Perspectives in Public Health

Special Issue: Mental Health

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GUEST EDITORIAL

Mental health recovery outside of statutory services – the contribution of public health

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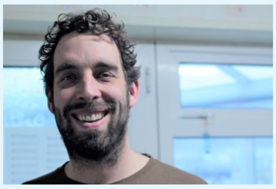

Many people will experience shorter or longer periods of distress at points in their lives. Recovery from even the most disabling distress is possible, and people can live a good life even with ongoing mental health experiences that feel uncomfortable. However, while discourse about how to help people often focuses on statutory services providing medicalised treatment, most people experiencing mental health distress are not engaged with these services,[1] and hence, their impact on population health is limited.

The World Health Organization has argued that mental health treatment is under-resourced globally.[2] However, resource limitations are not the only factor influencing service use. In a recent study that I have been involved in, we analysed spoken narratives from 30 people who had experienced psychosis but not engaged with statutory services and found that harmful prior experiences such as forced medication and coercive treatment had contributed to service-avoidance.[1] By analysing a larger corpus of mental health narratives, we identified processes through which organisations propagate injustices against minoritised groups; ongoing experiences of institutional injustice may act as barriers to service engagement.[3] For some, the medicalised explanatory models underpinning statutory services can feel inappropriate here. Organisations such as the Hearing Voices Network, which enable people with shared experience to come together through local groups but which also campaign nationally to change perceptions and stigma about voice hearing, may feel like a better home.[4]

In some cases, people experiencing mental health distress but not engaged with statutory services are still supported; our narrative study included people who had found a source of strength in their relationship with their natural environment and who described personal validation when meeting others with similar mental health experiences.[1] In a different study, we interviewed people who had written and performed poetry, often as a participant in local performance poetry groups.[5] We found an acceptance of psychotic language as a meaningful form of communication which was missing in other settings, and hence a supportive community that enabled recovery. These forms of community support have the potential to offer a scalable form of help, but the work of community groups is frequently constrained by resource limitations as well. While well-resourced national campaigns against mental health stigma have demonstrated that public health work can enable help-seeking and self-disclosure on a substantial scale,[6] they in turn have been criticised for sometimes propagating a medicalised conceptualisation of mental health.

In this special issue, we have curated work that exemplifies or envisions the role that public health might take in relation to mental health recovery. Two articles from Harrison et al. and Lord focus on nature-based interventions, two from Jensen et al. and Paisi et al. focus on existing initiatives integrating creative art into work with people experiencing difficulties, one from Blake et al. envisions a role for line managers in primary prevention, and one from Cooper et al. examines service user perspectives on social prescribing. Two pieces describe conceptual frameworks to guide public health work, on friendship theory from Doran et al. and on de-medicalising public mental health with the Power Threat Meaning Framework from Harper.

Collectively, we hope that this special issue will serve to draw attention to the mental health recovery work that can be done outside of statutory treatment services and to recognise the valuable work that public health can do in supporting good mental health. We will also be looking at some of these issues at the Refocus on Recovery Conference in September 2023 (https://www.researchintorecovery.com/ronr2023/), which will be examining how to create a rights-oriented, recovery-focused, person-centred mental health and social care system.

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Training for line managers should focus on primary prevention of mental ill-health at work

This article focuses on the mental health of working-age adults who are not being treated by statutory mental health services. It proposes preventive approaches to mental ill-health through line manager training and support.

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Work-related mental ill-health is a significant public health concern, which has been exacerbated by the Covid-19 pandemic. In 2021–2022, the UK Labour Force Survey identified 914,000 workers suffering from work-related stress, depression, or anxiety resulting in 17 million working days lost, an average of 18.6 days per case.[1] This accounts for more than half of all work-related ill-health cases and working days lost due to ill-health (51% and 55%, respectively),[1] with a significant economic impact.[2]

The UK Labour Force Survey identified 914,000 workers suffering from work-related stress, depression, or anxiety resulting in 17 million working days lost, an average of 18.6 days per case

While acknowledging the talents and strengths of multitudes of managers across sectors, a lack of managerial support is one of the leading causes of common mental health problems in a workplace context.[1] Although line managers significantly influence employees' mental health outcomes across various work contexts,[3,4] support offered is highly variable and managing employees with mental health concerns can be perceived by their supervisors as a source of stress.[5] It is well-established that managers play a vital role in managing psychosocial risks in the workplace,[6] but some may lack the necessary resources or support within their organisation to enact this. At an individual level, they may lack the knowledge or skills to ensure jobs are designed and managed to prevent work-related stress, supervise an employee with mental ill-health or navigate the complexities of return-to-work to support those who have been absent.

Furthermore, mental health stigma continues to exist in the work context.[7] Managers' behaviours towards employees with mental health issues are related to their own attitudes towards mental illness and their confidence in discussing mental health.[8] These are modifiable factors that could be targeted through line manager training. However, workplace interventions targeting managers are limited and tend to be based on secondary- and tertiary-level intervention. Secondary-level interventions are all about detection and management of stress and mental health problems by increasing employees' awareness, knowledge, skills, and coping resources. Tertiary-level interventions involve minimising the effects of poor mental health at work once they have occurred through the treatment of symptoms and provision of remedial support.

In a national survey, only 8% of UK managers reported they had received training to support return-to-work.[9] This is being addressed in the UK through the *PROWORK* study: PROmoting a Sustainable and Healthy Return to WORK. This involves the development and testing of toolkits for workers and line managers that aim to support sickness absence and return-to-work in mental health, through knowledge building, problem-solving, action planning, goal setting, and positive communication.[10] *PROWORK* is one example of a return-to-work intervention which aims to improve psychological and physical capacity among workers who are already off sick. This approach is supported by a systematic review and meta-analysis showing that training managers in workplace mental health can improve their knowledge, attitudes and self-reported behaviour in supporting employees experiencing mental health problems.[11] Given the escalating rates of sickness absence, globally, due to mental ill-health, secondary- and tertiary-level interventions are essential.

Yet, given the public health and economic impact of the rising prevalence of mental ill-health at work, greater attention should be focused on primary prevention. With primary-level interventions, actions are taken to eliminate the underlying sources of stress or poor mental health in the workplace. Managers can play a pivotal role in fostering wellbeing in employees they directly manage, and more broadly across the organisation. Lecours et al.[12] describe this as a 'butterfly effect', whereby the behaviour of managers towards their employees not only directly impacts employees' mental health, but also influences whether employees engage in fostering mental wellbeing in others. Preventive interventions are far less commonplace than secondary or tertiary interventions – until recent years, guidelines for employers on mental health at work have tended to focus on the detection and management of existing mental health problems, rather than the prevention.

> **Until recent years, guidelines for employers on mental health at work have tended to focus on the detection and management of existing mental health problems, rather than the prevention**

We strongly advocate for the primary prevention of mental ill-health at work. One way to achieve this is through line manager training to raise awareness, change attitudes (i.e. reduce mental health stigma), and equip managers with the knowledge, skills, and confidence to initiate conversations about mental health at work, minimise stressful working conditions, and foster a psychologically safe team climate.

Training for line managers focused on the prevention of mental ill-health at work is limited and can lack rigour in development, testing and evaluation. Such programmes rarely consider the wellbeing needs of managers themselves, but this is important for managers to role model good practice and create positive working environments. We advocate for the provision of systematic training and support for managers in mental wellbeing self-care, psychosocial risk management, line management and communication skills, mental health awareness and strategies for employee support. This aligns with recommendations from the World Health Organization[13] and the UK National Institute for Health and Care Excellence Guidelines[14], outlining the importance of preventive and proactive strategic approaches to mental wellbeing at work. In the UK, our *Managing Minds at Work* (MMW) digital line manager training programme focuses on primary prevention of mental ill-health at work. It was developed through a rigorous collaborative-participatory design,[15] involving co-creation of content together with managers from organisations of varying types and sizes. The training covers five broad areas: (1) promoting self-care techniques among line managers; (2) designing work to prevent work-related stress; (3) management competencies to prevent and reduce stress; (4) having conversations with employees about mental health; and (5) building a psychologically safe work environment. MMW includes reflexive and experiential learning components to actively engage managers in the learning process. To date, we have established the relevance and value of MMW to managers across a range of organisations[15] and explored the feasibility and acceptability of the training to managers in different employment contexts. Moving forward, the effectiveness of MMW and other preventive interventions in improving manager and employer outcomes needs to be established in large-scale evaluations.

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In Practice

Embedding health and wellbeing opportunities for people experiencing homelessness in a wider support system

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INTRODUCTION

Homelessness impacts negatively on health, wellbeing and life expectancy. People experiencing homelessness are likely to suffer physical and mental health problems, be heavy users of emergency services, and die 30 years earlier than the general population.[1–3] Their severe and multiple disadvantages raise personal and institutional barriers to using health, social and housing services.[4]

In late 2021, a grass-roots initiative in Plymouth began offering a Saturday morning drop-in service for rough sleepers and those in emergency accommodation. The service responded to the bleakness, loneliness and lack of support imposed by Monday-Friday service patterns. This effort was strengthened in February 2022 by a six month Plymouth University grant that enabled partners with extensive experience in the homelessness sector to collaborate with health and wellbeing practitioners in a project aiming to:

i. Meet basic human needs for nutrition, personal hygiene and connectedness.

ii. Offer weekly engagement opportunities with activities supporting health/wellbeing, recovery and personal development.

iii. Provide data to evidence client needs and improve engagement with health/wellbeing opportunities.

People experiencing homelessness are likely to suffer physical and mental health problems, be heavy users of emergency services, and die 30 years earlier than the general population

METHODS

The Plymouth Alliance[5] coordinates a partnership of local homelessness and health organisations supporting people with complex needs. The project was run by staff from two Alliance member charities,

Plymouth Access to Housing (Path) and Shekinah, and volunteers from Plymouth Soup Run. Other Alliance staff joined the project as volunteers. All people accessing the service (‘clients’) were offered a cooked breakfast, a shower, clean clothing and a takeaway lunch. Rough sleepers were offered sleeping bags. Weekly engagement opportunities with at least one healthcare provider addressed: oral health, footcare, bloodborne virus (BBV) testing, eyecare, general nursing, mental health, and smoking cessation. Recreational activities included art sessions and board games.

Attendance data and client needs were recorded each session. A researcher and a peer advocate evaluated sessions from client, staff, volunteer and manager perspectives via interviews and a focus group. Visiting practitioners’ experiences were recorded via questionnaires. In addition, client feedback was obtained ad hoc during sessions. The project leads, functioning as embedded volunteer researchers,[6] developed the evaluation framework and recorded personal reflective notes. This work was part of service monitoring and improvement and included non-identifiable information. Hence ethical approval was not required and individuals provided a verbal consent.

FINDINGS

Attendance

In six months,174 clients accessed the sessions (25 (14%) women; 149 (86%) men). There were 500 attendances, averaging 19 per week. Most clients were rough sleeping (59%) or in emergency/supported accommodation (37%). The project's reach grew from 60% of Plymouth's evidenced rough sleepers in February to over 80% by July 2022.

Service evaluation

The Saturday morning sessions met the need for somewhere for rough sleepers and those in emergency accommodation to go at weekends in a safe, quiet environment supporting practical, health and social needs. The sessions facilitated focused work rather than the 'firefighting' commonly experienced by support workers. Careful management of admissions and swift defusing of tension maintained the sense of a controlled, stress-free environment.

Clients received help with housing from volunteers working in the field. These interactions gave the volunteers a greater understanding of clients' individual situations, and the ability to make more nuanced decisions than those based on stark records. Mutual understanding was developed, tempering client hostility towards those 'in authority'. Accommodation was secured 'out-of-hours' for particularly vulnerable rough sleepers.

Staff and volunteers appreciated the links built between organisations that supported collaborative working with wide benefits for clients. Getting to know clients as individuals was valued and clients appreciated being able to have 'normal' conversations, where they could share thoughts, and not feel like a 'case to be solved' or 'a number in a system'.

The need was recognised for a flexible approach for people who may struggle with making and attending appointments. The benefits of interdisciplinary working and trauma-informed approaches were highlighted, along with awareness of the needs of people at critical transition points such as hospital discharge or release from custody.

Engagement with healthcare and art sessions

Clients were generally keen to engage with healthcare professionals whose presence within a familiar service supported the development of trusting relationships. Healthcare assessment and treatment have promoted prevention and facilitated referral to other healthcare providers, plus immediate treatment of conditions that would otherwise escalate. Oral health educators proactively interacted with the majority of clients present, whereas some other services, for example, podiatry or BBV testing, reached 30% to 40% of those present through self-selection and targeting. Fewer clients (ca. 20%) engaged with mental health peer mentors, but this engagement yielded some very effective outcomes over time.

These sessions seek to offer 'normalising' experiences: casual conversation, rare opportunities to make choices about food and clothing offered, the possibility of joining creative activities, and the chance to deal with health issues before they become emergencies

Not all healthcare needs could be met within the Saturday sessions. While dental professionals could deliver oral healthcare messages, acute intervention was only possible by signposting to an emergency dentist. Podiatrists made referrals to the outreach general practitioner (GP) service and the local emergency department (ED), and mental health peer mentors connected clients with support groups.

The focus of the art sessions included making Easter decorations, mindful colouring, printing and expressive painting. Engagement varied from one or two clients to 30% of all present, some engaging briefly and others immersing themselves in a welcome distraction from everyday concerns. These sessions stimulated rich conversations around life experiences, worries and hopes.

CONCLUSIONS

The project was successful in meeting its aims, due not least to the presence of embedded volunteer researchers. This created trust and enhanced interaction across the network of stakeholders, including clients. It facilitated effective evaluation and learning for practice improvement and capacity building.

The Saturday sessions are continuing despite the termination of grant funding. These sessions seek to offer 'normalising' experiences: casual conversation, rare opportunities to make choices about food and clothing offered, the possibility of joining creative activities, and the chance to deal with health issues before they become emergencies. All of these elements can get squeezed out of a life impacted by homelessness.

Food brings people together, creating an environment where wider support can be offered. By definition, housing advice is emphasised as a priority need for the client group, but health concerns merit attention to support transition from homelessness to a more stable life. It is clear that taking services to people works.

Client circumstances can change rapidly, compounded by physical and mental health constraints of the lived experience of homelessness. Trauma and shame surfaced as issues for many, leading to low health expectations. Hopefully, the supportive environment offered clients dignity and encouragement to seek help.

It is valid to ask whether the Saturday service is supporting clients' progress or enabling the status quo. In response, it is felt that the service does not incentivise rough sleeping. On the contrary, it is a vital avenue for contact with people suffering severe and multiple disadvantages who often fall outside the reach of regular services.

However, it is also considered that the Saturday service needs to be part of a bigger picture of comprehensive, joined-up and personalised support for clients, giving them the prospect of a different future. Help with physical health, mental health and addictions, plus opportunities for meaningful occupation would all be a part of that offer.

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CONFLICT OF INTEREST

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Service user perspectives on social prescribing services for mental health in the UK: a systematic review

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Keywords

systematic review; social prescribing; qualitative synthesis; mental health; public health; primary care

Abstract

Aim: To thematically synthesise adult service users' perspectives on how UK-based social prescribing services support them with their mental health management.

Methods: Nine databases were systematically searched up to March 2022. Eligible studies were qualitative or mixed methods studies involving participants aged $\geqslant 18$ years accessing social prescribing services primarily for mental health reasons. Thematic synthesis was applied to qualitative data to create descriptive and analytical themes.

Results: 51,965 articles were identified from electronic searches. Six studies were included in the review ($n = 220$ participants) with good methodological quality. Five studies utilised a link worker referral model, and one study a direct referral model. Modal reasons for referral were social isolation and/or loneliness ($n = 4$ studies). Two analytical themes were formulated from seven descriptive themes: (1) person-centred care was key to delivery and (2) creating an environment for personal change and development.

Conclusions: This review provides a synthesis of the qualitative evidence on service users' experiences of accessing and using social prescribing services to support their mental health management. Adherence to principles of person-centred care and addressing the holistic needs of service users (including devoting attention to the quality of the therapeutic environment) are important for design and delivery of social prescribing services. This will optimise service user satisfaction and other outcomes that matter to them.

INTRODUCTION

Social prescribing in the UK is defined by the Social Prescribing Network as 'a means of enabling professionals to refer people to non-clinical services to support their health and wellbeing'.[1] However, multiple definitions of social prescribing are used in research. It has been proposed that definitions in the UK are influenced by current politics, health status, care use, and capacity,[2] which potentially leads to an oversimplification of social prescribing and its capability to influence public health outcomes.[2] Social prescribing is typically delivered in primary care or community settings; however, research is currently expanding its application to other areas of healthcare such as secondary care[3,4] and pre-hospital care.[5] Social prescribing addresses many facets of public health, such as social isolation and loneliness,[6–8] weight management,[9] and mental health and wellbeing in the wider population.[10]

Central to the social prescribing pathway is a link worker, a role with many title iterations such as community links practitioner, social navigator, or community care coach. Link workers are defined by National Health Service (NHS) England to 'connect people to community-based support, including activities and services that meet practical, social, and emotional needs that affect their health and wellbeing'.[11] Link workers have a person-centred and needs led conversation with service users to identify possible areas of support

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needed. The link worker will then offer a referral to the type of support required. A service user may see a link worker multiple times over a set period and is based on the link worker's professional judgement.

