evaluation.

- For searching in Google Scholar, economic terms "social return on investment" "cost effectiveness", "economic evaluation" and "cost benefit analysis" were used with; "social prescribing". A second search was conducted with the economic terms and intervention terms "creative intervention", "arts intervention", "nature intervention", and "heritage intervention". In order to keep this review manageable, results were sorted by relevance and the first 10 pages of both searches were used.
- Grey literature was searched through allcatsrgrey.org.uk using the terms "social prescribing" and "economic evaluation". Further grey literature was identified through hand searching.
- Studies included primary research, evaluations, reports, and case studies. They were included if they referenced the use of an economic evaluation methodology and evaluated social prescribing services or parts of the services ·(e.g., activities provided in the community). Only studies written in English and programmes delivered in the UK were included. All other literature was excluded.
- Preliminary searches were carried out by OT and HS, with screening of sources independently conducted by both HS and OT. Any discrepancies in screening were reviewed and the final selection of studies for inclusion was made by HS, OT and MP.

Total articles identified before inclusion criteria was applied are as follows: PubMed 316, Google Scholar 200 (first 10 pages which was 100 results of two searches), grey literature 14, and additional hand searching identified a further 4. Total: 534.

Of the 534 sources, 19 sources that reported on primary data sets of economic analysis related to social prescribing were included for rapid review. Sources were excluded if they were published before 2018, were a review, a protocol, a guidance document, or were not related to any aspect of a social prescribing scheme.

Overview of sources found

Types of evidence:

- Of the 19 sources[11-29], 9 were peer-reviewed academic journal papers[11,13,14,20-25,28]). The remaining 8 were grey literature reports, most were written or contributed to by university academics or academic research networks[12,15-19,26,27], one was written by a consultancy company[29].
- Thirteen sources used pre-post designs to collect changes in outcomes over a period of time[12,13,17-25,27-29], and often with mixed methods approaches.
- The duration between follow-up data collection varied but the most sources were less than 1 year e.g., 3 months[11-29]; 4 months[23]; and 6 months[17-19,24]. Only 4 studies followed service users for 1 year or more[14,20,22,27]. Seven sources were not clear on the follow-up time frame[12,13,15,16,25,26,29].
- At least 5 sources used control groups or comparison groups in their analysis[13,14,21,22,27]. Hartfiel et al (2022)[22] developed control groups through randomisation as per their protocol document[30]. Foster et al. (2021)[21] developed a matched comparator data set using a national database (ELSA), Wildman and Wildman (2023)[14] compared patient data between control and intervention GP practices in a geographical region. Case et al (2021)[27] developed a matched counterfactual comparison group from SUS data and Jones and Lynch(2022)[13] compared different groups of patients within their overall sample. It is not always possible or ethical to develop control groups via randomisation for research on social prescribing schemes, and these studies show the different ways researchers have tried to devise control groups.
- The scale of data sets analysed varied between pilot / feasibility studies[11-13,25] and studies with low n values, e.g., typically less than 100 people at follow-up[14,16-18,22,23,25,28,29] through to slightly larger data sets over 100 people at baseline[19,20,24] and very large data sets e.g., over 4,000 people included[14,21,27].

- Several studies reported that the data analysed represented a minority of the actual number of people accessing the service[12,17-19,29]. This is often the case when services users have to consent to additional evaluation data collection, as opposed to researchers being able to access data for service users via electronic health records for instance. Similarly, electronic health records do not always capture the broader outcomes data to fully represent the impact of social prescribing schemes on individual users. This is typically the case in SROI, where in all cases, it is necessary to collect primary data on volunteering, employment, housing and in a manner that meets the criteria of the UK social value bank questions and proxies.
- Thirteen of the studies researched the economic impact of the whole social prescribing scheme from referral to a link worker through to engagement with non-clinical activity[12-19,21,25,27-29]. Six studies examined the economic impact of only the social prescribing non-clinical activities that either were or could be part of a social prescribing pathway[11,20,22-24,26].

Populations studied:

- One study focussed on children and young people[17], all the rest were related to adult social prescribing schemes.
- Many of the services catered for multiple issues, e.g., providing a holistic service[18], accepting people with one or more long-term conditions[23,27,28] or receiving referrals for physical health, mental health issues and social issues[12-14,19,29]. Some services had a more specific referral criteria, e.g., people living in care homes[20], people with type 2 diabetes[14], or dementia/cognitive impairment/age-related memory issues[11,20,22,24,26].
- There was no pattern of age criteria for the services analysed, they were all different, ranging from specific age groups to the whole of the adult life course, or in one case for adolescents and young people.

How reliable is this data?

This rapid scoping review did not include systematic quality assessment. There is a range in methods used and in particular many studies present data collected with outcome measures. Often the proportion of service users providing baseline and follow-up outcome data was not a representative proportion of all the service users for a particular social prescribing scheme.

