BMJ Open

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Journal:	*BMJ Open*
Manuscript ID	bmjopen-2021-052860
Article Type:	Protocol
Date Submitted by the Author:	27-Apr-2021
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Keywords:	SOCIAL MEDICINE, MENTAL HEALTH, PUBLIC HEALTH, PRIMARY CARE

Enhancing Higher Educations Student Well-being through Social Prescribing: A Realist Evaluation Protocol

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Word count: 3436

ABSTRACT

Introduction: UK Higher Education (HE) student numbers are increasing and students report higher levels of mental health and well-being issues. Social prescribing links individuals to community-based, non-medical support. It is being widely implemented throughout the UK, and is supported by Welsh Government in Wales. This protocol presents an evaluation of a new social prescribing service to enhance student well-being, the first to focus on UK HE students.

Methods and analysis: Realist Evaluation using a mixed-methods sequential design of four cycles. 1) Informs the social prescribing model and programme theory development of how the model works, activities include a Realist Review, Group Concept Mapping and producing bilingual short films about the evaluation and model. 2) Secondary analysis of routine service data, and outcome measurements from students receiving a social prescription. 3) Reflective diaries and qualitative realist interviews with stakeholders to understand the process and outcome of using the model. 4) A world café workshop with stakeholders to agree and finalise the framework specification of 'how, why, when and to what extent' the model works. Iterative data analysis at each cycle end. A meta-matrix construction will determine convergence, complementarity or discrepancy across the cycles. An advisory key stakeholders group informs this study at each cycle.

Ethics and dissemination: University of South Wales (USW) Life Sciences and Education Ethics Committee and Wrexham Glyndwr University (WGU) Research Ethics Sub-Committee approved secondary data analysis of participant demographics (200805LRL:USW, id441:WGU), and outcome measurement tools (200902LR:USW, id441:WGU), and qualitative data collection (200804LR:USW, id449:WGU). The authors will publish findings in peer-reviewed journals, produce an evaluation report to the funder and a short film for dissemination via channels including stakeholders, university networks, United Nations

Regional Centre of Expertise in Wales, PRIME Centre Wales, Wales School for Social Prescribing Research, conferences and social media.

Strengths and limitations of this study

1. This is the first published protocol for a Realist Evaluation of a HE social prescribing service in the UK and internationally.
2. An advisory group of HE, Student Union, and third sector staff informs this study. They will provide guidance for the evaluation design and its findings so the explanatory theory and framework is usable and translatable.
3. The dissemination strategy helps the findings to be shared with key stakeholders in a user-friendly, accessible way.
4. The social prescribing service started in a pandemic, which will affect service development and evaluation as many students are not on site and service and evaluation teams try to engage students.
5. Social prescribing community partners have been furloughed or are focussing on pandemic relief affecting their ability to engage with the project.

BACKGROUND

Student well-being

The numbers of students accessing Higher Education (HE) in the United Kingdom (UK) is increasing. Current data indicates over 2.3 million HE students, and over half of UK young adults will access tertiary education by the age of 30[1]. There is an associated rise in student mental health and well-being issues[2] and the number of HE students dropping out with mental health problems has more than doubled in recent years[1]. Well-being levels for students are lower than for the general population[3], and 1:16 students do not reach year two[4]. Potential issues for new HE students may include moving to a new area, the shift towards independent

learning, increased financial independence, and relationship pressures. These are exacerbated for students with a declared disability, mature students, and students from a Black, Asian or Minority Ethnic (BAME) background[1, 3-5]. Strategies have been developed to ameliorate these challenges[6], but effectively supporting student mental health and well-being remains difficult in HE. A range of systems and networks within HE and beyond may be effective in supporting students, but the way in which they are identified, accessed and used remains highly variable[5]. Using social prescribing may be a productive strategy to connect students to services and increase access to well-being support.

Social Prescribing

Social prescribing is an umbrella term to describe ways of linking individuals to community-based, non-medical support. There is no agreed definition[7], but it has been described as enabling, 'GPs, nurses and other primary care professionals to refer people to a range of local, non-clinical services to support their health and well-being'[8]. In Wales, it is defined as, *'connecting citizens to community support to better manage their health and well-being'*[9 (p 30)]. These definitions refer to the process of connecting/referring individuals to community assets that may address a wide range of social, emotional, or practice needs to improve health and well-being[10].

Social prescribing is prevalent throughout the UK and integral to Welsh Government plans for NHS Wales[11]. It is seen as an approach that could make a positive impact on the sustainability of General Practice primary care[12-13]. However, there is limited research evidence on social prescribing intervention effectiveness, who benefits from it (if at all) and whether it offers value for money[12]. Good quality, robust evidence is needed on what constitutes effective social prescribing practice and its process[14] to inform commissioning, and determine how it may affect individuals and in what way. Commissioner and policy-maker reliance on outcome

evaluation in isolation may stifle other important questions; effect size does not inform implementation (enablers, challenges, processes) or contextual factors that may influence intervention delivery and outcomes[15].

The present study

'Enhancing Student Well-being through Social Prescribing' is a unique project where Wrexham Glyndwr University (WGU) and the University of South Wales (USW) are working with local communities to enhance student well-being. It is the first social prescribing project focussing on university students. The model aims to enhance student well-being and build student resilience. It will promote new ways of working using a replicable model of social prescribing co-created with key partners from the local community to benefit university students as part of a whole system approach to well-being.

This Realist Evaluation[16] aims to inform the development and refinement of a 'programme theory' that articulates why and to what extent social prescribing works for this group, how students access the interventions, what forms they take, and when they are accessed. This programme theory will inform the development of a WGU social prescribing model that can be translated to USW, before implementation scaling to other Welsh HE Institutions and beyond. The study commenced in March 2020 and will conclude in October 2021.

The study aims to answer the following questions:

1) How does WGU co-produce the new social prescribing model and plan for its sustainable future?
2) Why, how and when do the eight hubs of the model and the referral handlers work in collaboration on identified interventions?
3) What student needs are addressed via the model?

4) What measures or proxy measures may be used to monitor student mental health, well-being and resilience in the future?
5) What mechanisms trigger the model's intended outcomes i.e. student mental health, well-being and resilience over time?
6) What are the experiences of students and stakeholders e.g. university staff, third sector organisations?
7) What whole system change has occurred as a result of this model?
8) What assets have been used to support the university community in partnership with wider society in our regions? Why have they been used?
9) What lessons learned can be transferred to other HE settings? How may they be translated into a USW model?

Intervention and study setting

The WGU social prescribing model[17] connects students with non-clinical services within and beyond the university to support a range of health and well-being needs. Box 1summarises the intervention.

Situated in North Wales and established in 2008, WGU has campuses in Wrexham, Northop and St Asaph. In 2019/20 WGU had 2,750 full-time students (1,725 female and 1,015 male) and 3,295 part-time students (1,855 female, 1,435 male), with 3,980 domiciled in Wales[18]. It was ranked first for social inclusion in England and Wales[19] and had the highest proportion of mature entrants (70.8%) of students receiving Disabled Students Allowance (21.5%) of all Welsh HE[20].

BOX 1: The social prescribing model

- The new social prescribing intervention aims to enhance student well-being via a 'whole system' approach that works collaboratively across community and organisational boundaries to deliver individual and societal benefit.
- The service operates using the digital social prescribing platform, Elemental Software[21]. The platform is cloud based and connects students' well-being risks to specific interventions in the university or their community. This is either through a self-referral process (for example on the university website) or via the referral agent. The software filters the social prescription option by location, cost, ability, and type of support to maximise student engagement.
- The model consists of eight 'hubs'; Counselling, Chaplaincy, Accommodation, Health and Well-being, Funding, General, Careers and Employability, and Inclusion.
- There are two routes for students to access the social prescribing service i) via self-referral, ii) via referral agents (university staff, e.g. personal tutors, lecturers, and chaplaincy).
- When students enter the on-line portal, referral handlers carry out an assessment with them to determine i) the student's need, ii) whether a social prescription is appropriate, iii) if a referral to another hub is required to better meet the student's need.
- If a social prescription is deemed appropriate, referral handlers manage the cases and conduct a 'what matters conversation' with students to co-create the social prescription(s). A project manager and two referral handlers (project manager with a dual role of referral handler) are fully trained staff of the service.
- Students are referred to non-clinical providers using Elemental Software. This can include university societies and activities, another hub, and local community services and groups.

- The social prescribing service began in October 2020. To date n=514 students are registered on Elemental Software, of which n=35 have gone on to receive a social prescription.

Patient and public involvement

Engaging with stakeholders is fundamental to Realist Evaluation and programme theory development[22-23]. A stakeholder advisory group will meet monthly. It will include representatives from WGU and USW Student Unions, strategic and operational staff involved in the model's design, development and delivery, the evaluation team and third sector and community representation. The advisory group's purpose is to check the understanding of findings and ensure that the explanatory theory and framework is usable and translatable.

Study design

A Realist Evaluation mixed-methods sequential design[22] with four cycles of data collection, analysis and translation/development of principles into a model. Activities in each cycle may lead to changes in model development. The evaluation will require access to third sector and community organisations who have significant impact on student well-being.

Cycle 1: Preparation and understanding the model/theory[24]

Cycle 1 (C1) informs the development of the WGU social prescribing model and underpins the three subsequent evaluation cycles. Preparatory activities include securing ethical permission, project set-up and communication (this includes a series of short bilingual films about the evaluation process and model).

