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Social Prescribing through Primary Care: A Systematic Review of the Evidence

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Abstract

Background: In primary care, social prescribing (SP) is where a patient is referred to a "link worker", who considers their needs and then "prescribes" or connects them to appropriate community-based resources and services. Recent policy and guidance in the UK has significantly expanded the provision of SP to improve patient health and wellbeing. **Methods:** This study conducted a systematic review of evidence for SP effectiveness and to report needs addressed, interventions provided, and behaviour change techniques employed. Inclusion criterion was patient referral from primary care to a SP link worker. Online databases were searched for studies published from February 2016 to July 2021. Searches were restricted to English language only. Risk of bias assessment and a narrative analysis were undertaken. **Results:** Eight studies were included. All studies reported some positive outcomes. There were weaknesses and limitations in study design and in reporting of results: a lack of comparative controls, short duration and single point follow-up, a lack of standardised assessments, missing data, and a failure to consider potential confounding factors. All studies had features which indicated a high risk of bias. **Conclusion:** Evidence for the value and positive impact of SP is accumulating, but evaluation design remains relatively weak. There is a need to improve evaluation through robust methodological design and the adoption of universal outcome measures and evaluation/analytical framework. SP should seek to assess patient wellbeing, self-management, and quality of lifeoutcomes systematically, and adopt behaviour change techniques to enable healthier lifestyles in the short and long term.

Keywords

Social Prescription, Greenspaces, Systematic Review, Wellbeing, Self-Management, Quality of Life, Behaviour Change

1. Introduction

People's health and wellbeing are determined by a range of social, psychological, economic, leisure, activity, and environmental factors (The King's Fund, 2020) [1]. Social prescribing (SP) is a relatively recent and extensively advocated for innovation that seeks to address holistic health and wellbeing needs (Department of Health, 2006; NHS England, 2016) [2] [3]. SP has been described as "a mechanism for linking patients with non-medical sources of support within the community" (Centre Forum, 2014, p. 6) [4]. SP seeks to take a holistic view of peoples' lives and needs by asking "what matters to you?", and linking patients with resources and sources of support within the community (NHS England, 2021) [5].

Through connecting patients to community-based support, resources and services, SP aims to address social, health, wellbeing, functioning, leisure, activity, quality of life and economic needs, and promotes self-management (NHS England, 2016) [3]. It is viewed as a way of improving the interconnection and integration of health, social care, commercial, charity, and community resources: improving patients' experience of services and reducing demand on primary and acute healthcare services; as well as contributing to other government objectives in relation to employment, social care, volunteering, and education/training (Wilson & Booth, 2015; The King's Fund, 2020) [1] [6]. There is no single agreed definition of what SP entails: models of delivery, support after referral, and activities offered differ significantly across the UK (Moffatt *et al.*, 2017) [7].

SP provides GPs with a non-medical referral option that can operate alongside existing medical treatments. GP referral is to a SP "link-worker", often based in a GP practice; the link worker meets with a patient to define their needs, "what matters to them" and connects patients to appropriate local services or resources (Husk *et al.*, 2016; Moffatt *et al.*, 2017) [7] [8]. Link-worker's roles can vary from "light touch" (referring and sign-posting), to a more holistic and instrumental approach that has a formal engagement process, sets health and wellbeing goals, facilitates behaviour change, and provides practical and emotional support over a period of time (typically three months) (Kimberlee, 2014) [9].

Randomised controlled trials (RCTs) and studies with other designs have demonstrated the positive impact of SP on patients' health and wellbeing (Maughan *et al.*, 2016; Bickerdike *et al.*, 2017) [10] [11]. Qualitative evidence finds that SP services are well liked by both patients and GPs (Smith & Skivington, 2016) [12]. It is acknowledged that health and wellbeing improvements may occur over a long period of time, and that behaviour change to healthier lifestyles can often occur slowly (National Academy for Social Prescribing, 2021) [13]. The groups of people who are viewed as potentially benefiting from SP include people with mental health problems, complex needs, multiple long-term conditions, and people who are socially isolated, lack the support or financial resources they need, or who frequently attend primary or secondary health care services (Friedli *et al.*, 2009; The King's Fund, 2020) [1] [14]. National Institute for Health and Care

Excellence (NICE) draft guidelines for mild to moderate depression recommended offering referral for exercise-related SP activities prior to prescribing anti-depressants (NICE, 2021) [15].

In 2014, a Centre Forum Mental Health Commission recommended that GP-based SP should be available in every primary care practice, to connect patients to local services and other support available in the community that can address psychosocial factors to improve patient wellbeing (Centre Forum, 2014) [4]. SP was given impetus with a commitment in the "Long Term Plan" for the NHS in England to have over 1000 trained SP link workers in post by 2020/2021 and to further expand provision so that over 900,000 people will have been referred to SP services by March 2024 (NHS, 2014) [16]. The "Long Term Plan" links SP to a wider salutogenic (generating health and wellbeing) model of delivering "universal personalised care" and adopts a more holistic approach to include a person-centred focus on wellbeing and resilience, not just the absence of disease (NHS, 2014; NHS England, 2021) [5] [16]. The plan recognises that the disease-oriented biomedical model of treatment and care cannot fully meet health and wellbeing needs, and that there needs to be a shift towards disease prevention, health promotion, self-management, and health behaviour and lifestyle modifications (Eaton *et al.*, 2015) [17]. In September 2021, the "Accelerating Innovation in Social Prescribing" initiative was launched, seeking to enhance connections between voluntary organisations and health and social care systems, to develop SP activities that are widely accessible, have a positive impact, and reduce health inequalities (National Academy for Social Prescribing, 2021) [13].

Non-clinical community interventions such as SP should aim to result in: 1) measurable health and wellbeing benefits, and 2) cause the adoption of lifestyle behaviour change and habits (fixed action patterns [FAPs] producing automated behaviour or thoughts) that result in long-term positive outcomes; however, few interventions seem to seek to do the latter (Pretty & Barton, 2020) [18]. There is a need for all SP interventions to aim to shift personal behaviours and choices to those that enhance health and wellbeing (Pretty & Barton, 2020) [18]. To achieve behaviour change, the adoption of key components of the COM-B model of behaviour: 1) opportunity; 2) motivation: 3) capability, has been suggested (Pretty & Barton, 2020) [18].