Many studies were pilot, feasibility or small-scale studies, hence did not carry out statistical analysis. This means that some reported decreases or increases in health and social care service usage (and associated costs) need to be further tested with a larger n value to determine if the trend is statistically significant. There were several sources of proxy financial values used in SROI analysis, and this introduces variation in how the SROI ratios are determined. Many researchers, however, provided transparent explanations of their SROI methods for assigning value and calculating ratios. Finally, only five studies had control or comparison groups, which provide more accuracy in attributing the changes and economic implications directly to the social prescribing schemes or activities studied. Many other studies exploring changes in health and social care service usage were not able to attribute the proportion of change to the role of social prescribing with the methods used.

Economic analyses of social prescribing

Due to the broad range of variables present in this group of studies and reports on social prescribing, it is not possible to directly compare all the economic results. As such the findings will be presented according to the economic methods used accompanied by any salient observations that the research team identified.

Cost description analysis[31]

One of the simplest approaches to analysing potential cost savings that could be realised through social prescribing services is to determine the amount of health services usage before and after a person uses the social prescribing service. This is simplistic as it only reviews the impact of social prescribing on the health and (sometimes) the social care sector and does not account for the costs of setting up and running the service across the whole social prescribing scheme. Furthermore, this analysis compares the use of service before and after social prescribing assuming the change is fully attributable to social prescribing and nothing else which may not be the case. This is particularly for the target groups which are likely to attend appointments with numerous people and interact with different services. Nevertheless, this data is highly sought after and the value of different types of service usage already have established costs assigned to them (e.g., Curtis and Burn, 2018[32]). Cost implications can, therefore, be calculated over a defined period of time to give a sense of whether social prescribing these are, net increases or decreases.

Seven studies reported cost-assessment analysis alongside other types of economic analysis[17,19,29], or as the sole form of economic analysis conducted[12,13,27,28]. The findings of these seven studies will be discussed in detail below.

- All of the studies investigated whole social prescribing schemes, only one of which did not mention the use of a link worker role[12].
- All seven studies had cohorts with a range of similar (but broad) referral criteria, e.g., one or more long-term conditions, social issues, or mental health issues.

Aspects of health service usage analysed included (in order of frequency analysed):

- GP consultations [12,13,17,19,27,29]
- Planned or unplanned hospital admission [17,19,27-29]
- A&E attendance [17,19,27-29]
- Hospital outpatient appointments [19,27,28]
- Prescription usage [12,13]
- Length of hospital stay [28]
- Mental health services [19]
- Community health service [28]
- Social services [19,28]

A net reduction in health and/or social care usage was reported by five out of seven of the studies [13,17,19,27,29]. Four of these studies had modest sample sizes ranging between n=77-247 participants to analyse [13,17,19,29].

- Lynch and Jones (2022) [13] reported a reduction in average monthly GP usage over the five months of the intervention, the highest reduction associated with the frequent attenders group. Costs assigned to the GP consultation reduction of 4.74 appointments per participant, extrapolated over a 12-month period indicate a likely cost saving of £78.37 per participant.
- Bertotti et al (2020) [19] evaluated a social prescribing service for patients with type 2 diabetes, low levels of mental health issues or social isolation. Reductions in GP consultations, hospital admission, mental health services and social care services were seen between baseline and follow-up. Reduction in GP usage equated to £24.4 per person (n=102), but there was a small rise in cost of A&E £6.27 per person (n=102). The overall result was a net reduction in combined health and social care services.

- Envoy Partnership[29] evaluated the self-care social prescribing programme for people 65 years and over with one or more long-term conditions, mental health or social care needs. This social prescribing scheme led to a reduction in A&E attendance, hospitalisations, outpatient appointments, and GP consultations. Values assigned to the reductions in health services usage equated to £102,000 for GP practice staff time in the first year, forecast to rise to £150,000 in year 2. Resource savings for the hospital usage were calculated at £106,000 year 1 and forecast at £154,000 year 2.
- Case et al. (2021)[27], was a robust analysis of over n=4500 participants with multiple long-term conditions and complex medical, practical and social issues who took part in a social prescribing scheme. This study also contained a matched counterfactual group and demonstrated that secondary care cost was 27% lower in the social prescribing group than the comparison group. Across the full eligible cohort of 14,652 service users, this equated to annual secondary care cost reduction of £1.56 million for the 2019/2020 financial year. The ability to carry out such large data analysis was due to the requirement to be able to access secondary care costs data from the SUS database being agreed early on in the project.

An increase in costs was reported by 2 studies[12,28].

- Jones and Lynch (2020)[12] reported on a pilot study of green social prescribing for people with low levels of anxiety, depression and psychosocial issues. Data for cost analysis was only gathered on 9/31 people. It is arguable, therefore, that whilst the data is negative for cost savings, that n=9 is far too low to discern meaningful data on costs. Furthermore, as a pilot study an aim is usually to determine if a service is feasible as opposed to collecting data for statistical analysis.