Three elements inform the initial model and programme theory of how the model works:

1) A Realist Review[25] (PROSPERO registration: CRD42020193075).

2) Group Concept Mapping (GCM) with WGU students and staff[26].

3) A series of co-production workshops hosted by Do Well Ltd[27].

Cycle 2: Testing evidence of context, mechanism and outcome (CMO) patterns to the model

Cycle 2 (C2) will assess and analyse the model via secondary analysis of routine service data collected from all students as part of service delivery. Referral handlers collect this data using Elemental Software. The type of service data to be included will be determined after study team and advisory group discussion. It may include demographics, referral source, referral reason, numbers of students accessing the service, number and type of social prescribing activity/intervention, re-referral numbers, and number of students dropping out of intervention.

Additional service data will be collected using repeated measures at either two or three time-points. Depending on the student's point of entry to the social prescribing service this will be baseline (day 0), mid-point (+4 weeks), and end of the intervention (+12 weeks). Outcome measure scores collected over the course of the intervention will determine the service impact on students. Follow up measurements will be captured at +3-6 months (depending on the length of the project) to identify whether any changes have been sustained over time. These will be incorporated into the Elemental Software so data may be gathered when students opt for self-referral.

Data will be collected using three validated outcome tools:

1) The Warwick-Edinburgh Mental Well-being Scale (WEMWBS)[28]

WEMWBS has 14 Likert scale items that capture the eudemonic (people's functioning, social relationships, sense of purpose) and hedonic perspectives on well-being (e.g. feelings of happiness)[29]. It has been validated for use with diverse populations of people aged 13-75+

years[30]. Using WEMWBS will allow for longitudinal comparison of this group with a matched Welsh population sample using WEMWBS data collected by the National Survey for Wales[31].

2) ONS4[32]

The Office of National Statistics (ONS) Personal Well-being (PWB) Domain uses four survey questions to measure well-being on a scale of 0-10[32]. The What Works Centre for Well-being recommends ONS4, 'as accepted and trusted subjective measures from the National Well-being Programme that capture distinct aspects of personal well-being: evaluative, eudemonic and affective experience'[33 (p 1)].

3) The Brief Resilience Scale (BRS)[34]

BRS assesses an individual's self-perceived ability to recover from stress. It has six items (score range 1-low resilience to 5-high resilience) with an equal number of positive and negative worded items to reduce social desirability and positive response bias[34].

The three outcome measurements will determine whether the social prescribing service enhances well-being, builds resilience, and achieves its purpose.

Recruitment and sample size

Referral handlers will collect routine demographic service data and outcome measurement data from students who have either self-referred or been referred by a referral agent to the social prescribing service between 1st October 2020 and 31st May 2021. The estimated total combined number of referrals to the social prescribing service for this period is approximately n=650.

Data collection

Data will be collected at three time points between 1st October 2020 – 8th March 2021 (day 0, week 4, week 12). For students accessing the service between 9th March – 3rd May 2021, data will be collected at day 0 and week 4.

Students receive an evaluation participation pack containing an information sheet, and consent form to be returned if they are willing to participate. Consent will confirm their agreement for the research team to analyse their retrospective data collected at the 'what matters' conversation together with prospective service data captured at 4 and 12 weeks.

- Day 0: Referral handler meets student for a 'what matters' conversation and collects WEMWBS, ONS4, and BRS.
- 4 Weeks: After the 'what matters' conversation, another service meeting takes place between the student and referral handler to revisit the WEMWBS, ONS4, and BRS. Referral handler checks on student progression and whether the social prescription needs to be revised.
- 12 weeks: After the 'what matters' conversation, the student completes the final WEMWBS, ONS4, and BRS.

[Figure 1]

Data analysis

Data analysis is iterative and occurs within and at the end of each cycle. C2 secondary data analysis examines routine service data collected by the referral handler using Elemental Software; it will not contain personal/identifiable data. The project manager will share data with the evaluation team through encrypted email. Data will be cleaned and entered into a spreadsheet before importing into SPSS v.23[35] for analysis using descriptive and inferential statistics e.g. ANOVA.

Cycle 3: Testing and refining theories

Cycle 3 (C3) aims to understand the process and impact (including cultural change) of the new model. Qualitative data will be collected with stakeholders to understand their experiences of:

- Service design, development and implementation
- Service management and delivery
- Receiving the social prescribing service

Recruitment and sample size

C3 will use a mixed sampling strategy to recruit participants including purposive (expert, case and maximum variation sampling) and snowballing to identify participants[36] (e.g. self-refer students). Purposive sampling identifies and selects individuals or groups who have in-depth knowledge and/or experience of the phenomenon of interest[37]. Information is sought from 'key informants' who are best placed to provide it i.e. WGU stakeholders who can highlight key characteristic patterns of the service under evaluation[36].

C3 recruits will include i) students who have accessed/been referred to the service, ii) people involved in the service design, development and delivery e.g. project manager, referral agents, referral handlers, Student Union Representatives, senior WGU managers, and iii) external partners e.g., Elemental Software Team, Do Well Ltd team, and community organisations receiving social prescribing service referrals.

Data collection

C3 will use reflective diaries (n=5) and qualitative realist interviews (n=35-45) (individuals/small groups) with stakeholders[38]. All prospective participants will receive an information sheet, and consent form to sign and return. Topic schedules will be informed by C1 activities (e.g. Realist Review), and developed with the advisory group. Qualitative data will be audio-recorded and transcribed. WGU staff involved in the design, development, implementation, management and delivery of the model will complete written or audio-recorded reflective diaries. Diary voice recordings will be shared via an encrypted email. Recordings will be transcribed prior to analysis. Reflective diaries will be collated and

anonymised by the WGU social prescribing project manager before sharing with the evaluation team for analysis. C3 data collection will conclude on 30th June 2021.

Data analysis

Qualitative data will be imported into NVivo 12[39] for coding and a realist logic of data analysis framework[16] will be used in an embedded interpretative content and applied thematic analysis[40]. This involves considering data relevance, meaning interpretation, judgments about Context-Mechanism-Outcome-Configurations (CMOCs), programme theory and data rigour.

The realist programme theory of social prescribing, developed in C1, will be tested against reflective diary content and realist qualitative interviews with stakeholders, and interrogated to build CMOCs to confirm, refine or refute the emerging programme theory. An abstracted theory of causation and implementation will be built, articulating how and why the model works, for whom, to what extent, and in what circumstances[41].

Multi-perspective case studies (n=8) will be constructed to support meaningful analysis and contextualisation. They will give voice and detail of how the project impacted upon students', staff and key stakeholders' lives. These stories might be digitised in various forms offering a further evaluation dimension.

Triangulation

C1, C2 and C3 findings will be triangulated against the nine evaluation questions stated earlier. Quantitative and qualitative findings are combined in triangulation using various datasets to explain differing aspects of a phenomenon of interest[37, 42]. Each cycle's findings will be used to build a meta-matrix[43] to determine agreement (convergence), offer complementary information on the same issue (complementarity) or contradiction (discrepancy)[44]. Triangulation findings are used to produce a rounded understanding of the study topic, and will

form part of the funder's evaluation report, and will be written up for peer review publication. C3 will conclude with building a framework of key principles and lessons learned.

Cycle 4: Finalising a framework of key principles and lessons learned

The study will end with a student and stakeholder World Café workshop[44] to share findings, agree and finalise the framework specification of 'how, why, when and to what extent' it may be used across HE in Wales. The World Café workshop comprises seven integrated principles[44-45]: set the context, create a hospitable space, explore questions that matter, encourage everyone's contribution, connect diverse perspectives, listen together for patterns and insights, and 'the harvest' sharing collective discoveries. Given Covid-19 restrictions, the workshop will be facilitated by an online software. Participants will move around the virtual space to facilitated virtual tables to shape the framework specification and how it will be actioned.

Analysis throughout the World Café workshop is iterative. The content of each part of the framework specification is built at the tables within the room. The table 'host' collates the written responses to individual questions set at each table. These are presented back to the participants at the workshop end.

Dissemination

Study findings and outputs will be disseminated to academic, HE, and public audiences. The dissemination strategy for this study was developed with the advisory group and informed by the student perspective. Bilingual Welsh/English promotional films with user-friendly graphics and student voiceovers have been created (C1) with subtitles to maximise inclusivity. Study findings will align to the RAMESES reporting standards for Realist Evaluations[47] and will be published in peer-reviewed journals, a report to the funder, presented at conferences, and through a short film for stakeholders for dissemination via a range of channels.

Summary

This study will use mixed-methods to undertake a Realist Evaluation of a new HE social prescribing model. It is the first Realist Evaluation of a HE social prescribing service in the UK and internationally. The rise in number of HE students reporting mental health and well-being issues highlights the study's importance. Existing student support systems and how they are identified, accessed and used remains varied[5]. This study will address gaps in knowledge and generate understanding of why, and to what extent, social prescribing works for students, how they access interventions, what forms interventions take, and when they are accessed. It will capture the outcomes, and stakeholders' views and experiences across the course of the social prescribing model via three data collection cycles complemented by triangulation across the datasets and finalised with a World Café workshop (C4).