A growing body of evidence suggests that SP can lead to a range of positive health, wellbeing, and quality of life outcomes, and reduce social isolation, depression, and anxiety (The King's Fund, 2020) [1]. However, there remain weaknesses in the evidence base: many studies are small-scale, do not have a control group, focus on progress rather than outcomes, lack detailed descriptions of participants and interventions, have poor reporting, or relate to individual interventions rather than the SP model; and much of the evidence available is qualitative and relies on self-reported outcomes (Bickerdike *et al.*, 2017; The King's Fund, 2020) [1] [11]. Bickerdike *et al.*'s (2017) [11] review concluded that the evidence base does not allow effective assessment of who received what, for how long,

with what effect, and at what cost; and there is a failure to either consider or account for potential confounding factors, undermining the ability to attribute causality (Bickerdike *et al.*, 2017) [11]. Nevertheless, real-world evaluations have generally presented positive results (Bickerdike *et al.*, 2017) [11].

This review is an update on the systematic review undertaken in 2016 by Bickerdike *et al.* (2017) [11]. Since 2016, SP has become much more widely available across the UK. This current review summarises the recent evidence for the patient-outcome effectiveness of SP programmes relevant to the UK NHS setting. In addition to review of quality, outcomes and characteristics of SP projects undertaken by Bikerdike *et al.*, (2017) [11] we also reviewed included papers for "participant needs and referral criteria" and "Behaviour change methods" employed. This we did for both this current study's included papers and those of Bikerdike *et al.*, (2017) [11]. This review can inform future delivery and evaluation of SP.

2. Methods

2.1. Study Registration

The protocol is registered in PROSPERO (registration number: CRD42021265520).

2.2. Data Sources and Searches

Sources: MEDLINE, PubMed, PsycINFO (EBSCOhost), Embase, Web of Science to locate any papers describing or evaluating SP programmes. Grey literature reports of relevant evaluations in UK settings were identified via a Google search and from specific websites of organisations such as the Kings Fund, Health foundation, Nuffield Trust and NESTA. Reference lists of retrieved articles were scanned to identify additional studies. Dates for search were from 6 February 2016 (date after end of Bickerdike *et al.*'s [2017] [11] search) until 26 July 2021. All the searches were restricted to English language only.

2.3. Study Selection

Any published research or evaluation of programmes where healthcare professionals refer patients from a primary care setting to a SP link worker (who offers any form of SP) were eligible for inclusion. Studies were eligible if they had a comparison group or not. Search terms used: "social prescribing", "social prescription", "wellbeing programme", "non-medical referral", and "community referral". Exclusion criteria: "literature reviews"; "studies that do not evaluate with a patient outcome measure"; "patients referred for same activities but not as part of social prescribing programme"; "no pre and post outcomes data"; and "patients referred for social prescribing activities but not from any primary care setting."

The primary outcomes of interest were measures of mental and physical health and wellbeing, including self-reported measures. However, any other outcomes used in identified evaluations were reported. There was no restriction placed on

the length of follow-up.

Papers found were deduplicated using Mendeley reference management software. Following this, papers were reviewed and separated as "social prescribing" and "non-social prescribing", via title and abstract screening, removing non-social prescribing papers from the list. Study selection was performed by one researcher and checked by a second, with any discrepancies resolved by discussion and with recourse to a third researcher. Full text articles were then obtained and reviewed for eligibility, performed independently by two researchers, with any discrepancies resolved by discussion and with recourse to a third researcher.

2.4. Data Extraction and Quality Assessment

Data extracted were details of the setting, participants, the intervention (type, delivery mode and length of time), type of evaluation and outcomes of evaluation, participant needs, and behaviour change techniques employed. Two researchers independently undertook this, and discrepancies were resolved by discussion. Results are reported in **Table 1** and **Tables 3-5**.

The quality assessment tool developed by the US National Heart, Lung, and Blood Institute for before-after (pre-post) was applied (National Heart, Lung, and Blood Institute, 2013) [19]. Our primary focus was on effects. This was performed independently by two researchers, with any discrepancies resolved by discussion and with recourse to a third researcher.

Results reported in **Table 2**.

2.5. Data Synthesis and Analysis

Given the identified study's diversity in methodological design, outcomes, and interventions of focus, a narrative synthesis of the evidence was conducted. Data were insufficient to perform a meta-analysis for any of the outcomes. The narrative synthesis provides a description and summary of study findings and quality to investigate, and report similarities and differences between studies and patterns in the data. The results are reported along with the limitations of the methodology.

3. Results

We identified a total of 3595 records through database searches (after merging all databases). Noadditional records through other sources were found. After deduplication, 1870 titles and abstracts were screened, and 23 full-text papers were assessed for inclusion. This process resulted in eightpapers. See **Figure 1**: Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram.

3.1. Included Studies

We included eight evaluations of SP programmes where some form of link

Table 1. Characteristics of SP project evaluations.

Project information	Aim	Referral activity	Participants in evaluation (excluding health professionals and link workers)	Activities patients referred to by social prescribing facilitator/coordinator
1. Project name, location: Plus Social Program, Sydney, Australia **Author, year:** Aggar *et al.*, 2019 [20] **Date project established (or time period of evaluation):** 2016-2017 **Type of evaluation:** Uncontrolled before and after	To evaluate whether the program improved QoL, and social and economic participation.	**Referred to link worker:** Not reported **Attended link worker appointment:** Not reported **Attended a prescribed activity/services:** N = 24 **GP surgeries involved:** Not reported	**Approached to participate:** Not reported **Agreed to participate:** N = 24 **Included in evaluation analysis:** N = 13	**Activity:** All participants attended a weekly arts and crafts group. Support and review from GP and social worker before and after the group. Service referral options included the Connecting Care Chronic Disease Management Program, the NSW Health Housing and Accommodation Support Initiative, the Personal Helpers and Mentors service, and the Acute Post-Acute Care "Hospital in the Home" service. **Duration:** 2 to 3 hours weekly for 10 weeks
2. Project name, location: The social prescribing service, City and Hackney, London **Author, year:** Carnes, 2017 [21] **Date project established (or time period of evaluation):** 1st Feb 2014-31st Jan 2016 **Type of evaluation:** Controlled before and after	To investigate whether a social prescribing service could be implemented in a general practice (GP) setting and to evaluate its effect on well-being and primary care resource use.	**Referred to link worker:** N = 585 **Attended link worker appointment:** N = 504 (86%) **Attended a prescribed activity/services:** Not reported **GP surgeries involved:** N = 22	**Approached to participate:** N = 3475 **Agreed to participate:** N = 486 (N = 302 in the control group, N = 184 in the intervention group). Participants in the propensity matched "usual care" control group did not take part in the social prescribing programme. **Included in evaluation analysis:** 184/475 (39%) for intervention and 302/3000 (10%) for control at baseline, and 69/181 (38%) for intervention and 127/302 (42%) for control at 8 months Intervention group (N = 184)	**Activity:** Development of goals for a wellbeing plan. Appropriate referral to community organisations and services to help meet goals. **Duration:** Up to six sessions with the social prescribing coordinator and contacts with a volunteer (who provided additional support) as required.

