COVID-19 Pandemic: A Stair fall pandemic in older adults?

LIVERPOOL JOHN MOORES UNIVERSITY

Our long-term aim is to prevent home stair falls in vulnerable older adults.

NIHR | Applied Research Collaboration North West Coast

REFERENCES

Liverpool Dementia and Ageing Research Forum

Authors

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Affiliations

This study would not have been possible without all the older adults taking part. School of Sport and Exercise Science, Faculty of Science, Liverpool John Moore's University, Liverpool, UK; NIHR ARC NWC, Liverpool, UK; Department of Primary Care & Mental Health, University of Liverpool, Liverpool, UK; Sefton Older People's Forum, Sefton, UK; Liverpool University Hospital NHS FT, Liverpool, UK
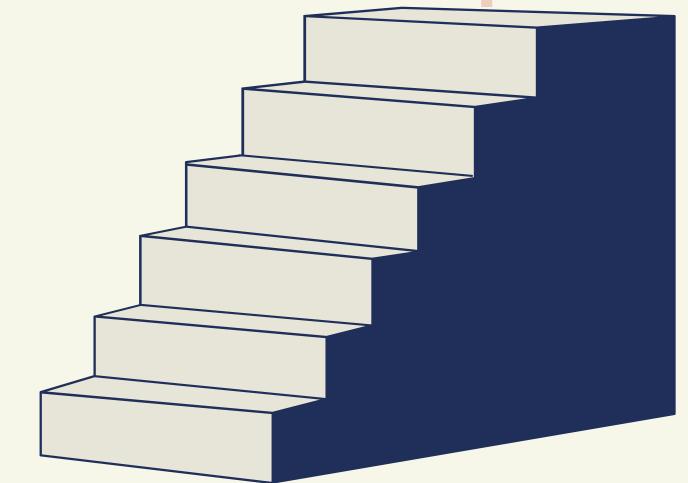
Introduction

Stair falls in older people have dire consequences for the faller, their carer's, and the NHS [1].

The inactivity linked to home-confinement recommendations due to COVID-19 is a potential risk for home stair falls. This may be particularly severe for those from poorer socio-economic backgrounds [2], as they are more likely to have:

- Chronic diseases [3]
- Live in a home that poses significant threat to their health and safety [4, 5].

Objective

1. Explore the extent to which home confinement and inactivity due to COVID-19 impacted home stair fallers
2. Understand whether socio-economic status explained some of the variance in home stair fallers

Methodology

An online and telephone survey was conducted with 164 UK residents aged $\geqslant$ 50 years between June and October 2021.

The online survey included:

- Postcodes to generate an Index of Multiple Deprivation (IMD) quintiles

- Falls and near-falls before (June 2019 - 23 March 2020), since (23 March 2020 - October 2021), and after (12 April 2021 - October 2021) COVID-19 UK lockdown

Analysis

Descriptive statistics were used and the main results were presented as percentages of studied variables.

A Kruskal-Wallis H test was used to test for differences in home stair falls between participants with different socio-economic backgrounds.

Results

70% of stair falls and near stair falls were experienced inside the participant's home environment:
- Home stairs
- Garden steps
- Apartment stairs

30% outside the home

70% inside the home

Figure 2 shows the number of home stair fallers and home stair near-fallers in the surveyed period:

- There was an increase of 25% in home stair fallers during the first UK lockdown
- There was a decrease of 33% in home stair fallers since the UK lockdown restrictions eased

