

Social Prescribing as Social Cure

Social Prescribing as 'Social Cure': A longitudinal study of the health benefits of social connectedness within a Social

Prescribing pathway

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Abstract

We examined whether the Social Cure (SC) perspective explains the efficacy of a Social Prescribing (SP) pathway which addresses healthcare needs through enhancing social connections. Data were collected at pathway entry from patients with long-term health conditions, or who felt isolated/lonely/socially anxious ($N=630$), and then again four months later ($N=178$), and six-nine months later ($N=63$). Being on the pathway was associated with increased group memberships between T0 and T1. The relationship between increased group memberships and quality-of-life was serially mediated by belonging, support, and loneliness. This study is the first to show that SP enhances health/well-being via SC mechanisms.

Keywords: Social Prescribing; Social Cure; Social Support; Wellbeing; Loneliness

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Health services are facing economic challenges that are placing them under increasing strain (Chang et al., 2019). The UK’s National Health Service (NHS) is no exception: as well as funding cuts and the ageing population (ONS, 2018), these challenges include increases in chronic conditions such as diabetes (NHS Digital, 2018) and mental illness (NHS England, 2017).

Much of this illness is exacerbated by loneliness, which is detrimental to mental/physical health (e.g., Leigh-Hunt et al., 2017). This may be because loneliness is characterised by a tendency to perceive the world as threatening, triggering physiological stress responses which exacerbate illness (Cacioppo & Cacioppo, 2018). Lonely people also tend to be frequent primary care attenders, and may use this care as a source of much-needed social connection, thereby further burdening services (Cruwys, Wakefield, Sani, Dingle, & Jetten, 2018). In sum, there is evidence to suggest that tackling healthcare provision challenges (as well as successfully enhancing well-being) requires addressing the complex interplay between people’s health and their social worlds.

Healthcare providers are increasingly aware of this, and have begun to investigate the possibility of adopting initiatives designed to address disconnection. By necessity, these initiatives involve moving beyond the traditional medical model of healthcare with its focus on medical professionals’ roles as medication prescribers, and instead embracing a more holistic approach. This principle is at the root of Social Prescribing (SP; Brandling & House, 2009)

Social Prescribing

SP’s aim is to enhance the social connections, and consequently, the health/well-being of patients experiencing chronic conditions exacerbated by loneliness (e.g., Kimberlee, 2015). In turn, such enhancements are predicted to reduce primary healthcare use and improve illness self-management (Cawston, 2011). SP generally involves health professionals referring patients for practical or social support (Kimberlee, 2013). Consistent with its name, SP also includes a social dimension, which typically involves patients being supported by ‘Link Workers’ to join

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voluntary/community groups. SP thus involves three stages: health professional referral to a Link Worker; development of a plan between patient and Link Worker; and the patient's engagement in community groups/programmes. This is assumed to enhance sense of community belonging, which is thought to boost quality of life/well-being (Rempel, Wilson, Durrant, & Barnett, 2017).

Evidence suggests that SP initiatives are cost-effective and enhance health/well-being (e.g., Kinsella, 2015). However, while SP is a well-developed practice with a strong evidence base, it is not guided by a coherent theory of *why* social connectedness enhances health. This has two consequences. First, medical professionals often point to an absence of medical-grade evidence (such as randomised controlled trial designs) to support these initiatives (e.g., Bickerdike, Booth, Wilson, Farley, & Wright, 2017). Second, in the absence of a theoretical explanation for why SP might have its effects, it is unclear how to target, deliver, and capture its effects among different populations. This limits our ability to understand how, why, and for whom SP initiatives work. Developing an understanding of the processes through which SP initiatives affect health and well-being is vital to inform the development of maximally-effective future SP interventions (Bickerdike et al., 2017; Rempel et al., 2017). With this in mind, we have chosen to approach the current research with a specific theoretical framework which takes as its focus the impact of social relationships upon health/well-being: The Social Cure perspective.

Applying the Social Cure Perspective to Social Prescribing

The Social Cure (SC) perspective (Haslam, Jetten, Cruwys, Dingle, & Haslam, 2018; Wakefield, Bowe, Kellezi, McNamara, & Stevenson, 2019) emerged from the Social Identity Approach within social psychology (as applied to clinical/health contexts), which investigates the impact of social groups on the thoughts and behaviours of their members. It posits that social group memberships (e.g., family, community, hobby groups) can enhance health/well-being, but only if group members identify with them (i.e., experience a subjective sense of belonging to the group in question; Haslam et al., 2017, 2018). The SC perspective suggests that social identities can enhance health/well-being through psychological resource provision (Haslam et al., 2018), including a sense of connection that engenders feelings of trust; a sense of meaning and purpose in life; and social support

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from other group members to cope with life's stresses (Haslam, O'Brien, Jetten, Vormedal, & Penna, 2005). Together these factors equip group members with resilience, thereby reducing stress and improving well-being. Furthermore, the health-related benefits of social groups are enhanced through simultaneous membership of multiple groups, which further increase the individual's sense of social connectedness and provide them with multiple (and varied) forms of social support during stressful events and life transitions (Iyer, Jetten, Tsivrikos, Postmes, & Haslam, 2009).