Continued

3. Project name, location: The Well-being Coordination service, South Devon **Author, year:** Elston *et al.*, 2019 [22] **Date project established (or time period of evaluation):** Not reported **Type of evaluation:** Uncontrolled before and after	To evaluate the impact of "holistic" link-workers on service users' well-being, self-management activation and frailty, and their use of health and social care services and the associated costs. Explore what patient characteristics on programme entry were associated with positive outcomes.	**Referred to link worker:** N = 1046 **Attended link worker appointment**: N = 251 **Attended a prescribed activity/services:** Not reported **GP surgeries involved:** Not reported	**Approached to participate:** Not reported **Agreed to participate:** N = 151 **Included in evaluation analysis:** N = 86	**Activity:** 30 - 40 min strengths-based guided conversation. Setting goals; resilience-focused coaching, co-produced plan, signposting to local health, social and economic services; practical support. **Duration:** Up to 12 weeks
4. Project name, location: Happy and Healthy classes, North West of England **Author, year:** Giebel, 2021 [23] **Date project established (or time period of evaluation):** Jan 2019-Jan 2020 **Type of evaluation:** Uncontrolled before and after	To evaluate a socially prescribed community service provided to people with dementia and family carers offering physical and mental activities	**Referred to link worker:** N = 25 **Attended link worker appointment:** N = 25 **Attended a prescribed activity/services:** N = 25 **GP surgeries involved:** Not reported	**Approached to participate:** Not reported **Agreed to participate:** N = 25 (N = 14 people living with dementia, N = 11 family carers) **Included in evaluation analysis:** N = 15	**Activity:** Support for well-being and signposting to various well-being services, including the "Happy and Healthy" classes. Availability of weekly 60-minute physical and mental activity well-being classes: low-impact exercises, walks, Tai Chi, relaxation techniques, mindfulness, games; offered "quiet hours" in the gym and swimming pool and low-impact exercise and water-based classes. **Duration:** Up to 12 months
5. Project name, location: The Luton social prescribing pathway, Luton **Author, year:** Pescheny, 2019 [24] **Date project established (or time period of evaluation):** Jan 2016-Mar 2018 **Type of evaluation:** Uncontrolled before and after study	To assess the change in energy expenditure levels of service users after taking part in the Luton social prescribing programme.	**Referred to link worker:** N = 448 **Attended link worker appointment:** Not reported **Attended a prescribed activity/services:** Not reported **GP surgeries involved:** Not reported	**Approached to participate:** Not reported **Agreed to participate:** N = 186 **Included in evaluation analysis:** N = 146	**Activity:** Appropriate referral to advice services such as debt, housing, employment; physical activities such as walking groups, aerobics, yoga, gardening; social activities such as lunch clubs; stress management and relaxation courses; creative courses such as art clubs. **Duration:** 2 programmes of 10 weekly 2 hour sessions conducted over two years

Continued

6. Project name, location: Museums on Prescription, Central London and Kent **Author, year:** Thomson, 2017 [25] **Date project established (or time period of evaluation):** 2015-2017 **Type of evaluation:** Uncontrolled before and after	To assess psychological wellbeing in a novel social prescription intervention for older adults called Museums on Prescription	**Referred to link worker:** Not reported **Attended link worker appointment:** Not reported **GP surgeries involved:** Not reported	**Approached to participate:** Not reported **Agreed to participate:** N = 115 **Included in evaluation analysis:** Possibly N = 115, but not stated	**Activity:** Museum-based programmes encompassing curator talks; behind-the-scenes tours; object handling and discussion; arts activities (12 programs), facilitated by museum staff and volunteers across seven museums in central London and Kent. Weekly diaries following guideline questions and end-programme in-depth interviews. **Duration:** 10-weeks
7. Project name, location: SP pathway, Nottinghamshire **Author, year:** Wakefield, 2020 [26] **Date project established (or time period of evaluation):** Nov 2017-Feb 2019 **Type of evaluation:** Uncontrolled before and after	Assess whether the Social Cure (SC) perspective helps explain the effect of SP on healthcare usage and quality of life via SC processes.	**Referred to link worker:** N = 650 **Attended link worker appointment:** Not reported **Attended a prescribed activity/services:** Not reported **GP surgeries involved:** Not reported	**Approached to participate:** N = 650 **Agreed to participate:** N = 630 **Included in evaluation analysis:** N = 630 in baseline, N = 178 in first follow-up, N = 63 in second follow-up	**Activity:** Once referred, patients' needs are assessed by a Health Coach (HC), who either recommends self-care management, or refers the patient to a community-based Link Worker (LW) who connects patients to relevant voluntary/community groups. Patients are re-contacted regularly for progress monitoring. **Duration:** Support each patient weekly for up to 8 weeks
8. Project name, location: "the service", Northern England **Author, year:** Woodall, 2018 [27] **Date project established (or time period of evaluation):** 18 months **Type of evaluation:** Uncontrolled before and after	To understand the outcomes of the service and the processes which supported delivery.	**Referred to link worker:** 1500 - 2500 per year **Attended link worker appointment:** N = 2250 - 3750 **Attended a prescribed activity/services:** Not reported **GP surgeries involved:** Not reported	**Approached to participate:** Not reported **Agreed to participate:** N = 342 **Included in evaluation analysis:** N = 342	**Activity:** Needs are identified through patient engagement and discussion. Appropriate referral/sign-posting to local community activities and support to improve health and wellbeing. **Duration:** 6 sessions within 16 weeks

Table 2. Quality assessment and risk of bias.