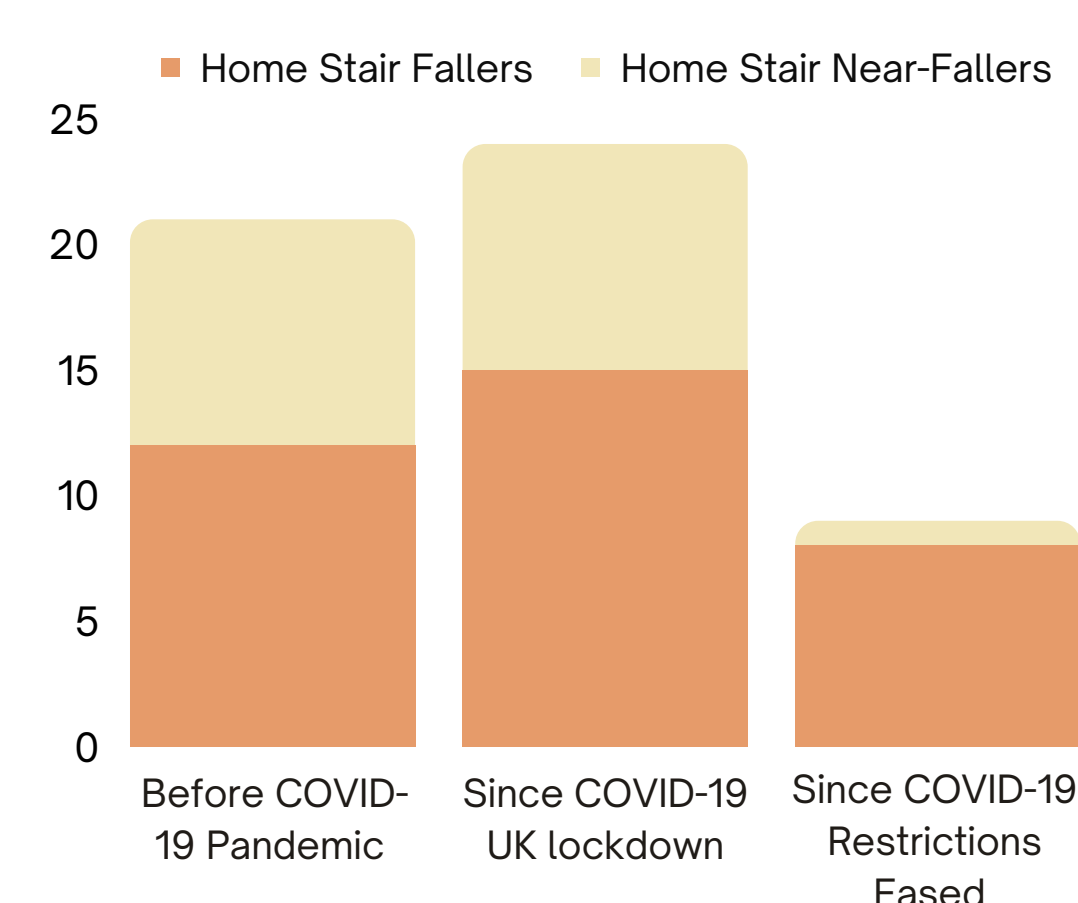There was no difference, $p > 0.05$ in home stair fallers between the IMD quintiles (Figure 3).

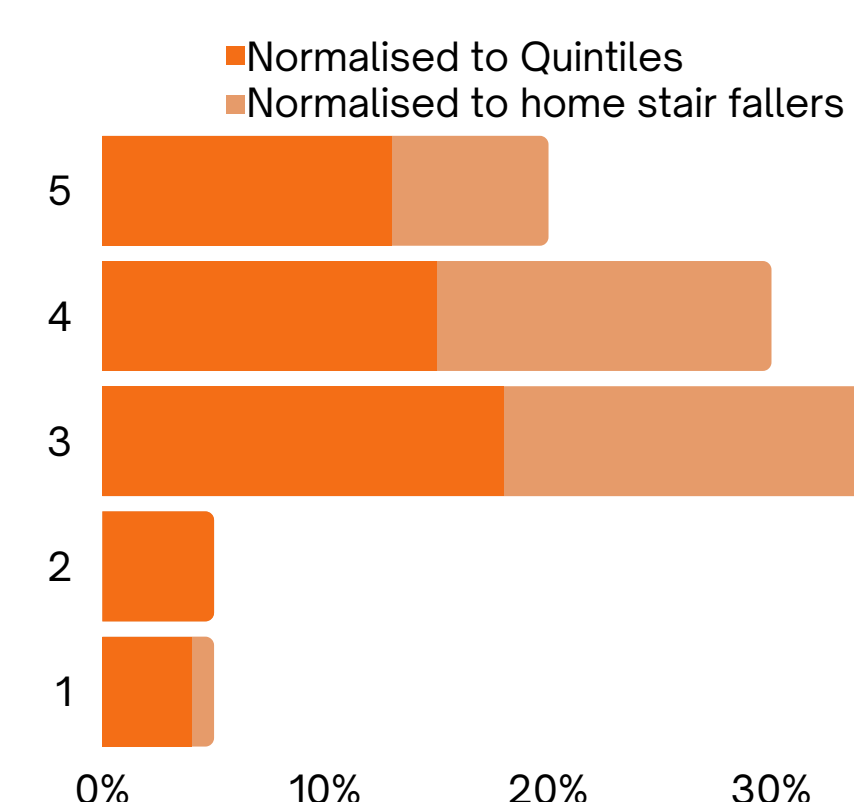Figure 2. Number of home stair fallers and home stair near-fallers within three time periods

