**Health & Social Care in the Community**

**Role of Social Prescribing Link Workers in supporting adults with physical and mental health long term conditions: integrative review**

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**Abstract**

Social Prescribing Link Workers interventions have been widely adopted within healthcare systems, particularly in the UK, to support a range of patients’ needs and to help improve condition management for those living with multiple long term conditions. However, there is a lack of consistency in implementation and unclear guidance about how Social Prescribing Link Workers might address these needs, particularly in individuals living with physical and mental health long term conditions who bear a greater burden of multifaceted everyday problems and health challenges. This review aimed to identify the existing ways of how Link Workers might support the needs of this group. Systematic literature search strategies were carried out with systematic methodology that identified 18 eligible articles that mostly consisted of qualitative studies (N=10) with the remaining studies employing a range of designs. Following a thorough process of data extraction and synthesis of findings, two principal themes and four sub-themes were developed, that together helped to explain the process of support and the enablers that determined how successful Link Workers’ interventions were in supporting adults with physical and mental health long term conditions. We found that personalised plan development and goal setting was a central collaborative task between the Link Worker and the patient, that helped in ‘linking’ people to beneficial and relevant sources of support. However, the catalyst for a successful change appears to be a combination of a therapeutic relationship with a Link Worker facilitated by a range of practical advice with ‘hands on’ solutions that were highly desired elements of support. We have identified directives for future research and practical suggestions for enhancing the set up of Link Workers’ interventions with this group of adults.

**1 Introduction**

‘Long term conditions’ (LTCs), connoting illnesses that have no cure, and instead require management of symptoms with medication and/or other forms of treatment, can be physical or mental health related, such as diabetes, arthritis, cardiovascular diseases, and depression [1]. LTCs represent one of the greatest challenges for health systems worldwide [2]. Globally, 1 in 3 adults live with multiple LTCs and the proportion of these adults is projected to rise considerably [3], particularly of those living with 4 or more LTCs by 2035 [4]. People living with physical LTCs (PLTCs) are 2-3 times more likely to experience co-morbid mental health problems than the general population, specifically depression and anxiety[5]. For example, people living with diabetes are 2-3 times more likely to have depression than the general population [5]. In this sense, at least 30% of all adults living with PLTCs also have mental health problems, which in England alone equates to approximately 4.6 million people[5, 6]. Long term mental illnesses can contribute to the development of common physical LTCs such as diabetes, heart diseases and lung related illnesses, showing there is relation between physical and mental health LTCs, thus emphasising the need for integrated forms of support [6, 7]. Care for those living with LTCs accounts for a large proportion of NHS costs, amounting to ~70% of total health care expenditure in England [6, 8]. Between 12-18% of all expense on LTCs is linked to poor mental health, which is a major determinant of overall costs, typically associated with a 45–75% increase in service costs for PLTCs [6].

Living with combined physical and mental health (P+MH) LTCs has multiple complex implications, not only associated with the conditions *per se* but also to the ability to cope with and manage multifaceted everyday problems relating to psychosocial, environmental, economical, and spiritual needs. These require support from health and social care services including assistance with mobility, housing, social inclusion, and financial support; all alongside disease management [9, 10, 11, 12, 13, 14, 15]. People with P+MH LTCs are also more likely to experience care coordination problems due to fragmentation in the delivery of services and face a greater treatment burden, slow referrals, and medication duplication [16, 5].

Evidence shows that people with P+MH LTCs routinely access primary care services, such as a general practitioner (GP) or practice nurse, for social rather than health-related problems [16, 17]. This adds disproportionate demand and burden on primary care, stretches already limited resources and causes high healthcare expenditure [16, 17, 19]. It also proves unproductive for patients, as healthcare professionals, particularly GPs, often struggle to maintain up-to-date knowledge of local support resources, and thus rarely refer patients to such initiatives [20, 21]. This complexity creates a greater treatment burden, contributes to poorer wellbeing outcomes, and leads to an unsustainable and incomplete delivery of care where the needs of the whole person are not supported [22, 23].

One potential solution for integrating health and social care to meet the complex psychosocial, physical, economic and spiritual needs of people living with P+MH LTCs is through *social prescribing link workers* (SPLWs) [24, 25]. Link Workers are responsible for linking and helping people with P+MH LTCs to support their complex social, emotional, and practical concerns, thereby supporting the needs of the whole person [26]. Link Workers facilitate the assessment of individual health and social care needs and set personalised and achievable goals, then through motivation and encouragement, further refer, signpost or encourage a self-referral to suitable community and/or voluntary support avenues [27, 28, 29, 30]. Examples are varied and correspond to the broad range of patient needs, including but not limited to, weight management groups, arts-based activities, an extensive range of practical and welfare information, and targeted management groups for people with specific LTCs [31, 32, 33]. This type of support encourages self-care and empowers patients to take greater control of their own health [34, 35]. Kimberlee [36] proposed that the levels of support are also variable and range from as little as merely ‘signposting’ patients to appropriate groups to address their needs; *light support* involving prescriptions for specific programmes; *medium support* focusing on patient’s self-care; and *holistic support* addressing all patient’s needs to improve their wellbeing. Importantly, Link Worker social prescribing model enables health care professionals to create formal means of referring patients with multiple LTCs to local and community-based services for improving health and wellbeing [37, 38]. Many healthcare professionals have successfully endorsed this approach, and encouraging evidence indicates a reduction in healthcare professionals’ workloads [18], scope for tackling multi-morbidities [39], and success in delivering an integrated person-centred care [25, 40].

The dominance of a Link Worker social prescribing model is particularly prominent in the UK. Endorsed by the National Health Service (NHS), it forms a key part in the NHS Long Term Plan for delivering personalised care to tackle variety of complex people’s health and wellbeing related needs, often as part of living with multiple long term conditions [25; 37; 41]. Following the NHS commitment to expand the Social Prescribing Link Worker workforce [42], this initiative has been widely embraced in primary care and community settings [43, 44].

However, there is a lack of standardisation in approaches to Link Worker social prescribing model implementation, with pathway gaps and unclear guidance for primary care services about how to integrate this workforce to best meet the needs of people living with P+MH LTCs [45, 46, 32, 47, 33, 48]. Existing Social Prescribing Link Worker roles are implemented variably, potentially leading to pathway uncertainty with no structured protocols of how to address the needs of people with P+MH LTCs.

The inconsistencies around the role of Link Workers may distort understanding and further complicate their work [49, 50, 51, 52], but also leave some uncertainty for addressing the needs of adults with P+MH LTCs. Although ‘social prescribing’ is a topical subject, supporting evidence is sporadic and rooted in local contexts, making it difficult to demonstrate an aggregated corpus of knowledge [47, 53].

Thus, there is a need for synthesising the literature to identify the remit of how Social Prescribing Link Workers might support the needs of this group of adults and to provide directives for future research and policy development.

**1.1 Aim**

The aim of this integrative review was to identify how Social Prescribing Link Workers support the complex needs of adults living with P+MH LTCs. The aim of this review has also formed the review question of "How do Social Prescribing Link Workers support the complex needs of adults living with P+MH LTCs?".