C1 will underpin this study by informing the model and programme theory of how the model works. It includes a Realist Review, a GCM study with WGU students and staff, and a series of co-production workshops with stakeholders. The advisory group is integral to the realist approach and it will function as equal partner throughout all cycles co-producing the final explanatory theory and framework, and ensuring it is usable and translatable.

C2 will collect quantitative data via routine service data captured using Elemental Software. Three outcome measurements will be collected from students receiving a social prescription and will help determine intervention outcomes. A digital platform and directory used in primary care is being used for the first time in HE to support the study.

C3 qualitative data will explore topics such as service design, implementation, and management, and experiences of delivering and receiving the service from multiple stakeholder perspectives. There has been considerable interest in the model development from stakeholders

as WGU is a key partner in the North Wales 2025 Movement, which has, 'a collective vision to tackle avoidable health and housing inequalities by 2025'[48].

C4 triangulated data from all three cycles will support a rounded understanding of the intervention. Finally, the World Café workshop will share findings, agree and finalise the framework specification of 'how, why, when and to what extent' for use across HE in Wales.

Acknowledgments: We wish to thank all stakeholders involved in the social prescribing service, our stakeholder advisory group and all members of the evaluation team.

Author Contribution: CW, DP, ME, SW, and MD collaborated to develop the study design. SW led the development of the manuscript and all authors contributed to its refinement through reviewing developing drafts, editing, and providing feedback. All authors have read and approved the final version.

Funding: This work is funded by the Higher Education Funding Council for Wales (HEFCW), grant number W19 11HE.

Competing interests: The authors declare they have no competing interests.

Patient consent for publication: Not required.

Ethics approval: University of South Wales USW) Life Sciences and Education Ethics Committee and Wrexham Glyndwr University (WGU) Research Ethics Sub-Committee approved secondary data analysis of participant demographics: reference 200805LR (USW), id441 (WGU), secondary data analysis of outcome measurement tools: reference 200902LR (USW), id441 (WGU), and qualitative data collection: reference 200804LR (USW), id449 (WGU).

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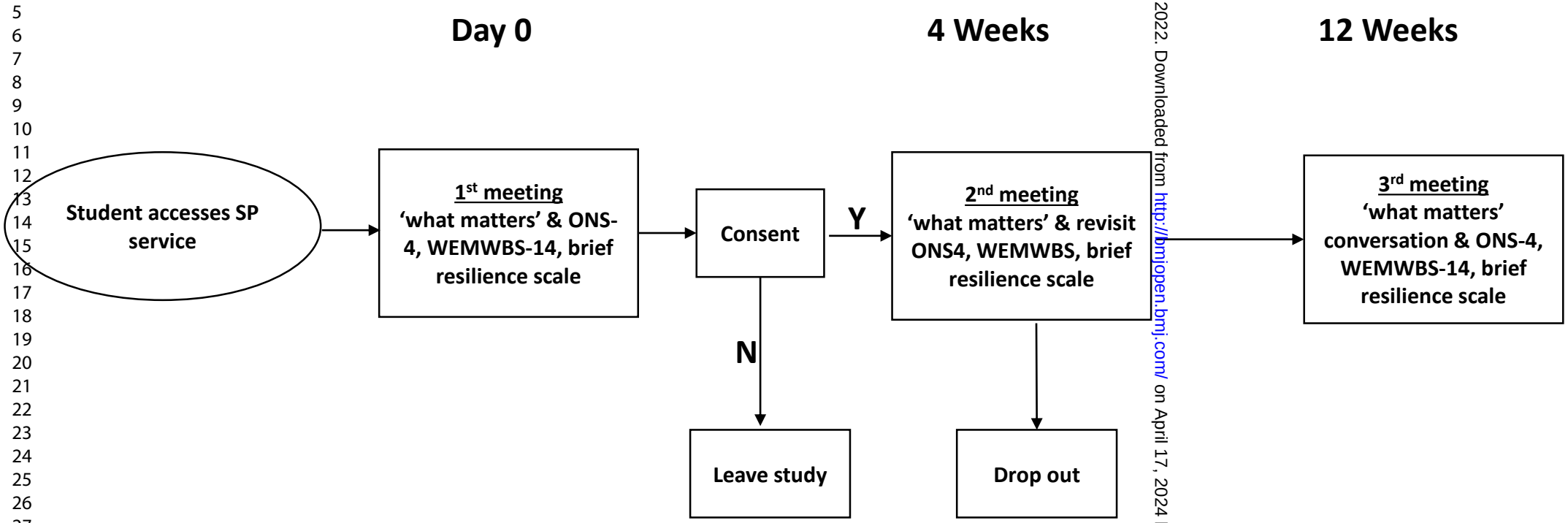

BMJ Open

Enhancing Higher Education Student Well-being Through Social Prescribing: A Realist Evaluation Protocol

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2021-052860.R1
Article Type:	Protocol
Date Submitted by the Author:	11-Jan-2022
Complete List of Authors:	Wallace, Sarah; University of South Wales Faculty of Life Sciences and Education, Welsh Institute for Health and Social Care Wallace, Carolyn; University of South Wales, Faculty of Life Sciences and Education Elliott, Megan; University of South Wales Faculty of Life Sciences and Education Davies, Mark; University of South Wales Faculty of Life Sciences and Education Pontin, David; University of South Wales Faculty of Life Sciences and Education
Primary Subject Heading:	Public health
Secondary Subject Heading:	Public health, Qualitative research
Keywords:	SOCIAL MEDICINE, MENTAL HEALTH, PRIMARY CARE

Enhancing Higher Education Student Well-being Through Social Prescribing: A Realist Evaluation Protocol

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Word count: 3975

ABSTRACT

Introduction: UK Higher Education (HE) student numbers are increasing and students report higher levels of mental health and well-being issues. Social prescribing links individuals to community-based, non-medical support. It is widely implemented throughout the UK, and is supported by Welsh Government. This protocol presents an evaluation of a new social prescribing service to enhance student well-being, a first for UK HE students.

Methods and analysis: A Realist Evaluation to articulate why, how and to what extent and circumstances social prescribing works for students, using a mixed-methods sequential design of four cycles. Cycle 1 informs the model and programme theory development of how the model works; activities include a Realist Review, Group Concept Mapping and producing bilingual short films about the evaluation and model. Cycle 2 involves secondary analysis of routine service data, and outcome measurements from students receiving a social prescription. Cycle 3 uses reflective diaries and qualitative realist interviews with stakeholders to understand the process and outcome of the model. Cycle 4 concludes with a world café workshop with stakeholders to agree and finalise the framework specification of 'how, why, when and to what extent' the model works. A meta-matrix construction will determine convergence, complementarity or discrepancy across the cycles. An advisory group of key stakeholders informs each cycle.

Ethics and dissemination: University of South Wales (USW) Life Sciences and Education Ethics Committee and Wrexham Glyndwr University (WGU) Research Ethics Sub-Committee approved secondary data analysis of participant demographics (200805LRL:USW, id441:WGU), outcome measurement tools (200902LR:USW, id441:WGU), and qualitative data collection (200804LR:USW, id449:WGU). The authors will publish findings in peer-reviewed journals, produce an evaluation report to the funder and a short film for dissemination via stakeholders, university networks, United Nations Regional Centre of Expertise in Wales,

PRIME Centre Wales, Wales School for Social Prescribing Research, conferences and social media.

Strengths and limitations of this study

1. Strength: The realist method enables the development of a social prescribing model that identifies causal relationships and informs implementation of the model.
2. Strength: An advisory group of HE, Student Union, and third sector staff informs this study and will provide guidance for the evaluation design and its findings so the explanatory theory and framework is usable and translatable.
3. Strength: The dissemination strategy will allow the transference of principles to other HE settings.
4. Limitation: The social prescribing service started in a pandemic and restrictions will impact the method i.e. reduced opportunities for recruitment and engagement.

BACKGROUND

Student well-being

The numbers of students accessing Higher Education (HE) in the United Kingdom (UK) is increasing. Current data indicates over 2.3 million HE students, and over half of UK young adults will access tertiary education by the age of 30[1]. There is an associated rise in student mental health and well-being issues[2] and the number of HE students dropping out with mental health problems has more than doubled in recent years[1]. Well-being levels for students are lower than for the general population[3], 1:16 students leave before year two[4]. Potential issues for new students may include moving to a new area, the shift towards independent learning, increased financial independence, and relationship pressures. These are exacerbated for students with a declared disability, mature students, and students from Black, Asian or Minority Ethnic (BAME) backgrounds[1, 3-5]. Whilst strategies have been developed to ameliorate these

challenges[6], effectively supporting student mental health and well-being remains difficult in HE. A range of systems and networks within HE and beyond may be effective in supporting students, but the way in which they are identified, accessed and used remains highly variable[5]. Social prescribing may be a productive strategy to connect students to services and increase access to well-being support.

Social Prescribing

Social prescribing is an umbrella term to describe ways of linking individuals to community-based, non-medical support. There is no agreed definition[7], but it has been described as enabling, 'GPs, nurses and other primary care professionals to refer people to a range of local, non-clinical services to support their health and well-being'[8]. In Wales, it is defined as, *'connecting citizens to community support to better manage their health and well-being'*[9 (p 30)]. These definitions refer to the process of connecting/referring individuals to community assets that may address a wide range of social, emotional, or practice needs to improve health and well-being[10].