Figure 3. Sum of index of multiple deprivation (IMD) quintiles for home stair fallers

Conclusion

We predicted that there would be more stair falls during COVID-19, especially in low socio-economic areas. We showed that COVID-19 did result in an increase in home stair fallers. However, there was no difference in stair fallers between the IMD quintiles.

Therefore, further investigation is required to establish the specific circumstances under which the home stair falls occurred and the impact of housing-stock quality [4] on these falls during COVID-19.

Exploring health inequalities in patients undergoing complex abdominal wall hernia (CAWH) surgery

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Background

In England, an estimated 4500 people are living with symptoms of complex ventral hernias.

Health Inequality Research
No studies have been undertaken in the UK to understand how socioeconomic status, gender, race and other factors contribute to disparities in patients undergoing CAWH surgery

Care Standardisation
CAWH surgery is an emerging sub-specialty with varied practice nationally. Effort is underway to standardise care and introduce guidelines for optimal patient management.
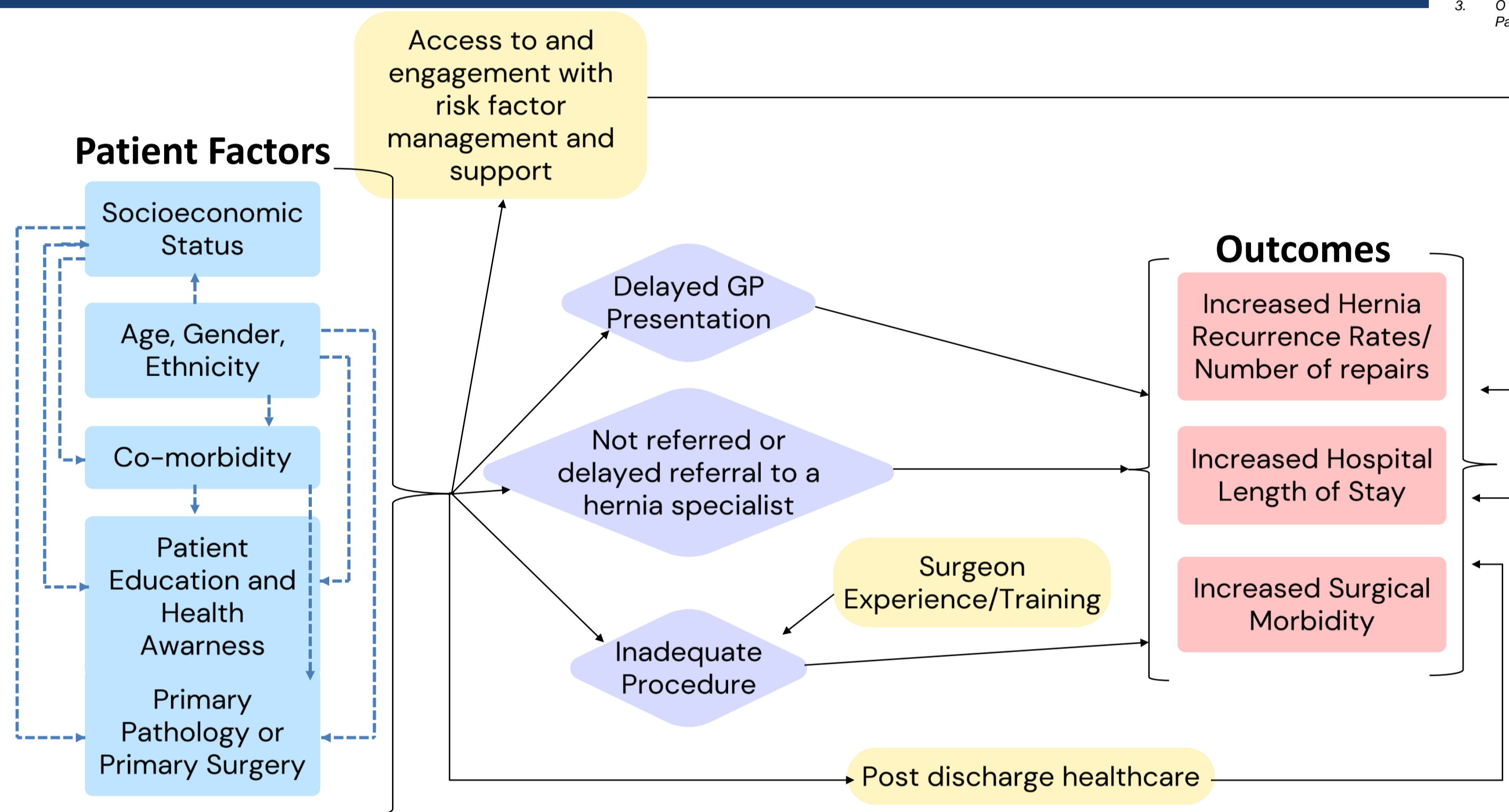
Healthcare Equity
Providing optimal care at each stage of a patient's healthcare journey is reliant on an understanding of existing health inequalities.