- Elston et al. (2019)[28] reported on a social prescribing service for older people with complex multimorbidity. Cost data on n=86 was analysed (out of 1,046 service users). Issues with data quality and data collection precluded analysis of GP and community services data. This study identified that 44% of service users had a reduction or no change in health and social care service usage costs. Of the 56% that had increased costs, the increases were only statistically significant for inpatient, community based and social care usage. The cost increase was not statistically significant for A&E or outpatient services.13% of the total group analysed accounted for over half of the cost increases. This analysis showed that an increase in severity of frailty predicted increased social care costs and 33% of the cohort had severe frailty according to their Rockwood Clinical Frailty Scale. As no control group was present, one cannot discern if the cost increases would have been even higher without the social prescribing group or not. This data demonstrates the need to have much higher n values, to be able to discern if there are particular service user characteristics which may affect health and social care usage in social prescribing schemes.

Regression modelling of health care costs

Regression modelling of health care costs is a statistical method used to predict health care costs which may be based on descriptive patient information and demographics, compared to health care costs. It is a useful method which can help work out which people are most at risk for high health care costs and can help identify factors that contribute to high health care costs. The information gained from this high-level statistical approach can help health care providers make better decisions about how to allocate resources. Drawbacks of this method is that it can be difficult to obtain patient demographic data (issues with sharing data sets), and it can also be hard to find accurate, up-to-date health care costs.

Wildman and Wildman (2023)[14] carried out a natural experimental analysis of a pre-post social prescribing intervention with control group for people with type 2 diabetes, aged between 40-74 years and living in an area of high deprivation in North East England (Wildman and Wildman 2023)[14]. There were n= 4762 in the intervention group and n=3421 in the control group, therefore this is a robust study design powered for statistical analysis. Analysis of unplanned in-patient secondary care usage was enabled by access to SUS data between 2013-2019. Covariates were age, ethnicity, sex and presence of one or more long-term conditions. Patients who had high engagement with the social prescribing scheme generated the greatest reductions in care costs of £77.57 [95% CI: -152.30, -2.84] per patient, per year. Further subgroup analysis showed greater cost reductions for patients from ethnic minority groups, older patients and those without additional comorbidities. Analysis of primary or community care data was not carried out due to the lack of access to this data. The authors also point out that subgroup analysis may have been underpowered as the n value decreased in these scenarios.

Cost-benefit analysis (CBA)

CBA is an economic evaluation tool which is used to directly compare the monetary costs and the monetised benefits of interventions. CBA is useful as decisions about which interventions are best are explicit and transparent because costs are measured in the same units. This can therefore aid decision-making about which interventions are best. Drawbacks for CBA are that it can sometimes be difficult to assign actual monetary values to benefits which are potentially less concrete (e.g., intangible feelings about life or aspects of human behaviour).

One study, Ferry et al (2020)[11] analysed the changes in health-related quality of life and costs associated with the use of an app to support reminiscence for people living with dementia, and their carers. This was a feasibility study, hence had a small sample of 30 people living with dementia and 29 carers. Whilst there was an overall increase in health-related quality of life for people living with dementia over the

duration of the intervention, the average health and social care cost increased between baseline and the three month follow-up time point. Further dissection of the data shows a reduction in GP consultations but increases in hospital costs and unpaid caregiving costs. As this is a feasibility study, it was not designed to determine statistical significance, and similarly to Elston et al (2019)[28], without the presence of a control group it is impossible to know whether some participants deteriorated less than they would otherwise have done whilst taking part in this study.

Social return on investment (SROI)

SROI is a form of cost-benefit analysis. It calculates an easy to understand ratio of value compared to £1 from total combined outcomes, divided by the cost of inputs invested. Several tools have been created to support value attribution (e.g., see the work of Social Value UK).

Benefits of SROI included the involvement of a variety of stakeholders, allowing for the inclusion of wider societal and social values (Hopkins et al 2023[33]; Kimberlee et al 2022[34]; Skinner 2022[35]; Hartfiel 2022[22]). In addition, SROI allowed for a breadth of hard to measure outcomes to be included in calculations (Hopkins 2023[33]) such as an organisation's reputation (Bosco et al. 2019[20]), an individual's self-esteem and optimism (Skinner 2022[35]), rates of employment, and a wide range of physical health outcomes (Kimberlee 2022[34]).

SROI is criticised, however, due to inconsistent financial proxies and controls. Additional limitations include the overlooking of costs incurred by various voluntary sector agencies outside of chosen stakeholders (Bertotti et al 2020[17]) and the lack of a standardised selection of outcomes and proxies (Jones et al. 2020[24] Hartfiel et al. 2022[22]). Moreover, many analyses do not account for negative change, only positive change. This leads to a potential overestimation of the return on investment.

13 studies carried out SROI analysis[15-26,29], making this the most popular economic analysis method used.

Nine studies used solely SROI analysis[15,16,20-26].

- Two studies using SROI analysis evaluated whole social prescribing schemes[21,25]. Foster et al. (2021)[21] evaluated a national social prescribing scheme supporting people at risk of loneliness using a matched comparator data set to measure changes in loneliness. A comprehensive SROI analysis was carried out and reported an SROI range of £3.42 per £1 invested. Mankanjuola et al. (2022)[25] evaluated a pilot social prescribing service for people suffering from anxiety or depression, comparing an intervention that was delivered online or face-to-face. This evaluation had a very small n value, and pilot data reported an SROI of £2.14-7.08 per £1 for face-to-face participants and £2.37-3.35 per £1 for online participants.