This review did not aim to synthesise evidence regarding the range of needs that these adults may have, instead our aim was to identify the available evidence about the type of Social Prescribing Link Worker support offered to this group of adults, using an integrative review approach.

**2 Methods**

*2.1 Design*

An integrative review with a systematic methodology was conducted using Whittemore and Knafl’s approach [54]. An integrative review is a review method that synthesises and evaluates representative literature on a topic of interest from diverse research paradigms and practices to generate comprehensive understanding of the available evidence [54, 55]. This approach has the necessary methodological rigour, and although it shares techniques with other evidence synthesis practices [55], the integrative review approach succeeds in a holistic quantitative and qualitative research integration with methodologically skilled capacity to develop a robust evidence base that can guide elements in healthcare provision [56] and influence policy development [54], and offer an overview of complex concepts for clinical decision making [57]. The manuscript was prepared following the reporting checklist of ‘Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) [58].

*2.2 Information sources and searches*

In this review the concept of social prescribing has been informed by the Social Prescribing Network definition [59] together with reflections from other evidence sources such as World Health Organisation (WHO) definition of social prescribing [60], both of which share commonalities in defining social prescribing as a means of connecting people to various non-clinical community-based services to support people’s health and wellbeing. Both definitions explain that a key component in the social prescribing model is a dedicated Link Worker, trained to support people in identifying their needs and co-designing personalised solutions to improve health and wellbeing related outcomes. However, in light of recent growth in the provision of social prescribing, experts introduced conceptual and operational definitions to foster shared understanding of social prescribing model, including encourage agreed terminology for achieving consensus in the field, and to generate a robust evidence base [61]. Whilst the conceptual framework of the Common Understanding of Social Prescribing (CUSP) [61] corresponds with the existing corpus of evidence in the field, the framework has moved beyond the existing definitions of social prescribing and clarified who the social prescriber is, and set out conditions that explain the stages at which social prescribing occurs. We recognise the importance of this framework and support the goal in achieving a common ground for the concept of social prescribing, particularly around the role of the social prescriber. However, we recognise that the adoption of the proposed terminology such as that of the ‘Connector’ instead of a ‘Link Worker’ (as proposed in the definitions of the Social Prescribing Network and the WHO), might extend inconsistency in the field, particularly given the dominance of a social prescribing link worker approach within the context of the UK. Given that the implementation of social prescribing model is variable with alternating role titles for a social prescriber [43, 45, 47, 49], in this review we have adopted the term of a ‘Social Prescribing Link Worker’ or ‘Link Worker’ when referring to a dedicated person who works with patients to deliver social prescribing. Additional terms were included in the search process to avoid premature exclusion of studies that may not use the term of a Social Prescribing Link Worker.

The search strategy was performed first in the most relevant electronic databases in the health and social care field, including PubMed, Web of Science, Social Care Online (SCIE), CINAHL and PsycInfo, peer-reviewed and grey literature was searched. Searches were performed in July 2022, and updated in May 2023. The search limits were articles published in English language (i.e., due to limited funding to cover translation services for the inclusion of other languages), adult population at the age of 18 years and over, and studies published in the last 5 years (2017-2022) and later (August 2022 – May 2023). This is consistent with the growth of social prescribing schemes from 2016, following the creation of an international Social Prescribing Network [59], and implementation of a national strategy in United Kingdom NHS healthcare systems in 2019 [25] that scaled up the number of link workers across primary care networks, with other countries implementing the approach in later years. As social prescribing comes to play an integral role in primary care and community settings in helping patients overcome various non-medical needs, up-to-date evidence is needed following the implementation of the social prescribing link worker approach.

We recognise that social prescribing model is rapidly evolving together with new emerging evidence. We also acknowledge that the roles of Social Prescribing Link Workers are implemented variably and there are ‘pockets’ of missing data, thus, no strict inclusion/ exclusion criteria were set on the Social Prescribing Link Worker approach delivered through primary care referral pathways or community settings. Instead, the focus was to identify articles where support for adults with P+MH LTCs was delivered by a dedicated Social Prescribing Link Worker as reflected in our search strategy in order to provide robust evidence on the ways that Social Prescribing Link Workers support the complex needs of adults living with P+MH LTCs.

Search terms were grouped into two topic blocks: SPLWs and LTCs (Table 1). The search strategy was firstly guided by familiarity with existing reviews and previous search strategies, and later redefined based on commonalities in literature as our familiarisation with the literature increased. Some search techniques were adjusted/ based on different requirements of the included electronic databases and knowledge repositories such as MeSH terms, truncations and relevant term variations together with Boolean operators ‘AND’ and ‘OR’ were used. Search strategies can be located in Supplementary Materials.

Table 1. Search combination of key terms.

|  |
| --- |
| **1 Social prescribing link workers (SPLWs)** |
| Social prescribing link worker\* OR social refer\* link work\* OR social prescrib\* coordinator\* OR community liaison OR community navigator\* OR community facilitator\* OR community prescriber\* OR community connector\* OR community wellbeing officer OR social broker\* OR social coach OR social connector OR health coach OR community signpost\*  AND |
| **2 Long term conditions (LTCs)** |
| long term condition\* OR long term illness\* OR chronic illness\* OR chronic condition\* OR chronic disease\* OR chronic disorder\* OR multimorbidit\* OR comorbidit\* OR multiple health condition\* OR mental health |

Inclusion criteria were as follows: 1) Studies that focused on adults with both P+MH LTCs; and 2) studies of any methodology, including relevant ‘grey literature’ that answered the review question.

Exclusion criteria were as follows: 1) studies that focused on family caregivers; 2) studies that focused on the end of life or palliative care, and 3) studies that only focused on the needs of adults with P+MH LTCs without answering the review question.

As our aim was to identify how Social Prescribing Link Workers support the needs of adults with P+MH LTCs, articles that included Social Prescribing Link Workers were considered if they addressed the review question and met the inclusion/ exclusion criteria. In this review, the Social Prescribing Link Worker was a dedicated person who works with patients to deliver social prescribing. This rationale is in line to the definitions of social prescribing model set out by the Social Prescribing Network [59] and the WHO [60]. In turn, studies where “*identifier* usually a clinical professional, who identifies that a person has non-medical, health-related social needs <..> refer the person to a connector” [61, p. 8] was outside the scope of this review; the focus was on the Social Prescribing Link Workers who supported the complex needs of adults with P+MH LTCs. A snowballing technique was also used, reviewing the reference lists of the included studies to identify potential additional studies of interest and relevance.

Freely available sources of grey literature and most representative organisational repositories related to the subject were searched, including Social Prescribing Network, National Academy for Social Prescribing, Oxford Social Prescribing Research Network, and Google Scholar with the first 100 hits in search engines for ‘social prescribing link worker’. To ensure a thorough searching process, the PROSPERO prospective register of systematic reviews was searched for identifying any relevant planned systematic reviews and for avoiding duplication, as well as the Cochrane Library for any completed systematic reviews that may offer links to any relevant studies. This was completed by SL and validated by LA. Citations were stored in the EndNote bibliographic online service.