Project Aims

1 Establish the health inequalities that exist in the care of patients undergoing complex abdominal wall hernia repairs

**2** Explore the pathways leading to the health inequalities.

References
1. K Bennett et al. Patient socioeconomic status is an independent predictor of operative mortality. 2010 Sep;252(3):552-7; discussion 557-8.
2. British Hernia Society (BHS) – Unwarranted Variation Scenario: Getting the Complex Abdominal Wall Repair Pathway Right. https://www.britishherniasociety.org/angelas-story/
3. O Smith et al. A structures pathway for developing your complex abdominal hernia service: our York Pathway. Hernia (2021) 25:267-275

Patient Factors

- Socioeconomic Status
- Age, Gender, Ethnicity
- Co-morbidity
- Patient Education and Health Awarness
- Primary Pathology or Primary Surgery

Access to and engagement with risk factor management and support

- Delayed GP Presentation
- Not referred or delayed referral to a hernia specialist
- Inadequate Procedure

Surgeon Experience/Training

Post discharge healthcare

Outcomes

- Increased Hernia Recurrence Rates/ Number of repairs
- Increased Hospital Length of Stay
- Increased Surgical Morbidity

Hypothesised causation between socioeconomic factors, systems factors and adverse patient outcomes in the pathway of patients undergoing complex abdominal wall hernia surgery

Project 1: Multi-centre retrospective Cohort Study
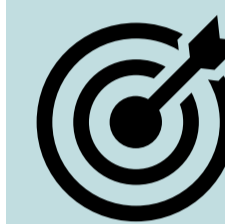
Objectives:
1) To investigate the association between demographic variables including Gender, Race, Socioeconomic background (Employment Status, Index for multiple deprivation (IMD)) and surgical outcomes in patients undergoing CAWH surgery.
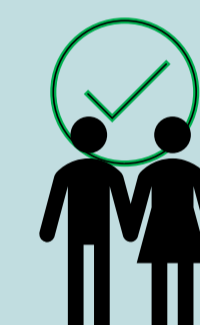
Inclusion Criteria:
- Male and Female patients
- Age ≥18
- Patients with complex primary or incisional hernias:

Large defect ≥10cm or Previous Repair or Previous Mesh Repair or Need for component separation or Need for adhesiolysis, or Need for flap reconstruction
- All types of repairs including laparoscopic and Robotic surgery