The consensus across multiple systematic reviews is there is significant promise for social prescribing services to create meaningful changes in public health. However, research is yet to provide a sufficient evidence base to permit conclusions about effectiveness of social prescribing for health outcomes and healthcare service utilisation.[12,13] Previous reviews of social prescribing have tended to focus on methodology, delivery, or referral pathways,[12–14] but have lacked a specific focus on an exploration of the evidence for populations with specific needs, such as people living with mental health conditions. A recent review of social prescribing services targeting mental health and wellbeing outcomes[15] identified a range of active ingredients utilised by interventions (intensity, underpinning theory, and theory-linked behaviour change techniques) but was unable to establish effectiveness due to issues with methodological quality.

Mental health is core to the NHS Long Term Plan,[16] with the number of people in contact with mental health services in England reaching 1.62 million at the end of May 2022.[17] The prevalence of people in the UK requiring support for mental health is also increasing, with estimates of > 50% increase from 2017 to 2019 to April 2020, which was the period following national lockdowns in response to the COVID-19 pandemic.[18] The most common mental health conditions requiring support are anxiety and depression,[19] with an estimated 15% of people at any one time in the UK living with a mental health condition.[20] As part of the NHS Long Term Plan,[16] there is a drive towards personalised care.[11] One of the core personalised care services is social prescribing, which is underpinned by significant investment at the national level in England and is part of the six pillars of the personalised healthcare agenda.[16]

Research studies have reported that social prescribing can impact positively on mental wellbeing, self-confidence, self-esteem, and social isolation.[12,21,22] Individuals engaging in social prescribing services report greater independence and purpose,[10] increased self-confidence,[10,23] and increased numbers of social engagements.[24] These findings have been attributed to trusting relationships formed with link workers and the supportive environment created by services that receive referrals for social prescriptions,[10,21–25] which enables the creation of a safe space for individuals to explore their current issues and build the skills to self-manage their health.[24,26]

Social prescribing research has often used qualitative methods and the application of theory, such as Self-determination Theory[24] and Social Identity Theory,[27] to develop a more robust evidence base on how and why social prescribing works. However, there is no universally agreed theoretical underpinning for social prescribing.[15] One of social prescribing's key features is the ability to be highly personalised and tailored to individual needs. Where studies have looked at specific social prescribing services for people with mental health needs, they have concluded (based on quantitative outcomes) a personalised care approach to the delivery of services provided an effective means of reducing mental distress and improving mental health and wellbeing outcomes.[22,28,29] However, systematic review evidence has identified few social prescribing services report on explicit criteria for person-centredness.[15]

To elucidate the theory and associated mechanisms underpinning effective social prescriptions for people living with mental health conditions in the UK, a systematic synthesis of the qualitative literature with a specific focus on service users' experiences is warranted. Therefore, this systematic review aimed to synthesise qualitative evidence generated from adults with lived experience of mental health conditions who have used social prescribing services in the UK to manage their mental health.

METHODS

Design

This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines[30] Previously we reported on a narrative synthesis of quantitative outcomes from UK-based studies of social prescribing in the context of mental health,[15] which adhered to a review protocol registered with PROSPERO (CRD42020167887).[31] Using the same search and adhering to the review protocol, this qualitative systematic review synthesises evidence from service users in the UK who have accessed and received social prescriptions for their mental health. A completed PRISMA checklist is provided in supplementary file 1.

Search strategy

Nine electronic databases were searched from inception to 21 March 2022: Cochrane Databases of Systematic Reviews, The Cochrane Central Register of Controlled Trials, CINAHL, Cochrane Protocols, Embase, Medline, PsycInfo, Scopus, and Web of Science. Scoping searches were undertaken to identify search terms relevant to social prescribing and mental health. The search strategy was subsequently developed and conducted by an information scientist (LE). Searches were restricted to UK-based studies (to ensure relevancy and transferability of findings to UK healthcare systems) published in the English language. Hand and citation searching of included studies were conducted using Google Scholar. The search strategy applied to all electronic databases is available in supplementary file 2.

Inclusion and exclusion criteria

Included studies were social prescribing services (and/ or interventions depending on terminology used) based in the UK involving adults aged ⩾18 years referred for a social prescription for mild to moderate mental health reasons (including but not exclusive to a diagnosis and/or experiencing symptoms of anxiety, depression, social isolation, loneliness). Studies were qualitative study designs (interviews or focus groups) or mixed methods, where service user data could be extracted independently from all data reported. Studies were excluded if there was no referral or signposting to either a link worker or group/ service and/or did not report any qualitative data.

Screening

All results from the search were uploaded to EndNote X9 and deduplicated. Titles and abstracts were screened by one reviewer (MC) and 20% screened independently by a second reviewer (CJ). The full text of all studies retained after title and abstract screening were reassessed by three reviewers independently (MC, DF, JS) using a study selection form. Any disagreements at both stages of study selection that could not be resolved were discussed with a fourth reviewer (LA) who made the final decision about inclusion.

Data extraction

A structured data extraction form was developed to capture relevant information on study characteristics (country of origin, aims, design, data collection and analysis methods, inclusion/exclusion criteria, sampling method, sample size), model of social prescribing, timing of data collection (currently engaging with a social prescribing service, or post engagement with a social prescribing service), methodological quality, and qualitative outcome data. The data extraction form was piloted by two reviewers (MC, CJ) using three included studies. Data were subsequently extracted from all included studies by one reviewer (MC) and verified by a second reviewer (KA). Any discrepancies in data extraction were resolved by discussion.

Methodological quality assessment was ascertained using the Critical Appraisal Skills Programme Qualitative Study Design Checklist[32] applied to all included studies by two reviewers working independently (MC, JS). Studies were deemed to be either ‘very valuable’ (>15 points), ‘valuable’ (between 10 and 15 points), or ‘not valuable’ (<10 points) to the overall contribution of knowledge based on the overall score assigned (max score = 20 points).

Data synthesis

Thematic synthesis was used to analyse qualitative data and involved three stages of analysis: stage 1 line-by-line coding of the findings, stage 2 development of the descriptive themes, and stage 3 generation of analytical themes.[33] All descriptive text and quotes within the sections of studies labelled ‘results’ or ‘findings’ were eligible for coding.[33]

Stage 1: line -by- line coding

Included studies were coded line-by-line by one reviewer (MC) for meaning and content. Direct quotes presented in the results section of individual papers were not included in the coding of this review because they provided insufficient representation of the themes. However, direct quotes were used to provide further evidence and context to the themes generated in stage 3. This is consistent with previous thematic syntheses in health research.[34,35] To ensure the translation of concepts between studies, without losing relevance and context, only service user data (based on the aims of the research) were coded.[33] Stage 1 generated a ‘bank’ of ‘free’ codes.

Stage 2: organisation of ‘free codes’ into related areas to construct themes

All codes in stage 1 were organised into higher order themes by MC and discussed with three reviewers (JS, LA, DF) to establish consistency. Titles or labels reported within text of studies were not considered at this stage. The content and descriptions of themes reported directed theme generation. The stage 2 process was iterative and occurred multiple times to ensure consistency with organisation.

Stage 3: generating analytical themes

Stage 3 of synthesis of results from the individual studies was used to generate new analytical and associated descriptive (sub)-themes. MC and JS generated new analytical themes, which were discussed with LA and DF to produce a consensus on final themes. The final themes are then presented in tabular format and a thematic tree. Supporting quotes from individual papers were included in the table to provide credibility and additional context to the final themes.

FINDINGS

A total of 51,965 studies were identified from the electronic searches with an additional 109 identified through hand and citation searching (Figure 1). Full-text papers (*n* = 288) were assessed for eligibility, with six papers fulfilling all review criteria.[7,21–23,28,36]

Study characteristics

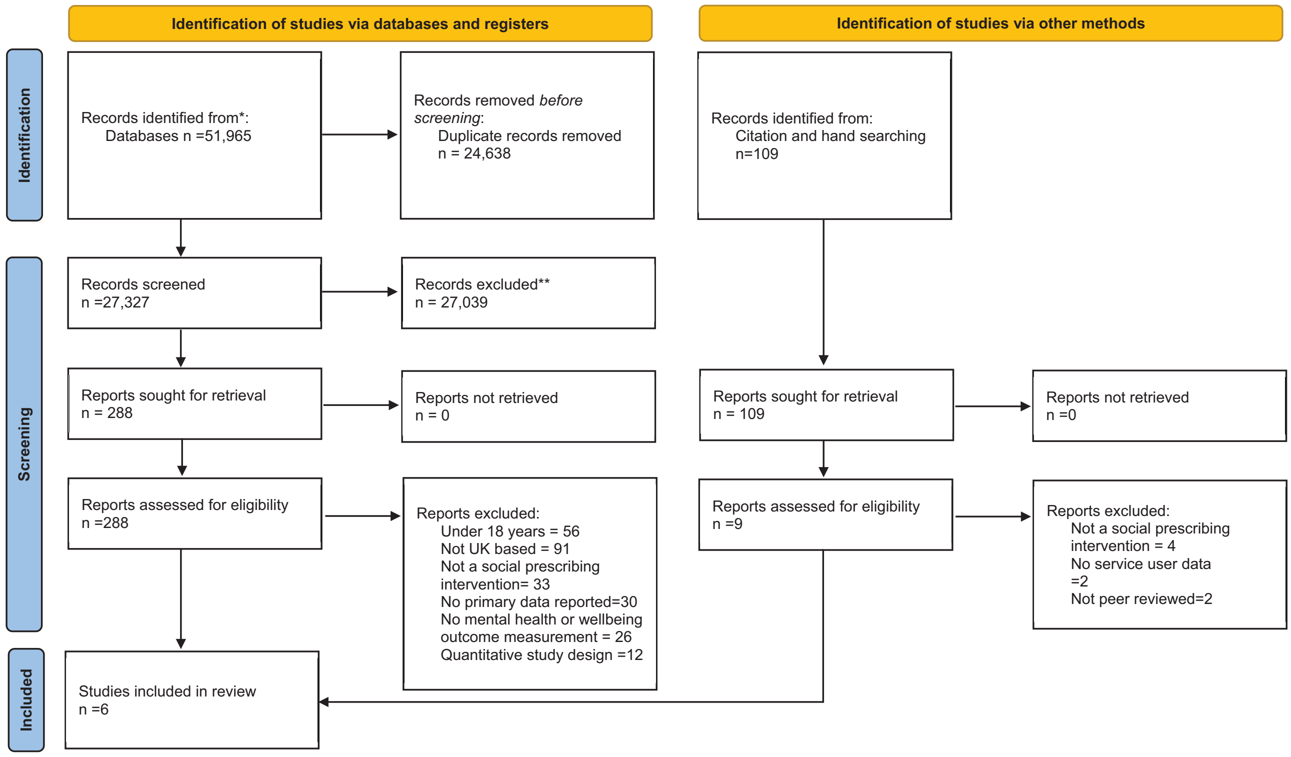
A summary of the six included study characteristics is provided in Table 1. The combined sample size across the six studies was 220 participants. Four studies were conducted in England,[7,21–23] one in Scotland,[36] and one in Wales.[28] All studies used semi-structured interviews and thematic analysis to analyse qualitative data.[7,21–23,28,36] All six offered social prescriptions to activities or services in the voluntary, community and social enterprise sector.[7,21–23,28,36] Models of social prescribing were categorised according to Husk *et al*.[37] Five studies used a link worker referral model involving an initial referral by either a general practitioner (GP), practice nurse, healthcare assistant, or charity to a link worker.[7,21,22,28,36] One study used a model that directly referred (referral made from a mental health professional based in primary or secondary care, directly to the community organisation that was delivering the social prescribing service) people to an activity/ service.[23] Three studies collected data from service users after engagement with social prescribing services.[7,23,36] One study collected data when service users were currently engaged with a service.[21] Two studies collected data during and after engagement with social prescribing services.[22,28]

The most common reasons for referral were social isolation and/or loneliness (*n* = 4).[7,21–23] Other reasons were anxiety, depression, psychological/ social problems, and mental health needs.[7,21–23,36] Mean age of participants

Figure 1

PRISMA diagram.

PRISMA: Preferred Reporting Items for Systematic Review and Meta-Analysis.



across studies ranged from 47[36] to 77[28] years. Age data were not reported by two studies.[22,23] Two studies reported an even distribution between male and female participants,[23,36] two studies reported more female participants,[7,28] and two studies reported more male participants.[21,22] The ethnicity of participants was reported in three of out the six studies, using non-UK census categories.[7,21,23] Across these three studies, 54 participants were reported as British and/or White (White and/or British, White-British, Black-British), five participants as Black Minority Ethnic, one participant as White-Irish, and one participant as Asian. Employment status was reported by three out of six studies.[7,21,22] Across these three studies, 16 were employed, 34 had retired, and 23 were unemployed.

Methodological quality assessment

Methodological quality assessment for each included study can be found in supplementary file 3. The overall score (maximum 20 points) allocated to each of the studies can also be seen in Table 1. Overall studies scores ranged from 15[28] to 20.[36] All six studies provided a clear statement of aims and employed appropriate research designs and associated methodologies. All studies used appropriate recruitment and data collection strategies that were consistent with the research aims.[7,21–23,28,36] One study clearly and adequately considered the relationship between participants and researchers.[36] Four studies explicitly reported an ethical statement.[21–23,36] Five studies provided explicit details of a sufficiently rigorous method of data analysis.[7,21–23,36] All six studies provided a clear statement of findings,[7,21–23,28,36] and their contribution to knowledge, including the transferability of the conclusions.[7,21–23,28,36] Five studies reported a new area of further research or understanding of social prescribing.[7,21–23,36]

Overall, five out of the six studies were deemed to be ‘very valuable’[7,21–23,36] to the field and one as ‘valuable’.[28]

Findings of thematic synthesis

Two main analytical themes were developed: (1) person-centred care as key to delivery and (2) creating an environment for personal change and development. These two themes were generated by organising 10 codes into seven descriptive themes. A hierarchical thematic tree structure (figure 2) provides an overview of theme generation, including how each stage of the synthesis can be mapped onto the original studies. Supplementary file 4 provides additional context to the thematic tree structure by providing a summary of the analytical and descriptive themes. Exemplar codes (taken from the descriptions of themes reported) and direct quotes (quotes reported within individual studies results) to provide context and credibility (where available).

Person-centred approach was key to delivery

Across all six included studies, there was consistent reporting of a person-centred

Table 1 Summary of study characteristics.

Author[s]	**Country**	**Sample size**	**Age years (mean)**	**Sex (% of sample)**	**Reported participant ethnicity**[a]	**Reported employment status**	**Reason for referral**	**Model of social prescribing based on Husk *et al*[37] (timing of data collected from service users)**	**Methodological Quality Assessment Score (Max 20)**
Stickley and Hui[23]	England	*N* = 16	No data	50% Female 50% Male	White-British (*n* = 13), Black-British (*n* = 1), Asian (*n* = 1), Afro-Caribbean (*n* = 1)	Not reported	Mental health needs[b]	Direct referral model[c] Data collected from service users after engagement with social prescribing services, arts-based activities	19 (Very valuable)
Moffatt *et al.*[21]	England	*N* = 30	62.0	47% Female 53% Male	White-British (*n* = 24), Black Minority Ethnic (*n* = 5), White Irish (*n* = 1)	Employed (*n* = 4) Retired (*n* = 14) Unemployed (*n* = 12)	Social isolation and loneliness	Link worker model Data collected from service users during engagement with social prescribing services, various activities	18 (Very valuable)
Kellezi *et al.*[7]	England	*N* = 19	60.4	63% Female 32% Male	White and/or British (*n* = 16)[d]	Employed (*n* = 9) Retired (*n* = 10)	Loneliness	Link worker model Data collected from service users after engagement with social prescribing services, various activities	17 (Very valuable)
Wildman *et al.*[22]	England	*N* = 24	No data	46% Female 54% Male	Not reported	Employed (*n* = 3) Retired (*n* = 10) Unemployed (*n* = 11)	Social isolation	Link worker model Data collected from service users during and after engagement with social prescribing services, various activities	18 (Very valuable)
Roberts and Windle[28]	Wales	*N* = 120	76.7	82% Female 18% Male	Not reported	Not reported	Anxiety depression stress	Link worker model Data collected from service users during and after engagement with social prescribing services, various activities	15 (Valuable)
Hanlon *et al.*[36]	Scotland	*N* = 12	46.5[e]	50% Female 50% Male	Not reported	Not reported	Psychological /social problems[f]	Link worker model Data collected from service users after engagement with social prescribing services** various activities	20 (Very valuable)

SPS: Social Prescribing Services.