Social prescribing is prevalent throughout the UK and integral to Welsh Government plans for NHS Wales[11]. It is seen as an approach that could make a positive impact on the sustainability of General Practice primary care[12-13]. However, there is limited research evidence on social prescribing intervention effectiveness, who benefits from it (if at all) and whether it offers value for money[12]. Good quality, robust evidence is needed on what constitutes effective social prescribing practice and its process[14] to inform commissioning, and determine how it may affect individuals and in what way. Commissioner and policy-maker reliance on outcome evaluation in isolation may stifle other important questions; effect size does not inform implementation (enablers, challenges, processes) or contextual factors that may influence intervention delivery and outcomes[15].

The present study

'Enhancing Student Well-being through Social Prescribing' is a unique project where Wrexham Glyndwr University (WGU) and the University of South Wales (USW) are working with local communities to enhance student well-being. It is the first social prescribing project focussing on university students, which is pertinent given the prevalence of mental health and well-being issues amongst UK HE students. The model aims to enhance student well-being, build resilience through early identification of issues, and increase use of timely and appropriate support. It will promote new ways of working using a replicable model of social prescribing co-created with key partners from the local community to benefit students as part of a whole system approach to well-being.

This Realist Evaluation[16] aims to inform the development and refinement of a 'programme theory' that articulates why and to what extent social prescribing works for students, how and when they access interventions, and what forms they take. This programme theory will inform the development of a WGU social prescribing model that can be applied to USW, before implementation scaling to other Welsh HE Institutions and beyond. The study commenced in March 2020 and will conclude in October 2021.

The study aims to answer the following questions:

1) What forms of Social Prescribing interventions are specifically targeted at HE students?
2) How do HE students access Social Prescribing interventions aimed at them?
3) When do HE students access the Social Prescribing interventions targeted at them?
4) For whom does the use of Social Prescribing interventions work?
5) To what extent does Social Prescribing work for HE students?

Intervention and study setting

The WGU social prescribing model[17] connects students with non-clinical services within and beyond the university to support a range of health and well-being needs. Box 1summarises the intervention and is illustrated using Figure 1.

Situated in North Wales and established in 2008, WGU has campuses in Wrexham, Northop and St Asaph. In 2019/20 WGU had 2,750 full-time students (1,725 female and 1,015 male) and 3,295 part-time students (1,855 female, 1,435 male), with 3,980 domiciled in Wales[18]. It was ranked first for social inclusion in England and Wales[19] and had the highest proportion of mature entrants (70.8%) of students receiving Disabled Students Allowance (21.5%) of all Welsh HE[20].

BOX 1: The social prescribing model

- The social prescribing intervention aims to enhance student well-being via a 'whole system' approach that works collaboratively across community and organisational boundaries to deliver individual and societal benefit.
- The service operates using the digital social prescribing platform, Elemental Software[21]. The cloud-based platform connects students' well-being risks to specific interventions in the university or their community, either through a self-referral (for example on the university website) or via the referral agent. The software filters the social prescription option by location, cost, ability, and type of support to maximise student engagement.
- The model consists of eight 'hubs'; Counselling, Chaplaincy, Accommodation, Health and Well-being, Funding, General, Careers and Employability, and Inclusion.
- There are two routes for students to access the social prescribing service i) via self-referral, ii) via referral agents (e.g. personal tutors, lecturers, chaplaincy).

- When students enter the on-line portal, referral handlers carry out an assessment with them to determine i) their need, ii) whether a social prescription is appropriate, iii) if a referral to another hub is required to better meet their need.
- If a social prescription is deemed appropriate, referral handlers manage the cases and conduct a 'what matters conversation' with students to co-create the social prescription(s). Fully trained staff include a project manager and two referral handlers (project manager with a dual role of referral handler).
- Students are referred to non-clinical providers using Elemental Software. This can include university societies and activities, another hub, and local community services/groups and groups.
- The service began in October 2020. To date n=514 students are registered on Elemental Software, of which n=35 have gone on to receive a social prescription.

[Figure 1]

Patient and public involvement

Engaging with stakeholders is fundamental to Realist Evaluation and programme theory development[22-23]. A stakeholder advisory group will meet monthly. It will include representatives from WGU and USW Student Unions, strategic and operational staff involved in the model's design, development and delivery (including the social prescribing service), the evaluation team and third sector and community representation. The advisory group will check the understanding of findings and ensure that the explanatory theory and framework is usable and translatable.

Study design

The study is a Realist Evaluation mixed-methods sequential design[22] with four cycles of data collection, analysis and translation/development of principles into a model. *Realism* is a theory-

driven approach to the synthesis of evidence, the goal of which is to build an abstracted model or programme theory that explicates what a programme or intervention is and how it can be expected to work. It is a theory of implementation and causation[24]. The realist method is grounded within generative causation; in order to infer a causal relationship between an intervention (I) and outcome (O), one must understand the underpinning mechanism (M) connecting them, as well as the context (C) in which they occur[25]. Activities in each cycle may lead to changes in model development. The evaluation will require access to third sector and community organisations who have significant impact on student well-being.

Cycle 1: Preparation and understanding the model/theory[26]

Cycle 1 (C1) informs the development of the social prescribing model and underpins the three subsequent evaluation cycles. Preparatory activities include securing ethical permission, project set-up and communication (including a series of short bilingual films about the evaluation process and model).

Three elements inform the initial model and programme theory of how the model works:

1) A Realist Review[27] (PROSPERO registration: CRD42020193075).
2) Group Concept Mapping (GCM) with WGU students and staff[28].
3) A series of co-production workshops hosted by Do Well Ltd[29].

Cycle 2: Testing evidence of context, mechanism and outcome (CMO) patterns to the model

Cycle 2 (C2) will assess and analyse the model via secondary analysis of routine data collected from all students as part of service delivery. Referral handlers collect this data using Elemental Software. The type of service data to be included will be determined after study team and advisory group discussion. It may include demographics, referral source, referral reason,

numbers of students accessing the service, number and type of social prescribing activity/intervention, re-referrals, and number of students dropping out of intervention.

Additional service data will be collected using repeated measures at either two or three time-points. Depending on the student's point of entry into the service this will be baseline (day 0), mid-point (+4 weeks), and end of the intervention (+12 weeks). Outcome measures collected over the course of the intervention will determine the service impact on students. Follow up measurements will be captured at +3-6 months (depending on the length of the project) to identify whether any changes have been sustained over time. These will be incorporated into the Elemental Software so data may be gathered when students opt for self-referral.

Data will be collected using three validated outcome tools:

1) The Warwick-Edinburgh Mental Well-being Scale (WEMWBS)[30]

WEMWBS has 14 items that capture the eudemonic (people's functioning, social relationships, sense of purpose) and hedonic perspectives on well-being (e.g. feelings of happiness)[31], e.g. '*I've been feeling optimistic about the future*'[32]. The 5-point Likert scale represents a score for each item from 1-5, meaning a total score from 14-70, a higher score indicates a higher level of mental well-being[32]. WEMWBS has been validated for use with diverse populations of people aged 13-75+ years[32], and will allow for longitudinal comparison of this group with a matched Welsh population sample using WEMWBS data collected by the National Survey for Wales[33].

2) ONS4[34]

The Office of National Statistics (ONS) Personal Well-being (PWB) Domain uses four measures (referred to as the ONS4) to capture three types of well-being; evaluative, eudemonic and affective experience[34]. Individuals complete the questions on a scale of 0-10, for example,

'*Overall, how satisfied are you with your life these days?',* where 0 is 'not at all' and 10 is 'completely'[34]. Scores are grouped as 0-4 (low), 5-6 (medium), 7-8 (high) and 9-10 (very high)[34]. The What Works Centre for Well-being recommends the ONS4, 'as accepted and trusted subjective measures from the National Well-being Programme that capture distinct aspects of personal well-being: evaluative, eudemonic and affective experience'[35 (p 1)].

3) The Brief Resilience Scale (BRS)[36]

BRS assesses an individual's self-perceived ability to recover from stress. It has six items on a 5-point Likert scale (score range 1-low resilience to 5-high resilience) with an equal number of positive and negative worded items to reduce social desirability and positive response bias[36]. Statements include '*I tend to bounce back quickly after hard times*' and '*I have a hard time making it through stressful events*'. Scores range between 6-30 and higher scores indicate higher resilience[36].

The three outcome measurements will determine whether the social prescribing service enhances well-being, builds resilience, and achieves its purpose.

Recruitment and sample size

Referral handlers will collect routine demographic service data and outcome measurement data from students who have either self-referred or been referred by a referral agent to the service between 1st October 2020 and 31st May 2021. The estimated total combined number of referrals for this period is approximately n=650. Power calculations for the three measurement tools show that a sample of n=650 would detect a fairly small meaningful difference (MD)/effect size (ES) (e.g. WEMWBS, MD=0.89; ONS4 and BRS, ES=0.127) as significant at 5% level with a power of 90%.

Data collection

Data will be collected at three time points between 1st October 2020 – 8th March 2021 (day 0, week 4, week 12). For students accessing the service between 9th March – 3rd May 2021, data will be collected at day 0 and week 4.

Students receive an evaluation participation pack containing an information sheet, and consent form to return if they are willing to participate. Consent will confirm their agreement for the research team to analyse their retrospective data collected at the 'what matters' conversation together with service data captured at 4 and 12 weeks [see Figure 2].