- Bosco et al. (2019)[20] conducted an analysis of the social value of arts for care home residents (n=267) and reported an SROI range between £1.02-£1.20 per £1 invested. Hartfield et al (2022)[20] conducted a three arm, multi-site, single blind randomised feasibility trial of a home-based exercise programme and community referral for people with dementia (n=60 patients and 54 carers). This feasibility study reported an SROI range of £3.46-£5.94 £1 invested. Whilst this was only a feasibility study, the use of a control group enabled the difference between usual care and intervention to be ascertained more accurately than using deadweight analysis.

- Two further studies evaluated activities in the community that could be provided as social prescribing referrals[23,24]. Jones et al. (2020)[23] evaluated a community hub for chronic conditions in North Wales, reporting an SROI range of £2.60–£5.16 per £1 invested. Benefits were generated to people prescribed the programme, their families, the NHS and local government. Jones et al. (2018)[24] carried out a longitudinal cohort study of a visual art intervention for people with a diagnosis of dementia or memory impairments in residential homes and county hospital venues in England and Wales. The range of SROI reported was £3.20-£6.62 per £1 invested. It is worth noting that whilst participants with dementia reported a stimulating experience qualitatively, this did not show in their quality of life scores they reported themselves. The proxy quality of life scores from their carers did show improvement. This highlights the difficulty of gaining usable quantitative self-reported data from people with dementia.

- Ubido and Timpson (2018)[15] and Jones et al. (2019)[16] reported case studies across two regions in England and did not present transparent methods on how the SROI data was generated. Ubido and Thompson (2018)[15], highlighted a particular scheme that generated savings to the public finance of £13.14 per pound invested. Jones et al. (2019)[16] highlighted a social prescribing scheme that returned £2.50 for every pound invested. Wilson (2022)[26] presented a commemorative review of the benefit of the House of Memories' museum intervention, set up to support people living with dementia. This report also did not go into methodological detail on how the SROI figures were determined but reported SROI ratios for three different museum and health programmes ranging from £8.66-£17.73 per pound invested. This analysis was associated with the activity itself and not a whole social prescribing scheme.

Four studies used SROI as part of their economic analysis of completed social prescribing schemes[17-19,29].

- Envoy partnership (2018)[29] evaluation of a Self-Care social prescribing scheme in London reported an SROI of £2.80 per £1 invested. Bertotti et al. (2020)[17] evaluated pilot social prescribing schemes for young people at three sites in England. Due to data collection issues, an SROI analysis for only one site was reported, as £5.04 per £1 invested.
- Bertotti and Temirov (2020)[18] evaluated a social prescribing scheme receiving referrals from 40 GP practices in London. The SROI was conservatively estimated at £3.51 per £1 invested for the people that provided baseline and follow-up WEMWBS data (n=41 at 3 months) and estimated an upper limit of £8.56 per £1 invested for the overall population of 2000 service users. A further evaluation of a London social prescribing scheme by Bertotti et al (2020)[9], supporting adults with type 2 diabetes, low level mental health issues or social isolation, reported an SROI range of £2.86-£6.42 per £1 invested.

Cost-effectiveness analysis (CEA)

Cost-effectiveness analysis (CEA) is an economic evaluation approach that compares the relative costs and outcomes of different (typically health) interventions. Using CEA comparisons of health and cost impacts across different inventions affecting the same health outcomes can be compared. Therefore, CEA is useful for making decisions about which interventions are cost-effective and therefore should be prioritised. CEA can be criticised as it may does not account for the distribution of costs and benefits among different groups of people (looking at wider social health issues).

Bertotti and Temirov (2020)[18] were the only researchers to carry out a cost-effective analysis of a London social prescribing scheme, alongside and SROI analysis. This cost-effectiveness analysis used the value of QALY at baseline as comparison group, so it essentially compared the change to the baseline. Whilst other studies have used the same principle to conduct a cost-effectiveness analysis, best practice would dictate the use of a randomised control group as the comparison point.

The initial QALY gained at 3 and 6 months was negative. Three negative respondents were carried across as no change, to understand potential cost effectiveness which resulted in QALY of £20100 n=59 at 3 months, which falls within the NICE guidelines for a cost-effective intervention thresholds (£20,000-£30,000/QALY). It is worth noting that the SROI was calculated as £3.51-£8.56 per £1 invested.

Discussion

Overall, there are predominantly positive economic findings across the different economic methods used to analysis the impact of social prescribing schemes. There is demand reduction for many health and care services, but more research is needed to understand who the beneficiaries are that will provide the maximum return on investment. The emerging groups being identified who may contribute to a greater reduction of health and social care service usage, or create a greater SROI, are:

- frequent attenders of primary care
- people who have high engagement with social prescribing schemes,
- face-to-face interventions over online interventions (although both created social value)
- people from ethnic minority groups
- people with only 1 long-term condition
- older people

Similarly, groups were identified who increase costs of health and social care including frequent non-attenders of primary care (and who potentially have unmet medical needs prior to seeing a link worker), severely frail older people, or those who have rare and degenerative diseases. All of these groups need further analysis in future research studies to test out if these observations can be supported.