*2.3 Search outcomes*

A total of 2,483 articles were retrieved, of which 136 were duplicates (Figure 1). After screening of titles and abstracts, a total of 41 articles were selected for a full text assessment to determine eligibility: following this exercise, 13 articles were eligible for inclusion. An additional 186 articles were identified through a grey literature search, of which 12 additional articles were included for further full text screening, resulting in 5 articles which were eligible. A final collection of 18 articles was included in the review. The process of title and abstract screening and full text assessment was led by SL and validated by LA. All citations were stored in the EndNote bibliographic online service. The updated search in May 2023 retrieved 175 articles, however, no additional articles were identified. An article by Griffith [65] was identified in October 2022 during literature reading, thus it was successfully incorporated in the review following the completion of data extraction and synthesis, as per earlier described processes.

**Identification of studies via other methods**

**Identification of studies via databases and registers**

Records identified from:

**(n=186)**

PROSPERO Register (n = 2)

Cochrane Reviews (n= 14)

Google ‘100 first hits’ (n= 100)

Social Prescribing Network (n = 70)

Records removed *before screening*:

**Duplicate records removed (n = 136)**

Records identified from:

**Databases (n = 2483)**

**Identification**

Records excluded after title and abstract screening

**(n = 2074)**

Records screened

**(n = 2347)**

Reports not retrieved: **(n = 233)**

Physical only n=60

Mental health only n=37

Not Social Prescribing n=54

Children n=1

Not focused on patients with P+MH LTCs n=62

Family carers n=8

Cannot locate n=10

No outcomes n=1

Additionally added n=1

Reports not retrieved

**(n = 36)**

Not focused on patients with P+MH LTCs/ Did not specify P+MH LTCs

Reports sought for retrieval

**(n = 48)**

Reports sought for retrieval

**(n = 273)**

**Screening**

Reports assessed for eligibility

**(n = 12)**

Reports assessed for eligibility

**(n = 41)**

Reports excluded:

**(n = 7)**

Did not specify P+MH LTCs

Reports excluded: **(n = 28)**

Not Social Prescribing n=11

End of Life pathway n=2

Did not specify P+MH LTCs n=15

Studies included in review

**(n = 18)**

**Included**

Figure 1. Search process.

*2.4 Data extraction and analysis*

This stage of the review involved organising, extracting, coding and synthesising similar data from diverse methodologies into systematic categories/ themes using a stated [49] framework for integrative reviews. Specifically, sources of evidence were divided into sub-categories based on the type of evidence such as examining all qualitative studies, then observational studies, reviews and lastly, experimental designs. Once sources of evidence were separated into categories based on their study designs, descriptive information was summarised into a spreadsheet to simplify and organise data, ultimately reducing each primary source to manageable tables of information. A comprehensive data extraction form was developed to collect relevant study data and characteristics from each included study and to aid the synthesis. Data extraction and tabulation was completed by SL using Microsoft Excel spreadsheet software. Data extraction was categorised into two parts. Firstly, data necessary for contextual understanding were extracted according to the following categories: methodological information (see supplementary materials), Social Prescribing Link Worker intervention information (see Table 2), and participant characteristics (see Table 3), all of which consisted of sub-categories to help organise information systematically. Any discrepancies and/ or uncertainties were discussed by two researchers (SL and LA) until consensus was reached. The second part of data extraction focused on extracting relevant raw findings about the ways that Link Workers have supported the needs of adults with P+MH LTCs and coding data, using principle of data comparison/ categorisation, to identify themes of the ways that this group was supported. Table 2 within supplementary materials includes some original quotes and text segments from included articles to illustrate the themes and to increase rigor and transparency of the analytic process (full data set available upon reasonable request). This was a lengthy task, particularly examining qualitative design studies, where large quantities of data were extracted (i.e., relevant text and quotes where applicable) and coded. Similar codes were clustered together for comparison and to start identifying meaningful themes. Data coding was completed by SL by hand and through the use of Microsoft Excel spreadsheet software. This was an iterative process and prepared drafts by SL were discussed amongst the team. Synthesised findings of the review are presented in two themes and four sub-themes that outline how Social Prescribing Link Workers supported the complex needs of adults with P+MH LTCs (see Figure 2). To ensure transparent reporting of the review, the PRISMA [58] checklist was followed and is provided in supplementary materials.

*2.5 Quality assessment*

Design-dependent Critical Appraisal Skills Programme (CASP) appraisal tools were used to optimise the reliability of the review, assess the methodological quality, and appraise the research process of the reviewed studies [62]. The appraisal checklists were not used to exclude studies, but to aid better understanding of the available research evidence and provide methodological foundations for future work. The assessment of methodological quality of included studies (see numerical indication) can be found with methodological information in supplementary materials, and for a detailed quality review by question, information is available upon reasonable request. Quality assessment was completed by SL and any discrepancies were resolved through a discussion between two authors (SL and LA).

Table 2. Social Prescribing Link Worker intervention information in included studies.