- Day 0: Referral handler meets student for a 'what matters' conversation and collects WEMWBS, ONS4, and BRS.
- 4 Weeks: Another service meeting takes place between the student and referral handler to revisit the WEMWBS, ONS4, and BRS. Referral handler checks on student progression and whether the social prescription needs to be revised.
- 12 weeks: The student completes the final WEMWBS, ONS4, and BRS.

[Figure 2]

Data analysis

Data analysis is iterative and occurs within and at the end of each cycle. C2 secondary data analysis examines routine service data collected by the referral handler using Elemental Software; it will not contain personal/identifiable data. The project manager will share data with the evaluation team through encrypted email. Data will be cleaned, entered into a spreadsheet and analysed using descriptive and inferential statistics (e.g. repeated measures ANOVA, internal consistency and construct validity) using SPSS v.28[37].

Cycle 3: Testing and refining theories

Cycle 3 (C3) aims to understand the process and impact (including cultural change) of the new model. Qualitative data will be collected with stakeholders to understand their experiences of:

- Service design, development and implementation
- Service management and delivery
- Receiving the social prescribing service

Recruitment and sample size

C3 will use a mixed sampling strategy to recruit participants including purposive (expert, case and maximum variation sampling) and snowballing to identify participants[38] (e.g. self-refer students). Purposive sampling identifies and selects individuals or groups who have in-depth knowledge and/or experience of the phenomenon of interest[39]. Information is sought from 'key informants' who are best placed to provide it i.e. WGU stakeholders who can highlight key characteristic patterns of the service under evaluation[38].

C3 recruits will include i) students accessing/referred to the service, ii) people involved in the service design, development and delivery e.g. project manager, referral agents, referral handlers, Student Union Representatives, senior WGU managers, and iii) external partners e.g., Elemental Software Team, Do Well Ltd team, and community organisations receiving referrals.

Data collection

C3 will use reflective diaries (n=5) and qualitative realist interviews (n=35-45) (individuals/small groups) with stakeholders[40]. All prospective participants will receive an information sheet, and consent form to sign and return. Topic schedules will be informed by C1 activities (e.g. Realist Review), and developed with the advisory group. Qualitative data will be audio-recorded and transcribed. WGU staff involved in the design, development,

implementation, management and delivery of the model will complete written or audio-recorded reflective diaries. Diary voice recordings will be shared via an encrypted email. Recordings will be transcribed prior to analysis. Reflective diaries will be collated and anonymised by the WGU social prescribing project manager before sharing with the evaluation team for analysis. C3 data collection will conclude on 30th June 2021.

Data analysis

Qualitative data will be imported into NVivo 12[41] for coding and a realist logic of data analysis framework[16] will be used in an embedded interpretative content and applied thematic analysis[42]. This involves considering data relevance, meaning interpretation, judgments about Context-Mechanism-Outcome-Configurations (CMOCs), programme theory, and data rigour.

The realist programme theory of social prescribing, developed in C1, will be tested against reflective diary content and realist qualitative interviews with stakeholders, and interrogated to build CMOCs to confirm, refine or refute the emerging programme theory. An abstracted theory of causation and implementation will be built, articulating how and why the model works, for whom, to what extent, and in what circumstances[43].

Multi-perspective case studies (n=8) will be constructed to support meaningful analysis and contextualisation. They will give voice and detail of how the project impacted upon students', staff and key stakeholders' lives. These stories might be digitised in various forms offering a further evaluation dimension.

Triangulation

C1, C2 and C3 findings will be triangulated against the evaluation questions stated earlier. Quantitative and qualitative findings are combined in triangulation using various datasets to explain differing aspects of a phenomenon of interest[39, 44]. Each cycle's findings will be used to build a meta-matrix[45] to determine agreement, offer complementary information on the same

issue or contradiction[46]. Triangulation findings are used to produce a rounded understanding of the study topic, will form part of the funder evaluation report, and will be written up for peer review publication. C3 will conclude with building a framework of key principles and lessons learned.

Cycle 4: Finalising a framework of key principles and lessons learned

The study will end with a student and stakeholder World Café workshop[47] to share findings, agree and finalise the framework specification of 'how, why, when and to what extent' it may be used across HE in Wales. The World Café workshop comprises seven integrated principles[47-48]: set the context, create a hospitable space, explore questions that matter, encourage everyone's contribution, connect diverse perspectives, listen together for patterns and insights, and 'the harvest' sharing collective discoveries. Given Covid-19 restrictions, the workshop will be facilitated using online software. Participants will move around the virtual space to facilitated virtual tables to shape the framework specification and how it will be actioned.

Analysis throughout the World Café workshop is iterative. The content of each part of the framework specification is built at the tables within the room. The table 'host' collates the written responses to individual questions set at each table. These are presented back to the participants at the workshop end.

Ethics and Dissemination

Ethical approval was granted by USW and WGU ethics committees, which approved secondary data analysis of participant demographics and outcome measurement tools, and qualitative data collection. Data will be stored securely on encrypted and password protected USW systems for five years after the evaluation has ended, after which time it will be securely destroyed. Study findings and outputs will be disseminated to academic, HE, and public audiences. The

dissemination strategy for this study was developed with the advisory group and informed by the student perspective. Bilingual Welsh/English promotional films with user-friendly graphics and student voiceovers have been created (C1) with subtitles to maximise inclusivity. Study findings will align to the RAMESES reporting standards for Realist Evaluations[24] and will be published in peer-reviewed journals, a report to the funder, presented at conferences, and through a short film for stakeholders for dissemination via a range of channels.

The refined programme theory developed within this Realist Evaluation will explore the potential benefits for Social Prescribing on university students - articulating *why*, *how* and *in what circumstances* the pathway works. This abstracted model of both causation and implementation[24] will support the development of social prescribing pathways within HEIs in Wales the UK. General principles may be applicable in wider contexts and have transferability beyond the UK, however further research is required to discern the degree to which this may be practicable.

Summary

This study will use mixed-methods to undertake a Realist Evaluation of a new HE social prescribing model. It is the first Realist Evaluation of a HE social prescribing service in the UK and internationally. The rise in number of HE students reporting mental health and well-being issues highlights the study's importance. Existing student support systems and how they are identified, accessed and used remains varied[5]. This study will address gaps in knowledge and generate understanding of why, and to what extent, social prescribing works for students, how they access interventions, what forms interventions take, and when they are accessed. It will capture the outcomes, and stakeholders' views and experiences across the course of the service via three data collection cycles complemented by triangulation across the datasets and finalised with a World Café workshop (C4).

C1 will underpin this study by informing the model and programme theory of how the model works. It includes a Realist Review, a GCM study with WGU students and staff, and a series of co-production workshops with stakeholders. The advisory group is integral to the realist approach and it will function as an equal partner throughout all cycles co-producing the final explanatory theory and framework, and ensuring it is usable and translatable.

C2 will collect quantitative data via routine service data captured using Elemental Software. Three outcome measurements will be collected from students receiving a social prescription that will help determine intervention outcomes. A digital platform and directory used in primary care is being used for the first time in HE to support the study.

C3 qualitative data will explore topics such as service design, implementation, management, and experiences of delivering and receiving the service from multiple stakeholder perspectives. There has been considerable interest in the model development from stakeholders as WGU is a key partner in the North Wales 2025 Movement, which has, 'a collective vision to tackle avoidable health and housing inequalities by 2025'[49].

C4 triangulated data from all three cycles will support a rounded understanding of the intervention. Finally, the World Café workshop will share findings, agree and finalise the framework specification of 'how, why, when and to what extent' for use across HE in Wales.

Acknowledgments: We wish to thank all stakeholders involved in the social prescribing service, our stakeholder advisory group and all members of the evaluation team.

Author Contribution: CW, DP, ME, SW, and MD collaborated to develop the study design. SW led the development of the manuscript and all authors contributed to its refinement through reviewing developing drafts, editing, and providing feedback. All authors have read and approved the final version.

Funding: This work is funded by the Higher Education Funding Council for Wales (HEFCW), grant number W19 11HE.

Competing interests: The authors declare they have no competing interests.

Patient consent for publication: Not required.

Ethics approval: University of South Wales USW) Life Sciences and Education Ethics Committee and Wrexham Glyndwr University (WGU) Research Ethics Sub-Committee approved secondary data analysis of participant demographics: reference 200805LR (USW), id441 (WGU), secondary data analysis of outcome measurement tools: reference 200902LR (USW), id441 (WGU), and qualitative data collection: reference 200804LR (USW), id449 (WGU).

Figure 1: WGU social prescribing model is a visual representation of the student journey through the pathway. Access to the service is via the online platform Elemental, which is followed by an initial assessment to determine what support is appropriate i.e., a social prescription or a referral to another hub. Where a social prescription is required, they are co-created with the student and referral handler (navigator) before referral to non-clinical services (resources).

Figure 2: Data collection with students entering the WGU social prescribing service illustrates the process for data collection with students. At each timepoint (day 0, 4 weeks, and 12 weeks), the referral handler will conduct a 'what matters' conversation and capture data using three measurement tools, The Warwick-Edinburgh Mental Well-being Scale (WEMWBS), the Office of National Statistics (ONS) Personal Well-being (PWB) Domain, and the Brief Resilience Scale (BRS).