[a] Terminology used by study authors.

[b] Mental Health Needs – any of the following: social isolation, loneliness, anxiety, or depression.

[c] Direct Referral Model – Referral made from a mental health professional based in primary or secondary care, directly to the community organisation that delivered the social prescribing intervention.

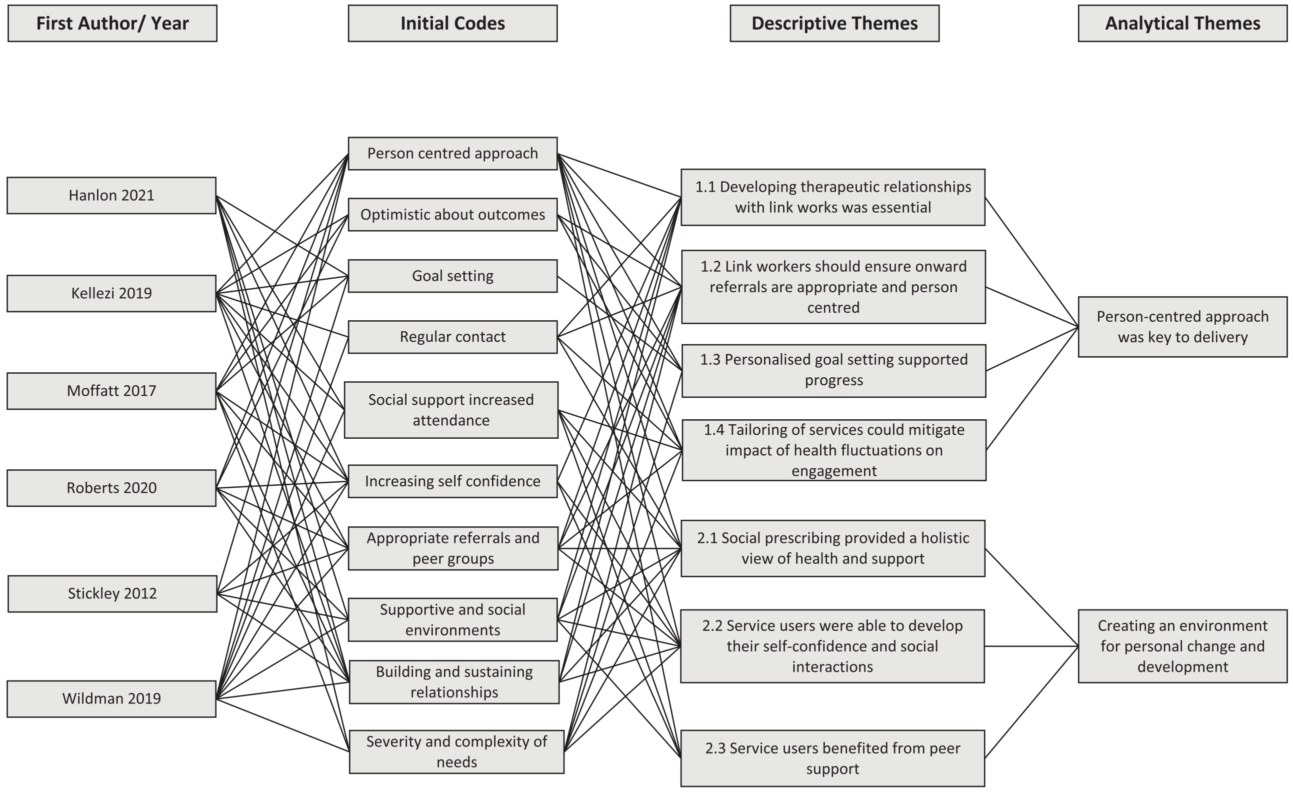
[d] Data collection period was not specified but was inferred based on description within the study.

[e] Calculated by study authors (MC and CJ).

[f] No further detail was provided.

Figure 2

Thematic tree diagram



approach being preferred and valued by service users.[7,21–23,28,36] This was reported across several aspects of the social prescribing service, including goal setting, flexible support and tailored referrals based on individual preferences and is represented in all four of the associated descriptive themes. Data indicate the link worker is central to ensuring a person-centred care approach and providing the required level and type of support to service users and aid management of their mental health:

> A central part of the Link Worker role was to facilitate engagement with other services, The level and type of support offered to facilitate engagement varied and was balanced against service users' need and readiness to engage with other services.[21]

Within the analytic theme of person-centred care, the four descriptive themes identified from the data were: (1.1) developing therapeutic relationships with link workers was essential; (1.2) link workers should ensure onward referrals are appropriate and person-centred; (1.3) personalised goal setting support progress; and (1.4) tailoring of services could mitigate impact of health fluctuations on engagement.

Developing therapeutic relationships with link workers was essential. The quality of the relationship between the service user and the link worker was considered essential in six of the included studies.[7,21–23,28,36] Better quality relationships were characterised by a person-centred care approach, which aided the development of a therapeutic alliance. Service users reported 'feeling at ease and relaxed'[21] and 'well-matched'[28] with their link worker, which allowed for more open conversations about what support they needed for their mental health. Studies reported two factors driving quality relationships, trust and openness, when reporting on service users' views about the relationship with their link worker. Having both trust and openness enabled service users to settle into socially prescribed activities and benefit from support that is tailored to their mental health needs.

Link workers should ensure onward referrals are appropriate, and person-centred. Appropriateness of onward referrals by link workers to support and activity services, in terms of the service users' practical and health needs, was a prominent theme across five studies. Where service users felt they were referred to a service for activities that did not meet their needs or preferences, naturally they did 'not feel positive about the social prescribing pathway'.[7] However, when an onward referral was based on their mental health needs and preferences (within a person-centred care approach), service users reported them as 'extremely helpful, particularly the combination of expert and peer-led advice on coping and symptom management strategies'.[21]

Themes within studies strongly suggested that service user engagement hinged on whether referrals met their mental health needs or not, as this directly influenced the way they would interact with services.[36] Often referrals to peer support groups were reported as adding to the effectiveness of social prescribing, helping service users to build meaningful relationships in the future, 'often formed through group activities which had been suggested or organised'[36] by link workers.

Personalised goal setting supported progress. Themes reported across four of the six studies[7,21,22,36] reflected on how service users benefitted from having 'realistic, progressive and personalised goal-setting'.[21] Service users would subsequently be more motivated to achieve their mental health goals, if there they felt they were attainable and allowed for more gradual progress over time. These four studies described how the link worker was key to working with clients in a collaborative way ensuring goals were person-centred. Themes generated from the individual studies discussed a collaborative approach where service users could 'voice their priorities and have control over what goals were set'[36]. Having a goal in place supported service users' mental health and progress towards meeting their priorities.

Tailoring of services could mitigate the impact of health fluctuations on engagement. The fluctuations in mental health conditions service users experienced impacted negatively on their motivation to engage with social prescribing services, Two studies[21,22] reported this as a challenge but accepted it was something social prescribing services could work with rather than against. As well as fluctuations in mental health being acknowledged, it was evident service users also experienced 'unanticipated health shocks or trauma . . . [or] psychological burden of living with (long term conditions)'[22] that also impacted negatively on engagement. Tailoring services so service users were supported through these periods mitigated to some extent their concerns 'about not always being able to attend',[21] and this flexibility helped to support their continued (re-) engagement.

Creating an environment for personal change and development

A second analytical theme encompassed how social prescribing can create the opportunity for individuals to develop their skills to manage their mental health and self-confidence to improve all aspects of their mental health. Within this analytical theme, there were three descriptive themes: (2.1) social prescribing provided a holistic view of health and support; (2.2) service users were able to develop their self-confidence and quality of social interactions; and (2.3) service users benefitted from peer support.

Social Prescribing provided a holistic view of health and support. Five studies[7,21–23,28] reported that service users 'believed that (social prescribing) was qualitatively different from their experiences with other health (services)'.[7] Service users reported that they received support for anything that was affecting their health, whereas their previous experiences with health professionals involved focusing on one aspect of their health (e.g. just physical health). This holistic approach taken by social prescribing and link workers was considered more appropriate for their needs than 'what was available or possible through the GP'.[21] Service users had more time to discuss their mental health needs with link workers and felt better understood, which 'brought hope and meaning to life'.[23] Not only did the holistic approach to dealing with complex mental health needs appear to impact positively on health outcomes, service users' also 'said they were more confident, happier, and feeling better with an improved outlook on life'.[28]

Service users were able to develop their self-confidence and social interactions. Increasing service users' self-confidence across many aspects of their lives, primarily around mental health and social interactions was reported across all six studies.[7,21–23,28,36] Included studies reported themes suggesting that service users' self-confidence increased following engagement with a social prescribing service and link workers. Increased self-confidence was associated with link workers 'building self-confidence, self-reliance and independence. . .managed through ongoing support and persistence in finding the right motivational tools for the individual'.[21] Link workers supported service users to 're-build and re-establish themselves'[23] by improving their self-confidence and equipping them with the skills to feel more in control of their lives and care, including more and better-quality social interactions. By improving self-confidence and social interactions, studies generated themes suggesting that service users' mental health improved from engaging with link workers.[7,21–23,28,36]

Service users benefitted from peer support. Across all six of the included studies, authors highlighted the impact that peer support had on service users health and management of their needs.[7,21–23,28,36] Social prescribing offered the support pathway to allow service users to build their social networks and 'increase social contact and the change to make friends with people in a similar situation'.[22] Interacting socially with others gave service users a feeling of acceptance that others might be in similar situations. Link workers offered the 'opportunities for activities, which allowed people to meet and socialise in the community',[21] providing an initial introduction to others. All six studies reported how service users felt social prescribing services had allowed them to develop new friendships, establish group identities, and reconnect with old friends.[7,21–23,28,36] The development of these relationships was reported to have led to positive changes in service users' mental health management and wellbeing.

DISCUSSION

This systematic review synthesised six UK-based qualitative studies, all of which used thematic analysis of semi-structured interview data to capture service users' experiences of social prescribing interventions.[7,21–23,28,36]

The importance of a person-centred care approach underpinned delivery of social prescribing. Themes were derived from the lived experience of service users encompassing personalised goal setting and tailoring of services to account for fluctuations in their mental health. Themes also covered the development of a therapeutic alliance, and referrals to services for activities that matched their mental health needs and preferences, including provision of a social and supportive environment. These components of social prescribing services all align closely with the principles of person-centred care.[38] Research consistently reports that care matched to a person's preferences and values leads to better engagement, adherence and satisfaction with treatment and services,[39,40] while also promoting self-determination, choice and autonomy, which are core components of recovery-orientated practice.[41,42] Principles of shared decision-making include a positive therapeutic alliance, which is a strong predictor of engagement in therapy[43] and outcomes in case management services in community mental health.[44]

The development of supportive social environments, created by social prescribing services, allowed service users to build their own community and support network. This linked directly to the second analytical theme identified in this study, whereby service users described social prescribing as producing an environment conducive to supporting personal change and development by addressing their holistic health needs and improving their self-confidence and social interactions. A social environment aimed at reducing loneliness and increasing a sense of social connectiveness has been shown to have a positive impact on mental health,[26,45] with greater numbers of group connections positively impacting on quality of life.[46] Creating supportive environments for service users helps to build a sense of community, which can act as vital sources of peer support during fluctuations in mental health.[47] Formation of friendships, as identified by all studies in this review, also arise through activities such as art or music, which in turn can positively impact on mental health.[46,47]

Strengths and limitations

The application of thematic synthesis to review the evidence within the field of social prescribing represents a novel approach. This review also synthesised the views and experiences of service users across multiple studies, with a specific focus on how social prescribing supports adults experiencing difficulties with their mental health. It adds an analytical approach to understanding the essential components of social prescribing services from a service user viewpoint which has not been done before as part of a synthesis. Despite conducting a comprehensive search of the literature, one limitation of this review is the lack of a universal definition of 'social prescribing' and related medical subject headings in bibliographic databases. Therefore, the existence of studies that would have met our eligibility criteria cannot be ruled out. In addition, the nature of thematic synthesis is dependent on quality of reporting in published manuscripts. Analytical and descriptive themes reported in this review are created from data reported within the published version of the manuscript and other unpublished data of relevance may be available. Finally, five out of the six studies collected data from service users after they had engaged with social prescribing services. Therefore, our findings are less reflective of service user views during engagement in social prescribing services, including those accessing services that do not utilise link workers.

Future research

It is vital for the sustainability of social prescribing services to be driven by service user experiences to maximise engagement in activities, and outcomes that matter to service users, including cost-effectiveness. However, few services explicitly report on involving service users in co-design/production.[13] Future research would also benefit from assessing how different delivery styles/modes of delivery (i.e. over the phone, in-person, video call or a blended engagement approach) influences people's experiences of person-centred delivery and outcomes. The perspective of link workers and referrers involved in social prescribing would also benefit from research to inform training and supervision. For example, to understand the skills employed by link workers and others that fosters a person-centred care delivery and environment. Link workers have described the complexity involved in their role (changing conditions, different levels of support required), and need to have regular supervision and/or engage in self-care practices to mitigate any negative impact on their well-being.[48,49]

CONCLUSIONS

This application of thematic synthesis has provided a novel approach to the synthesis of qualitative evidence for service users' experiences of social prescribing services to support their mental health. Adherence to principles of person-centred care and addressing holistic needs of service users, including devoting attention to the quality of the therapeutic environment, are important for the design and delivery social prescribing services to optimise service user satisfaction and other outcomes that matter to them.

CONTRIBUTORSHIP

MC and DF conceived the review. DF, LA, and JS supervised the review. KA, and CJ, DF and JS assisted MC with study selection and data extraction. LE designed the search strategy and collated the database searches and collated results. JS and MC conducted the thematic synthesis and quality assessment. MC wrote the first draft of the manuscript. All authors revised the manuscript for important intellectual content and approve the final manuscript.

CONFLICT OF INTEREST

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DATA SHARING STATEMENT

No primary data were collected. All data are contained within this article and supplementary materials.

SUPPLEMENTAL MATERIAL

Supplemental material for this article is available online.

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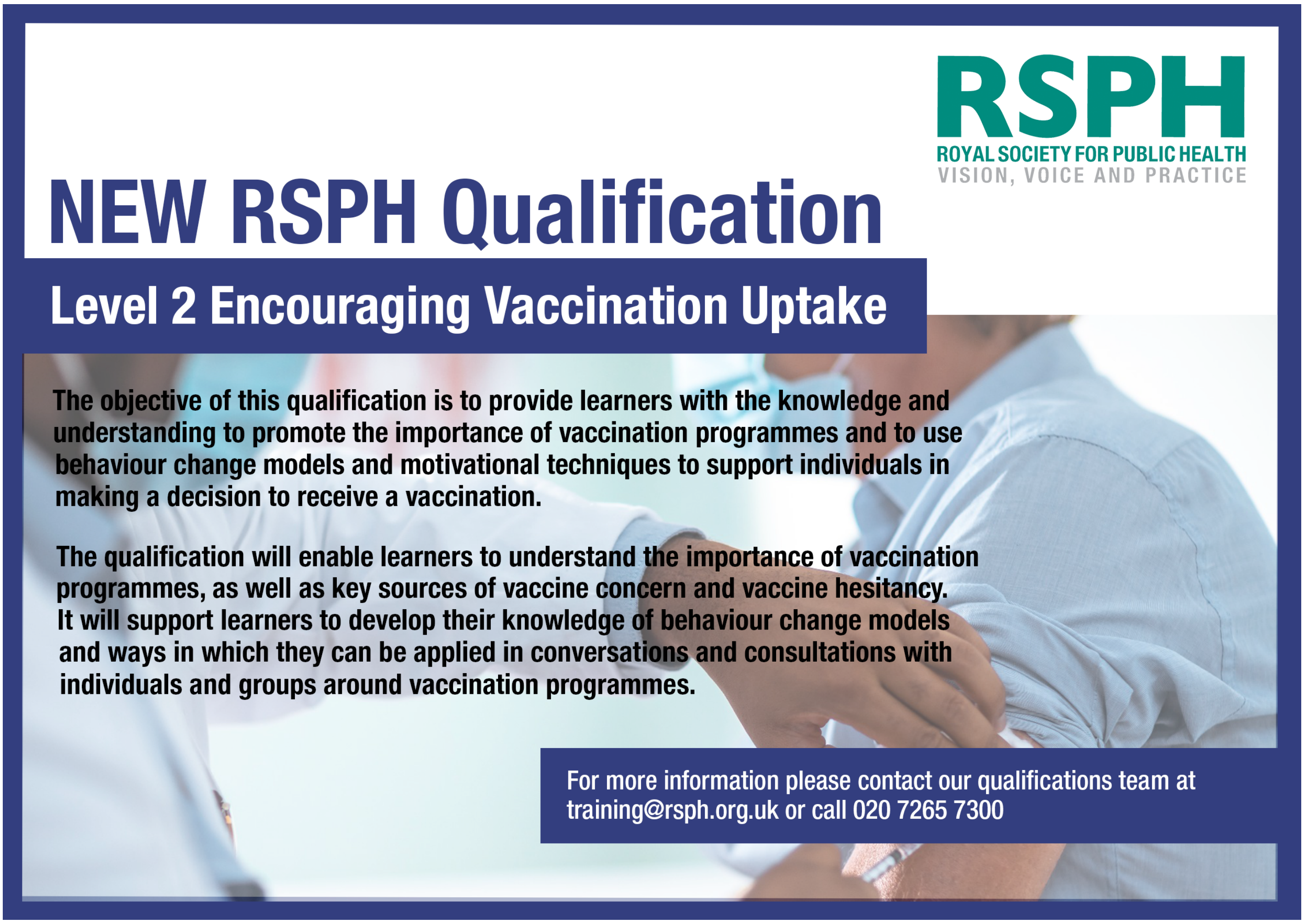

De-medicalising public mental health with the Power Threat Meaning Framework

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Abstract

Aims: To propose that much of the language and concepts in public mental health is medicalised and to suggest that the Power Threat Meaning Framework (PTMF), can be a useful resource for those wishing to take a de-medicalising approach.