Study	Quality Criteria	Risk of Bias	Notes
Aggar 2019 [20]	Was the study question or objective clearly stated?	No	
	Were eligibility/selection criteria for the study population prespecified and clearly described?	No	
	Were the participants in the study representative of those who would be eligible for the test/service/intervention in the general or clinical population of interest?	No	
	Were all eligible participants that met the prespecified entry criteria enrolled?	Not reported	
	Was the sample size sufficiently large to provide confidence in the findings?	Yes	The authors state that the small sample size was a limitation, and was likely to impact on external validity, power and generalisability.
	Was the test/service/intervention clearly described and delivered consistently across the study population?	No	
	Were the outcome measures prespecified, clearly defined, valid, reliable, and assessed consistently across all study participants?	No	
	Were the people assessing the outcomes blinded to the participants' exposures/interventions?	Yes	
	Was the loss to follow-up after baseline 20% or less? Were those lost to follow-up accounted for in the analysis?	Yes	45% of participants were lost to follow-up. Those lost to follow-up don't seem to have been accounted for in the study.
	Did the statistical methods examine changes in outcome measures from before to after the intervention? Were statistical tests done that provided p values for the pre-to-post changes?	No	
	Were outcome measures of interest taken multiple times before the intervention and multiple times after the intervention (*i.e.*, did they use an interrupted time-series design)?	Yes	Outcome measures were only taken once at pre and post intervention.
	If the intervention was conducted at a group level (e.g., a whole hospital, a community, etc.) did the statistical analysis take into account the use of individual-level data to determine effects at the group level?	Yes	

Continued

Carnes 2017 [21]	Was the study question or objective clearly stated?	Possible	The study questions were not stated but the aims of the study were.
	Were eligibility/selection criteria for the study population prespecified and clearly described?	Possible	The study did report the eligibility criteria for referral but there could have been some more explanation for some criteria. Age range and gender were not stated in the eligibility criteria.
	Were the participants in the study representative of those who would be eligible for the test/service/intervention in the general or clinical population of interest?	No	
	Were all eligible participants that met the prespecified entry criteria enrolled?	Not reported	
	Was the sample size sufficiently large to provide confidence in the findings?	No	
	Was the test/service/intervention clearly described and delivered consistently across the study population?	Possible	The social prescribing programme was described but the programme seemed quite broad which could mean participants may have had a wide range of experiences from the programme. However, this could be owing to the nature of social prescribing programmes: they are designed to be broad and diverse.
	Were the outcome measures prespecified, clearly defined, valid, reliable, and assessed consistently across all study participants?	No	
	Were the people assessing the outcomes blinded to the participants' exposures/interventions?	Yes	
	Was the loss to follow-up after baseline 20% or less? Were those lost to follow-up accounted for in the analysis?	Yes	Loss to follow-up after baseline was 62.5% in the intervention group, and 57.9% in the control group.
	Did the statistical methods examine changes in outcome measures from before to after the intervention? Were statistical tests done that provided p values for the pre-to-post changes?	Yes	Some gaps in p value reporting
	Were outcome measures of interest taken multiple times before the intervention and multiple times after the intervention (*i.e.*, did they use an interrupted time-series design)?	Yes	Outcome measures were only taken once at pre and post intervention.
	If the intervention was conducted at a group level (e.g., a whole hospital, a community, etc.) did the statistical analysis take into account the use of individual-level data to determine effects at the group level?	N/A	N/A

Continued

Elston 2019 [22]	Was the study question or objective clearly stated?	No	
	Were eligibility/selection criteria for the study population prespecified and clearly described?	Possible	Stated the age and source of referrals but could have elaborated on "long-term conditions" and how "considered as likely to benefit from a social intervention" was determined in the study. The exclusion criteria, if any, were not reported.
	Were the participants in the study representative of those who would be eligible for the test/service/intervention in the general or clinical population of interest?	No	
	Were all eligible participants that met the prespecified entry criteria enrolled?	Not reported	
	Was the sample size sufficiently large to provide confidence in the findings?	Yes	The paper reports how they calculated the study size and how many participants they intended to recruit to the study. However, only 86 participants had all the data present, whereas the study size calculated 170 participants were required to have statistical power.
	Was the test/service/intervention clearly described and delivered consistently across the study population?	Low/no	
	Were the outcome measures prespecified, clearly defined, valid, reliable, and assessed consistently across all study participants?	Possible	The study used validated measures but there could have been more description of what each measure aimed to investigate and what the scoring indicates.
	Were the people assessing the outcomes blinded to the participants' exposures/interventions?	No	The study states that researchers were blind to the participants.
	Was the loss to follow-up after baseline 20% or less? Were those lost to follow-up accounted for in the analysis?	Yes	32% were lost to follow-up.
	Did the statistical methods examine changes in outcome measures from before to after the intervention? Were statistical tests done that provided p values for the pre-to-post changes?	No	
	Were outcome measures of interest taken multiple times before the intervention and multiple times after the intervention (*i.e.*, did they use an interrupted time-series design)?	Yes	Outcome measures were only taken once at pre and post intervention.

Continued

Elston 2019 [22]	If the intervention was conducted at a group level (e.g., a whole hospital, a community, etc.) did the statistical analysis take into account the use of individual-level data to determine effects at the group level?	N/A	
	Was the study question or objective clearly stated?	No	
	Were eligibility/selection criteria for the study population prespecified and clearly described?	No	
	Were the participants in the study representative of those who would be eligible for the test/service/intervention in the general or clinical population of interest?	No	
	Were all eligible participants that met the prespecified entry criteria enrolled?	Not reported	
	Was the sample size sufficiently large to provide confidence in the findings?	Yes	
	Was the test/service/intervention clearly described and delivered consistently across the study population?	Possible	Could have reported more clearly how many participants took part in the additional classes such as exercise classes and water-based classes.
Giebel 2021 [23]	Were the outcome measures prespecified, clearly defined, valid, reliable, and assessed consistently across all study participants?	No	
	Were the people assessing the outcomes blinded to the participants' exposures/interventions?	Yes	
	Was the loss to follow-up after baseline 20% or less? Were those lost to follow-up accounted for in the analysis?	Yes	40% were lost to final follow-up.
	Did the statistical methods examine changes in outcome measures from before to after the intervention? Were statistical tests done that provided p values for the pre-to-post changes?	No	
	Were outcome measures of interest taken multiple times before the intervention and multiple times after the intervention (*i.e.*, did they use an interrupted time-series design)?	Yes	Outcome measures were only taken once at pre and post intervention follow-ups.
	If the intervention was conducted at a group level (e.g., a whole hospital, a community, etc.) did the statistical analysis take into account the use of individual-level data to determine effects at the group level?	N/A	