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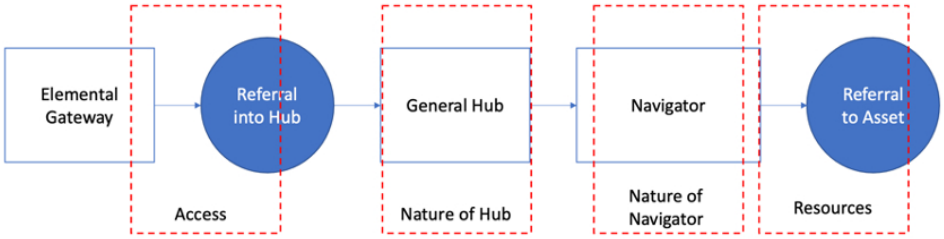

Figure 1: WGU social prescribing model is a visual representation of the student journey through the pathway. Access to the service is via the online platform Elemental, which is followed by an initial assessment to determine what support is appropriate i.e., a social prescription or a referral to another hub. Where a social prescription is required, they are co-created with the student and referral handler (navigator) before referral to non-clinical services (resources).

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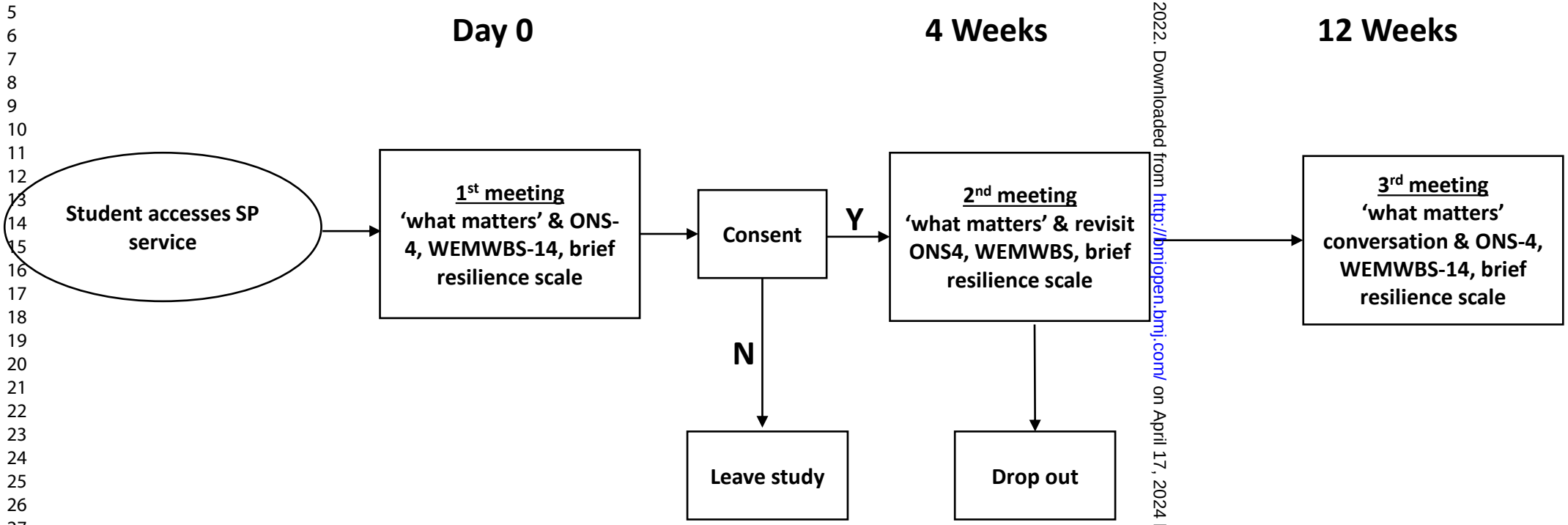

BMJ Open

Enhancing Higher Education Student Well-being Through Social Prescribing: A Realist Evaluation Protocol

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2021-052860.R2
Article Type:	Protocol
Date Submitted by the Author:	04-Feb-2022
Complete List of Authors:	Wallace, Sarah; University of South Wales Faculty of Life Sciences and Education, Welsh Institute for Health and Social Care Wallace, Carolyn; University of South Wales, Faculty of Life Sciences and Education Elliott, Megan; University of South Wales Faculty of Life Sciences and Education Davies, Mark; University of South Wales Faculty of Life Sciences and Education Pontin, David; University of South Wales Faculty of Life Sciences and Education
Primary Subject Heading:	Public health
Secondary Subject Heading:	Public health, Qualitative research
Keywords:	SOCIAL MEDICINE, MENTAL HEALTH, PRIMARY CARE

Enhancing Higher Education Student Well-being Through Social Prescribing: A Realist Evaluation Protocol

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Word count: 3975

ABSTRACT

Introduction: UK Higher Education (HE) student numbers are increasing and students report higher levels of mental health and well-being issues. Social prescribing links individuals to community-based, non-medical support. It is widely implemented throughout the UK, and is supported by Welsh Government. This protocol presents an evaluation of a new social prescribing service to enhance student well-being, a first for UK HE students.

Methods and analysis: A Realist Evaluation to articulate why, how and to what extent and circumstances social prescribing works for students, using a mixed-methods sequential design of four cycles. Cycle 1 informs the model and programme theory development of how the model works; activities include a Realist Review, Group Concept Mapping and producing bilingual short films about the evaluation and model. Cycle 2 involves secondary analysis of routine service data, and outcome measurements from students receiving a social prescription. Cycle 3 uses reflective diaries and qualitative realist interviews with stakeholders to understand the process and outcome of the model. Cycle 4 concludes with a world café workshop with stakeholders to agree and finalise the framework specification of 'how, why, when and to what extent' the model works. A meta-matrix construction will determine convergence, complementarity or discrepancy across the cycles. An advisory group of key stakeholders informs each cycle.

Ethics and dissemination: University of South Wales (USW) Life Sciences and Education Ethics Committee and Wrexham Glyndwr University (WGU) Research Ethics Sub-Committee approved secondary data analysis of participant demographics (200805LRL:USW, id441:WGU), outcome measurement tools (200902LR:USW, id441:WGU), and qualitative data collection (200804LR:USW, id449:WGU). The authors will publish findings in peer-reviewed journals, produce an evaluation report to the funder and a short film for dissemination via stakeholders, university networks, United Nations Regional Centre of Expertise in Wales,

PRIME Centre Wales, Wales School for Social Prescribing Research, conferences and social media.

Strengths and limitations of this study

1. Strength: The realist method enables the development of a social prescribing model that identifies causal relationships and informs implementation of the model.
2. Strength: An advisory group of HE, Student Union, and third sector staff informs this study and will provide guidance for the evaluation design and its findings so the explanatory theory and framework is usable and translatable.
3. Strength: The dissemination strategy will allow the transference of principles to other HE settings.
4. Limitation: The social prescribing service started in a pandemic and restrictions will impact the method i.e. reduced opportunities for recruitment and engagement.

BACKGROUND

Student well-being

The numbers of students accessing Higher Education (HE) in the United Kingdom (UK) is increasing. Current data indicates over 2.3 million HE students, and over half of UK young adults will access tertiary education by the age of 30[1]. There is an associated rise in student mental health and well-being issues[2] and the number of HE students dropping out with mental health problems has more than doubled in recent years[1]. Well-being levels for students are lower than for the general population[3], 1:16 students leave before year two[4]. Potential issues for new students may include moving to a new area, the shift towards independent learning, increased financial independence, and relationship pressures. These are exacerbated for students with a declared disability, mature students, and students from Black, Asian or Minority Ethnic (BAME) backgrounds[1, 3-5]. Whilst strategies have been developed to ameliorate these

challenges[6], effectively supporting student mental health and well-being remains difficult in HE. A range of systems and networks within HE and beyond may be effective in supporting students, but the way in which they are identified, accessed and used remains highly variable[5]. Social prescribing may be a productive strategy to connect students to services and increase access to well-being support.

Social Prescribing

Social prescribing is an umbrella term to describe ways of linking individuals to community-based, non-medical support. There is no agreed definition[7], but it has been described as enabling, 'GPs, nurses and other primary care professionals to refer people to a range of local, non-clinical services to support their health and well-being'[8]. In Wales, it is defined as, *'connecting citizens to community support to better manage their health and well-being'*[9 (p 30)]. These definitions refer to the process of connecting/referring individuals to community assets that may address a wide range of social, emotional, or practice needs to improve health and well-being[10].

Social prescribing is prevalent throughout the UK and integral to Welsh Government plans for NHS Wales[11]. It is seen as an approach that could make a positive impact on the sustainability of General Practice primary care[12-13]. However, there is limited research evidence on social prescribing intervention effectiveness, who benefits from it (if at all) and whether it offers value for money[12]. Good quality, robust evidence is needed on what constitutes effective social prescribing practice and its process[14] to inform commissioning, and determine how it may affect individuals and in what way. Commissioner and policy-maker reliance on outcome evaluation in isolation may stifle other important questions; effect size does not inform implementation (enablers, challenges, processes) or contextual factors that may influence intervention delivery and outcomes[15].

The present study

'Enhancing Student Well-being through Social Prescribing' is a unique project where Wrexham Glyndwr University (WGU) and the University of South Wales (USW) are working with local communities to enhance student well-being. It is the first social prescribing project focussing on university students, which is pertinent given the prevalence of mental health and well-being issues amongst UK HE students. The model aims to enhance student well-being, build resilience through early identification of issues, and increase use of timely and appropriate support. It will promote new ways of working using a replicable model of social prescribing co-created with key partners from the local community to benefit students as part of a whole system approach to well-being.