| **Reference information: Author, Year and Country** | **Length of intervention/ programme** | **Follow up** | **Number of meetings/ sessions** | **Means of delivery** |
| --- | --- | --- | --- | --- |
| **Qualitative studies** | | | | | |
| 1. Frostick & Bertotti, 2021   UK [63] | Not specified | Not specified | Not specified | Not specified |
| 1. Gibson, Moffatt & Pollard, 2022   UK [64] | Some clients remaining with the intervention for up to 4 years. | Not specified | Not specified | Synchronised with people’s needs. |
| 1. Griffith et al., 2023 UK [65] | The overall engagement with Ways to Wellness can be up to two years. | 6 monthly up to 24 months. | All contacts vary in duration and frequency in accordance  with individual client need. | The Ways to Wellness intervention is highly personalised involving face-to-face contacts in community settings and, where necessary, domiciliary visits. |
| 1. Hanlon et al., 2021   UK [66] | Not specified | Not specified | The number of meetings with the Community Links Practitioners (CLP) was not pre-specified and was tailored to individual patient. Some patients had a single meeting linking them to wider resources, while others met with the CLP on numerous occasions over a period of several months. | Not specified |
| 1. Moffatt et al., 2017   UK [67] | Patient engagement varied in terms of intensity, duration from 4 months to 14 months. | Every six months. | Frequency of contact with the Link Worker is mutually agreed, varies between and within patients depending on current need and circumstances. | Can be face to face, via telephone, email and/or text message. |
| 1. Morris et al., 2022   UK [68] | Client participants were those taking part in an 18-month ethnographic study, but could engage for up to approximately 3.5 years. | Not specified | Not specified | Link workers communicated with clients by telephone appointments whilst working from home. |
| 1. Rhodes & Bell, 2021   UK [69] | Interventions were limited to 6 weeks, 6-8 weeks or 12 weeks. | Not specified | Some specified that appointments with a social prescriber were weekly, while others did not specify. | Delivered in patients home, GP practice or organisation’s office. |
| 1. Wildman, Moffatt, Steer et al., 2019   UK [70] | Service users remain with the intervention for up to two years or, with link worker discretion, longer if required. | Every six months. | Meeting duration frequency increases or decreases according to need. | Over the course of a patient’s engagement with Ways to Wellness (WtW), face-to-face contact is also supplemented by telephone, email or text contact. |
| 1. Wildman, Moffatt, Penn et al., 2019   UK[71] | Clients remain with the service for up to 2 years or, with link worker discretion, longer if needed. | Progress and goals reviewed every 6 months thereafter for the duration of a client's engagement with the service. | Meeting duration frequency decreasing or increasing depending on the need. | Over the course of clients’ engagement with WtW, face‐to‐face contact is also supplemented by telephone, email or text. |
| 1. Wood et al., 2021   UK [72] | Clients can access different services at different times in whatever order meets their needs. | Unclear | The service has no time limit. | Depending on client’s needs, home visits can be offered. |
| **Observational studies** | | | | | |
| 1. Elston et al., 2019   UK [73] | 12-week intervention. | 12 months evaluation. | Several meetings. | Mostly clients homes. |
| 1. Polley, Seers & Fixsen, 2019   UK [74] | Not specified | 3 months follow up. | Not specified | Not specified |
| 1. Woodal et al., 2018   UK [75] | Most clients receiving appointments exit the service within 16 weeks, with the mean length of time being 10 weeks. | Pre-post questionnaires at the exit (usually after 6 sessions). | To avoid dependency on the social prescribing service, individuals are encouraged to ‘exit’ the service or are referred to other health and social care providers after 6 sessions. | Not specified |
| **Experimental studies** | | | | | |
| 1. Kiely et al., 2021 Ireland [76] | 6 weeks | After 6 weeks participation | Six patients had three or more follow-up contacts with the link worker. | The intensity of the support offered was tailored to the individual needs of the patient, and this varied from a simple follow up phone call to accompanying the person to community activities. |
| 1. Mercer et al., 2019 UK [77] | 9 months | 9 months follow up | CLPs and patients could meet as many times, and when, they thought necessary. | All contacts were one-to-one and usually face-to-face, although some telephone contacts could occur.  CLP contacts with patients were usually in the practice, although some home visits could occur, and the CLPs could accompany patients to support their contact with a community organization. |
| **Literature reviews** | | | | |
| 1. Bertotti et al., 2019 [78] | Not specified | Not specified | Most sessions of support provided ‘in-depth’ support (42%) (4 sessions or over), 38% provided mid-level support (2-3 sessions) and 21% light-touch signposting (1 session only). | Face-to-face and various levels of support were offered depending on the need of the service users. |
| 1. Pescheny, Randhawa & Pappas, 2019 [79] | Not specified | Not specified | Not specified | Variable but no clear details. |
| 1. Public Health England, 2019 [80] | Variable | Varied considerably across studies; ranging from between 3 to 6 months, 8 months, 9 months or as long 12 months. | Variable but no clear details. | Variable but no clear details. |

Table 3. Participants characteristics in included studies.