Continued

	Was the study question or objective clearly stated?	No	
	Were eligibility/selection criteria for the study population prespecified and clearly described?	Yes	The participant eligibility criteria were not clearly stated at all.
	Were the participants in the study representative of those who would be eligible for the test/service/intervention in the general or clinical population of interest?	No	
	Were all eligible participants that met the prespecified entry criteria enrolled?	Not reported	
	Was the sample size sufficiently large to provide confidence in the findings?	No	
	Was the test/service/intervention clearly described and delivered consistently across the study population?	No	
	Were the outcome measures prespecified, clearly defined, valid, reliable, and assessed consistently across all study participants?	No	
Pescheny 2019 [24]	Were the people assessing the outcomes blinded to the participants' exposures/interventions?	Yes	
	Was the loss to follow-up after baseline 20% or less? Were those lost to follow-up accounted for in the analysis?	Yes	70% were lost to follow-up. Those lost to follow-up accounted for in the analysis.
	Did the statistical methods examine changes in outcome measures from before to after the intervention? Were statistical tests done that provided p values for the pre-to-post changes?	No	
	Were outcome measures of interest taken multiple times before the intervention and multiple times after the intervention (*i.e.*, did they use an interrupted time-series design)?	Yes	Outcome measures were only taken once at pre and post intervention.
	If the intervention was conducted at a group level (e.g., a whole hospital, a community, etc.) did the statistical analysis take into account the use of individual-level data to determine effects at the group level?	N/A	

Continued

Thomson 2017 [25]	Was the study question or objective clearly stated?	No	
	Were eligibility/selection criteria for the study population prespecified and clearly described?	No	
	Were the participants in the study representative of those who would be eligible for the test/service/intervention in the general or clinical population of interest?	No	
	Were all eligible participants that met the prespecified entry criteria enrolled?	Not reported	
	Was the sample size sufficiently large to provide confidence in the findings?	Yes	
	Was the test/service/intervention clearly described and delivered consistently across the study population?	No	
	Were the outcome measures prespecified, clearly defined, valid, reliable, and assessed consistently across all study participants?	No	
	Were the people assessing the outcomes blinded to the participants' exposures/interventions?	Yes	
	Was the loss to follow-up after baseline 20% or less? Were those lost to follow-up accounted for in the analysis?	N/A	
	Did the statistical methods examine changes in outcome measures from before to after the intervention? Were statistical tests done that provided p values for the pre-to-post changes?	No	
	Were outcome measures of interest taken multiple times before the intervention and multiple times after the intervention (*i.e.*, did they use an interrupted time-series design)?	Yes	Outcome measures were only taken once at pre, mid and post intervention.
	If the intervention was conducted at a group level (e.g., a whole hospital, a community, etc.) did the statistical analysis take into account the use of individual-level data to determine effects at the group level?	No	

Continued

	Was the study question or objective clearly stated?	Yes	The study states hypotheses but doesn't state objectives.
	Were eligibility/selection criteria for the study population prespecified and clearly described?	Yes	
	Were the participants in the study representative of those who would be eligible for the test/service/intervention in the general or clinical population of interest?	No	
	Were all eligible participants that met the prespecified entry criteria enrolled?	Not reported	
	Was the sample size sufficiently large to provide confidence in the findings?	No	
	Was the test/service/intervention clearly described and delivered consistently across the study population?	Yes	The social prescribing programme could have been described in more detail
	Were the outcome measures prespecified, clearly defined, valid, reliable, and assessed consistently across all study participants?	No	
Wakefield 2020 [26]	Were the people assessing the outcomes blinded to the participants' exposures/interventions?	Yes	
	Was the loss to follow-up after baseline 20% or less? Were those lost to follow-up accounted for in the analysis?	Yes	72.8% lost to the first follow-up after baseline and 90.3% lost after the second follow-up after baseline. Lost to follow-up were accounted for using a Bonferroni-corrected between-groups t-test to compare those followed up and those who were not followed up.
	Did the statistical methods examine changes in outcome measures from before to after the intervention? Were statistical tests done that provided p values for the pre-to-post changes?	No	
	Were outcome measures of interest taken multiple times before the intervention and multiple times after the intervention (*i.e.*, did they use an interrupted time-series design)?	Yes	Outcome measures were only taken once at pre and post intervention follow-ups.
	If the intervention was conducted at a group level (e.g., a whole hospital, a community, etc.) did the statistical analysis take into account the use of individual-level data to determine effects at the group level?	N/A	

Continued

	Was the study question or objective clearly stated?	Yes	The study aims could have been stated more clearly and objectives were not explicitly stated.
	Were eligibility/selection criteria for the study population prespecified and clearly described?	Yes	The eligibility criteria for the social prescribing programme was reported but the specific participant criteria for the study was not stated.
	Were the participants in the study representative of those who would be eligible for the test/service/intervention in the general or clinical population of interest?	No	Difficult to judge due to the non-reporting of participant eligibility criteria, but based on the eligibility criteria for the programme, the participants were broadly representative.
	Were all eligible participants that met the prespecified entry criteria enrolled?	Not reported	
	Was the sample size sufficiently large to provide confidence in the findings?	No	
	Was the test/service/intervention clearly described and delivered consistently across the study population?	No	
Woodall 2018 [27]	Were the outcome measures prespecified, clearly defined, valid, reliable, and assessed consistently across all study participants?	Yes	
	Were the people assessing the outcomes blinded to the participants' exposures/interventions?	Yes	
	Was the loss to follow-up after baseline 20% or less? Were those lost to follow-up accounted for in the analysis?	N/A	
	Did the statistical methods examine changes in outcome measures from before to after the intervention? Were statistical tests done that provided p values for the pre-to-post changes?	No	
	Were outcome measures of interest taken multiple times before the intervention and multiple times after the intervention (*i.e.*, did they use an interrupted time-series design)?	Yes	Outcome measures were only taken once at pre and post intervention.
	If the intervention was conducted at a group level (e.g., a whole hospital, a community, etc.) did the statistical analysis take into account the use of individual-level data to determine effects at the group level?	N/A	

worker role was used. The designs included one controlled before and after and seven uncontrolled before and after studies. In the studies, the link worker met with the patient to discuss their needs and directed them to support and resources. Details of the included evaluations are presented in Table 1.

3.2. Quality of the Evidence

Quality assessment and risk of bias for the evaluative designs are presented in Table 2. In general, evaluations did not determine sample sizes using power analysis, had significant loss to follow-up (>20%), and were lacking in completeness of outcome data. Furthermore, half had unclear selection criteria for the study population. In all cases, outcome measures were only taken once at pre and post intervention, with no follow-up. For these reasons, there was a high risk of bias.