This Realist Evaluation[16] aims to inform the development and refinement of a 'programme theory' that articulates why and to what extent social prescribing works for students, how and when they access interventions, and what forms they take. This programme theory will inform the development of a WGU social prescribing model that can be applied to USW, before implementation scaling to other Welsh HE Institutions and beyond. The study commenced in March 2020 and will conclude in October 2021.

The study aims to answer the following questions:

1) What forms of Social Prescribing interventions are specifically targeted at HE students?
2) How do HE students access Social Prescribing interventions aimed at them?
3) When do HE students access the Social Prescribing interventions targeted at them?
4) For whom does the use of Social Prescribing interventions work?
5) To what extent does Social Prescribing work for HE students?

Intervention and study setting

The WGU social prescribing model[17] connects students with non-clinical services within and beyond the university to support a range of health and well-being needs. Box 1summarises the intervention and is illustrated using Figure 1.

Situated in North Wales and established in 2008, WGU has campuses in Wrexham, Northop and St Asaph. In 2019/20 WGU had 2,750 full-time students (1,725 female and 1,015 male) and 3,295 part-time students (1,855 female, 1,435 male), with 3,980 domiciled in Wales[18]. It was ranked first for social inclusion in England and Wales[19] and had the highest proportion of mature entrants (70.8%) of students receiving Disabled Students Allowance (21.5%) of all Welsh HE[20].

BOX 1: The social prescribing model

- The social prescribing intervention aims to enhance student well-being via a 'whole system' approach that works collaboratively across community and organisational boundaries to deliver individual and societal benefit.
- The service operates using the digital social prescribing platform, Elemental Software[21]. The cloud-based platform connects students' well-being risks to specific interventions in the university or their community, either through a self-referral (for example on the university website) or via the referral agent. The software filters the social prescription option by location, cost, ability, and type of support to maximise student engagement.
- The model consists of eight 'hubs'; Counselling, Chaplaincy, Accommodation, Health and Well-being, Funding, General, Careers and Employability, and Inclusion.
- There are two routes for students to access the social prescribing service i) via self-referral, ii) via referral agents (e.g. personal tutors, lecturers, chaplaincy).

- When students enter the on-line portal, referral handlers carry out an assessment with them to determine i) their need, ii) whether a social prescription is appropriate, iii) if a referral to another hub is required to better meet their need.
- If a social prescription is deemed appropriate, referral handlers manage the cases and conduct a 'what matters conversation' with students to co-create the social prescription(s). Fully trained staff include a project manager and two referral handlers (project manager with a dual role of referral handler).
- Students are referred to non-clinical providers using Elemental Software. This can include university societies and activities, another hub, and local community services/groups and groups.
- The service began in October 2020. To date n=514 students are registered on Elemental Software, of which n=35 have gone on to receive a social prescription.

[Figure 1]

Patient and public involvement

Engaging with stakeholders is fundamental to Realist Evaluation and programme theory development[22-23]. A stakeholder advisory group will meet monthly. It will include representatives from WGU and USW Student Unions, strategic and operational staff involved in the model's design, development and delivery (including the social prescribing service), the evaluation team and third sector and community representation. The advisory group will check the understanding of findings and ensure that the explanatory theory and framework is usable and translatable.

Study design

The study is a Realist Evaluation mixed-methods sequential design[22] with four cycles of data collection, analysis and translation/development of principles into a model. *Realism* is a theory-

driven approach to the synthesis of evidence, the goal of which is to build an abstracted model or programme theory that explicates what a programme or intervention is and how it can be expected to work. It is a theory of implementation and causation[24]. The realist method is grounded within generative causation; in order to infer a causal relationship between an intervention (I) and outcome (O), one must understand the underpinning mechanism (M) connecting them, as well as the context (C) in which they occur[25]. Activities in each cycle may lead to changes in model development. The evaluation will require access to third sector and community organisations who have significant impact on student well-being.

Cycle 1: Preparation and understanding the model/theory[26]

Cycle 1 (C1) informs the development of the social prescribing model and underpins the three subsequent evaluation cycles. Preparatory activities include securing ethical permission, project set-up and communication (including a series of short bilingual films about the evaluation process and model).

Three elements inform the initial model and programme theory of how the model works:

1) A Realist Review[27] (PROSPERO registration: CRD42020193075).
2) Group Concept Mapping (GCM) with WGU students and staff[28].
3) A series of co-production workshops hosted by Do Well Ltd[29].

Cycle 2: Testing evidence of context, mechanism and outcome (CMO) patterns to the model

Cycle 2 (C2) will assess and analyse the model via secondary analysis of routine data collected from all students as part of service delivery. Referral handlers collect this data using Elemental Software. The type of service data to be included will be determined after study team and advisory group discussion. It may include demographics, referral source, referral reason,

numbers of students accessing the service, number and type of social prescribing activity/intervention, re-referrals, and number of students dropping out of intervention.

Additional service data will be collected using repeated measures at either two or three time-points. Depending on the student's point of entry into the service this will be baseline (day 0), mid-point (+4 weeks), and end of the intervention (+12 weeks). Outcome measures collected over the course of the intervention will determine the service impact on students. Follow up measurements will be captured at +3-6 months (depending on the length of the project) to identify whether any changes have been sustained over time. These will be incorporated into the Elemental Software so data may be gathered when students opt for self-referral.

Data will be collected using three validated outcome tools:

1) The Warwick-Edinburgh Mental Well-being Scale (WEMWBS)[30]

WEMWBS has 14 items that capture the eudemonic (people's functioning, social relationships, sense of purpose) and hedonic perspectives on well-being (e.g. feelings of happiness)[31], e.g. '*I've been feeling optimistic about the future*'[32]. The 5-point Likert scale represents a score for each item from 1-5, meaning a total score from 14-70, a higher score indicates a higher level of mental well-being[32]. WEMWBS has been validated for use with diverse populations of people aged 13-75+ years and shows high levels of internal consistency and reliability against accepted criteria[32]. It will allow for longitudinal comparison of this group with a matched Welsh population sample using WEMWBS data collected by the National Survey for Wales[33].

2) ONS4[34]

The Office of National Statistics (ONS) Personal Well-being (PWB) Domain uses four measures (referred to as the ONS4) to capture three types of well-being; evaluative, eudemonic and affective experience[34]. Individuals complete the questions on a scale of 0-10, for example,

'*Overall, how satisfied are you with your life these days?',* where 0 is 'not at all' and 10 is 'completely'[34]. Scores are grouped as 0-4 (low), 5-6 (medium), 7-8 (high) and 9-10 (very high)[34]. The What Works Centre for Well-being recommends the ONS4, 'as accepted and trusted subjective measures from the National Well-being Programme that capture distinct aspects of personal well-being: evaluative, eudemonic and affective experience'[35 (p 1)]. Whilst the ONS4 are not fully validated measures[35], social prescribing evaluations have previously reported the ONS4 as showing good internal reliability (Cronbach's α=0.90)[36].

3) The Brief Resilience Scale (BRS)[37]

BRS assesses an individual's self-perceived ability to recover from stress and is demonstrated to have good internal consistency and test-retest reliability[37]. It has six items on a 5-point Likert scale (score range 1-low resilience to 5-high resilience) with an equal number of positive and negative worded items to reduce social desirability and positive response bias[37]. Statements include '*I tend to bounce back quickly after hard times*' and '*I have a hard time making it through stressful events*'. Total scores are between 6-30 and higher scores indicate higher resilience[37].

The three outcome measurements will determine whether the social prescribing service enhances well-being, builds resilience, and achieves its purpose.

Recruitment and sample size

Referral handlers will collect routine demographic service data and outcome measurement data from students who have either self-referred or been referred by a referral agent to the service between 1st October 2020 and 31st May 2021. The estimated total combined number of referrals for this period is approximately n=650. Power calculations for the three measurement tools show that a sample of n=650 would detect a fairly small meaningful difference (MD)/effect

size (ES) (e.g. WEMWBS, MD=0.89; ONS4 and BRS, ES=0.127) as significant at 5% level with a power of 90%.

Data collection

Data will be collected at three time points between 1st October 2020 – 8th March 2021 (day 0, week 4, week 12). For students accessing the service between 9th March – 3rd May 2021, data will be collected at day 0 and week 4.

Students receive an evaluation participation pack containing an information sheet, and consent form to return if they are willing to participate. Consent will confirm their agreement for the research team to analyse their retrospective data collected at the 'what matters' conversation together with service data captured at 4 and 12 weeks [see Figure 2].

- Day 0: Referral handler meets student for a 'what matters' conversation and collects WEMWBS, ONS4, and BRS.
- 4 Weeks: Another service meeting takes place between the student and referral handler to revisit the WEMWBS, ONS4, and BRS. Referral handler checks on student progression and whether the social prescription needs to be revised.
- 12 weeks: The student completes the final WEMWBS, ONS4, and BRS.

[Figure 2]

Data analysis

Data analysis is iterative and occurs within and at the end of each cycle. C2 secondary data analysis examines routine service data collected by the referral handler using Elemental Software; it will not contain personal/identifiable data. The project manager will share data with the evaluation team through encrypted email. Data will be cleaned, entered into a

spreadsheet and analysed using descriptive and inferential statistics (e.g. repeated measures ANOVA, internal consistency and construct validity) using SPSS v.28[38].