| **Reference information: Author, Year and Country** | **Information on Social Prescribing Link Workers** | | | | | **Information about people living with P+MH LTCs** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample Size** | **Characteristics (i.e., age and gender)** | **Period in position** | **Title of the role** | **Purpose of the role** | **Sample Size** | **Characteristics (i.e., age and gender)** | **Conditions (P+MH LTCs)** |
| **Qualitative studies** | | | | | | | | |
| 1. Frostick & Bertotti, 2021   UK [63] | N=13 | Not specified | Link Workers who were currently working on a social prescribing scheme and had been there for six months or more. | Link Workers | Not specified | N/A | Diversity of service users located in areas with very diverse communities representing a wide range of age, ethnicity and referral criteria. | Service users had a wide range of issues, both practical and health related (i.e., physical and/ or mental health concerns were mentioned in qualitative data when referring to service users). |
| 1. Gibson, Moffatt & Pollard, 2022 [64]   UK | Not specified | Not specified | Not specified | Link Workers | Not specified | N=19 | Aged between 40-74.  No information on gender. | Had at least one of eight LTCs (diabetes type 1 and 2, chronic obstructive pulmonary disease, asthma, coronary heart disease, heart failure, epilepsy and osteoporosis with or without anxiety and/or depression). |
| 1. Griffith et al., 2023 UK [65] | N=20 | 16 females and 4 males | Not specified | Link Workers | Link-workers use behaviour change techniques including motivational interviewing, goal-setting and feedback to promote the aims of Ways to Wellness. | N/A | Service users aged 40-74. | Service users had COPD or Asthma; Diabetes (Type 1 or Type 2); Heart Disease; Epilepsy; Osteoporosis; any of these with depression and/or anxiety. |
| 1. Hanlon et al., 2021   UK [66] | Not specified | Not specified | Not specified | Community Links Practitioner (CLP) | CLP worked one-to-one with patients to signpost, recommend, refer and support the use of community-based services. | N=12 | Age ranged from 26 to 64 years  M=46.5 years.  Gender:  6 females and 6 males. | 4 patients referred with physical and psychological problems, the remaining patients had psychological and social problems. |
| 1. Moffatt et al., 2017   UK [67] | Not specified | Not specified | Not specified | Link Workers | Not specified | N=30 | Aged 40–74 years  M=62 years.  Gender:  14 females and 16 males. | Based on self-reported health conditions, only one participant had a single long term condition. Most participants had more than one ‘referral’ long-term condition, had other health problems and associated mental health issues, low confidence and social isolation.  With the exception of the diagnosed long-term conditions that triggered a referral to Ways to Wellness (i.e., diabetes (types 1 and 2), chronic obstructive pulmonary disease, asthma, coronary heart disease, heart failure, epilepsy, osteoporosis) other physical and mental health problems were self-reported at interview. |
| 1. Morris et al., 2022   UK [68] | N=5 SPLWs  N=8 managerial staff | Demographic data were not collected for service providers because of the risk of identifying individuals. | Not specified | Link Workers | Not specified | N=44 | Age:  40–49 n=6  50–59 n=11  60–69 n=17  70+ n=10.  Gender:  25 females and 19 males. | Nine clients reported having a single LTC.  The remaining 35 had multiple conditions, which most commonly comprised T2DM, hypertension, asthma, chronic obstructive pulmonary disorder (COPD), fibromyalgia, depression and anxiety.  Some had a more complex mix of LTCs including multiple sclerosis, vascular disease, heart failure, epilepsy and cancers. |
| 1. Rhodes & Bell, 2021   UK [69] | N=9 | Age: Not specified  Gender: 7 females and 2 males. | Time in role:  10 months -1 participant  1.5 years - 2  2 years – 5  2.5 years -1. | Social prescriber, social prescribing link worker, locality navigator, community navigator and stroke care advisor. | Not specified | N/A | N/A | SPs supported clients with various physical and/ or mental LTCs. Specifically, three SPs worked with clients aged 65+ with complex physical needs, the remaining six SPs worked with clients of all ages and needs in mixed levels of deprivation areas. |
| 1. Wildman, Moffatt, Steer et al., 2019   UK [70] | Not specified | Not specified | Not specified | Not specified | Service users are supported by their link worker to access appropriate services and community groups (e.g. weight-management groups, welfare rights advice and arts-based activities), and to return to work or engage in volunteering opportunities (as appropriate). | N=24 | Age:  Ranged from 40-74 years.  Gender:  11 females and 13 males. | 16 participants reported yes to mental health category that included low mood, anxiety, depression, loneliness and social isolation based on self-report at interview where participants described or reported these conditions or feelings.  Levels of multi-morbidity were high, with all-but-one participant reported multiple LTCs:  1 LTC – 6 participants  2 LTCs – 14 participants  3 LTCs – 4 participants. |
| 1. Wildman, Moffatt, Penn et al., 2019   UK [71] | N=15 | Phase 1:  12 females and 3 males.  Ages 20-59 years, with most in 30-39 category.  Phase 2:  13 females and 2 males.  Ages 20-59 years, with most in 20-29 category. | Link workers had been in-post for between 2 and 4 months when data was collected (Phase 1).  By Phase 2, ranged between 1 and 16 months. | Link Workers | Arrange an initial appointment, complete a ‘Wellbeing Star’ tool and identify target areas for improvement across eight domains. | N/A | Adults aged 40-74. | Adult participants had COPD or Asthma; Diabetes (Type 1 or Type 2); Heart Disease; Epilepsy; Osteoporosis; any of these with depression and/or anxiety. |
| 1. Wood et al., 2021   UK [72] | Staff (n = 13) and referrers (n = 7) involved in SP. | Not specified | Not specified | Paid health trainers, health activity workers and advocacy workers (primarily giving benefits and housing advice) and unpaid volunteers. | Any of the paid workers could be a link worker, this would be decided based on client goals. Clients with predominantly health goals would have a health trainer as a link worker. Once these goals were met, the client may be referred to other colleagues if needed, for example for benefits advice. The person acting as link worker would change. | N=15 | Age:  Adults over 18+ years.  Gender:  5 males, 9 females, 1 preferred not to say. | Participants had both physical and mental health issues (i.e., depression and/ or anxiety, multi-morbid chronic physical health conditions, complex social issues, isolation). |
| **Observational studies** | | | | | | | | |
| 1. Elston et al., 2019   UK [73] | Not specified | Not specified | Not specified | Well-being Coordinators and/ or ‘holistic’ link-workers. | Not specified | All referrals n=1046.  Outcomes data  n = 82. | Age:  50–59 (5)  60-69 (10)  70-79 (23)  80-89 (38)  90+ (9).  Gender:  63 females and 23 males. | 2 or more multiple long-term conditions. |
| 1. Polley, Seers & Fixsen, 2019   UK [74] | N=15  Of 15 staff members,2 Link Workers. | Age:  Not specified  Gender:  2 females. | Not specified | Link Workers | Not specified | Qualitative  n=10  Quantitative  n=105 (at follow up) | *Interviews*  Age not specified.  Gender:  6 females and 4 males.  *At follow-up:*  Age M=62 years.  Gender:  48 males and 57 females. | Individuals who met any of the Social Prescribing Service eligibility criteria (loneliness, mental health issues and long term conditions) as well as adults on a CVD Qrisk2 score of 10% or more, or pre-diabetes risk. |
| 1. Woodal et al., 2018   UK [75] | N=15 | Not specified | Not specified | Wellbeing Coordinators | The service operates through ‘Wellbeing Coordinators’ who offer support to individuals and to provide advice on local groups and services in their local community – the activities individuals can be referred into range from mental health and counselling advice; physical fitness classes; support for physical or emotional difficulties; finance and debt advice; and creative groups. | n=26 interviews  n=342 questionnaire. | *Questionnaire*  Age M=53 years.  Gender:  63.9% of participants were females and 36.1% males.  *Interviews*  Age M=53 years.  Gender:  14 males and 12 females. | At baseline, 40% reported being either ‘severely’ (23.4%) or ‘extremely’ anxious or depressed (16.6%).  Participants rated their health on a scale of 0 to 100, where 0 was the ‘worst health you can image’; the average health rating at baseline was 43.27 compared to 52.83 at the post stage. |
| **Experimental studies** | | | | | | | | |
| 1. Kiely et al., 2021   Ireland [76] | Not specified | Not specified | Not specified | Link workers | Not specified | N=12 | Age:  M=63 years  Gender:  70% Females. | Number of self-reported health conditions: 2.6.  The most common self-reported health issues to the link worker were either mental health (50%) or musculoskeletal problems (63%), high blood pressure (28%), diabetes (18%), kidney disease (18%). |
| 1. Mercer et al., 2019   UK [77] | Not specified | Not specified | Not specified | Community-links practitioner | CLPs established links between the practice and local community organizations, helped by the practice  development fund used to “buy out” practice staff time to spend improving systems and building relationships.  Seen patients who were thought to benefit from this type of support. | Data were collected on 288 and 214 (74.3%) patients in the intervention practices at baseline and follow-up, respectively, and on 612 and 561 (92%)  patients in the comparison practices.  7 intervention practices and 8 comparison practices. | Age:  Intervention 49 years  Comparison 56 years.  Gender:  Intervention 59.2% females.  Comparison 61.1% females. | The count of self-reported chronic conditions  (Multimorbidity):  Intervention 3.1  Comparison 2.3. |
| **Literature reviews** | | | | | | | | |
| 1. Bertotti et al., 2019 [78] | Not specified | Not specified | Variable but no clear details. | Identified at least 11 different types of navigator roles. | All types of navigators offered support to Long Term Conditions (LTCs), physical  and mental health. Social prescribing link workers covered the widest mix of health (LTCs, physical and mental health) and social issues (social isolation, welfare advice, employment, and housing), although health coaches and health trainers also offered a mix of health and social support to users  Other types of navigators (community matrons, occupational therapists, and practice nurses) were primarily focussed on supporting health conditions. | Not specified | Not specified | The types of chronic conditions targeted included hypertension, diabetes, BMI over 30, smokers, cancer, asthma, chronic pain, osteoarthritis, Chronic Obstructive Pulmonary Disease (COPD), stroke survivors, frailty, and dementia. The level of mental health problems targeted was primarily mild to moderate with only one scheme including severe mental health problems. |
| 1. Pescheny, Randhawa & Pappas, 2019 [79] | Not specified | Not specified | Variable but no clear details. | Social Prescriber/ Social Navigator | Examples include variable support but no clear details. | Not specified | Not specified | Service users with variable physical and mental health conditions. |
| 1. Public Health England, 2019 [80] | Not specified | Not specified | Not specified | All studies included in this synthesis involved referral to a link worker and this role could take a variety of different names: ‘Community  Connector’, ‘Social Prescribing Co-ordinator’, ‘Community Links Practitioner’, ‘Hub Coordinator’ or ‘Service Advisor’. | Variable examples of support were provided as part of the Link Workers’ role. | Variable, where possible baseline and follow-up information was provided | Not specified | Service users with variable physical and mental health conditions and social issues. |

**3 Findings**

3.1 Methodological characteristics of included studies

Eighteen articles were eligible for inclusion in the review. Four types of studies were identified: qualitative studies (n=10), observational studies (n=3), literature reviews (n=3), and experimental studies (n=2). Of the 10 identified qualitative studies, 7 studies were completed as part of larger social prescribing interventions with a link worker [64, 65, 66, 67, 68, 70, 71], namely ‘Ways to Wellness’ (WtW) and ‘Deep End Links Worker programme’, while the remaining three studies consisted of diverse social prescribing interventions with a link worker [63, 69, 72]. Two of these articles reported ethnography studies [64, 65], while remaining articles consisted of interviews and/ or focus group based studies (for full description, please refer to supplementary materials). Of the three identified observational studies, two utilised mixed-methods (i.e., interviews, focus groups with a range of questionnaires) [74, 75], and a study [73] that used questionnaires for before-and-after evaluation of the service. All three studies reported pre-post outcomes, with follow-up measures completed at 3 months [74], 12 months [73], and 18 months [75]. Of the two experimental studies, one [77] carried out a quasi-experimental cluster-randomized controlled trial, while the other [76] performed an uncontrolled pilot trial collecting mixed methods data. A study by [77] was a trial of ‘the Glasgow Deep End Links Worker Programme (LWP)’ caried out with patients across 7 practices, while a pilot trial by [76] was built on the principles of the Glasgow’s LWP intervention carried out in a single practice in Ireland. Of the three literature reviews, all [78, 79, 80] included a variety of methodologies ranging from qualitative studies, scoping reviews, and different types of trials to map literature on social prescribing and SPLWs.