Exclusion Criteria:
Concurrent Parastomal Hernia Repairs
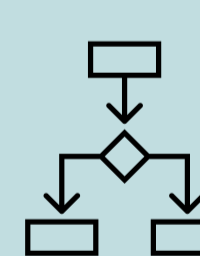
Outcomes:
Primary outcome: Recurrence
Secondary outcomes:
Length of stay in critical care
Length of hospital stay
Complications

Statistical Analysis
The differences in categorical variables, such as demographic and case history variables, will be compared with the Indices for Multiple Deprivation (IMD) Quintiles using the Chi-squared test or Mann-Whitney test. The association between IMD quintiles, other patient factors, and surgical outcomes will be assessed using regression analysis.
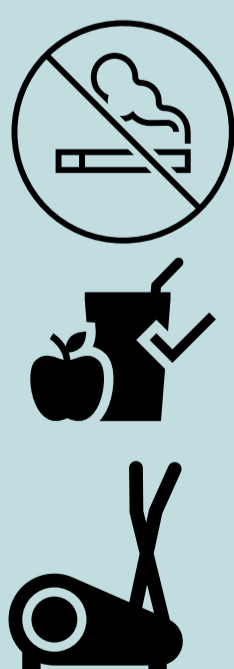
Results of Patient and Public Involvement

All advisors felt the research concept was important and valid.
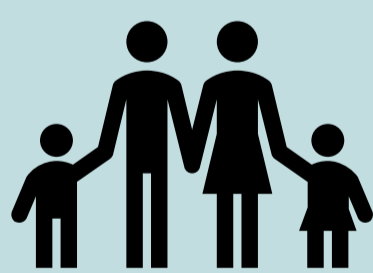
Patients' familial support networks play a crucial part in successful peri-operative optimisation.

Access and engagement with primary and secondary care facilities, and community support for risk factor modification is likely to vary within geographical regions and with socioeconomic backgrounds

Project 2: Age, ethnicity, sex and socioeconomic status as predictors of poor outcomes of ventral hernia surgery: Systematic Review and Meta-analysis

P – Adults with primary, incisional, or recurrent hernias undergoing definitive repair
I – No restriction on the technique for hernia repair including mesh position, mesh type, laparoscopic or open techniques, or having component separation.
C - Age, gender, race and socioeconomic status
O - Recurrence, post-operative complications including wound infection, seroma formation, hospital length of stay, re-operation rate

Project 3: Patients' and Healthcare workers' experience of Prehabilitaiton in patients undergoing CAWH surgery

A qualitative study where patients, surgeons, nursing staff and allied health care professionals involved in prehabilitation will take part in focussed interviews. Participants will be asked to identify perceived barriers or difficulties in completing a Prehabilitation programme.

Remote consultations in primary care during COVID-19: views and experiences of patients to inform future service development

Jennifer Downing[1], Pete Dixon[1], Mark Goodall[1], Sandra Smith[1], Koser Khan[2], Victoria Appleton[3], Alan Griffiths[1], Hannah Russell, Umesh Chauhan[3], Mark Gabbay[1], Tony Marson[1], Nefyn Williams[1].

1. University of Liverpool, 2. University of Lancaster, 3. University of Central Lancashire

Background:

Covid-19 has created healthcare delivery challenges previously unseen. The rapid switch to 'remote first' primary care access was necessary to limit Covid-19 transmission and increase safety, even though our understanding of its acceptability, effectiveness and impact on health inequalities was limited. Remote care has continued due to public health measures and due to adoption of new technologies. However, almost two years into the pandemic it is important to assess the impact of this natural experiment on the views of patients, particularly considering the consequences of a remote first approach to primary care access on populations with greater need, such as those with multimorbidity, disability or learning difficulties.

Aims and objectives:

- Will widespread use of remote consultations impact on patient attitudes and acceptability of remote consultations long-term?
- What advantages and disadvantages of remote care are perceived by patients?
- What changes are experienced by patients in terms of their perceptions of the care delivered?
- How might remote consultations in primary care exacerbate or alleviate health inequalities?

Methods and analysis:

An online survey, with option to complete over the phone, was disseminated via GP practices and social media in November 2021. The survey was open for six weeks.