Method: Examples of medicalisation are drawn from the literature and from practice and key constructs in the PTMF are explained, drawing from the report which presented its research base.

Results: Examples of medicalisation in public mental health include: the uncritical use of psychiatric diagnostic categories; the 'illness like any other' approach in anti-stigma campaigns; and the implicit privileging of biology in the biopsychosocial model. The negative operations of power in society are seen as posing threats to human needs and people make sense of such situations in varied ways though there are some commonalities. This gives rise to culturally available and bodily enabled threat responses which serve a variety of functions. From a medicalised perspective these responses to threat are characteristically seen as 'symptoms' of underlying disorders. The PTMF is both a conceptual framework and a practical tool that can be used by individuals, groups and communities.

Conclusion: Consistent with social epidemiological research, prevention efforts should focus on preventing adversity rather than 'disorders' but the added value of the PTMF is that varied problems can be understood in an integrated manner as responses to a variety of threats whose functions could be met in different ways. Its message that mental distress is a response to adversity is comprehensible to the public and can be communicated in an accessible way.

Acknowledgements

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De-medicalising public mental health
with the *Power Threat Meaning Framework*

Medicalisation in public mental health and the need for an alternative approach

A key challenge for public mental health is medicalisation – a biomedical framing where problems are seen as illnesses, biological disease processes are emphasised and psychiatric medication is a default treatment. An over-emphasis on medication can be seen in the continued rise over recent decades in community prescriptions for antidepressants in England. They rose from 18.4 million in 1998 to 36 million in 2008[1] and then to 70.9 million in 2018.[2] Researchers analysing the 1998-2008 increase concluded that it could not be fully explained by population growth nor by increased rates of diagnosis of depression but rather by longer periods of treatment and because people with anxiety diagnoses were increasingly being prescribed anti-depressants.[1]

Although successful in physical health, a biomedical approach to mental health is more contested because medicine's theoretical models are 'designed for understanding bodies rather than people's thoughts, feelings and behaviour'[3] In this article I give examples of medicalisation and make a case for a new approach before describing the *Power Threat Meaning Framework* (PTMF)[3] and discussing some of its implications. Since the term 'mental health' is itself contested I will, throughout, use a range of non-medical alternatives.

Public mental health (PMH) professionals are familiar with criticisms that mental health services construct the causes of problems in living as lying within the individual and so offer individualistic interventions. Although psychiatric medication can be helpful in some circumstances it can also cause iatrogenic harm through side effects and withdrawal effects. By focusing at the population level, PMH can avoid individualisation but its concepts, language and metaphors often draw on a medical discourse which can: pathologise intelligible responses to distress; reduce service users' agency; and obscure the social and structural causes of distress as well as its subjective meaning. I will briefly discuss three examples.

Firstly, psychiatric diagnostic categories are often used uncritically in epidemiology, service commissioning and in mental health literacy and first aid interventions, despite evidence that these categories lack validity and have poor reliability in clinical practice.[4] Secondly, although anti-stigma campaigns are often based on an 'illness like any other' approach which assumes that adopting a biomedical understanding will reduce levels of prejudice, these explanations are overwhelmingly associated with a range of negative attitudes.[5] Thirdly, the biopsychosocial model, which is often implicitly or explicitly drawn on within stress-vulnerability and similar models, assumes biological factors are primary *causes* in themselves rather than as *responses* to the social environment.

Although Public Health has paid increasing attention to Adverse Childhood Experiences (ACEs) and other Social Determinants of Mental Health (SDMH), ACEs are often framed within a discourse of neuroscience[6] whilst both ACEs and SDMH are often discussed using a medicalised vocabulary of risk. Moreover, asset-based concepts like 'recovery,' 'wellbeing,' 'vulnerability' and 'resilience' and their associated interventions implicitly locate problems and solutions in individuals and communities meaning that insufficient attention is given either to the systems which cause adversity or to collective solutions. [7, 8]

The Power Threat Meaning Framework: From symptoms to strategies and stories

Many service users, practitioners and researchers have called for an alternative to a medicalised approach and, in 2018, the British Psychological Society published the *Power Threat Meaning Framework*, a meta-theoretical framework rather than a model, drawing on 14 different conceptual perspectives.[3] It was produced by an author team comprising clinical and research psychologists and psychiatric survivors and their aim was to develop a conceptual alternative to the kind of medicalised approach which underpin functional psychiatric diagnoses.

The main report[3] includes an extensive review of research on adversity -- a concept seen by the authors as more broadly applicable than ‘trauma’ -- identifying both commonalities and variation in the ways in which the general population characteristically responds to different adversities. One of the causes of variation is the role of human agency and meaning-making. Individuals understand the meaning of adversity and its threats in an idiosyncratic manner shaped by their personal biography and circumstances, but these personal narratives are, in turn, shaped by social discourses and ideology.

FIGURE 1 ABOUT HERE

To demonstrate how the PTMF provides an alternative to medicalisation I will draw on two fictitious examples to illustrate the central constructs: power; threat; and meaning (see Figure 1 for an outline of the framework).

> Emily, a single white British woman in her thirties with two young children is overwhelmed by feelings of depression and hopelessness following the death of her mother (her main confidant and source of child-care) and the loss of both her job and her home (as she was unable to keep up mortgage payments).
>
> Jacob, a young black British man who was neglected by his parents and bullied and racially victimised by peers as a child, becomes increasingly socially isolated during his first year living away at college, believing that other students are conspiring against him as part of a conspiratorial plot by MI5.

Within the PTMF adversities are seen as socially patterned, reflecting the negative operations of power, causing a range of unpredictable and uncontrollable events, at both individual and community levels. Both Emily and Jacob have experienced negative operations of power. Emily has experienced bereavement and a loss of a source of childcare as well as unemployment, financial adversity, lack of support and social isolation. Jacob has not only experienced parental neglect but also victimisation and social exclusion related to an aspect of his identity.

It is hypothesised that adversities pose threats to human needs. Emily may feel trapped by her situation and may also be experiencing multiple losses of agency, control and access to resources. Jacob may be experiencing being Othered, invalidated and excluded from connections with others, as well as powerlessness and a fear that others may pose a danger to him.

People ascribe meaning to these threats. Such meanings for Emily might include blaming herself and seeing herself as helpless, trapped, defeated, hopeless, lonely, shamed and humiliated. For Jacob, these meanings might include exclusion, injustice, shame, humiliation, anger, inferiority, worthlessness and powerlessness.

In responding to threat, it is hypothesised that people, as individuals and as groups, draw on a range of survival strategies which humans have evolved to protect them and which are both culturally available and embodied – for example, dissociation, hearing voices, hypervigilance, learned helplessness, preparing to fight, flee and escape etc. The body is seen as mediating both the effects of adversity and responses to it. Threat responses are not inherently pathological and may often be exaggerated versions of everyday behaviour. They are seen as serving a range of functions – discussed in more detail in the main report[3] -- which may vary not only across people but also, for the same individual, across time and context.

Emily’s threat responses and their functions (in brackets) might include:

- ‘giving up’ (protection against attachment loss, hurt and abandonment)
- withdrawal and low mood (regulating overwhelming feelings of anger and loss)
- Self-blame (self-punishment)

- Helplessness/weeping (seeking attachments and communicating about distress)

Jacob’s threat responses and their functions might include:

- Hypervigilance, anticipating potential threats and avoidance of others (protection from danger)
- Externalising and projecting onto MI5 his fears and suspicions (preserving identity, self-image and self-esteem and maintaining a sense of control)
- Believing that he is important enough that a security agency is interested in him and that he has insight into what is ‘really going on’ – that others are conspiring against him (preserving a place within the social group)
- Maintaining emotional and/or physical distance from others through distrust and self-isolation (regulating overwhelming feelings like shame, humiliation, anger and loneliness and protection against attachment loss, hurt and abandonment

The framework can be used with individuals, families, groups and communities and the key PTMF questions provide a structure for a narrative that can work at all these levels:

- ‘What has happened to you?’ (i.e. how is power operating in your life?)
- ‘How did it affect you?’ (i.e. what kind of threats does this pose?)
- ‘What sense did you make of it?’ (i.e. what is the meaning of these situations and experiences to you?)
- ‘What did you have to do to survive?’ (i.e. what kinds of threat response are you using?)
- ‘What are your strengths?’ (i.e. what access to power resources do you have?)
- ‘What is your story?’ (i.e. how does all this fit together?)

Space limitations preclude constructing a narrative for Emily and Jacob but hopefully the examples above show how, in contrast to a medicalising approach, the framework renders what are usually seen simply as symptoms of a disorder into intelligible responses to threat. Moreover, the social and structural causes of distress as well as its subjective meaning are seen as central. People often seek help when their threat responses interfere with the lives they wish to lead. The PTMF enables them to have more agency, by identifying alternative strategies which could address the functions currently served by their threat responses – for example, social support and belonging, having material, cultural, leisure and educational opportunities and so on.

In place of diagnostic categories, the framework proposes seven provisional general patterns -- characteristic patterns of meaning-based threat responses to power -- two of which are relevant here: For Emily, 'surviving defeat, entrapment, disconnection'; for Jacob, 'surviving social exclusion, shame, and coercive power.' These patterns and the cultural acceptability and validity of key PTMF constructs need to be investigated by researchers in a range of settings, including with different ethnic groups – see the framework's website[3] for further suggestions for researchers.

Implications for Public Mental Health

The framework is designed to be a practical tool and it has been used in a wide range of contexts, including by peer-led groups of service users, and further resources can be found at the PTMF website.[3]

The framework has a number of implications for policy including Public Health – see the main document's last chapter[3] -- but I will focus on three. Firstly, it offers a less pathologising way of understanding emotional distress than more common 'brain or blame' explanations. If we only seek to raise mental health awareness without moving away from a medicalised discourse, it is likely that prescription rates of psychiatric medication will continue to increase, particularly when funding for alternatives is restricted. In contrast to ‘an illness like any other’ approach, the message of a public education campaign informed by the framework would be ‘don’t ask what’s wrong with me, ask what’s happened to me.’ The public find adversity-focused explanations comprehensible and less frightening and mystifying than biomedical explanations.[5]

Secondly, we need to develop ‘upstream’ interventions aimed at preventing adversities rather than ‘disorders’ and this is consistent with the literature on SDMH and income inequality.[9] Adversity need not inevitably lead to distress – its negative effects can be exacerbated or ameliorated (see Figure 1) and the PTMF can inform policy like, for example, investing in supporting families so attachments are not disrupted, ensuring people have access to a supportive confidant and ensuring that service users are asked about experiences of adversity so appropriate support can be accessed.

Thirdly, the framework provides an alternative way of thinking about communities and societies. A briefing paper on the psychological impact of austerity by Psychologists for Social Change (http://www.psychchange.org/) concluded that these measures had affected society, leading to feelings of entrapment and powerlessness, shame and humiliation. Often social problems (e.g. problem drinking, youth violence etc.) are seen as separate and independent from psychological problems (e.g. depression etc.) but they could be understood as threat responses developed in response to adverse community experiences which, within the PTMF, can be conceptualised as a sub pattern like ‘surviving poverty and low socio-economic status.’ Using the framework as a resource, community stakeholders and agencies could collaborate to develop a shared narrative, understanding these problems as responses to adversity and threat, which serve particular functions. This can help isolated and stigmatized communities to create more hopeful stories about their strengths, skills and potentials, and to identify community needs like funding for alternative ways in which the functions served by these community threat responses could be met. Such a process could help develop the kind of societal initiatives called for by Psychologists for Social Change to increase community agency, security, connection, meaning and trust.

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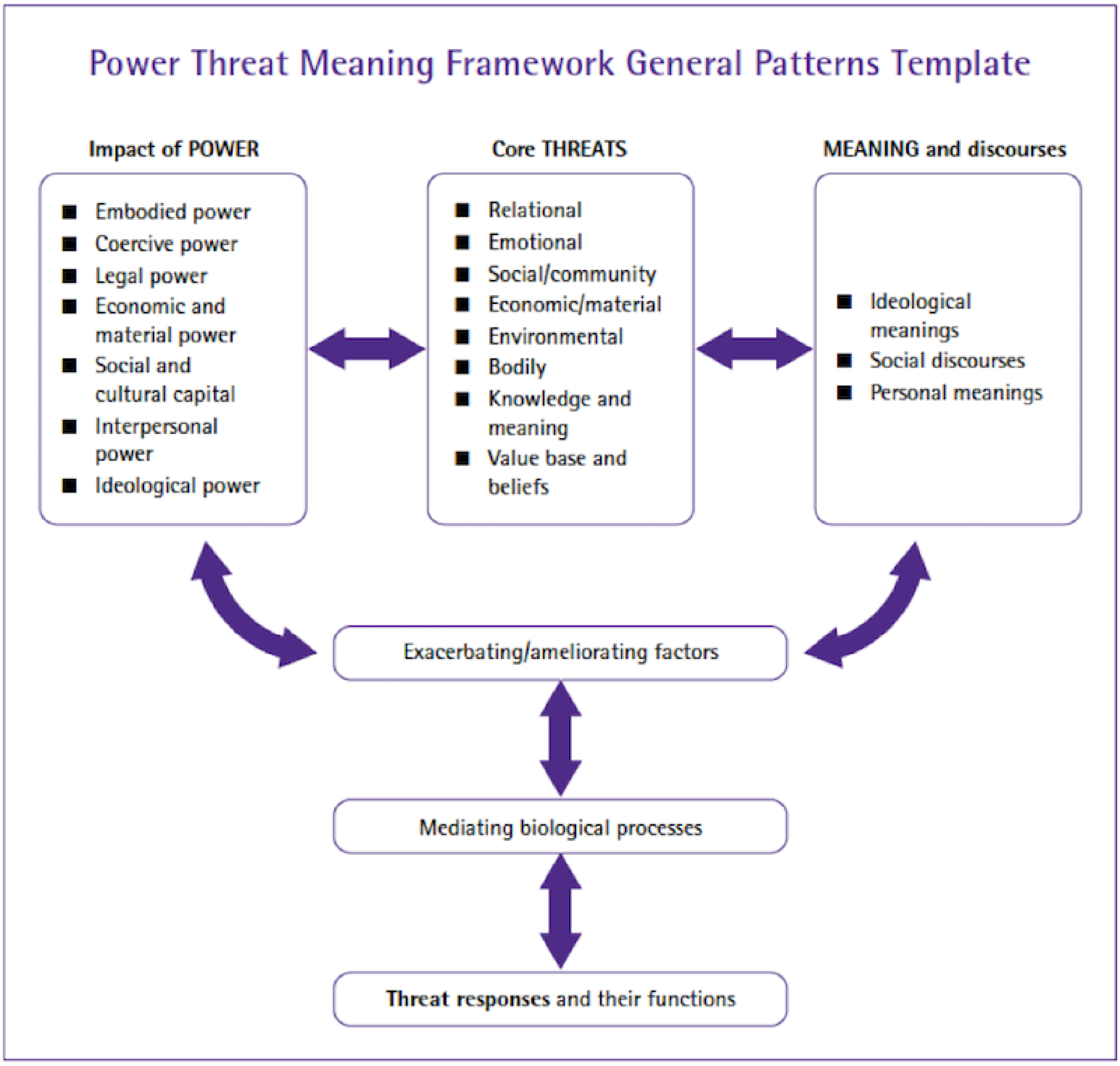
Figure 1: PTMF model (from Johnstone & Boyle, 2018)



Exploring the benefits of nature-based interventions in socio-economically deprived communities: a narrative review of the evidence to date

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Keywords

nature-based intervention; NBI; socio-economic deprivation; low income; public health; socioeconomic deprivation

Abstract

Aim: Socio-economic deprivation encompasses the relative disadvantage experienced by individuals or communities in relation to financial, material or social resources. Nature-based interventions (NBIs) are a public health approach that promote sustainable, healthy communities through engagement with nature and show potential to address inequalities experienced by socio-economically deprived communities. This narrative review aims to identify and evaluate the benefits of NBIs in socio-economically deprived communities.