There is an increase in the amount of research and evaluation being conducted which includes economic analysis. Much of this analysis is with relatively small data sets and requires patient reported outcome

measures to be completed, such as PAM, WEMWBS, EQ-5D-5l. This has posed one of the biggest challenges to getting data representative of the whole sample population for many reasons. Similarly, where electronic health records or data sets aimed to be analysed, difficulty accessing primary care and secondary care data records were reported.

2. Impact of social prescribing schemes on health service usage

Methods

To ascertain what potential data has been reported specifically on health service usage, that may not have had economic analysis conducted on it, we conducted a rapid evidence review search of grey literature databases. This search aimed to find any reports not picked up by the first search and involved expert searching of relevant databases. The following method was used:

- Grey literature databases were searched. These included Google Scholar, allcatsrgrey.org.uk and the Social Prescribing Networks' Google sheet database archive of grey literature.
- Search terms were specifically around health care demand and reduction of demand:
- Terms used were the following strings "evaluation of social prescribing reduction in health care use" "social prescribing reduction in health care use" "Social prescribing reduce GP appointment" "Social prescribing reduce A and E appointment" "Social prescribing reduce Secondary care appointment". In the Social Prescribing Network google sheet only documents entitled evaluation and economic were screened.
- As with the other rapid evidence search in this report database searches were limited to the last 5 years, since 2018, due to the breadth and volume of literature - particularly in social prescribing evaluation. In order to keep this review manageable, results were sorted by relevance and the first 10 pages of both searches were used in Google Scholar and allcatsgrey.org.uk.
- Further grey literature was identified through hand searching.

- Studies included evaluations, reports, and grey literature. They were included if they included health care use data in relation to social prescribing. Only studies written in English and programmes delivered in the UK were included. All other literature was excluded.
- Preliminary searches were carried out by HS and MP, with screening of sources independently conducted by both HS and MP. Any discrepancies in screening were reviewed and the final selection of studies for inclusion was made by HS and MP.

Overview of sources found

Types of evidence:

Total number of articles found was seven. Of the seven sources, six were grey literature (non-peer reviewed) evaluation reports[36-41]. The remaining one article[42] was a grey literature report which was based on a national data set. Five reports were written by university academics or academic teams[36,38-41], two were written by a consultancy company[37,42].

Six sources used pre-post designs to gather data on changes in outcomes over a period of time[36-41]. Pre-post duration follow-up times were mostly 3 months[37-39] but some had 6 months[36,39] and two had 12 months[40,41]. Only one source had a control group or comparison groups in their analysis[38]. Sample sizes ranged from national public health data sets (n unknown as multiple data sets)[42], n=1730[40] n=890[36] for two substantial pre-post evaluations, n=890 and between n=100 and 200 for the remaining reports[38,39,41].

Populations studied:

One report collated all available national data sets, including data on children and young people[42], all the rest were related to adult based social prescribing schemes. One evaluation focussed on people over the age of 65 years[41]. All reports included people who had been referred to social prescribing services in England (two in London[36,39]), one in the North West of England[38], two in the north of England[40,41], one in Kent[37] and one nationwide[42].

Types of health reduction data collected:

Health care data was collected for all included articles which used cost assessment analysis, (however note that reference 1 only relates to modelling nationwide data sets) and are as follows.

- Reductions in GP appointments[36,38,39,42]
- Reduction in A&E attendance[38-40]
- Reduction in planned secondary care attendance[38,40,41]
- Reduction in nurse appointments[36,38]
- Reduction in unplanned secondary care appointments[36,38]

Details on where the data for health care usage was obtained was sparse in the documents, as it was mostly assumed that the data was just found on local health care systems, via academics partnering with local NHSE services to do the evaluation work. Secondary Uses Service (SUS) data was only used in one evaluation[40]. Note, SUS data is a NHSE repository for health care data in England which enables reporting and of NHSE health care data.

How reliable is this data?

As seen with the data analysis reported in section 1, these sources primarily detail reductions in health service usage related to social prescribing schemes and these data sets could inform further economic calculations. There are several limitations which echo the limitations in section 1, namely, the lack of control groups, small sample sizes and generalisability of the findings. Several studies did not carry out analytic statistics to determine if the changes in health service usage were statistically significant. Furthermore, within the net increases or reductions of combined health services usage, it is likely that different health service usage may increase or decrease away from the net result.

Impact of social prescribing schemes on health service usage

- The Open Data Institute produced a report[42] based on national data sets of health care and social care data which modelled the potential health service reduction impact of social prescribing. This modelling reported that social prescribing could "help to reduce demand for non-clinical GP appointments and therefore free up clinical time and resources which can be deployed elsewhere". They extrapolated that if GP appointments fell by 2-5% a year as a result of social prescribing working nationally, this could prevent 3.2 to 8 million GP appointments per year. However, the authors note that social prescribing's actual impact on GP appointment volumes is still uncertain and therefore further research is needed.