These effects have been found across a range of groups routinely referred to SP initiatives, including older adults (Gleibs, Haslam, Haslam, & Jones, 2011) and those living in socioeconomically disadvantaged communities (McNamara, Stevenson, & Muldoon, 2013). Possessing multiple group memberships within a community context can also encourage the individual to identify more strongly with their local community as a whole. This may offer further benefits, as local community identification has been shown to positively predict health/well-being (McNamara et al., 2013; Fong, Cruwys, Haslam, & Haslam, 2019).

While the SC perspective has not routinely investigated the impact of group memberships on loneliness, it is also likely that an additional way in which social group memberships can positively affect well-being is via loneliness reduction. For instance, McIntyre, Worsley, Corcoran, Harrison Woods, and Bentall (2018) found that social identification with friendship groups protected university students' psychological health through reduced feelings of loneliness. In an evaluation of the Social Cure-based Groups4Health intervention, which is designed to encourage isolated individuals to join new social groups and reconnect with old ones, Haslam, Cruwys, Haslam, Dingle, and Chang (2016) found that reductions in participants' loneliness was driven by an increase in their number of group identifications, while Haslam et al. (2019) presented RCT evidence of Groups4Health's ability to reduce loneliness. Relatedly, Wakefield, Bowe, Kellezi, Butcher, and Groeger's (2019) longitudinal analyses showed that family identification was a negative predictor of loneliness, which in turn was a positive predictor of depression, which itself was a positive predictor of poor sleep quality/insomnia. These studies attest to the important role played by social group memberships in loneliness reduction

and indicate the ways in which SP initiatives might be able to reduce negative health impacts of loneliness through enhancing social group memberships.

The Present Study

The present study is part of a larger programme of research using a multi-method, longitudinal approach to explore these processes in an ongoing SP pathway (Authors, 2019a; Authors, 2018). While our previous work has explored whether the SC perspective captures the experiences of healthcare staff and patients in a SP pathway, and whether SC processes help explain the effect of the pathway on healthcare usage, this is the first study to longitudinally explore whether an SP pathway actually enhances patient quality of life via SC processes. There are five hypotheses, which, together, provide a robust test of the efficacy of the SP initiative under investigation, and address our aim of exploring the extent to which that efficacy is underpinned by specific SC processes (community belonging, social support, and loneliness reduction):

1. Before beginning the intervention, SC-related variables such as community belonging and social support will correlate positively with participants' quality of life, while loneliness will correlate negatively with quality of life. Observing these relationships would indicate the suitability of the sample for SP, and suggest that any SC processes fostered by the SP intervention are likely to improve participants' quality of life.
2. The SP initiative will improve quality of life over time.
3. If there are quality of life improvements, they will be caused by an increase in participants' number of group memberships.
4. Greater number of group memberships during the SP intervention will predict enhanced quality of life via SC processes.
5. Improvements in quality of life and/or number of group memberships will be maintained after the SP intervention has concluded. This would provide evidence of long-term benefits.

We now summarise the specific SP pathway under investigation.

SP Pathway Overview

This NHS-based SP pathway began in Nottinghamshire in 2017, and is targeted at any locally-living adult that is managing one or more long-term physical/mental health conditions, and is feeling isolated, lonely, or socially anxious. The pathway supplements regular healthcare and is intended to reduce inappropriate healthcare usage by improving illness prevention and self-management. Over 90% of referrals are made by GPs/practice nurses, but patients may self-refer. Once referred, patients' needs are assessed by a Health Coach (HC), who either recommends self-care management, or refers the patient to a community-based Link Worker (LW) who connects patients to relevant voluntary/community groups. Patients are re-contacted regularly for progress monitoring.

Method

Participants and Procedure

All data were gathered during the first two years of the pathway's operation (November 2017-February 2019). Baseline (T0) survey data were gathered by HCs from six hundred and fifty-five patients before they began the SP intervention. A sample of six hundred and thirty participants was included in the present T0 analysis (285 males, 340 females, 5 unknown; $M_{age} = 52.74$ years, $SD = 14.79$, $range = 17-85$). These data were gathered in face-to-face meetings at participants' GP surgeries. Data were collected via survey questions which were read out to participants, and the responses were recorded by the HC. Verbal informed consent was obtained from all participants. Ethical approval was obtained from the West Midlands NHS REC Committee 17/WM/0398.

Follow-up 1 (T1) data were collected by HCs around four months after T0 ($M = 119.66$ days, $SD = 28.03$, $range = 62-180$ days) during a routine follow-up.¹ Data were collected via survey questions which were read out to participants (either in-person or via telephone), and responses were recorded by the HC. HCs were only able to follow-up some participants due to their busy work schedules. This data collection is part of participants' standard care on the pathway. A sample of 178 participants were included in the T1 analysis (86 males, 91 females, 1 unknown; $M_{age} = 55.75$ years, $SD = 13.80$, $range = 19-85$ years). Bonferroni-corrected between-groups t -tests were used to compare those who were followed-up and those who were not followed up at T1 on all nine variables (critical p -value = $.05/9 = .006$). Followed-ups had significantly more group memberships ($M = 1.89$, $SD =$

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1.59 vs. $M = 1.51$, $SD = 1.37$), $t(628) = -2.94$, $p = .003$, and were older ($M = 55.75$, $SD = 13.80$ vs. $M = 51.56$, $SD = 15.01$), $t(625) = -3.22$, $p = .001$.