Method: A systematic literature search of six electronic publication databases (APA PsycInfo, CENTRAL, CDSR, CINAHL, Medline and Web of Science) was conducted on 5 February 2021 and repeated on 30 August 2022. In total, 3852 records were identified and 18 experimental studies (published between 2015 and 2022) were included in this review.

Results: Interventions including therapeutic horticulture, care farming, green exercise and wilderness arts and craft were evaluated in the literature. Key benefits were observed for cost savings, diet diversity, food security, anthropometric outcomes, mental health outcomes, nature visits, physical activity and physical health. Age, gender, ethnicity, level of engagement and perception of environment safety influenced the effectiveness of the interventions.

Conclusion: Results demonstrate there are clear benefits of NBIs on economic, environmental, health and social outcomes. Further research including qualitative analyses, more stringent experimental designs and use of standardised outcome measures is recommended.

INTRODUCTION

Socio-economic deprivation within and between countries, and how to address this, is a global issue.[1] Socio-economic deprivation encompasses the relative disadvantage experienced by individuals or communities in relation to financial, material or social resources and opportunities.[2] Globally 1.3 billion people are estimated to be multidimensionally poor.[3] Such individuals are at greater risk of increased mortality,[4] chronic disease,[5] disparities in food consumption[6] and overall compromised mental and physical health.[7,8] Within the current context of the global COVID-19 pandemic, there is evidence to suggest that individuals from socio-economically deprived communities have been disproportionately affected.[9,10] A range of public health interventions are needed to address these profuse inequalities.[11,12]

One public health approach is the introduction of nature-based interventions (NBIs) that aim to promote sustainable and healthy communities through engagement with nature and the outdoor environment.[13–15] NBIs include a wide range of

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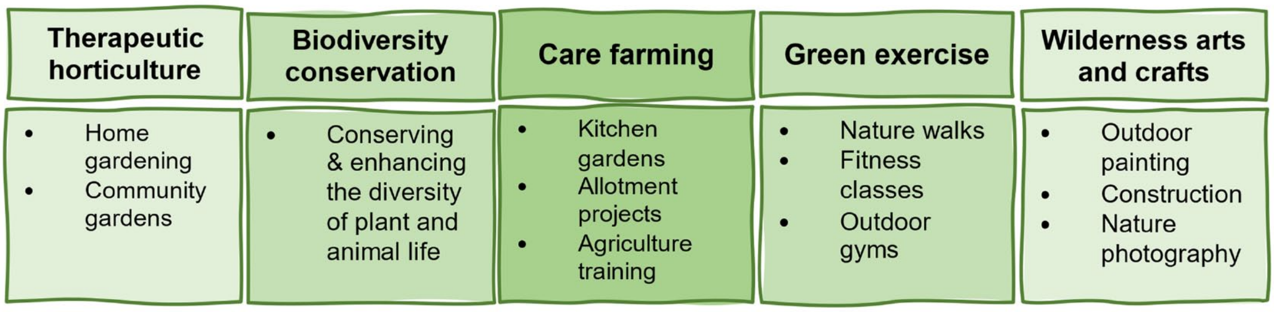
Figure 1

Examples of nature-based interventions (NBIs) based on the studies by Bragg and Leck[16] and Jepson et al.[17] that are included in this narrative review of the benefits of NBIs in socio-economically deprived communities



Therapeutic horticulture	Biodiversity conservation	Care farming	Green exercise	Wilderness arts and crafts
• Home gardening • Community gardens	• Conserving & enhancing the diversity of plant and animal life	• Kitchen gardens • Allotment projects • Agriculture training	• Nature walks • Fitness classes • Outdoor gyms	• Outdoor painting • Construction • Nature photography

activities that can be broadly grouped into five categories as therapeutic horticulture, biodiversity conservation, care farming, green exercise or wilderness arts and crafts (see Figure 1).[16,17]

The co-benefits associated with NBIs have been categorised as health, economic, environment and social outcomes.[14,18] Specifically, research has demonstrated the positive impact of NBIs on emotional wellbeing,[19,20] physical health,[21–23] social connection[24] and substantial health cost savings.[25] These can be understood through a range of theoretical lenses including the stress recovery theory, which posits that being in nature elicits positive emotions leading to reduced stress levels and the attention restoration theory, which proposes that nature-based environments are restorative as they demand less cognitive effort than man-made environments.[26,27]

While it is evident that engagement with nature provides a broad range of benefits, research suggests that individuals living in socio-economically deprived communities have less access to green space than more affluent neighbourhoods and are more likely to live in an area with poor environmental conditions (including water quality, flood risk, air quality and litter).[28] Barriers to access have been identified and include transport costs, safety fears of visiting risky green spaces and culturally insensitive nature-based programmes.[29] There is evidence to suggest that the positive relationships observed between access to nature and health outcomes may be stronger among individuals from socio-economically deprived communities.[30,31] As such, NBIs may play an important role in reducing the inequalities of socio-economic deprivation, particularly when the barriers to access are reduced and when these interventions are embedded within local communities and neighbourhoods.

While this area of research has been identified as a growing field,[32] the current evidence evaluating the benefits of specific NBIs for socio-economically deprived communities is limited. Previous reviews have focused largely on research from higher income countries with limited analysis of the impact of socio-economic deprivation.[33,34]

Aim of this review

This narrative review[35] aims to identify and evaluate the benefits of NBIs for individuals in socio-economically deprived communities. It is anticipated that the results of this review will be beneficial to a broad range of stakeholders including community members, nature-based organisations, public health, spatial planning and policy makers globally to guide decisions around investment and engagement in NBIs and future research in this field.

METHOD

A narrative synthesis approach was used to systematically explore the current evidence base.[35] The narrative synthesis design was appropriate for this review as it allowed a heterogeneous body of research that used varied experimental interventions and outcomes to be summarised in a succinct and coherent method. This review aimed to develop a preliminary synthesis of the reviewed literature characteristics and findings to highlight similarities and differences within NBIs and their outcomes.[35]

Data sources and search strategy

An initial scoping search guided the development of the search strategy. The PICO framework (Population, Intervention, Comparison, Outcome)[36] was used to operationalise the search concepts and terms related to socio-economic deprivation and NBIs were used in the search (see Table 1). NBI typology was guided by previous research, and included but was not limited to interventions categorised as therapeutic horticulture, biodiversity conservation, care farming, green exercise and wilderness arts and crafts.[15–18] Table 1 details complete eligibility criteria. Adaptations were made for each database to incorporate relevant Medical Subject Headings (MeSH), Boolean operations and appropriate truncation (see Supplemental material 1).

Table 1

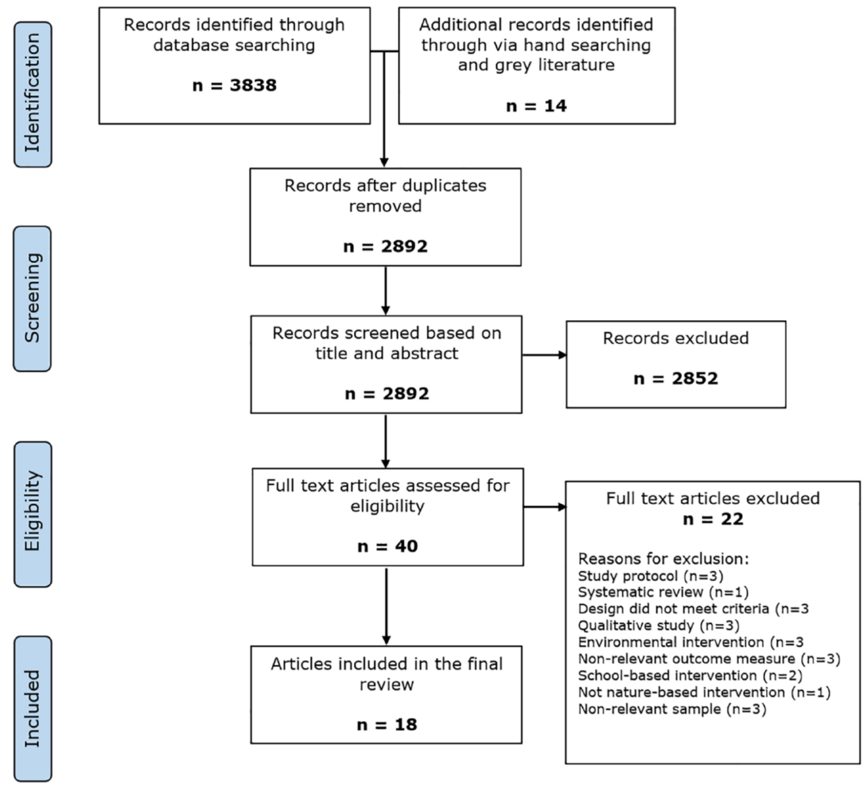
Search strategy used in the narrative review of the benefits of nature-based interventions in socio-economically deprived communities: concepts, search terms and screening eligibility criteria based on the PICO framework[36].

PICO	Concept	Search terms	Inclusion criteria	Exclusion criteria
Population	Individuals living in socio-economically deprived communities	‘Socio-economic deprivation’ OR ‘Socio economic deprivation’ OR SES OR ‘socio economic status’ OR ‘socio-economic status’ OR depriv* OR ‘economic* depriv*’ OR ‘free school meal’ OR disadvantag* OR ‘social housing’ OR ‘poverty’ OR ‘income-poor’ OR ‘income poor’ OR ‘low-income’ OR ‘low income’ OR ‘index of multiple deprivation’ OR IMD	Individuals that resided in socio-economically deprived communities (both urban and rural) as defined by local guidelines. Participants of all ages, genders and ethnicities	Studies in which the intervention was administered in school, hospital or non-community settings as there are previous reviews of research in these fields
Intervention	Nature-based interventions	‘nature-based’ OR ‘nature based’ OR NBI OR ‘nature prescri*’ OR ‘nature play’ OR ‘green prescri*’ OR ‘green space*’ OR greenspace* OR ‘green exercise’ OR ‘green infrastructure’ OR horticultural OR garden* OR allotment* OR outdoor OR ‘natural environment’ OR ‘blue space*’ OR ‘park based’ OR ‘park prescri*’ OR parks OR ‘eco therapy’ OR ‘eco-therapy’ OR ‘wilderness therapy’ OR ‘wilderness-therapy’ OR ‘care-farming’ OR ‘care farming’ OR ‘farm therapy’ OR ‘farm-therapy’ OR ‘forest bathing’ OR ‘forest-bathing’ OR ‘environmental volunteering’ OR ‘wild play’	Any NBIs, activities or programmes that aimed to engage people in nature experiences. This included, but was not limited to, the following five categories:[16,17] • Therapeutic horticulture • Biodiversity conservation • Care farming • Green exercise • Wilderness arts and crafts Interventions of any frequency or duration. Interventions that are accessible within the local community that an individual resides in	Interventions that were delivered on an environmental level (i.e. improvements to green space at an organisational level) were excluded if they did not offer direct involvement of an individual, group or community
Comparison	Either within-subject comparisons (pre- and post intervention) or between-subject comparisons with control or additional intervention conditions		Studies in which an NBI is compared to either a control or alternative intervention OR Studies that provide a within-subjects comparison of the intervention	Studies that were not of experimental design
Outcome	Health, social, economic or environmental benefits		Any measures that evaluate benefits of NBIs on health, economic, environment or social outcomes[14]	Studies which do not report on outcomes for individuals

PICO: population, intervention, comparison, outcome; NBIs: nature-based interventions.

Figure 2

PRISMA flow diagram,[38] for the narrative review of the benefits of nature-based interventions in socio-economically deprived communities



Initial searches were conducted on 5 February 2021 and repeated on 30 August 2022 in the following databases:

1. APA PsycInfo;
2. Cochrane Central Register of Controlled Trials (CENTRAL);
3. Cochrane Database of Systematic Reviews (CDSR);
4. Cumulated Index to Nursing and Allied Health Literature (CINAHL);
5. OVID Medline;
6. Web of Science.

A search of unpublished and grey literature was also conducted using APA PsycExtra to minimise the potential effects of publication bias.[37] A manual hand search of relevant dissertation theses, previous reviews and government documents was also conducted. The search was not restricted by publication time frame.

Study selection

This review included peer-reviewed, quantitative research of experimental design. Studies that utilised an independent groups design where an NBI was compared to a control condition or alternative intervention were included. In addition, studies that utilised a matched pairs or repeated measures design to evaluate the effect of an NBI on outcome variables were also included. Where studies utilised mixed methods, only the quantitative data were synthesised. Studies that utilised a quantitative, experimental design were included to enable comparisons of NBIs within the literature. Publications were eligible if the research evaluated the effectiveness of a NBI for individuals from socio-economically deprived communities on either health, economic, environmental or social outcomes. Meta-analyses and systematic reviews were excluded. Reference lists of relevant reviews were hand searched[34] and studies that met the inclusion criteria were included. Non-English language studies were excluded. Full inclusion and exclusion criteria are detailed in Table 1.

In total, 3838 records were retrieved from the publication database search and 14 identified via hand-searching. All records were transferred to Endnote Software and duplicates were removed ($n = 960$). The titles and abstracts were screened according to the eligibility criteria, 2852 records were excluded, 40 full-text publications were screened for eligibility. A total of 18 records were eligible for inclusion (see PRISMA diagram in Figure 2).[38]

Data extraction and synthesis

A comprehensive data extraction table was designed to address the aims of this review (see Supplemental material 2). The data were synthesised following a narrative approach. Data were grouped based on intervention and outcome characteristics and presented descriptively in text, diagrams and tables to allow broad comparisons within the literature.[35] A ‘traffic light’ coding system was used to enable an evaluation of the overall effectiveness of NBIs on study outcomes. Studies were coded green if they demonstrated an overall positive effect of the intervention on study outcomes or red if there was no overall positive effect. Studies with mixed results were coded yellow if there were mostly positive effects (on over half of the outcomes assessed) or orange if there were some positive effects (less than half of the assessed outcomes).

The quality of the eligible studies was assessed using the ‘Standard Quality Assessment Criteria’,[39] an appropriate tool for comparing the quality of a studies with differing methodologies and designs. While scoring was guided by a standardised manual, there remained substantial potential subjectivity on the reviewer’s part thus quality appraisal scores were used to enhance the data synthesis process rather than determine the inclusion or exclusion of studies.

RESULTS

Overview of included studies

The 18 publications included in this review were all articles published in peer-reviewed journals between 2015 and 2022.

Study settings

Nine studies (50%) were conducted in the USA, two (11%) in the UK, two (11%) in Ghana and the remaining five in Australia, Bangladesh, France, Peru and Tanzania (see Table 2). The context of the study settings and definitions of socio-economic deprivation varied but included communities where levels of annual income and paid employment were significantly below average and rates of state, government or charitable support were high (see Supplemental material 3).

Study designs

Fifteen of the included studies exclusively reported quantitative data and three utilised a mixed-methods design. Qualitative data were not included in this review. The included studies utilised a range of experimental designs including randomised controlled trials (*n* = 6, 33%); quasi-experimental studies (*n* = 4, 22%); repeated-measures designs (*n* = 4, 22%); non-controlled prospective cohort studies (*n* = 2, 11%), prospective randomised trials (*n* = 1, 6%) and non-controlled cross-sectional designs (*n* = 1, 6%).

Participant characteristics

The total sample sizes ranged from 23 to 1445. Most studies (*n* = 13, 72%) recruited adults (aged 18 and over) and two (11%) recruited samples of children and young people (aged 18 under). One study (6%) recruited mother and infant pairs and one study (6%) recruited parent–child pairs, although only reported data for the adult sample. One study (6%) reported data for children and adults but utilised an observation style outcome measure, which limited the ability to identify individual participant characteristics.

Most of the reviewed literature included both male and female participants (*n* = 13, 72%). Five studies (28%) reported data for female-only samples. Almost half of the included publications (*n* = 8, 44%) did not report the ethnicity of study participants. Where reported, most participants represented African American, Latino, Krobo, Hispanic and White ethnic groups. Table 2 presents an overview of participant characteristics.