- Reductions in GP appointments were found in a pre/post evaluation based in Tower Hamlets in London by Ferguson (2018)[36]. This evaluation tracked 890 people for 6 months and found a 12.3% reduction in GP appointments (418 fewer appointments in this time period). The authors extrapolated this to a 12-month period and determined that around 1,566 GP appointments would be avoided. They state that this represents a potential health service use saving of around £70,483 per annum (based on an approximate cost of £45 per GP appointment). Note, this evaluation did not have a control group, therefore causality cannot be established in terms of whether social prescribing itself reduced GP demands.

- A pre-post evaluation of social prescribing (with no control group) by Healthy Dialogues in 2018[39] found a reduction in GP and also A&E appointments in a London service. Health service use data was tracked for 138 people for GP use, 43 for A&E use. At 3 months the average number of appointments per patient was reduced from 11.9 (SD = 9.48) to 8 (SD = 6.85), this was a statistically significant result with a 33% reduction in appointments ($t(137)=1.98$; p= 0.005). This finding was also seen at 6 months (n=101) where the average number of appointments per patient reduced from 2,013 to 1,790, reducing by 233 appts (SD = 14.08) to 18 (SD = 13.18), however this result was not statistically significant - potentially due to being underpowered ($t(100)=1.98$; p=0.08). For A&E appointments 60 people were tracked for 3 months and 39 vs 20

visits were recorded, indicating a reduction of 19 visits, however this was not a statistically significant decrease (t(59)=2.00; p= 0.11). At 6 months (N= 43) there were 60 vs 31 visits, resulting in a reduction of 29 visits. This was a statistically significant decrease (t(59)=2.01; p= 0.04). The overall findings showed that GP appointments reduced by 33% and A&E by 50%, however, due to no control group and a small data set, only limited conclusions can be drawn about the impact of social prescribing on health care use.

- GP appointments were also seen to be reduced in a single arm, matched control, quasi-experimental pre-post mixed-methods evaluation of a social prescribing service in Shropshire carried out by Polley et al. (2019)[38]. This evaluation tracked 105 people and matched their health service use to a control group linked on diagnosis, gender and age and determined health service use before and three months after using the CVD risk and mental health support social prescribing service. At three months follow-up GP appointments were seen to reduce on average by -0.76 visits per person (control was -.0.09). A statistically significant (40%) reduction in GP appointments ((z(105)=-3.63, p<0.005) for participants at the 3-month follow-up, compared to a matched control group of people who did not use the social prescribing service.

- Two pre-post evaluations [40, 41] also contribute to the evaluation evidence base looking at health service use after social prescribing. Dayson et al. (2017)[40] used NHS secondary care Service User Statistics (SUS) in a pre-post social prescribing intervention evaluation. This substantial evaluation captured 1,730 people's data within the Rotherham Social Prescribing Service for People with long-term conditions. Overall, there was a small net increase in the number and cost of peoples' inpatient spells and A&E attendances in the 12 months following referral, but the authors note that they felt that these results masked a much more complex picture. Additionally, no control group was used for this study, therefore this limits the interpretation of the findings of this work. Dayson et al. (2018)[41] carried out a similar study in Rotherham on an older cohort on an Age UK social prescribing programme looking hospital aftercare services. From a sample of 239 referrals, it

was reported that 20 patients (9% of those transported home) would have otherwise been admitted as an inpatient to Rotherham General if they had not had the Age UK intervention. The study authors concluded that prevention of twenty inpatient admissions resulted in a cost saving to the NHS of £32,180. However, no control group comparison was available, therefore this result cannot be ascribed to social prescribing via this methodology.

- Finally, Involve (2023)[37] carried out a health service usage and the demand for acute care related to social prescribing West Kent. Datashare from NHS Kent and Medway Integrated Care Board provided a large data set (n=5908) which was able to track A&E and unplanned health care use over 6 months. An overall reduction in A&E visits of 20.26% was found after 6 months and the higher reductions (23.64%) were for people over 55 years who have complex health or frailty. Note, unplanned visits reduced after 6 months to an average percentage decrease of -5.63%. However, no matched control group provided so data cannot imply causality for health care reduction claims. Also, no analytical statistical analysis of data was carried out to determine if these changes were statistically significant.

3. Methodological challenges in making the economic case for social prescribing

Methods

Due to the complex nature of social prescribing schemes working across sectors and being individualised, there have been a number of discussions on the suitability of existing methodology to ascertain the economic impact and the wider societal value of social prescribing.

- Discussions from three roundtable events are also synthesised in this paper. Events were held in September 2022, January 2023 and March 2023 and co-hosted by UCL, the Arts and Humanities Research Council (UKRI), the National Centre for Creative Health (NCCH), and NASP.

- Attendees represented a range of fields, including: national funding agencies, national research centres and universities, commercial research consultancies, community interest companies, UK government departments, VCFSE organisations, national social prescribing organisations, NHS England and Improvement representatives, think thank organisations, and independent health economists (see Appendix for list of organisations).