Follow-up 2 (T2) data were collected from a subsection of participants by HCs in the same manner as the T1 data, six to nine months after T0 ($M = 244.78$ days, $SD = 67.67$, $range = 103$ -456 days). Again, HCs were only able to follow-up some participants due to their busy work schedules. Three participants completed their T2 survey less than six months after T0 (103 days, 107 days, and 115 days respectively), while fourteen completed their T2 survey more than nine months after T0 (values ranged from 287 days to 456 days). However, due to the relatively small sample size for the T2 survey, these data were retained. This led to a sample of 63 participants included in the T2 analysis (32 males, 31 females; $M_{age} = 57.13$ years, $SD = 15.17$, $range = 24$ -84 years). Bonferroni-corrected between-groups t -tests were used to compare those who were followed-up and those who were not followed up at T2 on all nine variables (critical p -value = $.05/9 = .006$). No comparisons reached the $p < .006$ level of significance, although followed-ups were older ($M = 57.13$, $SD = 15.17$ vs. $M = 52.25$, $SD = 14.68$), $t(625) = -2.49$, $p = .013$, and reported poorer health-related quality of life ($M = 0.51$, $SD = 0.36$ vs. $M = 0.62$, $SD = 0.31$), $t(73.23) = 2.36$, $p = .021$.

Measures

Number of group memberships. Participants were given a list of ten social groups (“*family; sports clubs, gyms, or exercise class; tenant group/resident group/neighbourhood watch; political party/trade union/environmental group; church or other religious group; education/art/music group, or evening class; social club; support group (e.g., diabetes support); any other organisations, club, or society*”) and were asked to indicate to which they belong. Alternatively, participants could tick “*I am not a member of any groups*”. From this, participants’ *number of group memberships* was calculated.

Community belonging. We measured *community belonging* with a single item previously used in population surveys of social attitudes and behaviours, which is known to have good predictive ability (Hayward, Dowds, & Shaw, 2014), (“*Thinking about this local community, the kind of place it is and the kind of people who live around here, would you say that you feel a sense of belonging to this local community?*”). Participants rated their agreement on a 1 (*definitely not*) to 4 (*yes definitely*) scale and were asked to define ‘local community’ in any way that was meaningful to them.

Social support. Participants' *social support* was measured with a four-item scale from Haslam et al. (2005). Participants rate their agreement with each item (e.g., “Do you get the emotional support you need from other people?”) on a 1 (*not at all*) to 5 (*completely*) scale. The mean of the items was found, with higher values indicating greater social support.

Loneliness. We measured *loneliness* with the eight-item ULS-8 (Hays & DiMatteo, 1987). Participants rated their agreement with each item (e.g., “I lack companionship”) on a 1 (*not at all*) to 5 (*completely*) scale. The mean of the items was found, with higher values indicating greater loneliness.

Health-related quality of life. Participants' self-reported *health-related quality of life (QoL)* was measured with the EQ5D (EuroQol Group, 1990). Five health dimensions (mobility, self-care, usual activities, pain, and anxiety/depression) are each assessed with a single item on a 1-3 scale (e.g., mobility: “I have no problems walking about/I have some problems walking about/I am confined to bed”). Participants select one option for each item. Calculations were conducted as per the authors' instructions, leading to a score ranging between -0.59 and 1, with higher values indicating better QoL.

Demographics. Finally, participants were asked to specify their *age*, *gender* (male = 1, female = 2; other options were available, but all participants identified as either male or female), *relationship* (0 = no, 1 = yes), and *education* (0 = no qualifications, 1 = school/college qualifications, 2 = university/work-based qualifications).

Results

Do SC-related variables correlate with participants' quality of life before beginning the SP intervention?

Correlations. As expected, participants' QoL at T0 correlated positively with number of group memberships ($r = .11, p = .005$), community belonging ($r = .22, p < .001$), social support ($r = .21, p < .001$), and negatively with loneliness ($r = -.33, p < .001$). Additionally, number of group memberships correlated positively with community belonging ($r = .31, p < .001$), social support ($r = .14, p = .01$), and negatively with loneliness ($r = -.19, p < .001$). Community belonging also correlated negatively with loneliness ($r = -.43, p < .001$), and positively with social support ($r = .38, p < .001$). Social support also correlated negatively with loneliness ($r = -.50, p < .001$).

Does the SP initiative improve participants' QoL?

Correlations. Although number of groups at T0 did not correlate with QoL at T0 ($p = .74$), it positively correlated with QoL at T1, albeit only approaching significance ($p = .072$). As expected, there was a significant positive correlation between number of groups at T0 and T1 ($p = .002$), and between QoL at T0 and T1 ($p < .001$).

ANOVA. To explore the extent to which QoL changed between T0 (immediately pre-intervention) and T1 (around four months later), a repeated measures analysis of variance (ANOVA) was conducted. This revealed that participants' QoL increased significantly between T0 and T1, $F(1,177) = 4.26, p = .04$.