The majority of articles, primary data and reviews, were published in 2019 (n=8) and nearly all reported studies that were carried out in the UK (n=17), except for one that was carried out in Ireland [76]. Most of the social prescribing interventions were designed for adults aged between 40-74 years, with some that supported adults aged around 50 years or over. Participants had a range of multiple physical LTCs and details around mental health varied (see Table 3). Some participants reported severe or extreme anxiety and/ or depression, while others reported variable information, including variable details around social needs.

Collective observations using the CASP quality assessment tool showed that there were methodological gaps, such as limited details regarding follow up stages, limited information about confounding factors, inconsistent use of standardised measuring tools, inconsistent sample sizes with no clear power calculations. We also observed that most qualitative studies did not provide adequate information about how researchers’ unique experiences shape the interpretation of research. There were also discrepancies between terminology and definitions around SP activities and link workers, and largely missing sociodemographic and background information about Social Prescribing Link Workers. Where possible, we have pulled out information about Social Prescribing Link Workers, however, due to largely unreported details from original articles, we are unable to present rigorous evidence on this matter.



Figure 2. Themes and sub-themes with key messages identified.

3.2 Supporting the complex needs of adults living with P+MH LTCs

Following the analytical process described in Section *Data Extraction and Analysis*, two themes and four sub-themes were identified that succinctly summarise evidence from included studies and explain what aspects constitute how Link Workers might support the complex needs of adults living with P+MH LTCs (see Figure 2). The overarching title above houses two themes, namely ‘*The process of support’* and ‘*Additional enablers*’. During data analysis and synthesis of findings it was evident that there were inherent elements that constituted successful processes of supporting this group of adults and additional elements that made the entire experience more positive. These are presented in the below listed themes.

*3.2.1 The process of support*

In this theme, the process of support was understood as a procedure that consisted of several main forms of support, namely ‘*Discovering what matters most to patients*’ and ‘*Arranging beneficial sources of support*’.

The sub-theme of ‘*Discovering what matters most to patients’* is about the initial form of support, that consisted of identifying and developing a plan based on patients’ priorities and needs. It was central for helping patients to feel that their concerns were taken seriously, and goals were set around it. The sub-theme of ‘*Arranging beneficial sources of support’* is about organising a range of support avenues to help patients implement changes in their health, wellbeing and living circumstances.

*3.2.1.1 Discovering what matters most to patients*

Thirteen articles identified that the initial priority for supporting complex needs of adults with P+MH LTCs was to help patients recognise their own needs and preferences, ultimately assist in identifying what mattered most to the patient and co-produce a plan of action with achievable goals that patients can have control over [63, 64, 65, 66, 67, 70, 71, 72, 73, 74, 75, 79, 80]. From the sole perspective of patients, they emphasised that it was important that Link Workers had taken a thorough notice of patients’ circumstances and their wishes and focused on creating realistic and meaningful goals that patients could achieve [64, 66, 67, 70, 73] *‘“mini-goals” that represented “achievable somethings”’* [70, p.7] and felt able to continue making progress. Studies with Link Workers emphasised that patients had autonomy rather than being dictated, and highlighted that plan development, often during initial meetings, was a co-productive process [63, 65, 67, 71, 72, 74, 75, 79], discussing *“what they wanted and what was going to work for them”* [74, p.32]. The priority was to empower patients to voice their main concerns and encourage them to take control of their lives and their health needs [66, 72, 75].

*3.2.1.2* *Arranging beneficial sources of support*

Sixteen articles identified that another element essential to supporting adults with P+MH LTCs, ultimately helping patients to materialise their goals, was arranging onward support or ‘linking’ and putting resources in place to address their needs. ‘Linking’ predominantly focused on referrals to a range of community group activities and services to implement positive behaviour and attitude changes in long-term condition management, physical activity and healthy eating, confidence building and self-worth, improving sense of belonging in community and tackling loneliness, learning and reviving skills but also offering services for addressing welfare rights, employment and education support, housing and financial worries [63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 74, 75, 76, 78, 79, 80] as well as managing addiction [66, 76]. Pursuing Link Worker prescribed support, particularly for physical and mental health benefits was “*transformative”* [70, p.8] and improved self-care strategies [67, 75, 79] and lowered risk factors associated with several long-term conditions [74]. However, there were setbacks that delayed engagement with support services such as employment and family/caring commitments [64], referrals on hold due to limited availability in services [65, 68, 71], complex physical ill-health [66], fluctuating symptoms and multimorbidity complications from P+MH LTCs [70] and severe emotional episodes [64]. It is also important to note that the success of ‘linking’ to sources of support was heavily dependent on a set of enablers, as described in later sections.

*3.2.2 Additional enablers*

In this theme, additional enablers were understood as added elements that were fundamental in supporting adults’ needs with P+MH LTCs. In this context, additional enablers consisted of ‘*Desirable therapeutic relationship*’ and ‘*Practical arrangements’,* both of which were instrumental to the success of supporting patients with their needs.

The sub-theme of ‘*Desirable therapeutic relationship’* is about an empathy-based rapport with a Link Worker that was a catalyst in helping to achieve positive changes in patients’ lives. Link Workers’ personality and skills were instrumental for this interaction. The sub-theme of ‘*Practical arrangements’* is about a range of practical and ‘hands-on’ solutions that facilitated patients’ engagement and were important elements of support.

*3.2.2.1 Desirable therapeutic relationship*

Thirteen articles identified that a therapeutic style relationship between the patient and the Link Worker had most value to the success of the intervention [63, 64, 65, 66, 67, 68, 70, 71, 72, 74, 75, 76, 79]. This relationship was built on desirable Link Worker interpersonal characteristics and skills, such as an empathic and non-judgemental attitude to patients, an openness that helped patients to feel at ease combined with approachable and honest communication that altogether helped patients feel valued and listened to [63, 66, 67, 70, 71, 75]. Link Workers were described as ‘friend-like’ points of contact that showed interest and care, were encouraging and used appropriate motivational and coaching approaches that instilled resilience to continue [64, 65, 72, 74, 76, 79]. Patients were attracted to this type of person-tailored and empathic rapport that was central to the success of supporting patients with their needs [66, 67, 68].