Intervention characteristics

The reviewed studies included interventions categorised as therapeutic horticulture (*n* = 7, 39%); green exercise (*n* = 7, 39%); care farming (*N* = 3; 16%) and wilderness arts and crafts (*n* = 1, 6%; see Table 2). Detail of the specific interventions is provided in Supplemental material 4.

Outcome measures

The included studies evaluated the effects of NBIs on health (*n* = 18, 100%); environmental (*n* = 7, 39%); economic (*n* = 4, 22%) and social outcomes (*n* = 4, 22%; see Table 3). Health outcomes included assessments of both physical and mental health. Specifically, physical health changes in diet, nutrition, physical activity and anthropometric measures (e.g. body size, form and functional capacities) were evaluated. Mental health outcomes included measures of personal wellbeing, stress, quality of life, resilience and depression. Environmental outcomes included assessments of nature affinity and time spent in nature environments while economic outcomes considered changes in household expenditure, food security and food production. Assessments of social capital, social support, social connectedness and sense of community were included in the social outcomes. A wide variety of measures were used to collect participant data including self-report or researcher administered surveys, physiological or anthropometric measures, global positioning system (GPS) trackers and observational methods (see Table 3).

Overall benefits and quality of studies

To assess the overall benefits, a ‘traffic light’ coding system was applied (see Supplemental material 5). As illustrated in Table 3, six (33%) studies were coded green (overall positive effect), five (28%) yellow (mostly positive effects – over half of outcomes), six (33%) orange (some positive effects – less than half outcomes) and one (6%) red (no overall positive effect).

Overall, the quality appraisal scores on the Kmet et al.[39] checklist ranged from 50% to 96.2% (*M* = 79%; see Supplemental material 6 for detailed scoring). Based on the criteria, strengths were identified in appropriate and justified analytic methods, detailed reporting of study findings, providing estimates of variance in results and reporting of conclusions that were supported by the results. Partial scores were attributed to studies that lacked sufficient detail regarding the research question (*n* = 7), recruitment processes (*n* = 6) and participant characteristics (*n* = 7). In addition, studies that relied on small sample sizes or failed to provide justification for the sample size used (*n* = 11) were awarded partial scores.

While a broad range of outcomes were utilised in the reviewed studies, partial (*n* = 5) and no scores (*n* = 1) were attributed to those that failed to evidence the reliability or validity of the outcome measures used. Only seven studies provide sufficient evidence of controlling for confounding factors while partial (*n* = 7) and no scores (*n* = 4) were attributed to the remaining studies. Less than half of the reviewed studies (*n* = 8) were accredited full scores for evident and appropriate study designs with limitations identified in those studies that were feasibility projects or utilised non-controlled designs. Most of the reviewed studies evaluated between-group differences (*n* = 12) and eight studies included a control comparison condition. However, only six studies utilised a randomised approach to allocate participants to the experimental or control groups.

The biggest limitations observed in the reviewed literature were evident in the blinding criteria. Only two studies scored full marks for reporting on blinding of investigators to participant condition. One study scored partial marks, six studies received no marks and the remaining nine were studies in which blinding was not

Table 2

Narrative review of the benefits of nature-based interventions in socio-economically deprived communities: summary of the setting, participants, intervention, comparison and outcome(s) for the included studies.

Publication	Setting	Participants	Intervention (category)	Comparison	Outcome(s)
Algert et al.[40]	San Jose, California (USA)	*n* = 135 (62% F) Adults Ethnicity[a]: White (46%); American Indian (20%); Hispanic (12%); Black (5%); Pacific Islander (5%); Other (12%)	Home gardening (TH)	Between-subjects (community gardening intervention)	Economic Health
Baliki et al.[41]	Jessore, Barisal, Faridpur and Patuakhali Districts of Bangladesh	*n* = 619 (100% F) Adults Ethnicity not reported	Home gardening (TH)	Between-subjects (control condition)	Economic Environmental Health
Blakstad et al.[42]	Pwani Region, Tanzania	*n* = 874 (100% F) Adults Ethnicity not reported	Agriculture training (CF)	Between-subjects (control condition)	Economic Health
Booth et al.[43]	Miami-Dade County, Florida (USA)	*n* = 66 (40% F) Children (8–14 years) Ethnicity: White Hispanic (57%); Non-Hispanic Black (25%); Black Hispanic (14%); Non-Hispanic White (5%)	Park-based activity sessions (GE)	Within-subjects	Health
Suyin Chalmin-Pui et al.[44]	Greater Manchester, UK	*n* = 42 (64% F) Adults Ethnicity: White (93%); Arab (5%); African/Caribbean/Black (2%)	Home gardening (TH)	Within-subjects and between-subjects (wait-list control)	Health
Cohen et al.[45]	Los Angeles, California (USA)	*n* = 1422 (62% F) Adults Ethnicity[b]: Latino (72%); African American (10%); White (6%)	Park-based fitness classes (GE)	Between-subjects (alternative intervention and control conditions)	Environmental Health
Dallmann et al.[46]	Upper Manya Krobo District, Ghana	*n* = 492 (100% F) Adults Ethnicity: Krobo (75%); Other (25%)	Agriculture training (CF)	Between-subjects (control condition)	Health
Davies et al.[47]	Wales, UK	*n* = 123 (30% F) Adults Ethnicity not reported	Sustainable building project (WAC)	Within-subjects	Health Social
Grey et al.[48]	Sydney, Australia	*n* = 23 (61% F) Adults Ethnicity not reported	Community gardening (TH)	Within-subjects	Health Social

(Continued)

Table 2 (Continued)

Publication	**Setting**	**Participants**	**Intervention (category)**	**Comparison**	**Outcome(s)**
Grier et al.[49]	Dan River Region, Virginia (USA)	*n* = 43 (54% F) Children (5–17 years) Ethnicity: African American (98%); Other (2%)	Community gardening (TH)	Within-subjects	Environmental Health
Han et al.[50]	San Fernando, California (USA)	*n* = 187.3[c] (55% F)[c] Adults and children Ethnicity not reported	Park-based fitness classes (GE)	Within-subjects and between-subjects (control condition)	Environmental Health
Kling et al.[51]	Miami-Dade County, Florida (USA)	*n* = 380 (85% F) Adults Ethnicity: Hispanic (45%); Non-Hispanic Black (41%); Non-Hispanic White (5%); Other (9%)	Park-based fitness classes (GE)	Within-subjects	Health
Korn et al.[52]	Lima, Peru	*n* = 29 (93% F) Adults Ethnicity not reported	Home gardening (TH)	Within-subjects	Health Social
Marquis et al.[53]	Upper Manya Krobo District, Ghana	*n* = 500 Mother–infant pairs (Infants = 48% F) Ethnicity: Krobo (76%), Other (24%)	Agriculture training (CF)	Between-subjects (control condition)	Health
Martin et al.[54]	Marseille, France	*n* = 21 (100% F) Adults Ethnicity not reported	Community gardening (TH)	Between-subjects (control condition)	Economic Health
Razani et al.[55]	Oakland, California (USA)	*n* = 78 (87% F) Parent–child pairs Ethnicity: African American (67%), Latino (15%); Non-Latino White (5%); Other (13%)	Park prescriptions (GE)	Between-subjects (alternative intervention)	Environmental Health Social
South et al.[56]	Philadelphia (USA)	*n* = 36 (100% F) Adults Ethnicity: Black Non-Hispanic (62%), White Non-Hispanic (14%); Asian Non-Hispanic (8%); Hispanic Black (5%); Other (11%)	Park prescriptions (GE)	Between-subjects (control condition)	Environmental Health
Wexler et al.[57]	Minneapolis (USA)	*n* = 171 (50% F) Adults Ethnicity not reported	Park prescriptions (GE)	Between-subjects (control condition)	Environmental Health

F: female; TH: therapeutic horticulture; GE: green exercise; CF: care farming; WAC: wilderness arts and crafts.
[a] Where reported.
[b] Survey responses.
[c] Averages calculated through SOPARC methodology (see Table 3).

Table 3

Narrative review of the benefits of nature-based interventions in socio-economically deprived communities: summary of primary outcome(s) and main findings for the included studies.

Intervention category	Publication	Primary outcome(s)	Key finding(s)	Overall effect
Therapeutic Horticulture				
Home Gardening				
	Algert et al.[40]	1. Vegetable intake (food behaviour checklist)[58] 2. Cost savings (self-report survey)[40]	1. No statistical differences in vegetable consumption between home gardeners and community gardeners when they ate from their gardens 2. No statistical differences in cost savings per month for community and home gardeners	G
	Baliki et al.[41]	1. Vegetable production (kg per household member) 2. Nutrient yields (food composition tables) 3. Quantity of vegetables consumed (24 h recall)	1. Statistically significant increases at 1 and 3 years post intervention 2. Significant increase in calcium and vitamin C at 1 and 3 years post intervention 3. Statistically significant increase in the share of women selling any vegetable in the market and level of vegetable consumption	G
	Chalmin-Pui et al.[44]	1. Perceived stress (Perceived Stress Scale)[59] 2. Stress cortisol levels[60] 3. Subjective wellbeing (Short Warwick and Edinburgh Mental Well-being Scale)[61] 4. Physical activity (subjective Likert scale)[44]	1. Pooling data across both groups showed a significant decrease in perceived stress postintervention. Comparing intervention to control, differences were only significant at 10% level 2. Statistically significant improvements in cortisol patterns for 6/8 of the cortisol analyses 3. No significant difference in wellbeing scores post intervention 4. No significant difference in physical activity post intervention	O
	Korn et al.[52]	1. Height, weight, waist circumference, resting blood pressure and fasting blood glucose 2. Quality of life (World Health Organisation Quality of Life-Brief Version)[62] 3. Perceived stress (Perceived Stress Scale)[63] 4. Life-threatening experiences (Life-Threatening Experiences Scale)[64] 5. Social capital (Social Capital Scale)[65] 6. Empathy (Parent/Partner Empathy Scale)[66]	1. No significant change in BMI, waist circumference or blood pressure at either follow-up 2. Non-significant increase in all domains of quality of life at 6 months. Significant improvements on all quality-of-life domains at 12 months 3. Perceived stress scores increased significantly at 6 and 12 months 4. Reports of life-threatening experiences decreased significantly from the baseline to 12 months 5. Mean social capital scale scores increased significantly at 12 months for participants who identified as parents or partners 6. No significant differences reported at 6 or 12 months postintervention	Y

(Continued)

Table 3 (Continued)

Intervention category	Publication	Primary outcome(s)	Key finding(s)	Overall effect
Community Gardening				
	Grey et al.[48]	1. Sense of community (The Sense of Community Index)[67] 2. Personal wellbeing (The Personal Wellbeing Index)[68]	1. Statistically significant result for only one domain – satisfaction with health whereby participants reported being less satisfied with their health at post-test compared to pretest 2. Statistically significant increase in the shared emotional connection score and total score. No other significant differences from pretest to post-test were found	O
	Grier et al.[49]	1. Willingness to try fruit and vegetables[69] 2. Self-efficacy for eating fruit and vegetables[70] 3. Self-efficacy for asking for fruit and vegetables[71] 4. Nutritional guidelines knowledge (MyPlate categories)[49]	1. No significant effects on willingness to try fruit and vegetables 2. No significant effects on self-efficacy for eating fruit and vegetables 3. Significant improvements were found for self-efficacy for asking for fruit and vegetables 4. Significant improvement on knowledge of nutritional guidelines post intervention	O
	Martin et al.[54]	1. Quantities of food groups (in g/day per person)[72] 2. Expenditure for food (V/day per person)[72]	1. Gardeners had significantly more produce in their food supplies than non-gardeners, this remained significant when just fruit and vegetables were considered 2. Gardeners spent significantly more money on food than the non-gardening group	O
Care Farming				
Poultry Husbandry				
	Marquis et al.[53]	1. End-line diet quality (minimum dietary diversity)[53] 2. End-line nutritional status (weight for age, length-for-age, height-for-age, weight-for-length, weight-for-height)[73]	1. Compared with infants in the control group, infants in the intervention group met minimum diet diversity and a higher length-for-age, height-for-age and weight-for-age 2. No group difference in weight-for-length or weight-for-height	Y
	Dallmann et al.[46]	1. End-line diet quality (minimum dietary diversity)[53] 2. Egg consumption (in the past 24 h) 3. End-line nutritional status (weight for age, length-for-age, height-for-age, weight-for-length, weight-for-height)[73]	1. Participation level was not associated with meeting the minimum diet diversity 2. Compared with children in the control category, those in the intervention whose mothers had a high participation level were twice as likely to have consumed eggs the previous day 3. High and medium participation levels were associated with a similar increase in linear growth	G

(Continued)

Table 3 (Continued)

Intervention category	**Publication**	**Primary outcome(s)**	**Key finding(s)**	**Overall effect**
Agriculture training				
	Blakstad et al.[42]	1. Dietary diversity (Food Frequency Questionnaire)[74] 2. Food security (Household Food Insecurity Assessment Scale)[75]	1. Intervention group consumed significantly more food groups per day than the control group (at 12 months post intervention). The proportion of participants consuming at least 3/5 food groups per day was significantly greater in the intervention group and intervention participants were more likely to consume vitamin A-rich dark green vegetables, and beans or peas when compared with controls 2. No statistical differences in household food insecurity score between intervention or control groups post intervention	Y
Wilderness Arts & Crafts				
Sustainable building project				
	Davies et al.[47]	1. Mental Health (The Patient Health Questionnaire)[76] 2. Resilience (The Brief Resilience Scale)[77] 3. Wellbeing (Short Warwick and Edinburgh Mental Well-being Scale)[61] 4. Social connectedness (Inclusion of Community in the Self Scale)[78]	(1–4) No significant within-subject changes over time when data from all participants, regardless of baseline score, were analysed Statistical differences reported when the analysis was limited to participants that had baseline scores falling at or below the cut-off threshold for depression (large effect), anxiety (large effect) and resilience (medium to large effect) Note: study 1 and study 2 data pooled together for analysis	O
Green Exercise				
Park-based classes				
	Booth et al.[43]	1. Duration of moderate to vigorous physical activity (total minutes per day, Fitbit)[43] 2. Total step counts per day (Fitbit)[43]	1. Significantly higher moderate–vigorous physical activity minutes per day on days when participants did versus did not attend the intervention 2. Significantly higher mean total step counts on days when participants did versus did not attend the intervention	G
	Cohen et al.[45]	1. Park-based energy expenditure and number of park users (System for Observing Play and Recreation in Communities)[79] 2. Park use, physical activity, awareness of and participation in park-sponsored activities (surveys including questions from Minnesota Hearth Health Programme)[80]	1 and 2. Over time, park use increased but there were no overall differences between the control and treatment arms	R

(Continued)

Table 3 (Continued)

Intervention category	Publication	Primary outcome(s)	Key finding(s)	Overall effect
	Han et al.[50]	1. Number of park users (System for Observing Play and Recreation in Communities)[79] 2. Intensity of physical activity (Metabolic Equivalents)[81]	1. Within-park comparison: Average METs per park user increased from 2.58 to 2.75 due to the exercise classes 2. Between-park comparison: during classes the study park had a higher number of parks users and METs than 95% of all other similar condition parks 3. Between-park comparison: No statistically significant differences observed during all other non-class times	G
	Kling et al.[51]	1. Body mass index (kg per m^2)[82] 2. Systolic blood pressure (SBP), diastolic blood pressure (DBP) and heart beats per minute[82] 3. Fitness performance (arm strength, chair stands, mobility)[83]	1. Adjusted models found no significant differences for BMI 2. Adjusted models found improvements in SBP and DBP across each time point (baseline to post intervention). No significant differences were observed for heart beats per minute 3. Adjusted models found improvements in arm strength, chair stands and mobility across each time point (baseline to post intervention)	Y
Park prescriptions				
	Razani et al.[55]	1. Stress (Perceived Stress Score)[59] 2. Park visits per week (participant recall) 3. Physiological stress (salivary cortisol levels)[55] 4. Loneliness (modified UCLA Loneliness Score)[84] 5. Physical activity (self-report and monitoring of pedometer)[85] 6. Nature affinity (self-report scale).[86] 7. Neighbourhood social support (self-report scale)[87]	1. The change in perceived stress did not significantly differ between the intervention and comparison conditions (supported and independent park prescription groups) at the 1-month or 3-month follow-ups 2. The comparison condition (independent park prescription group) had a statistically significant increase of in park visits per week compared to the supported park prescription group 3–7. No significant group difference over time	O
	South et al.[56]	1. Time in greenspace (total minutes and number of visits measured using smartphone GPS data)[56] 2. Postpartum depression (Edinburgh Postnatal Depression Scale).[88]	1. When restricted to the participants that received the intervention (as treated), the intervention was significantly associated with a three times higher rate of visits to nature compared to the control group 2. No significant differences were found in post-partum depression scores	Y
	Wexler et al.[57]	1. Perceptions of park services, recalled park visit frequency and park-based physical activity duration (Survey of Parks, Leisure-time Activity and Self-reported Health)[57]	1. Statistically significant treatment effect when controlling for a full set of covariates	G

BMI: body mass index; GPS: global positioning system; UCLA: University of California, Los Angeles.
Overall effect key:
G = overall positive effect; Y = mostly positive effects (over half of outcomes); O = some positive effects (less than half of outcomes), R = no overall positive effect.

applicable. Due to the characteristics of NBIs, none of the reviewed studies were able to blind participants to the intervention. While a lack of intervention blinding may have been unavoidable, it is important to consider the potential for bias such as participant expectancy effects and the impact that this may have on study results.