Are participants' QoL improvements over time caused by an increase in their number of group memberships?

Repeated measures analysis of variance. We predicted participants' number of group memberships would increase during their SP participation. As expected, a repeated measures analysis of variance (ANOVA) revealed that number of group memberships increased significantly between T0 and T1, $F(1,177) = 4.07, p = .04$.

Cross-lagged panel analysis. Based on the SC perspective, we predicted that participants' number of group memberships was driving their improvements in QoL over time. To test this, a cross-lagged panel analysis was conducted using AMOS software. The model is saturated (i.e., all paths have been estimated), so fit statistics are unavailable. All regression weights are standardized. Number of group memberships at T0 was a significant positive predictor of QoL T1 ($beta = .12, p = .03$). QoL T0 was not a predictor of number of group memberships at T1 ($beta = -.04, p = .61$). As expected, number of group memberships at T0 was a positive predictor of number of group memberships at T1 ($beta = .23, p = .001$), and QoL T0 was a significant positive predictor of QoL T1 ($beta = .68, p < .001$). The R^2 values for QoL T1 and number of group memberships T1 were .48 and .06 respectively, indicating that the T0 predictors explained 48%, and 6% of the variance in the T1 variables respectively. Overall, this model shows that number of group memberships exerted a positive effect on QoL over time, but not vice-versa.

Does participants' change in number of group memberships between T0 and T1 predict enhanced QoL via social psychological processes at T1?

Mediation. A serial mediation analysis was conducted to test the prediction that the change in participants' number of group memberships between T0 and T1 (number of groups at T0 subtracted from number of groups at T1) would predict T1 QoL via a chain of three T1 mediators. Specifically, it was hypothesised that an increase in number of group memberships between T0 and T1 would positively predict sense of community belonging T1, which would positively predict social support T1, which would negatively predict loneliness T1, which would negatively predict QoL T1. This ordering of variables is consistent with previous Social Cure theorising and research, which argues that joining more social groups provides a richer social environment (Iyer et al., 2009), thereby allowing people to feel more integrated into their communities. Meanwhile, this sense of community belonging encourages people to feel that social support is available from others, helping them feel less lonely (Haslam et al., 2018). Finally, since loneliness has well-established negative effects on wellbeing (e.g., Wakefield et al., 2019), reducing loneliness is likely to enhance QoL.

Model 6 in version 3.0 of Hayes' PROCESS macro was used (as reported above). Age, gender, relationship, and education were included as control variables, as were the T0 versions of community belonging, social support, loneliness, and QoL.

Supporting predictions, change in number of group memberships between T0 and T1 was a positive predictor of community belonging ($coeff = .09$, $SE = .04$, $t = 2.55$, $p = .01$, $LLCI = .02$, $ULCI = .16$), while community belonging T1 was a positive predictor of social support T1 ($coeff = .33$, $SE = .08$, $t = 4.32$, $p < .001$, $LLCI = .18$, $ULCI = .48$). In turn, social support T1 was a negative predictor of loneliness T1 ($coeff = -.23$, $SE = .08$, $t = -2.99$, $p = .003$, $LLCI = -.38$, $ULCI = -.08$), which itself was a negative predictor of QoL T1 ($coeff = -.06$, $SE = .02$, $t = -2.65$, $p = .009$, $LLCI = -.11$, $ULCI = -.02$). The indirect effect of change in number of group memberships between T0 and T1 on QoL T1 through the three T1 mediators was significant ($effect = .0004$, $BootSE = .0003$, $BootLLCI = .000$, $BootULCI = .0013$). The total effect of number of group memberships on QoL was non-significant, indicating indirect-only mediation (Zhao, Lynch, & Chen, 2010; $effect = -.01$, $SE = .01$, $t = -1.17$, $p =$

.24, $LLCI = -.03$, $ULCI = .01$), and this remained non-significant when the mediators were accounted for ($effect = -.01$, $SE = .001$, $t = -1.51$, $p = .13$, $LLCI = -.03$, $ULCI = .004$).

Were the T1 improvements in QoL and number of group memberships maintained at T2?

Correlations. Number of groups at T1 did not correlate with QoL at T1 ($p = .33$), or at T2 ($p = .68$). As expected, there was a significant positive correlation between number of groups at T1 and T2 ($p = .002$), and between QoL at T1 and T2 ($p < .001$).

ANOVA. To explore whether the improvements in QoL and number of group memberships observed at T1 (around 4 months after recruitment) were maintained at T2 (around 6-9 months after recruitment), a repeated measures ANOVA was conducted ($n = 63$). This revealed that participants' QoL did not change between T1 ($M = 0.55$, $SD = 0.38$) and T2 ($M = 0.59$, $SD = 0.37$), $F(1,45) = 0.54$, $p = .47$, indicating that the QoL enhancement observed between T0 and T1 was maintained. However, participants' number of group memberships declined significantly between T1 ($M = 2.76$, $SD = 1.65$) and T2 ($M = 1.52$, $SD = 1.31$), $F(1,45) = 28.29$, $p < .001$.