*3.2.2.2 Practical arrangements*

Fifteen articles identified that practical solutions such as flexible *“open door”* [67, p.6] contact, frequent follow-up meetings with sufficient time allocation, one-to-one approach, appointment reminders and regular check-in phone calls were instrumental in successful engagement with the intervention [63, 64, 65, 67, 68, 69, 70, 71, 72, 74, 75, 76, 77, 78, 79]. Consistent nature of contact with a Link Worker translated to improved self-esteem [70], accountability [74] and better uptake of referred activities [77]. Particularly, patients valued direct ‘hands-on’ engagement with a Link Worker and their support such as accompanying patients to appointments [64, 78], making initial contact with referred services [76], assisting with washing patients’ dog [65], “*aiding in house clearance for a hoarder*” [72, p.7], assisting with welfare and housing advice and applications rather than making a referral or due to lengthy waiting [67, 71], providing home visits [65, 72], and also offering therapeutic support related to bereavement and long-term condition management [68]. However, factors such as personnel changes [68, 70], remote interactions due to pandemic lockdowns [68], costly travel to referred activities [76] and referral delays [72] resulted in loss of engagement.

Duration of the intervention was sometimes problematic; patients wanted to stay engaged with their Link Worker long term [67, 70] or have a greater number of sessions [75] to accommodate fluctuating and chronic nature of their multiple LTCs and social demands resulting from multi-morbidities.

Collectively, articles in this review have reported studies that consisted of different Social Prescribing Link Worker led interventions. Specifically, the ‘Ways to Wellness’ (WtW) interventions [64, 67, 70] were designed to support adults aged 40-74 years with physical LTCs with coexisting depression and/ or anxiety to improve patient’s health and wellbeing through a personalised service delivered by link workers, and the ‘Deep End Link Workers’ interventions [66, 77] were designed to support the needs of people on average 50 years or older with multiple LTCs and social problems living in deprived areas. Further articles reported studies with Link Workers who delivered ‘WtW’ intervention [65, 71], and with remaining articles reporting findings from individual Social Prescribing Link Worker led intervention studies carried out in different parts of the UK [63, 68, 69, 72, 73, 74, 75, 78, 79, 80], of which a study by [76] was completed in Ireland, and a study by [68] was completed in the COVID-19 context. Details about Social Prescribing Link Worker intervention arrangements varied, but normally interventions lasted from 6-8 weeks and up to 2 years or longer (with Link Worker discretion), were carried out face-to-face in community, GP practices and domiciliary settings, and were supported by telephone, email or text contact as frequently as required depending on patients’ needs, and often on a weekly basis, although not confirmed across all studies.

However, four studies noted that these intense levels of engagement and support come at a cost to Link Workers who reported increasing tension and burnout of having to meet referral targets, arranging and delivering support and helping patients at ‘crisis point’ [63, 65, 69, 71]. Link Workers agreed that their roles consisted of unrealistic expectations, and it was becoming challenging to set boundaries with patients who wanted intense and frequent support, and also meet organisational priorities that focused on referral rates. Particularly, concerns were raised that although Link Workers offered person-centred support to all, Link Workers believed that some complex cases needed more specialist support that they felt was beyond the remit of their role [63, 69]. Link Workers recognised that a ‘handholding’ approach was not encouraged by their organisations [65]; however, ‘signposting’ was often seen as an ineffective form of support for patients [63, 69], particularly those with complex circumstances and socio-economic deprivation, and as such Link Workers were adopting the approach of being ‘a friend but not a friend’ [71].

**4 Discussion**

This integrative review examined the evidence to identify how Social Prescribing Link Workers support the complex needs of adults living with P+MH LTCs and contributed new ideas to a better understanding of Link Workers role.

Collectively, the evidence in the field of the Link Worker social prescribing model showed that support is implemented variably, ranging from light signposting and linking of patients to a variety of local assets to holistic and personalised support.

We identified 18 articles in this review which agreed that ‘signposting’ adults with P+MH LTCs to community based non-medical resources was insufficient on its own. The existing description of social prescribing link workers connecting people to community-based support diminishes additional forms of support that Link Workers are providing. The seemingly unlimited remits of support that Link Workers offered to this group of individuals ranged from empowering and encouraging adults to make positive lifestyle changes through detailed person-centred goal setting, progress monitoring, securing access to support groups and behaviour change activities, to providing intense ‘hands-on’ level of engagement and involvement, such as assisting clients with domestic tasks, accompanying to appointments, assisting with welfare benefits applications and offering therapeutic type of emotional support. While ensuring that support was person-centred and delivered in a holistic approach, as referred by Kimberlee [36], the frequency of support was also tailored to person’s needs. This is consistent with one of the identified studies in our review [78] confirming that most Link Workers offered intense support, i.e., accompanying patients to appointments. In return, patients (i.e., adults with P+MH LTCs) were highly appreciative of this support, recognising that the rapport with a Link Worker was central to their stories of improvement [66], portraying Link Workers as ‘friend-like’ contacts who helped these adults to feel that they matter [64], and through appropriate support were able to turn their lives around, including but not limited to health [70]. Aligned to reported [78] findings, we found consistent evidence that an empathy based Link Workers skillset and a ‘coaching’ style approach were instrumental to successful patients’ engagement.

Nevertheless, our review noted that Link Workers were placed in a controversial position. Link Workers recognised complex needs of adults living with P+MH LTCs, and demonstrated willingness to help where necessary, while knowing that ‘handholding’ approach was not encouraged [65] and experiencing competence concerns in supporting complex clients who needed specialist support [63]. Thus, boundary setting was complicated as some clients were in critical circumstances, mostly adults in deprived communities who needed intense mental health and social support, effectively leaving Link Workers with continually growing expectations, bigger caseloads and feeling overworked. Equally, referral and assessment rates were increasingly prioritised, thus complicating time resources for engagement with patients [65]. This finding is consistent with evidence suggesting that the Link Workers role is becoming unrealistic, ranging from supporting diverse groups of patients through person-centred approaches, tackling service funding concerns to operating interventions tightly linked to financial targets [46, 49, 51].

Our findings accord with current suggestions that social prescribing interventions require a skilled workforce [20, 30, 49] that is equipped and supported to deal with the complexity of caring for an increasingly ageing population with multiple conditions [34]. Recent evidence proposed that the role of a Link Worker needs a clearer scope and possibly standardised referral criteria that could improve caseload management systems [27, 81]. The latter suggestion is however conflicting, proposing to categorise patients according to medical conditions or sociodemographic characteristics; this may dismiss the complexity of adults with P+MH LTCs who face multiple intertwined challenges and health inequalities, as noted in this review, and may in fact result in disproportionate use of resources. Notwithstanding, as illustrated in some cases of the reviewed evidence, patients want a long-term ongoing support to accommodate the fluctuating and chronic nature of their multiple LTCs and social demands, thus altogether current types of Social Prescribing Link Worker support may be insufficient for longer-term management and alternatives may be required.