The three roundtables addressed different questions:

1. What are the challenges we face in demonstrating the value of creative health? What existing approaches and data can we draw on?
2. What existing methods and approaches to data analysis are used to demonstrate cost, benefit and value in community-based approaches to health?
3. What is needed and what is missing regarding evidencing the cost, benefit and value of social prescribing?

The three roundtables were attended by 35 different people. Some people attended more than one roundtable, so there were 53 attendances over all three workshops in total.

Expert networks were used to find potential invitees, as well as identifying active researchers via initial search findings from the rapid scoping review's search method in section 1. These results identified key people publishing particularly in the area of social prescribing and economic analysis.

Discussions at the roundtables were wide-ranging, from specific methodological discussions on how best to account for the complex, individual and ecosystem nature of social prescribing through to the wider issues that affect all stakeholders in all sectors associated with social prescribing. The discussions from these meetings have provided insight into the limitations of the methodological approaches for creating the current economic evaluation evidence base for social prescribing. Discussions also pointed to other future methodological approaches which may be useful.

The roundtables revealed three key themes that came out of all the discussions which will be briefly described below.

- Theme 1: Reaching a cross-sector shared understanding of economic evaluation methods for social prescribing
- Theme 2. Practical issues in conducting economic evaluation methods for social prescribing
- Theme 3. Should social prescribing economic analysis be targeted to reflect the greatest need, and in turn, address social gradients and inequalities in access?

Reaching a cross-sector shared understanding of economic evaluation methods for social prescribing

The roundtable discussions expressed a need for economic evaluation methods that account for the complexity and individualised approach of social prescribing which works across many sectors, but need more discussion and development and ways of reaching a consensus.

The roundtable attendees observed a lack of agreed methods for analysing economic impact of non-clinical interventions.

The UK Treasury Department requires use of the "green book" to appraise policies, programmes and projects. The experts also reflected that cost-benefit analysis (CBA) is about the marginal pound spent: Is the marginal pound spent on one intervention the same as another intervention? The group felt that most government analysis based on the green book uses CBA, whereas health economics research used by other UK government departments, e.g., health and social care, often takes a cost-effectiveness/QALY approach, which is not comparable with CBA. Experts in the group advised that cost-effectiveness analysis is all about technical efficiency: it is all about how much you get for a given cost – how can you get a given output for the cheapest spend.

Furthermore, evaluators or commissioners may want a qualitative approach to better capture service user experiences. There is, therefore, inconsistency across the sectors that is making it harder for findings from research analyses to be translated into cross-sector policies or meta-analysed.

Members of the roundtables expressed that further clarity and shared understanding is needed on what we mean by 'value'. Are we talking about cost-effectiveness or value for money? And the value of what or to whom within the context of social prescribing? Social prescribing was described by the group members to be broad and inclusive of many interventions and sectors. Value can perhaps be linked to the individual, the health care setting, the wider social determinants of health and/or the wider community. Moreover, the bidirectional value associated with giving and volunteering within the VCFSE sector turns standard resource evaluation on its head. People get value from volunteering; this value is also a contribution to communities/society, but in mainstream economic evaluation volunteering is calculated as an opportunity cost so it is calculated as a cost because that person could be in a paid job producing an output.

Roundtable attendees also expressed a need for clarity in terms of creating an established and valid set of attributed costs of social

prescribing that needs to be determined, e.g., what individual components should cost, what NHS should pay for services. Finally, members of the group stated that SROI methodology is used widely but the understanding and applications of SROI vary: Is it cost saving or wider societal value? Contributors to the roundtables also commented on the need for other methodological approaches including WELLBYs to be examined for appropriateness for social prescribing.

Practical issues in conducting economic evaluation methods for social prescribing

Roundtable discussions determined that there are several basic challenges to carrying out economic evaluation of social prescribing. These challenges are particularly felt by smaller organisations where there may be a lack of time, expertise or resources to carry out economic evaluations. The challenges expressed by the roundtable discussions included:

- A lack of sharing of information across sectors on how to establish economic impact and associated frameworks of costs and benefits.

- Assessing multiple outcomes also requires larger data sets to mitigate statistical issues, which is challenging to collect particularly within non-clinical community-based settings. Accessing and combining multiple data sets across different settings may be a real challenge that needs to be overcome.

- Appropriate resources, skills and support limit the ability to produce substantial evidence for economic analysis. There may be a lack of economic literacy amongst researchers, evaluators and the wider social prescribing community which needs to be addressed before economic evaluation of social prescribing can happen more widely. There may be a lack of knowledge of what economic impact analysis is already underway as part of funded research projects

- Short project timescales and funding availability also impact ability to collect data. Interventions moving to mainstream delivery would help to mitigate this and create longitudinal data that can provide more information on cost, benefit and value and how this changes year on year.

- For the more complex analysis, larger data sets are needed for statistical confidence, which requires more system data, longitudinal data, data share protocols and access to counterfactual data sets.

- Social prescribing relies on harnessing pre-existing public goods provided by VCFSE, but there are cost implications here too and these costs can be difficult to uncover. It is important to move away from viewing the VCFSE sector as a "free" part of the social prescribing model. This point was further developed to highlight that economic analysis needs to be careful not to just value individual therapies, e.g., walking groups or swimming, but instead to look at social prescribing as a whole ecosystem intervention, given that social prescribing is about the personalised impact for the person.