Closed questions were analysed descriptively. Logistic regression analysis was conducted to examine any associations between future preference for using remote consultations and patient demographics, social determinants of health, patient satisfaction levels and factors associated with GP practices. Free text responses were thematically analysed through inductive, line by line coding and subsequent development of themes.

Table 1: Patient views on their recent primary care consultation experiences

Positive Responses – Main advantages	
Useful for minor issues	"request for medications can be done that day as well as medical sickness certificates"
Efficient and convenient	"I received immediate responses to e-consults". "Makes it easier for me not to travel as I suffer pain"
Negative Responses - Main disadvantages	
Quality of care	"The doctor couldn't listen to my chest and tell how bad my infection was. Also couldn't see how bad my swollen joints were."
Technical issues and timing issues of phone calls	"Very poor video link and the alternative mobile phone connection was poor"
Continuity of care	"When my own GP contacts me telephone consultations have been superb. But……when dealt with by doctors who do not know me I have not felt secure or always dealt with in the best manner."
Difficulty with communication	"It was difficult to describe symptoms clearly and to hear"
Inefficient process – causes delays	"As even though it was over the phone I was then asked to go to the gp practice to see a doctor which takes double appointments up at the doctors"

Results:

A total of 1,029 patient respondents, from 32 GP practices across the North West Coast completed the survey. Almost 70% of respondents were female, 95% self-defined as white ethnicity, over 50% were aged 55 or older and over 50% were educated to degree level or above

Findings showed that prior to COVID-19 patients typically saw healthcare professionals in primary care face-to-face. Charts 1 and 2 indicate that access to primary care is now more multi-component. Consultations experienced by both males and females during COVID appear to be consistent with each other. However, black, Asian and or minority groups reported less experience of face to face appointments during COVID-19.

Logistic regression analysis examined future preference for remote consultations. Preference for remote consultations was associated with current satisfaction with remote care (P<0.001) and higher education level (P=0.012). Analysis of patients' comments on their recent remote consultations (Table 1) show their views of main advantages and disadvantages of remote consultations. Figure 1 displays the main views of patients when asked what changes they want to see from primary care remote services in the future.

Chart 1: Change in consultation type by sex before and during COVID
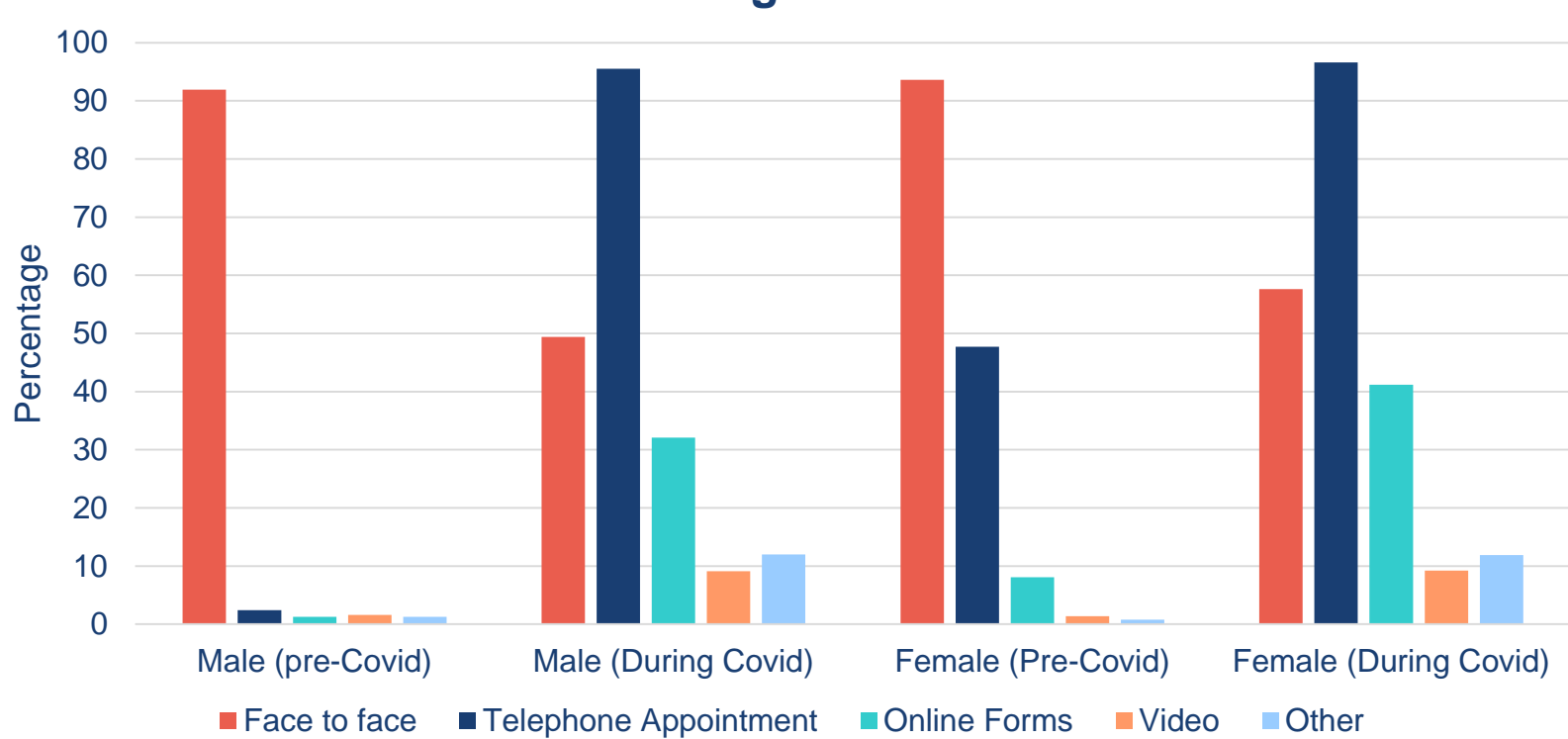
Chart 2: Change in consultation type by ethnicity before and during COVID