We have demonstrated in this review that adults with P+MH LTCs receive diverse and mostly intense types of Social Prescribing Link Worker support. Notwithstanding, this finding warrants further research work and inferences should consider the heterogenous nature of these studies. The majority of other research in this field focused on mechanisms around the set up and delivery of Social Prescribing Link Worker interventions [82], uptake processes and patients’ adherence [83], types of social prescribing interventions [32], taxonomy of interventions for better comparison [81] or social prescribing outcome evaluations/ effectiveness research [30; 45]. While these research studies have expanded the evidence base, a focus is needed on achieving a better understanding of the patient groups and their needs [47, 53], and potentially tailoring Link Worker support based on types of patients that would benefit the most [73].

*4.1 Overview of study quality*

This review is consistent with previous systematic reviews [e.g., 32, 45, 47, 48] that identified information shortcomings in social prescribing related studies. This creates challenge for making inferences about Social Prescribing Link Worker interventions and types of groups supported. For example, we noted that some studies failed to specify illness related information and instead provided generalised information (e.g., adults with physical and mental health chronic conditions or patients with multiple LTCs) or the average number of medical conditions. Demographic information such as participants ages and gender were also not conclusive. However, it was noted that most participants ranged between 40 to 60 years of age and were mostly female. Furthermore, there was limited consistency in reporting contextual information about the process of Social Prescribing Link Worker interventions such as the length of support, the means of delivery or frequency of support as well as the order of supporting components. As evidenced in this review, practical arrangements of support such as one-to-one set up or duration of sessions and the number of arranged phone contacts or appointment reminders played an integral part in supporting adults with P+MH LTCs, however this crucial information was not systematically recorded, but was often inconsistently presented as part of findings illustrations or sporadically discussed amid contextual information about the intervention. These information shortcomings and methodological gaps, as observed by the CASP quality assessment tool, provide foundations for improving future work in the field.

*4.2 Strengths and limitations*

A key strength of this review is the integrative nature of disparate methodologies to form an understanding of the phenomena under investigation [54] as well as strength in evidence evaluation, formation of further research questions and information application for decision making in healthcare [55, 56, 57]. This is also a potential limitation due to risk of combining evidence of multiple studies. However, to minimise error and bias in reporting, this review followed systematic methodology strategies to enhance rigour throughout the review stages (e.g., quality assessment, thorough data extraction and synthesis, discussions amongst reviewers and iterative nature of the write up). The appraisal of methodological quality of studies for inclusion in the review guided researchers in understanding the methodological choices of included studies, and identified missing components that is informative for other research teams. Another strength of this review is the breadth of evidence searched combined with peer review process. We were systematic in searching peer-review and grey literature that offered a wider scope for potential evidence, however, gaps were observed such as limited inclusion of grey literature search databases (e.g., OpenGrey, GreyNet) that may have offered a more thorough search for evidence. Thus, it is important to note that time and resource constraints meant that some, particularly local unpublished evaluation studies were not identified in searches. Any uncertainties regarding the inclusion and/ or exclusion of studies were discussed amongst the review team members and a consensus was reached.

The categorisation of synthesised findings helped us to identify the ways that Link Workers supported the needs of adults with P+MH LTCs that can now function as a systemised source of information for practitioners working in the field, and for researchers to observe areas that can warrant further research work. Although, we tried to remain vigilant and consistent when completing different stages of this review, it is important to note that evidence across some of these studies was inconsistently reported and often lacked details as raised earlier. Thus, whilst these findings represent a synthesis of knowledge, drawing out generalisations should be treated with caution. Also, most of the studies were completed in the UK and were limited to English language. While all efforts were made to identify diverse evidence from other countries, and there were no limitations placed on countries when carrying out literature searches, published evidence is mostly limited to one country; thus, findings are particularly relevant to the social prescribing context within the UK. This may also warrant future collaborative work with other countries and may encourage cross-sector collaboration [27].

*4.3 Implications*

Social prescribing interventions with a Link Worker are diverse and offer widespread support to different groups. However, the scope of this review included adults with P+MH LTCs, and its sole focus was on identifying how Social Prescribing Link Workers support the complex needs of this group. This review noted several suggestions that may warrant further research work and practical implementations.

Firstly, evidence was consistent in suggesting that this group of adults, mostly needed intense level of support, what Kimberlee [36] termed as ‘holistic’, often with no boundaries on time and frequency parameters. Adults with P+MH LTCs dealt with multiple challenges, often resulting from the cumulative impact of LTCs, socio-economic deprivation and mental health problems, making it difficult for patients to break unhelpful practices, behaviours and thoughts. Link Workers were central in helping these adults, however, often this was accomplished at the expense of over-stretched roles and not clearly coordinated support. The general impression was that Link Workers decision-making about supporting adults with P+MH LTCs was mostly led by patients’ needs and aspirations, the urgency of problems, and what seemed reasonable and appropriate for supporting the patient to help improve their wellbeing. Thus, this review suggests pursuing further primary work 1) to understand the needs of this patient group and learn how they can benefit from Social Prescribing Link Worker support in a sustainable way; and 2) to learn how the role of a Link Worker is implemented to support people living with P+MH LTCs.

Secondly, our review noted that there was no established protocol for the reporting of contextual information such as the number, duration and nature of visits or the nature of support provided. The sporadic reporting of information may imply inadequate records keeping or selective reporting of data. These are potentially missed opportunities for swift reporting of social prescribing interventions on delivery methods and types of support accessed. It also prolongs the process for achieving any regional or national joining up of approaches or health data centralisation [27]. We propose that standardising the implementation of Link Worker interventions for adults living with P+MH LTCs may help in reducing pathway uncertainty, discord, or duplication of effort as well as contribute to reducing the gap in health inequalities. However, the process of achieving this warrants further research work.

Lastly, in addition to broadening the knowledge about the scope of Social Prescribing Link Workers’ role, this review offers insights for improving existing role description, particularly in areas where the role is loosely described as a ‘facilitator’ or ‘connector’ of linking people to a range of community and voluntary services. Patients heavily relied on Link Workers for a range of support and advice, and as evidenced, ‘linking’ or ‘signposting’ without the added enablers was insufficient. Thus, when considering improvements related to Social Prescribing Link Worker role, it is important to consider the additional work and engagement that Link Workers undertake, thus adding a greater impact.

**5 Conclusions**

This review has gathered evidence about how Social Prescribing Link Workers might support adults with P+MH LTCs and provides better understanding of some of the complexities about the way that this group of adults is supported. The evidence highlighted that Link Workers play a pivotal role in the success of these interventions. However, the implementation of this role and sustainability were uncertain.

The next step is to carry out further research employing in-depth qualitative work with this patient group to better understand their needs and learn how they can benefit from Link Workers’ support in a sustainable way as well as learn how the role is implemented to support people living with P+MH LTCs. We anticipate that our further qualitative work could foster the development of a specialised programme for supporting this group of adults, and propose a chain of work packages to scale-up this research.

**Data Availability**

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

**Conflicts of Interest**

DSB is a Medical Patron of Anxiety UK, which is a mutual aid and advocacy organisation for people affected by anxiety. The remaining authors declare that they have no conflicts of interest.

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**Supplementary Materials**

Supplementary materials are presented for extracted methodological information from all included studies, literature searches, illustrative data synthesis, and the reporting of PRISMA checklist, all other materials, as specified in the manuscript, are available upon reasonable request from the corresponding author.

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