3.3. Health and Wellbeing Outcomes

Table 3 lists outcome measures used and presents brief summaries of findings.

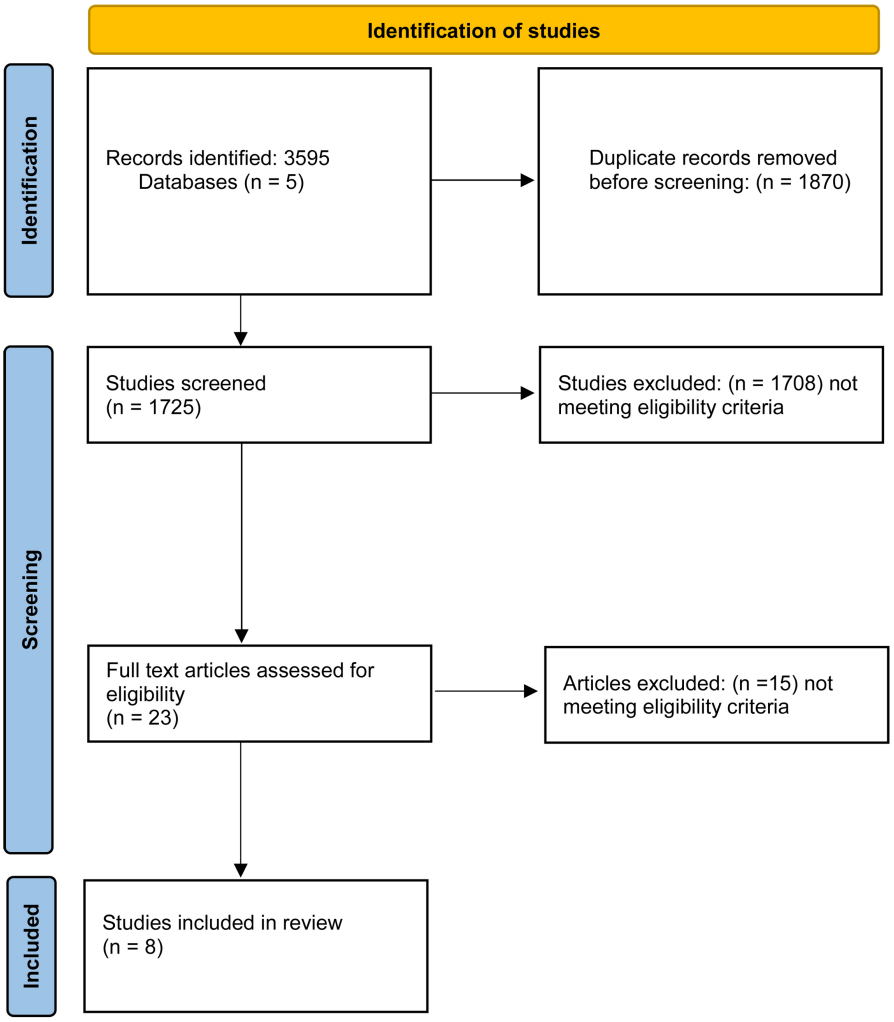

Figure 1. PRISMA flow diagram.

Table 3. Health and wellbeing outcomes.

Study (timing of outcome measurement post baseline measurement)	WHOQoL	CANSAS	EQ-5D	UCLA 3-item Loneliness Scale	K10	HADS	WEMWBS	SWEMWBS	PAM	RCFS	MWM-OA	ULS-8	Campaign to End Loneliness Measurement Tool
Aggar 2019 [20] (6 months)	Significant improvement in overall health satisfaction, physical and psychological QoL	Slight increases but no significant changes in met and unmet health and welfare needs	Significant improvement in self-reported health status	Slight declines but no significant changes in self-rated loneliness	No significant changes in distress								
Carnes 2017 [21] (8 months)						No significant changes in depression or anxiety							
Elston 2019 [22] (3 months)							Significant improvement in well-being		Significant improvement in patient activation	Significant improvement in frailty			
Giebel 2021 [23] (3 and 6 months)								Significant improvement in well-being					
Pescheny 2019 [24] (not stated)													
Thomson 2017 [25] (mid and post intervention: 5 and 10 weeks)											Significant improvement in self-rated emotions		
Wakefield 2020 [26] (4 and 6 - 9 months)			Significant increase in self-reported QoL. Number of group memberships (1-item from Hayward *et al.*, 2014) had non-significant, positive effect onQoL									Social support (4-item scale from Haslam *et al.*, 2005) was a negative, non-significant predictor of loneliness	
Woodall 2018 (not stated) [27]			Significant decrease in anxiety and depression				Significant improvement in well-being						Significant improvement in relationships and social networks

Campaign to End Loneliness Measurement Tool (CANSAS); Camberwell Assessment of Need Short Appraisal Schedule (CANSAS); Community belonging 1-item measure from Hayward *et al.*, 2014; EuroQol-5 Dimension (EQ-5D); Hospital Anxiety and Depression Scale (HADS); The Kessler Psychological Distress Scale (K10); Museum Wellbeing Measure for Older Adults (MWM-OA); Patient Activation Measure (PAM); Rockwood Clinical Frailty Scale (RCFS); Social support 4-item measure from Haslam *et al.*, 2005; The Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS); UCLA 3-item Loneliness Scale, 8-item UCLA Loneliness Scale (ULS-8); The Warwick-Edinburgh Mental Well-being Scale (WEMWBS); The World Health Organisation Quality of (LifeWHOQoL).

Significant improvements were seen on some of the various measures employed. Studies reported baseline and single point follow-up outcomes only; there is no evidence based on a further follow-up point/s.

3.4. Behaviour Change Methods

Table 4 lists behaviour change methods employed and any descriptions of those

Table 4. Behaviour change methods.