Discussion

SP is a potentially transformative approach to the delivery of healthcare within community settings. The evidence for its economic and therapeutic efficacy is building and, in the UK at least, SP has been introduced into healthcare provision. However, as we have argued, SP is a practice in need of a theory (Authors, 2019b). Without an understanding of why SP has its impact on health, it remains difficult to refine its effects. As a result, a confusing plethora of models with different systems of recruitment, engagement, and delivery have emerged, with varying success rates (Kimberlee, 2013), which has promoted scepticism from the medical community (e.g. Husk, Elston, Gradinger, Callaghan, & Asthana, 2019). In order to transcend this confusion, we wanted to identify the 'active ingredients' in SP so it can be adapted to meet needs of particular patient groups. We attempted to do this by applying a theoretical framework to the evaluation and investigation of the effects of a current SP initiative.

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The SP initiative examined here shares many of the limitations of other programmes: its referral criteria are a loose mix of medical and social indicators, its referrals are overwhelmingly from GP surgeries (and hence may not represent the wide range of non-clinical loneliness sufferers), and patients are rarely referred to activities using clearly-defined therapeutic principles. There is an absence of a central theoretical concept to the programme, and no key element is thought to underlie patients' treatment. Yet despite this, the SP programme works. In line with previous studies attesting to SP's benefits (e.g., Potter, 2013; White & Salamon, 2010), our analysis shows significant improvements in patient QoL at T1, which are sustained at T2.

How is this programme working? At recruitment, we see strong relationships between participants' social integration, loneliness, and well-being. These match general patterns identified in prior SC research whereby social inclusion, and specifically group memberships, is associated with better health. For this sample then, these results suggest the SC model has predictive validity.

Building on this, our examination of why QoL improves as a result of the intervention again points to the pivotal role of these SC processes. First, there is an increase in the range of group memberships reported by patients at T1, which parallels the observed health improvements. Moreover, our cross-lagged model shows that QoL at T1 is predicted by number of group memberships at T0. The number of groups to which a patient initially belongs thus predicts their future health, rather than vice versa. On this basis we have evidence of SC factors playing an important role in health improvement.

More definitive evidence is provided by our modelling of the T0 and T1 data. Across T0 and T1 we show a specific sequence of variables which mediate the relationship between group memberships and QoL. Specifically, the increase in group memberships between the time-points predicts an increased sense of community belonging, which in turn increases perceived social support. In other words, increased group memberships have their positive impact upon QoL through increasing these elements of social inclusion. This aligns with the mass of SC research demonstrating how identification with multiple groups can unlock social support from fellow group members to help cope with challenges (Iyer et al., 2009).

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In addition, the model includes loneliness as the third mediating variable, pointing to the specific impact of SC processes on health via reduced loneliness (Haslam et al., 2019; McIntyre et al., 2018; Wakefield et al., 2019). The T0 correlations confirm that loneliness has a negative relationship with health-related quality of life before the programme began, while the mediation model indicates that SP has its health benefits (at least in part) through loneliness reduction. While SP programmes have often suggested that SP has effects through loneliness reduction (see Brandling & House, 2009), ours is the first to demonstrate that this is the case, as well as the first to link loneliness to community belonging.

Of course, we must acknowledge the study's limitations. While our samples at T0 and T1 are substantial and afford longitudinal analyses, the attrition at T2 is severe, and does not allow for advanced analyses which would determine the specific mediators predicting long-term benefits of this intervention. Because the data were gathered by HCs, the predominant reason for this attrition was practical: the pathway involved a small number of HCs, whose time was dominated by the fulfilment of their work-related duties. T2 data collection took place at an exceptionally busy time for the HCs, as the number of patients on the pathway had peaked, and their focus was to ensure that all patients received the coaching they needed. This meant that they were unable to follow-up most patients. While this is not ideal for research purposes, it reflects the challenges of collecting data in real-world interventions with limited HC capacity/funding. It also means that any differences between participants who were/were not followed up are unlikely to represent differences in pathway engagement.

Second, our focus is primarily on the social factors impacting upon the entire sample of participants, and we acknowledge the particular needs of patients with severe mental health/mobility issues which affect social functioning. Further research is required to examine how SP can be adapted to the needs of these specific groups. Third, the initiative was developed and delivered within a particular socio-economic and demographic context: a relatively affluent, ethnically homogeneous suburb of a UK city in which there were many social groups available to participants. While we could expect more pronounced social isolation in more deprived/diverse/rural areas, the efficacy of SP will

clearly depend upon the community resources available, and the degree to which these can enhance community identification.

Bearing these limitations in mind, we argue that the demonstration of the fundamental role played by SC processes in the operation of this programme has key implications for SP's design/delivery. First, our findings place community at the heart of this form of healthcare delivery. Often, community is simply seen as a set of resources to be drawn upon by health professionals in order to address the healthcare burden. Our research suggests that local community plays a more fundamental role than this, impacting directly upon QoL. We know that community identity can shape residents' lives in fundamental ways (Fong et al., 2019). While tailored health activities may well address the individual's specific health needs, greater social inclusion can promote community-wide well-being. SP therefore needs to be more explicitly community-health focussed, with a broader goal of promoting community cohesion and provision as well as individual patient integration. Indeed, it is heartening to see these wider issues being discussed in the NHS's SP Summary Guide and Long-Term Plan (NHS, 2019a, 2019b).