Overview of studies

For this review, individual studies were grouped based on the category of NBI utilised (see table 3).

Therapeutic horticulture

Seven of the included studies (39%) evaluated the effectiveness of therapeutic horticulture interventions in the form of home gardening (*n* = 4) and community gardening (*n* = 3) projects in the local community or neighbourhood. These interventions provided gardening training and resources for individuals to utilise in their own personal garden at home or within a community setting (see Supplemental material 4).

Physical health and wellbeing

When evaluating physical health changes, the reviewed studies reported no significant improvements in body mass index, blood pressure, waist circumference[52] or physical activity levels.[44] Statistically significant increases were, however, observed in vegetable consumption,[40,41] fruit and vegetable asking self-efficacy and awareness of nutritional guidelines.[49]

Four of the reviewed studies explored the impact of therapeutic horticulture on personal wellbeing with mixed results. There was evidence of significant reductions in perceived and physiological measures of stress,[44] a significant increase in quality of life[52] and a significant increase in shared emotional connection postintervention.[48] In contrast, there was also evidence of a significant increase in perceived stress scores,[52] and no significant difference in overall wellbeing.[44] One study also identified a significant reduction in participants' satisfaction with their health post-intervention.[48] In this study, older participants reported less satisfaction with their health than younger participants.

Produce and cost savings

In terms of cost savings, one study identified a statistically significant rise in the share of women selling vegetables at markets,[41] and there was also evidence that community gardeners yielded a statistically significant greater quantity of fruit or vegetable produce than controls.[54] One study reported similar cost savings per month for both community and home gardeners,[40] while another study found evidence to suggest that community gardeners spent significantly more money on food than a non-gardening sample.[54] It is necessary to highlight that both studies may be influenced by confounding demographic factors as they identified between-groups differences in baseline income,[40] and significant differences in the number of stores used when purchasing food.[54]

Care farming or wilderness arts and crafts

Three (17%) of the reviewed publications evaluated the effectiveness of care farming interventions. In two studies, participants received poultry husbandry training. In one study, participants received training on a range of topics including fertiliser management, agronomical practices, pest management, crop harvesting, marketing vegetables, farm processes and nutrition counselling. Only one (6%) of the reviewed publications evaluated a wilderness arts and crafts intervention in which participants engaged in a sustainable building project where they developed construction and outdoor skills.

Diet and food insecurity

Benefits of agriculture training interventions included significant improvements in dietary diversity,[42,53] consumption of nutrient rich foods[42] and likelihood of egg consumption.[46] One study also reported a non-significant reduction in likelihood of experiencing moderate-to-severe food insecurity for participants involved in the intervention when compared with controls.[42]

Anthropometric changes

Two of the reviewed studies also reported improvements in anthropometric outcomes for the children of mothers who had participated in an agriculture training intervention.[46,53] These infants were observed to have higher length-for-age, height-for-age and weight-for-age than those in the control sample,[53] and benefits were greater for children whose mothers had engaged most with the intervention.[46]

Resilience, anxiety and depression

Davies et al.[47] reported significant improvements in resilience scores following the outdoor sustainable project. However, this difference was only observed when the analysis was restricted to participants who fell at or below a predefined clinical threshold at the baseline assessment. Davies et al.[47] also measured changes in anxiety and depression levels before and after the intervention and found a statistically significant improvement in anxiety and depression outcomes for participants who had elevated scores at baseline.

Green exercise

Seven (39%) of the reviewed studies evaluated the effectiveness of green exercise in the form of park prescriptions and park-based fitness classes.

Park visits and time in nature

Three studies identified a statistically significant increase in number of nature or park visits post intervention[55–57] with greater benefits for participants who received a supported rather than unsupported park-prescription intervention.[55] There was also evidence that participants who received a park-prescription intervention reported higher rate of visits to nature than controls[56] and that intervention parks, which offered free exercise classes, had a greater number of park users than control parks.[50]

In contrast, Cohen et al.[45] reported no significant differences in park use for participants who engaged in park-based fitness classes compared with controls and identified an association between participants' perception of park safety and visits to the park, length of stay and engagement with the exercise classes.

Physical activity and health

Three studies identified a significant increase in physical activity[43,50] and park-based activities[57] for participants attending green exercise interventions. One study observed a statistically significant negative interaction between age and the treatment effect.[57] In contrast, Cohen et al.[45] found no differences in physical activity between the green exercise intervention or control groups.

One study reported significant improvements in arm strength, mobility and blood pressure for older adults attending park-based fitness classes.[51] In this study, differences in physical health outcomes were observed between ethnic groups and greater improvements in blood pressure outcomes were identified among younger participants living in low poverty (compared to older participants in higher poverty).

Stress and depression

Two of the reviewed publications evaluated the effect of park prescriptions on mental health outcomes. South et al.[56] found no significant improvements in post-partum depression scores for new mothers after the intervention. Razani et al.[55] reported a significant decrease in perceived and physiological stress levels for participants in supported and unsupported park prescriptions when data for both groups were analysed together. However, no statistically significant differences were observed between groups. In this study, male gender (for parents) was significantly associated with reduced stress over the course of the study. In addition, an increase in number of park visits was significantly positively associated with decreased stress.

DISCUSSION

KEY POINTS

1. The reviewed studies evaluated the effectiveness of therapeutic horticulture, care farming, green exercise and wilderness arts and crafts interventions on a range of economic, environmental, health and social outcomes.
2. Results were mixed and a broad range of outcome measures were used within the literature limiting the ability for direct comparisons.
3. Therapeutic horticulture interventions benefitted the production, consumption and marketing of vegetables. Care farming interventions improved diet diversity, food security and anthropometric outcomes. Wilderness arts and crafts improved anxiety and depression outcomes. Green exercise interventions enhanced nature visits, physical activity and physical health.
4. Age, gender, ethnicity, level of engagement and perception of environment safety influenced the effectiveness of the interventions.

The objective of this review was to explore the benefits of NBIs in socio-economically deprived communities. This review identified a broad range of interventions that have been evaluated to date, including therapeutic horticulture, care farming, green exercise and wilderness arts and craft. A range of economic, environmental, health and social co-benefits were observed.

Summary of results

Physical health outcomes for therapeutic horticulture interventions were mixed, with evidence of increased nutritional awareness[49] and vegetable consumption,[40,41] but no changes in anthropometric measures[52] or physical activity.[44] Similarly, mental health outcomes were mixed with evidence of reduced[44] and increased stress;[52] and both increased quality of life[52] and reduced satisfaction in life post intervention.[48] Previous research in general population samples has also revealed mixed results for community gardening interventions on health outcomes,[89] although therapeutic horticultural interventions on the whole have been observed to have positive impact on both physical and mental health.[33,90]

This review also identified economic benefits of home and community gardening interventions with a significant increase in quantities of produce yielded[54] and marketing of produce.[41] In addition, agriculture training interventions were found to significantly improve diet diversity[42,53] and anthropometric outcomes.[46,53] There was also evidence of non-significant improvements in food security.[42] These findings may be particularly important when considering the evidence that domains of financial health are associated with both physical and mental health,[91] and highlights the value of considering interactions between co-benefits of NBIs.

Within this review, a sustainable building project intervention improved resilience, anxiety and depression outcomes for individuals who presented with poorer mental health at baseline.[47] Considering the evidence that individuals living in socio-economically deprived communities are at greater risk of mental health difficulties,[8] this finding is of particular importance. Moreover, encouraging people to engage with their local parks also demonstrated benefits. Park-based fitness classes and park-prescription interventions were found to improve the number of nature visits,[55–57] physical activity[43,50,57] and physical health for participants,[51] although improvements in depression outcomes were not observed.[56] There was also evidence of stress reduction for participants in supported and unsupported park prescriptions. These findings echo that of the study by Corazan et al.[92] who reviewed NBIs in a broad sample of general population studies (in which the study by Razani et al.[55] was the only low-income population study); suggesting that accessing local parks may act as a vehicle for improved physical health for both those who are from socio-economically deprived communities and the general population.

Implications

Clinical implications

Socio-economic health inequalities are well understood with clear evidence of increased mortality,[4] disease[5] and overall compromised mental and physical health[7,8] for individuals living in socio-economic deprivation. It is also well established that the social determinants of health (individual living condition and wider systemic structures) have an important influence on health inequities,[93] and that health and illness follow a social gradient, thus those in a lower socio-economic position experience worse health.[12,94] This review has demonstrated how NBIs may serve to address health inequalities, promoting improved physical, mental and financial health, thus levelling up the social gradient. Based on this evidence, future public health initiatives should continue to incorporate NBIs into health and social care planning for socio-economically deprived populations, both on an individual and community level.

This review identified broad mental health benefits of NBIs,[44,47,48,52,55] and that NBIs may be of particular benefit for individuals in socio-economically deprived communities who experience mental health-related difficulties.[47] NBIs are increasingly being used within health services in the form of nature prescriptions with evidence to suggest positive effects of nature prescriptions on depression and anxiety.[95] Given the potential benefits of NBIs on mental health outcomes, future research and public health initiatives should endeavour to evaluate the benefits of NBIs in contrast to current treatment options for individuals from socio-economically deprived communities who experience mental health-related difficulties.

Urban planning

This review identified that an individuals' perception of the safety of an environment may impact the benefits observed;[45] a barrier that has widely been reported within the field of green space literature.[96–99] Perceived environmental safety and fear of crime is a particular concern for those of older age,[100] and for racialised individuals.[99] While recorded crime rates are substantially greater in the most socio-economically deprived areas,[101] research has shown that access to nature and NBIs can have a mitigating impact on violence.[102] As such urban planning initiatives should consider the two-way interaction between perceived environmental safety and NBI engagement for socio-economically deprived communities.

This review also highlighted that participants' level of engagement with an intervention was positively related to the overall impact of the intervention.[46] Previous research has demonstrated that co-created interventions can lead to more sustained outcomes and greater participation.[103,104] As such, it can be suggested that all stakeholders involved in the design of NBIs and green-space planning should collaborate with the communities they aim to serve to address pre-existing safety concerns and other potential barriers. Such collaboration may promote enhanced engagement with the intervention.

Future directions

Heterogeneity in measures

The reviewed studies evaluated a range of health, social, economic and environmental outcomes. Measures utilised included self-report surveys (e.g. mental wellbeing, physical activity, vegetable production); physiological measurements (e.g. cortisol levels, blood pressure); anthropometric measurements (e.g. height, weight); GPS trackers (e.g. Fitbit, mobile phone application) and observational methods (e.g. park use observations). While the broad range of outcome measures highlights the many co-benefits of NBIs, it also illustrates complexities observed in this review in drawing direct comparisons between NBI research. Future research should work towards developing a standardised measure or package of outcome measures to support comparisons of intervention effectiveness. Recent progress in this area includes the development of the 'BIO-WELL scale', which was established to empirically measure wellbeing and health effects following interactions with biodiversity.[105] While this new measure may offer a more comprehensive tool within the field of NBIs, it does not address the full range of co-benefits (health, economic, social and environmental) that are observed with NBIs, thus further research within this field is essential to allow better generalisability across studies examining a broader range of co-benefits. A recent systematic review protocol has been designed to evaluate health, wellbeing, social and environmental outcome measures for community gardening interventions.[106] The results of this review will be beneficial in supporting the development of standardised measurements and should be replicated with a broader range of NBIs.

Research design

The studies included in this review were of a moderate to high quality. Most of the reviewed studies ($n = 12$) evaluated between-group differences, but only six studies utilised a randomised approach to condition allocation. The randomised controlled trial design is traditionally regarded as the 'gold standard' for experimental research, as through the balancing of participant characteristics the overall potential for bias is reduced.[107] Moreover, only 8 (44%) of the included studies utilised a control comparison condition. From a public health perspective, such designs are advantageous as they allow conclusions to be drawn regarding the benefits of treatment interventions over standard care. As such, future research in this field should endeavour to incorporate control comparison conditions and utilise a randomised approach to condition allocation where possible.

Moreover, reporting of participant characteristics was identified as a weakness in much of the reviewed literature and almost half ($n = 8$, 44%) of the included studies did not report on participant ethnicity. It is well established that ethnic minority groups are disproportionately affected by socio-economic deprivation,[108] and that the effect of living in a deprived area impacts on ethnic minorities more disadvantageously.[109] As such, it is imperative that future NBI research and initiatives consider the interaction between socio-economic deprivation and ethnicity. An intersectional approach to future research would facilitate greater understanding of how people are exposed to, and experience combinations of inequalities differently.[110] Future research should therefore aim to go beyond the 'what works' question and draw on a realist evaluation approach to seek to answer the questions of 'what works for whom in which circumstances'.[111]

Strengths and limitations

The reviewed literature was limited to publications in English language and, therefore, may not fully represent the global body of research. In addition, while a strength of this review is the broad representation of different cultures and settings (8 different countries represented in 18 studies), attention must be paid to the unique context of the reviewed research and caution must be applied when evaluating the evidence together and the conclusions that can be drawn from these diverse set of studies.

Moreover, the heterogeneity in interventions across the reviewed studies limits the ability to fully understand which interventions, and more specifically which elements of these interventions, are responsible for the benefits observed. This is a common challenge faced when reviewing quantitative NBI research.[112,113] As such, further reviews incorporating qualitative data may be valuable to better understand participants experiences of NBIs. Such data may also provide insight into the individual, contextual and inter-personal factors that enhance or reduce the benefits of NBIs in socio-economically deprived communities. While it is evident from this review that there are substantial benefits of a range of NBIs in socio-economically deprived communities, much remains to be done before these overall benefits are fully understood.

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Green space for public mental health: an ethnographic study of ecotherapy in Wales

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mental health; green space; ecotherapy; ethnography; health inequalities; social prescribing

Abstract

Aims: In recent years, there has been a growing interest in the ways that human health intersects with exposure to nature. This article reports the findings of a research study investigating the experiences of people in South and West Wales who were engaged in a specific type of nature and health intervention: ecotherapy.

Methods: Ethnographic methods were used to develop a qualitative account of the experiences of participants in four specific ecotherapy projects. Data collected during fieldwork included notes from participant observations, interviews with both individuals and small groups, and documents produced by the projects.

Results: Findings were reported using two themes: 'smooth and striated bureaucracy' and 'escape and getting away'. The first theme focused on how participants negotiated tasks and systems related to gatekeeping, registration, record keeping, rule compliance, and evaluation. It was argued that this was experienced differently along a spectrum between striated, in which it was disruptive to time and space, and smooth, in which it was much more discrete. The second theme reported on an axiomatic perception that natural spaces represented an escape or refuge; in terms of both reconnecting with something beneficial in nature, and also disconnecting from pathological aspects of everyday life. In bringing the two themes into dialogue, it could be seen that bureaucratic practices often undermined the therapeutic sense of escape; and that this was more acutely experienced by participants from marginalised social groups.

Conclusions: This article concludes by reasserting that the role of nature in human health is contested and arguing for a greater emphasis on inequities in access to good quality green and blue space. Specific interventions like ecotherapy need funding models that avoid striated bureaucratic processes, and the stress associated with these. Inclusive models of ecotherapy practice could contribute to public health goals related to population engagement with healthy environments.

INTRODUCTION

This article reports the findings of a research study investigating the experiences of people in South and West Wales who were engaged in a health and wellbeing intervention called 'ecotherapy'. Using ethnographic methods, including participant observation, interviews, and analysis of documents, between 2017 and 2020, this study focused on four different projects that met a definition of ecotherapy used by the UK mental health charity Mind:

> *'Ecotherapy (sometimes called green care) comprises nature-based interventions in a variety of natural settings. Ecotherapy initiatives usually consist of a facilitated, specific intervention'.*[1]

It was surmised early in the study planning stage that these four projects were local manifestations of a much wider trend, seen in multiple places globally. This wider trend can be summarised as a growing interest in the ways

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that human health intersects with exposure to nature, an interest that is observable in practical applications,[2,3] research activity,[4] institutional reports,[5] and references in popular culture.[6,7] It has been argued elsewhere[8] that this nature and human health theme can be seen as a cultural zeitgeist in numerous global contexts.