- Social prescribing has multiple outcomes. It is tailored to people, the activities themselves and communities they exist in and the host organisation. Understanding the cost-effectiveness, cost-benefit, SROI and/or value of this is complex and beyond the reach of 'traditional' health economics and new methods to account for this complexity (as discussed in Wildman and Wildman 2019[43]) are urgently needed.

Should social prescribing economic analysis be targeted to reflect the greatest need, and in turn, address social gradients and inequalities in access?

Social prescribing is often discussed as an approach to address inequalities. The considerations necessary with this approach were discussed and several challenges in economic evaluation were identified:

- Evidence suggests social prescribing can reduce pressure on primary care and save costs, potentially protecting the NHS[44]. Evidence also suggests that people experiencing the highest burden of social determinants of health and inequalities stand to gain the most from social prescribing[44].

- Emerging data is suggesting that people in the lowest socioeconomic status groups using social prescribing may require more consultations with a link worker to unpack their complex situation and build trust[45] although this needs more corroboration and understanding. This means that the social prescribing service provision model would need to account for increased number of consultations in the caseloads of link workers, if social prescribing were to be targeted to the lower socioeconomic groups. Furthermore, a proportion of these service users will need access to health care, as at time of entry they will not be having their medical needs met. This has a short- and long-term economic implication. In the short-term there may be an increase for some people in GP consultations (although often the net change is a decrease). In the longer term, getting medical needs met, particularly to prevent long-term conditions such as type 2 diabetes getting worse, may create a cost saving for the NHS. Therefore, understanding the varying economic implications of groups within larger data sets in more detail is important to understand the costs and benefits associated with these groups.

- More research analysis of existing and new data sets is needed to understand which patients and service users provide what level of economic impact (positive or negative). These data would then be useful to identify if social prescribing could be focussed on particular patient populations and also allow proactive identification of these patients.

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Appendix

Organisations represented at the roundtables

- Arts and Health Research Council
- Centre for Cultural Value
- Cordis Bright
- Creative Health and Wellbeing Alliance
- Culture and Heritage Capital Portal
- Defence Gardens Scheme
- Department of Culture, Media and Sport
- European Centre for Environment and Human Health
- EFTEC - Economics for the Environment
- Exeter University
- National Academy for Social Prescribing
- National Centre of Creative Health
- National Institute of Health Research
- Newcastle University
- NHS England and Improvement
- Nuffield Primary Care, Oxford
- Oxford University
- Peninsula Medical School
- Plymouth University
- Sheffield Hallam University
- Social Design Institute
- Social Prescribing Observatory
- Social Prescribing Network
- University College London
- University of East London
- Ways to Wellness, Newcastle
- What Works Centre for Wellbeing

Resources shared by the roundtable participants

Government Green book:
https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-governent/the-green-book-2020

Current government outputs for the Culture and Heritage Capital Programme https://www.gov.uk/guidance/culture-and-heritage-capital-portal

Defra's 'Enabling a Natural Capital Approach' (ENCA).
https://www.gov.uk/government/publications/enabling-a-natural-capital-approach-enca-guidance/enabling-a-natural-capital-approach-guidance

New ongoing methods project to develop Realist (i.e. more explanatory and context-sensitive) Economic Evaluation Methods
http://www.fletcherism.co.uk/REEM/

HACT https://hact.org.uk/tools-and-services/uk-social-value-bank/

Health Technology Assessment (HTA) Programme
https://www.nihr.ac.uk/explore-nihr/funding-programmes/health-technology-assessment.htm

QUALYs https://www.gov.uk/guidance/cost-utility-analysis-health-economic-studies

Example of discrete choice experiment for social prescribing from the team at University of Aberdeen (Professor Marjon Van der Pol) 'Public and patient preferences for social prescribing', currently underway
https://www.abdn.ac.uk/heru/profiles/m.antunes.19/

Other resources to estimate the value of environmental resources: B£ST - CIRIA's tool and guidance, BEST (Benefits Estimation Tool – valuing the benefits of blue-green infrastructure) makes assessing the benefits of blue-green infrastructure easier, without the need for full scale economic inputs. https://www.susdrain.org/resources/best.html

Checklists for best practice in economic evaluation

The rapid review captured several best practice checklists for economic evaluation. This included:

- CHEERS[47] (The Consolidated Health Economic Evaluation Reporting Standards) 2022, from ISPOR, the Professional Society for Health Economics and Outcomes Research. The CHEERS project provides a 28-point checklist of standards in reporting economic evaluation and is written to ensure standards in peer review papers.

- Drummond[48]: Reporting Guidelines for Health Economic Evaluations: BMJ Guidelines for Authors and Peer Reviewers of Economic Submission

- UK Government standards in reporting economic evaluations[49]: https://www.gov.uk/guidance/evaluation-in-health-and-wellbeing-economics

- NICE "The guidelines Manual"[50]: Government Green book: https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-governent/the-green-book-2020