Second, we propose that the SC processes we have found to be central to SP should be embedded in the recruitment of patients. The SP intervention we explored did not clearly articulate the social inclusion focus of the programme, leading to the recruitment of a diffuse patient body with little understanding of the social factors impacting on their health, or the purpose of SP in reducing social isolation. This could create confusion and disengagement if patients' understandings diverge from those of pathway staff (Authors, 2019a). We argue that SP is a unique opportunity to engage patients in an open decision-making process regarding how best to harness social factors to improve health. For this to happen, SP needs to be clearly advertised as a social intervention, SP providers need to be clear about its purpose, and the social, psychological, and health-related benefits of SP programmes need to be systematically captured; perhaps in a manner similar to Groups4Health, which emphasises this psycho-educational element (Haslam et al., 2016). Ultimately, in order to be maximally successful, SP needs to be communicated and delivered as a properly *social* cure.

Footnote

¹We computed an a priori minimum sample size of 34 for a repeated-measures ANOVA, assuming 0.80 power and a medium-sized partial η^2 of .06. Pairwise deletion was used for missing data.

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Supplementary Table 1
Characteristics of the participants at each time-point

| Variable | T0 | T1 | T2 |
|---|---|---|---|
| <i>n</i> | 630 | 178 | 63 |
| Age | <i>M</i> = 52.74 yrs, <i>SD</i> = 14.79, <i>range</i> = 17-85 | <i>M</i> = 55.75 yrs, <i>SD</i> = 13.80, <i>range</i> = 19-85 | <i>M</i> = 57.13 yrs, <i>SD</i> = 15.17, <i>range</i> = 24-84 |
| Gender | 285 m, 340 f, 5 unknown | 86 m, 91 f, 1 unknown | 32 m, 31 f |
| No. of Group Memberships (0-10) | <i>M</i> = 1.62, <i>SD</i> = 1.45 | <i>M</i> = 2.21, <i>SD</i> = 1.87 | <i>M</i> = 1.76, <i>SD</i> = 1.98 |
| Community Belonging (1-4) | <i>M</i> = 2.71, <i>SD</i> = 1.09 | <i>M</i> = 2.75, <i>SD</i> = 1.08 | <i>M</i> = 2.70, <i>SD</i> = 1.00 |
| Social Support (1-5) | <i>M</i> = 3.47, <i>SD</i> = 1.19 | <i>M</i> = 3.69, <i>SD</i> = 1.11 | <i>M</i> = 3.60, <i>SD</i> = 1.14 |
| Loneliness (1-5) | <i>M</i> = 2.42, <i>SD</i> = 1.18 | <i>M</i> = 2.35, <i>SD</i> = 1.00 | <i>M</i> = 2.41, <i>SD</i> = 1.17 |
| Health-Related QoL (-0.59-1) | <i>M</i> = 0.61, <i>SD</i> = 0.32 | <i>M</i> = 0.61, <i>SD</i> = 0.33 | <i>M</i> = 0.59, <i>SD</i> = 0.36 |
| Relationship (0 = no, 1 = yes) | 0 = 257, 1 = 373 | 0 = 79, 1 = 99 | 0 = 25, 1 = 38 |
| Education (0 = none, 1 = schl/coll, 2 = uni/wrk) | 0 = 69, 1 = 276, 2 = 285 | 0 = 21, 1 = 76, 2 = 81 | 0 = 9, 1 = 26, 2 = 28 |

Social Prescribing as Social Cure

Supplementary Table 2

T0 ($n = 630$): Descriptive statistics and correlations

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--|---------|---------|---------|---------|--------|------|-----|-----|---|
| 1. No. of Groups (0-10; $M = 1.62$, $SD = 1.45$) | - | | | | | | | | |
| 2. Community Belonging (1-4; $M = 2.71$, $SD = 1.09$) | .31*** | - | | | | | | | |
| 3. Social Support (1-5; $M = 3.47$, $SD = 1.19$, $\alpha = .87$) | .14*** | .38*** | - | | | | | | |
| 4. Loneliness (1-5; $M = 2.42$, $SD = 1.18$, $\alpha = .90$) | -.19*** | -.43*** | -.50*** | - | | | | | |
| 5. Health-Related Quality of Life (-0.59-1.00; $M = 0.60$, $SD = 0.32$, $\alpha = .69$) | .11** | .22*** | .21*** | -.33*** | - | | | | |
| 6. Age (17-85; $M = 52.74$, $SD = 14.79$) | .17*** | .15*** | .09* | -.21*** | -.003 | - | | | |
| 7. Gender (Male = 1, Female = 2) | .04 | .03 | -.07† | .07† | -.08* | -.03 | - | | |
| 8. Relationship (Yes = 1, No = 0) | .09* | .18*** | .13*** | -.31*** | .15*** | .01 | .01 | - | |
| 9. Education (1 = none, 2 = sch/coll, 3 = uni/wrk) | .19*** | .06* | .01 | -.05 | .13*** | .05 | .05 | .06 | - |