While the nature and health trend has many manifestations globally, it arguably reached a greater level of public and professional visibility in the UK when the prominent mental health charity 'Mind' launched their 'Ecominds' project in 2007. In this initiative, 130 projects in England collectively labelled as 'ecotherapy' were funded (with a National Lottery grant of £7.5 million) for a period of 5 years from 2008 to 2013. The rationale for Mind to launch the Ecominds project was described in Bragg et al.'s evaluation report as a response to the need to find a solution which could simultaneously address both the cost challenges of mental healthcare, and the need for increased service accessibility for a diversity of people, this is summarised: 'There is now more need than ever to explore different preventative and curative therapies to add to the "toolbox" of treatment options'.[1]

This ecotherapy intervention strand of the wider nature and health domain can thus be seen as strongly intertwined in the politics, policy imperatives,[9] and contestations of mental health service provision, including the so-called polyvalence of the recovery concept.[10] It is also closely allied to government attempts in some nations to embed, in multiple sectors, wellbeing outcomes intended to improve population health across the lifespan[11]; a policy orientation exemplified in Wales by the Wellbeing of Future Generations (Wales) Act (2015) devised by the devolved government. Bragg et al.[1] pointed to the increasing research evidence in the nature and health domain, and also, the increase in programmes from government and third sector bodies to increase engagement with nature, but suggested that ecotherapy interventions lack a broad credibility among key stakeholders:

> *'It is apparent that there is an emerging body of evidence supporting green exercise and ecotherapy and it is becoming increasingly recognised as an idea which can be linked to current government health and social care policies. However there is still a way to go before ecotherapy is considered "mainstream" as a way to increase wellbeing or as a treatment option in mental healthcare'.*[1]

The impetus for this research study came from reflecting on this notable increase in the prevalence of ecotherapy initiatives and interventions, alongside the complex ways they were negotiating both the contested field of mental health service provision and wider wellbeing policy and practice.

Research into the connections between nature and human health has been greatly expanding over the past two decades, as noted in a number of reviews.[4,12,13] However, it is reasonable to say that much of this research effort is focused on identifying pathways and mechanisms at both individual and population levels, typically with positivist assumptions and relying on biomarkers and other reified measurable factors (these methods and some of the potential instrumental effects of this focus have been critiqued in greater detail elsewhere).[14] In contrast, this study was focused on gaining some understanding of what ecotherapy meant to participants, and those delivering the interventions, and specifically, how they saw its interface with what are commonly seen as more mainstream mental health services and interventions. Specifically, one of the objectives was to explore whether it was seen by those involved as either oppositional or adjunctive to mainstream services; and why it often remains implicit and unarticulated whether ecotherapy is intended as an intervention for a clinical population or a more general preventive public health opportunity.

METHODS

Early in the study planning process ethnography was identified as congruent with the study's concerns around constructing situated[15] and non-reductive data about the ecotherapy field.[16] While much of the research in the nature and human health field is founded on (usually implicit) positivist assumptions, the use of ethnographic methods in this instance is based on an explicit constructionist assertion[17] that research data are always already imbricated within complex social fields.[18] This methodological approach builds on assertions made by O'Brien and Varley[19] about the valuable applications of ethnography to the empirical understanding of human engagement with nature.

In this research, hard definitions were not applied to either what a natural space or place is or to terms like 'mental health' and 'wellbeing'. Instead, the definitions of nature and health/wellbeing that were being explicitly articulated or used tacitly by those in the field were sought. This is coherent with an ethnographic approach to research[20,21] and avoids the pitfalls of trying to measure or reify either of these contested domains.

Three specific types of data were collected during fieldwork: notes from participant observations, recorded and transcribed interviews with both individuals and small groups, and documents produced by the projects; although these three should not be seen as fixed, and distinct categories as fundamentally ethnography is concerned with the integration of – and dialogue between – multiple data types. To give an indication of the amount of data produced; 450 hours were spent as a participant observer directly engaged in fieldwork within the selected projects.

A purposive approach to sampling[22] was employed, in terms of identifying projects that met the definition of ecotherapy within the geographical area under review. The final four projects in which fieldwork was conducted were an off-road running group: *Trail Runners*, a sustainability skills organisation: *Planet4People*, and two woodland-based interventions: *WellWoods* and *EcoConnect* (all project and individual names are pseudonyms to protect participant anonymity). It was interesting to note that the interventions offered by these projects were largely aimed at non-clinical populations, and, other than for pragmatic recruitment issues when they were marketed to specific groups, it was mostly left to participants to decide on their need, attendance, and anticipated outcomes. A further pertinent observation was that these projects were all staffed by non-healthcare professionals, and, in most instances, they could be considered as peer-to-peer; in terms of being managed and run by people with a personal experience of, and passion for, wellbeing in nature practices. The main interface with statutory health services was via a variety of makeshift, informal, and piecemeal referral practices, some of which were under review by the projects with the aim of making standardised social prescribing packages in the future. This again points to the emergence of new ways of working, like social prescribing, that are associated with broader population wellbeing discourses.

Ethical approval was sought from the Research Ethics Committee embedded within the Swansea University College of Human and Health Sciences; permission to proceed was granted by this committee in May 2017. This included ensuring all participants had clear information about the study, what data were being collected, how it was managed, and were given sufficient notice and opportunity to opt out of participating in the study.

Data analysis was accomplished by multiple stages of qualitative coding, using what Lune and Berg[23] liken to a funnel shape. This started by making analytic notes during fieldwork and assigning open codes to fieldnotes, interview transcripts, and project documentation. In most forms of ethnography, there is an iterative process of learning and modification going on throughout and data analysis is not a separate and discrete stage in a linear process but is inter-leafed with ongoing decisions about data collection.[21,24] From this open coding phase a total of 80 codes were devised, comprised of single words or short phrases. In the next phase of analysis, bearing in mind the funnel analogy,[23] this lengthy list of 80 codes was reduced (funnelled) into fewer categories by reflecting on linkages, connections, and patterns, within and between the codes. This analytic process was informed by the ethnographic orientation of the study; in the broadest sense, this was about having an interest in interactions and negotiations between people, spaces, places, and cultural and institutional arrangements.[17,20,21] More specifically, the coding, funnelling, and theme construction involved identifying and interrogating the situated experience of ecotherapy as it was occurring in actual places, the meanings that were being attributed to it by people in these settings, and how these meanings informed its relations with other mental health technologies, services, and interventions. An example of this type of analysis was the identification of whether, or not, individual participants articulated an outcome they expected from the activity, and what the nature of this outcome was; the coding process helped to link these ideas of outcome to other factors, like what kind of activity was taking place, how the participant had ended up attending the project, and what other experiences and expectations they had of mental health and wellbeing interventions/services. By the end of the analysis process, two themes had been constructed: ‘*smooth and striated bureaucracy*’ and ‘*escape and getting away*’. By making the connections and links between codes, these themes then informed a rich, detailed, and credible ethnographic account of the experiences and construction of the ecotherapy ‘field’ in these four projects at this time.

RESULTS

The first theme was called ‘smooth and striated bureaucracy’, and this focused on the organisational systems deployed within the four ecotherapy projects and, specifically, how these were negotiated by participants. It is argued that what was of particular note within this theme was the ‘point of suture’ between abstract ‘external’ bureaucracy, and immanent activity ‘internal’ to the field. Activity related to organisational systems is common in contemporary life, a point evocatively summed up by Graeber’s[25] suggestion that ‘bureaucracy has become the water in which we swim’. The ecotherapy field is no exception to this bureaucratic trend ‘that is such a pervasive feature of modern social institutions’,[20] and the construction, accumulation, and sharing of standardised data was a distinct set of tasks achieved in some fashion by all of the projects in this study.

The deployment of bureaucratic tasks and the different strategies of engagement with, avoidance of, and resistance to these tasks was a notable part of many of the observational periods in the field. This is a facet of ecotherapy that is largely lacking analysis in the existing research literature, but its prominence in this research fieldwork was striking. Specifically, it is argued that these tasks could be seen on a spectrum between ‘smooth’ and ‘striated’ – the smooth being discrete and hard to even notice, while the striated required disruptive use of time, space, and attention. A strength of ethnography is that it brings together multiple types of research data to indicate the negotiations that go behind the polished ‘finished product’ of bureaucracy that may be publicly available – the kind of presentation that an organisation would publish on its website or in a report to funders.[26,27] As Atkinson[20] reminds us: ‘Organisational records do not necessarily provide transparent representations of ‘what happened’’, while documents may be ‘invoked to justify and legitimise courses of action’, it can be widely observed in a plethora of organisational fields that the actors creating these documents rarely ‘follow bureaucratic rules to the letter’. Thus, in analysing the research data from the ecotherapy field, critical questions were posed of how the production of gatekeeping, registration, record keeping, rule compliance, and evaluation data were being negotiated. The analysis process included identifying what the stated purposes of the information gathered by the projects was, what strategies were put in place to facilitate the collection of these different types of data, and how actors in the field were complying with or resisting this process.

This first theme establishes some of the key social processes, including the power relations embedded in these processes, that contribute to producing the ecotherapy space. Bureaucratic systems rely on assumptions of universalism, rationalism, and objectivity, alongside practices of abstraction, standardisation, commensuration, and reduction.[28,29] Through these assumptions and practices, the ecotherapy field was anticipated by 'external' parties (including funders and referrers) to be equipped to deliver a set of measurable outcomes. This process, however, struggled to account for the nuanced and complex ways that wellbeing was experienced from an 'internal' (to the field, as well as the individual) perspective. Furthermore, there were actively negative consequences of the tasks that were initiated at the 'point of suture' between the 'external' and the 'internal'. Specifically, it was found that already marginalised populations, such as a group of asylum seekers and a group of individuals with what could be considered serious psychiatric diagnoses, experienced the more striated gatekeeping, and evaluation tasks, compared to groups composed mostly of individuals from more privileged socio-economic groups, who's experience was much more smooth. These more privileged groups included professionals who participated in the trail running groups; and the smooth bureaucracy – such as demonstrating outcomes by sharing attractive images of the activity on social media – was partly facilitated by the use of subscription funding models rather than the block grants other projects relied upon.

These findings indicate that these were important factors in how participants accounted for the wellbeing effects of ecotherapy, what the embodied and sensory experiences of these interventions were, and how likely it would be for natural spaces to be accessed for lifespan population wellbeing by groups who were not already regularly using these spaces. As an illustration of this; it was found that many of the participants benefitting from the smooth bureaucracy would reminisce about childhood experiences of nature, and lived in neighbourhoods closer to safe and attractive green space, this led to a familiarity and confidence with using green and blue spaces. One participant, *Archie*, was a healthcare professional participating in *Trail Runners* groups; he described nature as 'like PRN' which is the abbreviation of the Latin term for 'as needed' medication used in healthcare records. This indicated a feeling of agency in knowing what nature could offer, knowing when this was needed, and being able to access the requisite spaces and places in a timely fashion. Contrast this with another participant, *Grace*, who was referred by a local refugee and asylum seeker support organisation. *Grace* was from a minority ethnic background, had only recently moved to this part of Wales, spoke English as a second language, had sole caring responsibility for children, and was housed in a more deprived part of the city with limited access to safe green space. The group that *Grace* attended *Planet4People* with relied on pre-arranged mini-bus transport to attend the woodland site. During a fieldwork observation period, she discussed how much she loved these times in the woods and felt distracted from her everyday stress and anxiety during and after the ecotherapy sessions; however, she needed to miss some sessions because of childcare difficulties and was sad that she could not visit the woods or do the activities at another time. *Archie* and *Grace's* experiences can be seen to represent the varied barriers and opportunities certain groups face at a population level, and the inequities around access to healthy spaces that are well documented in the public health literature.[30]

The second theme 'escape and getting away' relates to a widely held axiom that there is, or at least should be, something 'different' about so-called natural spaces such as woodland – an axiom that is commonly expressed linguistically in terms like 'escape', 'refuge', 'freedom', and 'getting away', and behaviourally in practices of exploration, expression, and playfulness. This notion is well summed up in this interview extract by *Pete*, a leader and participant in the *EcoConnect* project:

> *'a very positive, a very restorative, er . . . a very healing effect . . . particularly in the early years [of his mental health problems] as a place of sanctuary as well . . . a retreat . . . a retreat from the busyness of the world a retreat from things which were . . . which were causing my mental wellbeing to dip . . . so I . . . I always knew that I could retreat into nature and it was a comfort . . . it was a comfortable healing place to go . . .'*

In this extract, *Pete* deploys multiple terms in a short time to express the character he perceived in natural spaces at a period of crisis in his mental health. In his experience, being in nature was about *getting away* from the *causes* of his distress, to remain in that 'restorative' and 'healing' space as a 'retreat' and a 'sanctuary' for as long as he needed to, and, finally, to know that he could return as and when it was required. The process of 'getting away' was expressed, by many participants across all the projects, in terms of both 'reconnecting' with something within nature that had been lost or obscured, and also 'disconnecting' from something pathological/unhealthy within the more typical spaces of everyday life.

This expectation of what could be gained from natural spaces – in terms of both 'reconnecting' and 'disconnecting' – in the ecotherapy context is a reason why the first theme was of such significance. The striated bureaucratic processes seemed like an imposition: this was exactly the kind of thing participants needed to disconnect from. The striated ways that the bureaucratic processes were experienced by marginalised groups replicated their, often traumatic, experiences of negotiating complex systems like health, welfare, and immigration institutions. Therefore, the refreshing and replenishing richness of the escape experiences provided by time in nature was partially undermined by meeting these 'external' requirements.

DISCUSSION AND CONCLUSION

A focus of interest in this research study in the field of nature and health was how it was being formed in relation to differing research practices, academic disciplines, and the institutional arrangements of healthcare and public health that made up the local conditions of its operationalisation. The expected aims, objectives, and outcomes of interventions at the nature and health intersection, and, indeed, its practical format, are multiple and remain unsettled and contested. An example of this contestation is the open question of whether nature is a repository of health for clinical populations or for lifespan preventive public health (even though Mind's ecotherapy definition appears to lean to the former, this research indicates the activity on the ground is not so clear cut).

Despite this contestation, in the research literature there is a widespread emphasis on how to measure nature exposure or test particular psychological or biological pathways and mechanisms.[14] In designing this research study in an ethnographic fashion, it was acknowledged that this emphasis in much of the research effort has a reductionist and reifying effect; this is because it focuses attention on the individual human as organism and seeks to find testable and repeatable chains of causation for the salutogenesis available from nature. This effect leads to a lack of critical attention to the myriad irreducible experiences and complex negotiations of people currently taking part in interventions and activities that make up the *form* of the nature and health intersection in particular places.

Ecotherapy is a term that evades capture, it is a concept that 'floats' between practices, ideas, theories, empirical studies, and the institutions that give concrete form to these things. It is what has been called, in a sociological sense, a 'polyvalent concept'[31] – it is deployed by multiple different interest groups using varied implicit meanings, often as a 'working misunderstanding' in which differences are 'collusively ignored or bracketed'.[10] To study many interventions in the health field, a succinct definition, however, contested or problematic, would be available as a starting point. Succinct definitions of this type usually originate from institutional actors with a responsibility for matters related to funding, accountability, and quality assurance. Such actors include the National Institute for Health and Care Excellence (NICE) in the UK. A definition from a source like this would typically include indications for what groups or diagnosis the intervention was expected to have efficacy for, who would be qualified to deliver such a thing, and what kind of effects would be expected as an outcome, as well as economic appraisals aimed at those commissioning health services.[32]

Ecotherapy does not currently enjoy this status of endorsement from such bodies in the UK, this is something which makes defining and subsequent setting of parameters for empirical research difficult, but it can also be argued there is a rich and exciting sense of possibility in this messy and open field on the margins of the mainstream. This makes it available for those who would rather reside and find their healing outside of mainstream services – a possibility that may be foreclosed if it is taken into the core of the mainstream and guarded by a range of striated policies, practices and procedures. The reliance of many ecotherapy projects on enthusiastic individuals with lived experience rather than professional groups is an interesting point to note in this regard.

As indicated by the above references to the Mind Ecominds initiative there can frequently be found within this field an urgency to connect with the 'mainstream': to somehow legitimise nature as a tool for either population preventive health or more individual treatment interventions (or both). This objective, or its assumed urgency, is rarely questioned and is lacking the sustained critical attention that such an assertion requires. This research has provided some insights into the complexities of how this is being operationalised on the ground, and it points to some specific areas of enquiry that would benefit from further research.

If critical distance can be found from the assumption that ecotherapy needs to be made mainstream as fast as possible, then numerous questions can be posed. For example, how are mainstream mental health services defined and delineated, and by whom? What kind of inclusions and exclusions permeate this domain? In defining 'mainstream' it also becomes imperative to enquire what it means to be oppositional and on the edge of mainstream services. It is arguably not the case that a binary in-or-out status for ecotherapy is needed, or is even possible, but it is interesting to reflect on what the instrumental effects of either position are, or could be.

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