Paper name	Behaviour change methods employed (yes/no)	Brief description of Behaviour change methods employed
Aggar *et al.* (2019) [20]	Yes. Only mention in the paper was to state: "the mechanism of change was focussed on behaviours"	No
Carnes *et al.* (2017) [21]	Yes	Mentions a well-being action plan, which contained goals for improving wellbeing.
Elston *et al.* (2019) [22]	Yes	Defines "what matters to them" and goals are set, and mentions the use of "resilience-focused coaching"
Giebel *et al.* (2021) [23]	No	N/A
Pescheny *et al.* (2019) [24]	No	N/A
Thomson *et al.* (2017) [25]	No	N/A
Wakefield *et al.* (2020) [26]	No	N/A
Woodall *et al.* (2018) [27]	No	N/A
Grant *et al.* (2000) [28]	No	N/A
Maughan *et al.* (2016) [10]	No	N/A
Dayson *et al.* (2014) [29]	No	N/A
Friedli *et al.* (2012) [30]	No. Only mention in the paper was to state that an outcome measure of the programme was to "enhance skills and behaviours that improve and protect mental wellbeing".	N/A
Grayer *et al.* (2008) [31]	No	N/A
Kimberlee *et al.* (2014) [9]	Yes	Part of the programme is to identify and set realistic health and wellbeing goals, and the key-worker then supports the client to achieve those goals
Age Concern (2012) [32]	No	N/A
Baines *et al.* (2015) [33]	No	N/A
ERS Research and Consultancy (2013) [34]	NESTA—People Powered Health programme No Ways to Wellness programme Yes	Mentions development of personal goals but does not go into more detail about how these goals are met.
Woodall *et al.* (2005) [35]	No	N/A
South *et al.* (2008) [36]	No	N/A

Continued

White *et al.* (2010) [37]	Yes	Most patients (80%) developed a personal health action plan in which they decided on what goals they needed to achieve
Faulkner *et al.* (2004) [38]	No	N/A
Longwill *et al.* (2014) [39]	Yes	The programme used the "Recovery Star Outcomes Framework" to set personal goals and measured them over time to assess how they were progressing towards their goals.
Brandling *et al.* (2011) [40]	No	N/A

employed. Most did not state behaviour change methods employed, but of those that did goal-setting was most frequently mentioned, N = 6.

3.5. Participant Needs and Referral Criteria

Table 5 lists the needs of people seen by SP services and diagnosis and/or needs required for referral or inclusion criteria. There was great variation between projects on diagnosis and health, social and other needs inclusion and referral criteria.

4. Discussion

This systematic review examined the evidence for the patient outcome effectiveness of SP programmes relevant to the UK NHS primary care setting. The review identified eight evaluations; all of which found some evidence of positive patient outcomes. The studies reviewed show that many people who engaged in a broad range of SP activities self-reported improvements in factors such as: wellbeing, health status, quality of life, self-managing health conditions, physical activity level, and social connectedness. However, the quality of evidence was lacking due to weak methodological design (including no RCTs), high dropout, lack of post follow-up assessment of change, unclear inclusion criteria, and poor quality reporting. There was a lack of consideration and/or adjustment for potential confounding factors (e.g., other concurrent treatments or interventions), undermining the attribution of any reported positive outcomes to the SP received. This aligns with Bickerdike *et al.*'s (2017) [11] review conclusions and adds further evidence of generally positive results from real-world evaluations.

Bickerdike *et al.*'s (2017) [11] systematic review and our update found great variation in SP provision, therefore, restricting synthesis and generalisability of findings; the reviews did not establish that there is clear methodologically strong evidence that SP is or is not effective. By its nature, SP is based on the community resources identified locally, and these resources vary dependent on location (Munford *et al.*, 2020) [41]. The underlying theories indicating that better community based social, cultural, activity, support service and green space connections

Table 5. Needs and referral criteria.

Paper name	Needs of people seen by social prescription services	Diagnosis and/or needs required for referral or inclusion criteria
Aggar *et al.* (2019) [20]	Biopsychosocial needs with complex and serious mental health illness	Inclusion criteria: Diagnosed with serious mental illness that is likely to last at least 6 months or more, 18-65 years old, living in the community. Exclusion criteria: currently receiving acute inpatient treatment, has significant cognitive impairment.
Carnes *et al.* (2017) [21]	A range of needs from sign-posting to coaching	Inclusion criteria: frequent attenders (patients) in GP's and/or socially isolated. Exclusion criteria: in acute crisis, at risk to self and/or others, had uncontrolled addictions, had uncontrolled mental health problems.
Elston *et al.* (2019) [22]	Complex health needs with two or more long-term conditions, and social, physical and economic needs	Inclusion criteria: two or more long-term conditions, 50 years old or over, considered likely to benefit from a social intervention. Exclusion criteria: none stated.
Giebel *et al.* (2021) [23]	Not stated	Inclusion criteria: diagnosis of dementia (any subtype and age). Exclusion criteria: very unwell from physical or mental illness.
Pescheny *et al.* (2019) [24]	Motivational interviewing used to identify the non-medical needs of the patients, including advice services, physical activities and social activities	Not stated
Thomson *et al.* (2017) [25]	Loneliness and social isolation	Inclusion criteria: 65 - 94 years old, socially isolated, able to give informed consent, not employed, not regularly attending social or cultural activities. Exclusion criteria: unable to travel to museum, unable to function in group setting, unlikely to be able to attend all sessions, unable to take part in interviews and complete questionnaire.
Wakefield *et al.* (2020) [26]	Managing one or more long-term physical or mental health condition, feeling isolated, lonely or socially anxious	Inclusion criteria: has one or more long-term physical/mental health condition and feels isolated, lonely or socially anxious
Woodall *et al.* (2018) [27]	Social support and health needs	Inclusion criteria: 14 years old or over, registered with a GP. Exclusion criteria: none reported.
Grant *et al.* (2000) [28]	Psychosocial problems, quality of life issues	Inclusion criteria: 16 years old or over, psychosocial problems who GP's thought may benefit from contact with voluntary sector. Exclusion criteria: unable to complete questionnaires.