Cycle 3: Testing and refining theories

Cycle 3 (C3) aims to understand the process and impact (including cultural change) of the new model. Qualitative data will be collected with stakeholders to understand their experiences of:

- Service design, development and implementation
- Service management and delivery
- Receiving the social prescribing service

Recruitment and sample size

C3 will use a mixed sampling strategy to recruit participants including purposive (expert, case and maximum variation sampling) and snowballing to identify participants[39] (e.g. self-refer students). Purposive sampling identifies and selects individuals or groups who have in-depth knowledge and/or experience of the phenomenon of interest[40]. Information is sought from 'key informants' who are best placed to provide it i.e. WGU stakeholders who can highlight key characteristic patterns of the service under evaluation[39].

C3 recruits will include i) students accessing/referred to the service, ii) people involved in the service design, development and delivery e.g. project manager, referral agents, referral handlers, Student Union Representatives, senior WGU managers, and iii) external partners e.g., Elemental Software Team, Do Well Ltd team, and community organisations receiving referrals.

Data collection

C3 will use reflective diaries (n=5) and qualitative realist interviews (n=35-45) (individuals/small groups) with stakeholders[41]. All prospective participants will receive an

information sheet, and consent form to sign and return. Topic schedules will be informed by C1 activities (e.g. Realist Review), and developed with the advisory group. Qualitative data will be audio-recorded and transcribed. WGU staff involved in the design, development, implementation, management and delivery of the model will complete written or audio-recorded reflective diaries. Diary voice recordings will be shared via an encrypted email. Recordings will be transcribed prior to analysis. Reflective diaries will be collated and anonymised by the WGU social prescribing project manager before sharing with the evaluation team for analysis. C3 data collection will conclude on 30th June 2021.

Data analysis

Qualitative data will be imported into NVivo 12[42] for coding and a realist logic of data analysis framework[16] will be used in an embedded interpretative content and applied thematic analysis[43]. This involves considering data relevance, meaning interpretation, judgments about Context-Mechanism-Outcome-Configurations (CMOCs), programme theory, and data rigour.

The realist programme theory of social prescribing, developed in C1, will be tested against reflective diary content and realist qualitative interviews with stakeholders, and interrogated to build CMOCs to confirm, refine or refute the emerging programme theory. An abstracted theory of causation and implementation will be built, articulating how and why the model works, for whom, to what extent, and in what circumstances[44].

Multi-perspective case studies (n=8) will be constructed to support meaningful analysis and contextualisation. They will give voice and detail of how the project impacted upon students', staff and key stakeholders' lives. These stories might be digitised in various forms offering a further evaluation dimension.

Triangulation

C1, C2 and C3 findings will be triangulated against the evaluation questions stated earlier. Quantitative and qualitative findings are combined in triangulation using various datasets to explain differing aspects of a phenomenon of interest[40, 45]. Each cycle's findings will be used to build a meta-matrix[46] to determine agreement, offer complementary information on the same issue or contradiction[47]. Triangulation findings are used to produce a rounded understanding of the study topic, will form part of the funder evaluation report, and will be written up for peer review publication. C3 will conclude with building a framework of key principles and lessons learned.

Cycle 4: Finalising a framework of key principles and lessons learned

The study will end with a student and stakeholder World Café workshop[48] to share findings, agree and finalise the framework specification of 'how, why, when and to what extent' it may be used across HE in Wales. The World Café workshop comprises seven integrated principles[48-49]: set the context, create a hospitable space, explore questions that matter, encourage everyone's contribution, connect diverse perspectives, listen together for patterns and insights, and 'the harvest' sharing collective discoveries. Given Covid-19 restrictions, the workshop will be facilitated using online software. Participants will move around the virtual space to facilitated virtual tables to shape the framework specification and how it will be actioned.

Analysis throughout the World Café workshop is iterative. The content of each part of the framework specification is built at the tables within the room. The table 'host' collates the written responses to individual questions set at each table. These are presented back to the participants at the workshop end.

Ethics and Dissemination

Ethical approval was granted by USW and WGU ethics committees, which approved secondary data analysis of participant demographics and outcome measurement tools, and qualitative data collection. Data will be stored securely on encrypted and password protected USW systems for five years after the evaluation has ended, after which time it will be securely destroyed. Study findings and outputs will be disseminated to academic, HE, and public audiences. The dissemination strategy for this study was developed with the advisory group and informed by the student perspective. Bilingual Welsh/English promotional films with user-friendly graphics and student voiceovers have been created (C1) with subtitles to maximise inclusivity. Study findings will align to the RAMESES reporting standards for Realist Evaluations[24] and will be published in peer-reviewed journals, a report to the funder, presented at conferences, and through a short film for stakeholders for dissemination via a range of channels.

The refined programme theory developed within this Realist Evaluation will explore the potential benefits for Social Prescribing on university students - articulating *why*, *how* and *in what circumstances* the pathway works. This abstracted model of both causation and implementation[24] will support the development of social prescribing pathways within HEIs in Wales the UK. General principles may be applicable in wider contexts and have transferability beyond the UK, however further research is required to discern the degree to which this may be practicable.

Summary

This study will use mixed-methods to undertake a Realist Evaluation of a new HE social prescribing model. It is the first Realist Evaluation of a HE social prescribing service in the UK and internationally. The rise in number of HE students reporting mental health and well-being issues highlights the study's importance. Existing student support systems and how they are identified, accessed and used remains varied[5]. This study will address gaps in knowledge and

generate understanding of why, and to what extent, social prescribing works for students, how they access interventions, what forms interventions take, and when they are accessed. It will capture the outcomes, and stakeholders' views and experiences across the course of the service via three data collection cycles complemented by triangulation across the datasets and finalised with a World Café workshop (C4).

C1 will underpin this study by informing the model and programme theory of how the model works. It includes a Realist Review, a GCM study with WGU students and staff, and a series of co-production workshops with stakeholders. The advisory group is integral to the realist approach and it will function as an equal partner throughout all cycles co-producing the final explanatory theory and framework, and ensuring it is usable and translatable.

C2 will collect quantitative data via routine service data captured using Elemental Software. Three outcome measurements will be collected from students receiving a social prescription that will help determine intervention outcomes. A digital platform and directory used in primary care is being used for the first time in HE to support the study.

C3 qualitative data will explore topics such as service design, implementation, management, and experiences of delivering and receiving the service from multiple stakeholder perspectives. There has been considerable interest in the model development from stakeholders as WGU is a key partner in the North Wales 2025 Movement, which has, 'a collective vision to tackle avoidable health and housing inequalities by 2025'[50].

C4 triangulated data from all three cycles will support a rounded understanding of the intervention. Finally, the World Café workshop will share findings, agree and finalise the framework specification of 'how, why, when and to what extent' for use across HE in Wales.

Acknowledgments: We wish to thank all stakeholders involved in the social prescribing service, our stakeholder advisory group and all members of the evaluation team.

Author Contribution: CW, DP, ME, SW, and MD collaborated to develop the study design. SW led the development of the manuscript and all authors contributed to its refinement through reviewing developing drafts, editing, and providing feedback. All authors have read and approved the final version.

Funding: This work is funded by the Higher Education Funding Council for Wales (HEFCW), grant number W19 11HE.

Competing interests: The authors declare they have no competing interests.

Patient consent for publication: Not required.

Ethics approval: University of South Wales USW) Life Sciences and Education Ethics Committee and Wrexham Glyndwr University (WGU) Research Ethics Sub-Committee approved secondary data analysis of participant demographics: reference 200805LR (USW), id441 (WGU), secondary data analysis of outcome measurement tools: reference 200902LR (USW), id441 (WGU), and qualitative data collection: reference 200804LR (USW), id449 (WGU).

Figure 1: WGU social prescribing model is a visual representation of the student journey through the pathway. Access to the service is via the online platform Elemental, which is followed by an initial assessment to determine what support is appropriate i.e., a social prescription or a referral to another hub. Where a social prescription is required, they are co-created with the student and referral handler (navigator) before referral to non-clinical services (resources).

Figure 2: Data collection with students entering the WGU social prescribing service illustrates the process for data collection with students. At each timepoint (day 0, 4 weeks, and 12 weeks), the referral handler will conduct a 'what matters' conversation and capture data using three measurement tools, The Warwick-Edinburgh Mental Well-being Scale

(WEMWBS), the Office of National Statistics (ONS) Personal Well-being (PWB) Domain, and the Brief Resilience Scale (BRS).

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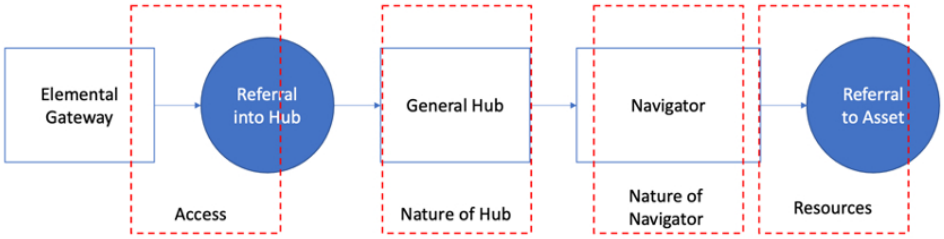

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