Note. *** $p \leq .001$, ** $p < .01$, * $p < .05$, † $p < .10$

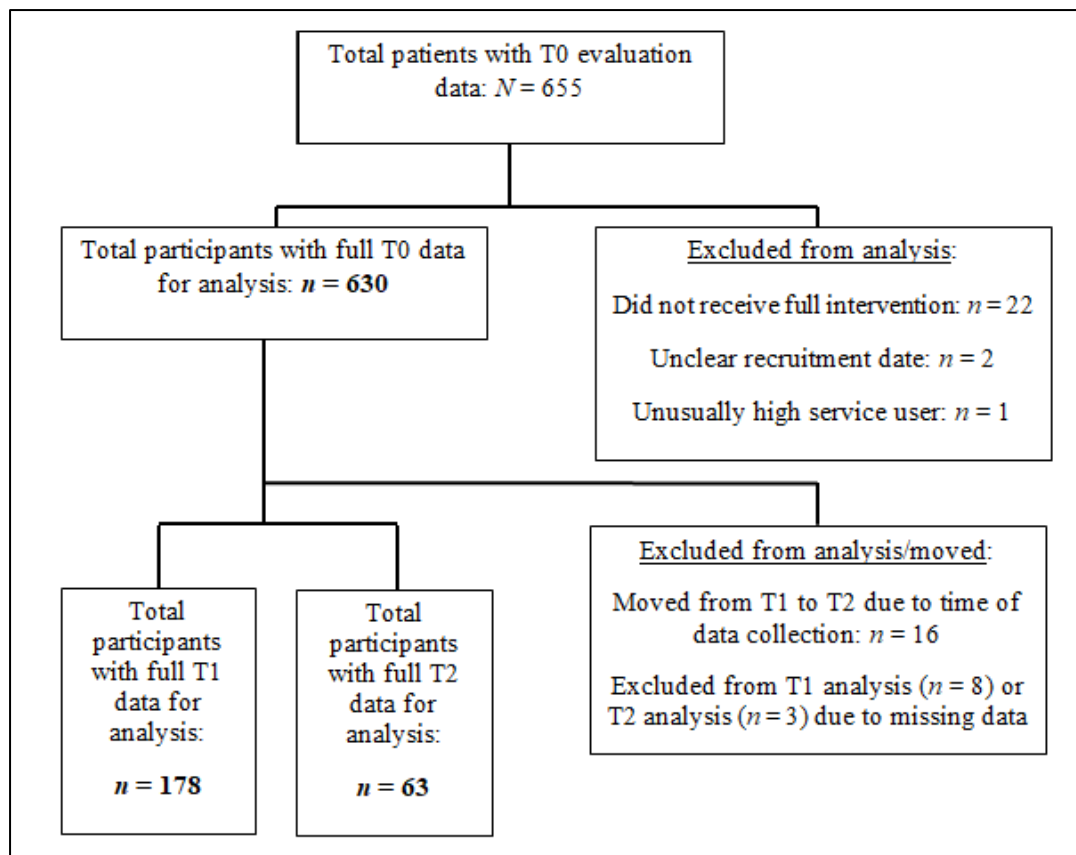
Social Prescribing as Social Cure

Supplementary Table 3

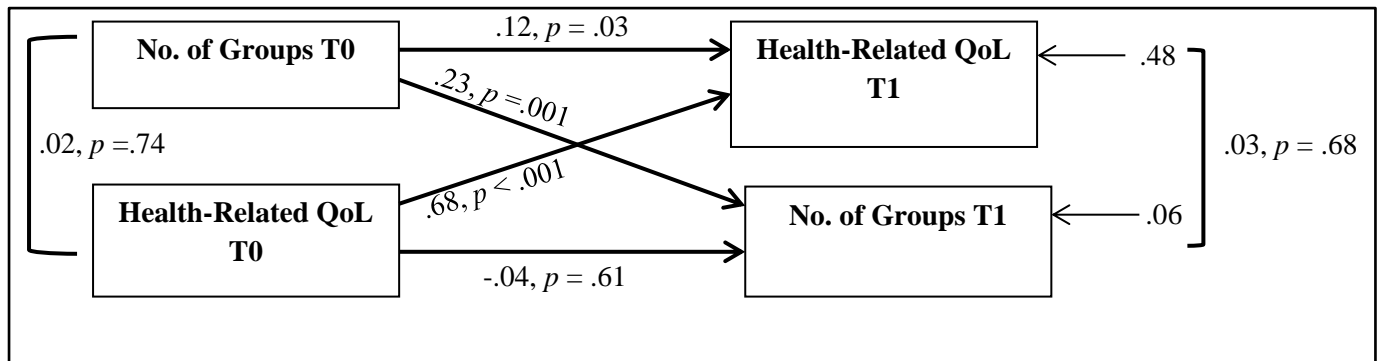
T0/T1 ($n = 178$): Descriptive statistics and inter-correlations for key variables