Continued

Maughan *et al.* (2016) [10]	Isolation, frequent attenders to GP's	Inclusion criteria: adults with a common mental health conditions (e.g. depression or anxiety), not under care of secondary mental health services, did not have a substance misuse disorder
Dayson *et al.* (2014) [29]	Non-clinical needs of those with complex long-term conditions, frequent users of primary care	Inclusion criteria not stated
Friedli *et al.* (2012) [30]	Money/debt, employment, housing support, drug and alcohol misuse, physical activity, condition management, social isolation, psychosocial and emotional needs, family and relationship problems	Inclusion criteria: poor mental wellbeing which is affected by social circumstances and/or mild to moderate depression and anxiety and/or long-term physical/mental health condition and/or frequent attenders in primary care. Exclusion criteria: experiencing acute episode of psychosis, primary diagnosis of drug or alcohol misuse.
Grayer *et al.* (2008) [31]	Psychosocial needs	Inclusion criteria: 18 years old or over with a psychosocial problem (e.g. depression, anxiety, social isolation, financial difficulties). Exclusion criteria: active suicidal ideation, current episode of acute psychosis or crisis, housebound, requiring specialist mental health service, already under care of secondary mental health service or social services.
Kimberlee *et al.* (2014) [9]	Depression and anxiety related primary needs. Other needs included reducing isolation, anger management, increasing physical activity, improving employment.	Not stated
Age Concern (2012) [32]	Social, emotional and practical needs	Inclusion criteria: "Older people" with mild to moderate depression or who were lonely or socially isolated.
Baines *et al.* (2015) [33]	Clients were "just dipping over" into needing further support	Inclusion criteria: Over 18 years old, had a recent change in circumstances e.g. bereavement, redundancy or diagnosis of a chronic condition like Diabetes, has a long-term condition. Exclusion criteria: had high risk level or acute mental health condition.
ERS Research and Consultancy (2014) [34]	NESTA—People Powered Health programme Complex problems. Ways to Wellness Long-term health conditions.	NESTA—People Powered Health programme Inclusion criteria: has long-term condition or has mental health needs greater than can be managed by organisations already delivering link work and who cannot access mental health services as they do not meet diagnostic criteria and/or initial assessment identifies they will not benefit from CBT. Ways to Wellness Not explicitly stated but programme was for people with long-term health conditions.

Continued

Woodall *et al.* (2005) [35]	Non-clinical needs	Not stated
South *et al.* (2008) [36]	Non-clinical needs	Not stated
White *et al.* (2010) [37]	Health, wellbeing and social needs	Low level mental health problems, social problems which were affecting their health or were isolated and lonely
Faulkner *et al.* (2004) [38]	Psychosocial problems including bereavement, difficulties caring for relatives, relationship problems and social isolation	Inclusion criteria: 18 years old or over, psychosocial problems. Exclusion criteria: requiring or already receiving full counselling, CPN or psychiatric services, known behavioural or anger issues, under the influence of drugs or alcohol whilst attending the surgery.
Longwill *et al.* (2014) [39]	Emotional support needs, physical and mental health needs, practical needs.	Not explicitly stated but programme is for adults and families
Brandling *et al.* (2011) [40]	Patient wanting to enhance engagement in support and interest groups in the community	Not stated

and engagement are beneficial for people are well evidenced (Pretty & Barton, 2020) [18]. In the projects reviewed, a large variety of outcome measures were employed indicating the wide potential positive impact of SP, but also a lack of focus on key overarching factors of wellbeing, self-management, and health related quality of life.

The people who were referred for and offered SP (in terms of their diagnosis and needs) varied considerably between the projects, the universal factor being that needs linked to health and wellbeing were targeted. This reflects the evidence that the underlying theories and SP interventions can be beneficial for many people in addressing their needs and factors related to specific mental and physical health diagnosis (The King's Fund, 2020) [1]. There is an important underlying ethos of SP to address causes of poor wellbeing and health, promoting health and wellbeing and preventing illness, rather than treating illness caused (NHS England, 2021) [5]. The more universal availability of SP being applied in the NHS should allow more equitable access to SP through greater awareness, transparent referral routes, and community-based collaborations (NHS, 2014; National Academy for Social Prescribing, 2021; NHS England, 2021) [5] [13] [16].

A key component of SP is behaviour change (Pretty & Barton, 2020) [18], but we found a lack of reference to, or description and application of, behaviour change theories and practice. Only six out of 21 papers mentioned the use of goal-setting techniques, and none mentioned any other behaviour change techniques. There is strong evidence for behaviour change theories and application

to improve health and wellbeing, for example "motivational interviewing" and it is important that behaviour change techniques are applied in the delivery of SP (Husk *et al.*, 2019; Pretty & Barton, 2020) [8] [18]. Husk stated: "For all programmes, it is important to develop SP in line with complex intervention and behaviour change approaches with a careful consideration of context and capacity" (Husk *et al.*, 2019, p. 320) [8].

5. Limitations

There were limitations of the review processes used. There is potential publication bias as other studies may exist but have not been published, and therefore, were not listed through searches employed. However, we managed to obtain a number of studies identified through requesting from the authors. There were limitations of the evidence included in the review. The intervention under review (SP) does not have a single defined inclusion or design criteria (SP intervention provision varies widely), and outcome measures vary between evaluations undertaken. These factors mean that any generalisation of findings between different SP models has to be made with caution; findings are context and intervention specific and may not be transferable to other SP models.

6. Conclusions

Further expansion of primary care-based SP requires a strong evidence base, to define what works, for who, and how (Munford *et al.*, 2020) [41]. Further research should seek to gain a deeper understanding of the application, complexity, challenges, and successes of the SP model and delivery through a review of qualitative evidence and interviewing SP link workers and patients referred through primary care. There is a need to improve the ways by which SP schemes are evaluated, perhaps through systematic evaluation of SP in a particular NHS region; funding and NHS provider support would be required to do this. This could enable SP to be improved and be more cost-effective.

Bickerdike *et al.* (2017) [11] suggested the design and adoption of a common evaluation and analytical framework (e.g., Lamont *et al.*, 2016) [42] and systematic reporting (e.g. Standards for Quality Improvement Reporting Excellence [SQUIRE] [Ogrinc *et al.*, 2016] [43]) to enable standardised metrics, cross-site comparison, transparency, and shared learning. As in NHS Improving Access to Psychological Therapies (IAPT) services, a "Minimum Data Set" (MDS) could be adopted with measures that would include, for example, the WEMWBS, PAM, and EQ-5D-5L, to assess three key factors of wellbeing, self-management, and health-related quality of life. It is vital that SP services seek to collaboratively work with patients to effectively define and assess outcomes and apply behaviour change techniques to enable healthier lifestyles in the short and long term.

What Is Known about This Topic?

1) Social prescription is based on evidenced theories indicating that social,

psychological, economic, leisure, activity, and environmental factors impact on health and wellbeing;

2) Methologically strong research and evaluation is lacking in social prescription;

3) Social prescription provision is rapidly expanding in the UK's NHS and is being applied internationally.

What This Paper Adds?

1) There is evidence of positive impact on outcomes through patient self-reported health, wellbeing, self-management, sociability, and functioning measures;

2) There is a need to improve evaluation through the adoption of common outcome measures and evaluation/analytical frameworks;

3) It is vital that social prescription applies behaviour change techniques to enable healthier lifestyles in the short and long term.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Conflict of Interest Statement

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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