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---------|--------|-------|---------|---------|---------|---------|---------|---------|--------|-------|------|-----|-----|
| 1. Change in No. of Groups (T0-T1, $M = 0.33$, $SD = 2.15$) | - | | | | | | | | | | | | | |
| 2. No. of Groups T0 (1-10, $M = 1.89$, $SD = 1.59$) | -.54*** | - | | | | | | | | | | | | |
| 3. No. of Groups T1 (1-10, $M = 2.21$, $SD = 1.87$) | .69*** | .23** | - | | | | | | | | | | | |
| 4. Community Belonging T0 (1-4, $M = 2.72$, $SD = 1.12$) | -.16* | .31** | .08 | - | | | | | | | | | | |
| 5. Community Belonging T1 (1-4, $M = 2.75$, $SD = 1.08$) | .10 | .14† | .24** | .44*** | - | | | | | | | | | |
| 6. Social Support T0 (1-5, $M = 3.61$, $SD = 1.13$, $\alpha = .86$) | -.08 | .15† | .03 | .30*** | .30*** | - | | | | | | | | |
| 7. Social Support T1 (1-5, $M = 3.69$, $SD = 1.11$, $\alpha = .89$) | -.10 | .07 | .05 | .23** | .45*** | .58*** | - | | | | | | | |
| 8. Loneliness T0 (1-5, $M = 2.42$, $SD = 1.13$, $\alpha = .88$) | .15 | -.20** | -.001 | -.38*** | -.29*** | -.42*** | -.32*** | - | | | | | | |
| 9. Loneliness T1 (1-5, $M = 2.35$, $SD = 1.00$, $\alpha = .87$) | .06 | -.15* | -.06 | -.25** | -.40*** | -.30*** | -.47*** | .44*** | - | | | | | |
| 10. Quality of Life T0 (-0.59-1, $M = 0.57$, $SD = 0.35$, $\alpha = .72$) | -.05 | .03 | -.03 | .16* | .09 | .18* | .18* | -.28** | -.22** | - | | | | |
| 11. Quality of Life T1 (-0.59-1, $M = 0.61$, $SD = 0.33$, $\alpha = .74$) | -.08 | .14† | .03 | .21** | .22** | .16* | .19* | -.25** | -.30*** | .68*** | - | | | |
| 12. Age ($M = 55.75$, $SD = 13.80$) | -.09 | .19* | .07 | .19* | .08 | .15* | .15* | -.26** | -.22** | .01 | .06 | - | | |
| 13. Gender (1 = male, 2 = female) | .01 | .14† | .13† | -.03 | -.04 | -.07 | -.03 | -.02 | -.11 | -.06 | -.03 | .10 | - | |
| 13. Relationship (0 = no, 1 = yes) | -.03 | .07 | .02 | .06 | .23** | .08 | .13† | -.37*** | -.22** | .04 | .04 | .07 | .08 | - |
| 14. Education (1 = none, 2 = sch/coll, 3 = uni/wrk) | -.06 | .23** | .13† | .10 | .03 | .05 | -.07 | -.08 | -.11 | .20** | .23** | .15† | .09 | .04 |

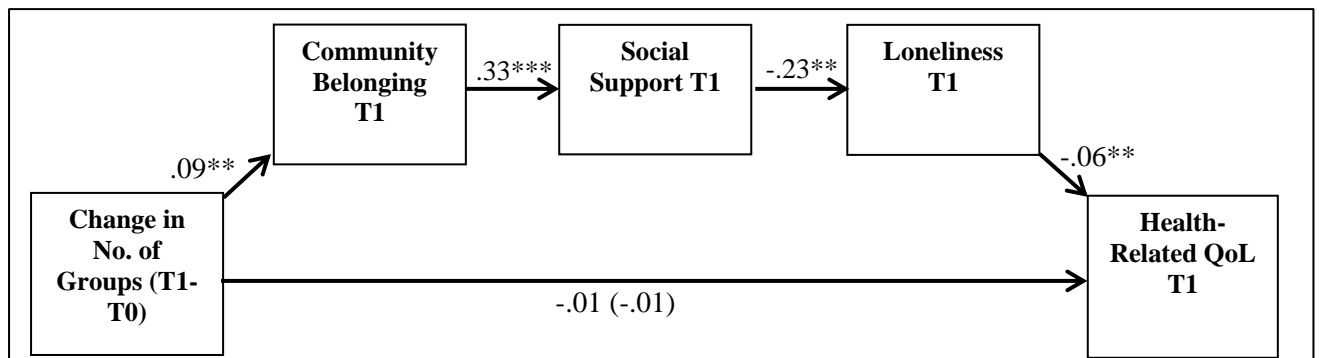
Note. *** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$



Supplementary Figure 1. Depiction of sampling flow.



Supplementary Figure 2. T0/T1 ($n = 178$): Cross-lagged panel analysis model. All coefficients are standardized.



Supplementary Figure 3. T0/T1 ($n = 178$): Serial mediation model. C path: total effect outside brackets, direct effect inside brackets. Control variables (age, gender, relationship status, education level, T0 community belonging, T0 social support, T0 loneliness, T0 health-related quality of life) are not pictured. Note: *** $p < .001$, ** $p \leq .01$.