Figure 1: Patient views on changes they want to see in future primary care remote services

- Only have it when face-to-face can't be done
- Ensure that vulnerable or complex patients get face-to-face
- Improve the availability of face-to-face appointments
- Use remote only for minor issues
- Improve continuity of care
- Improve patient choice of appointment type
- Quicker and easier access to appointments
- Consider using technology differently and providing more video consults
- Improve the timing of remote consultations
- Provide more pre-bookable appointments

Conclusions:

- Patient acceptability of remote consultations long-term is variable and patients' preferences for future remote consultations are associated with their level of satisfaction with remote services.
- There are advantages to using remote consultations and they need to be balanced with patient concerns about the lack of in person communication and a visual or physical examination.
- Perception of quality of care is linked to accuracy of diagnosis that mainly relies on the patients' description of symptoms without thorough examination and/or visual assessment.
- We need to investigate the data further to reveal more information related to health inequalities and the impact of remote consultations, particularly related to ethnicity and level of education.

Understanding the inequalities and improving patient outcomes in pancreatic cancer.

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Supervisors: Dr Christopher Gaffney, Mr Daren Subar, Dr Theo Bampouras, Dr Robert Lauder
Applied Research Collaboration North West Coast | Lancaster University

NIHR | Joint Translational Research Collaboration

Understanding and mapping health inequalities present in pancreatic cancer.

By 2030, pancreatic cancer is predicted to become the second leading cause of cancer-related deaths and therefore improving the outcomes of individuals has become one of the greatest challenges presented by modern medicine. Statistics from Cancer Research UK suggest that there are large differences in both diagnosis and survival rates between the most and least deprived areas of the country.

Aims of the research:

• To develop an understanding of the health inequalities present in the outcomes and survival of pancreatic cancer.
• To develop an understanding of what might contribute to these inequalities
• To implement interventions which help to reduce these inequalities

The Incidence of pancreatic cancer

Data was obtained from Public Health England and NHS digital which breaks down national data into Clinical commissioning Group (CCG) level data. This includes:

• Tumour Count
• Age
• Route to diagnosis
• Treatment
• Ethnicity
• Number of pancreatic cancer patients in each quintile of Indices of Multiple Deprivation (IMD)
• Cancer stage at diagnosis
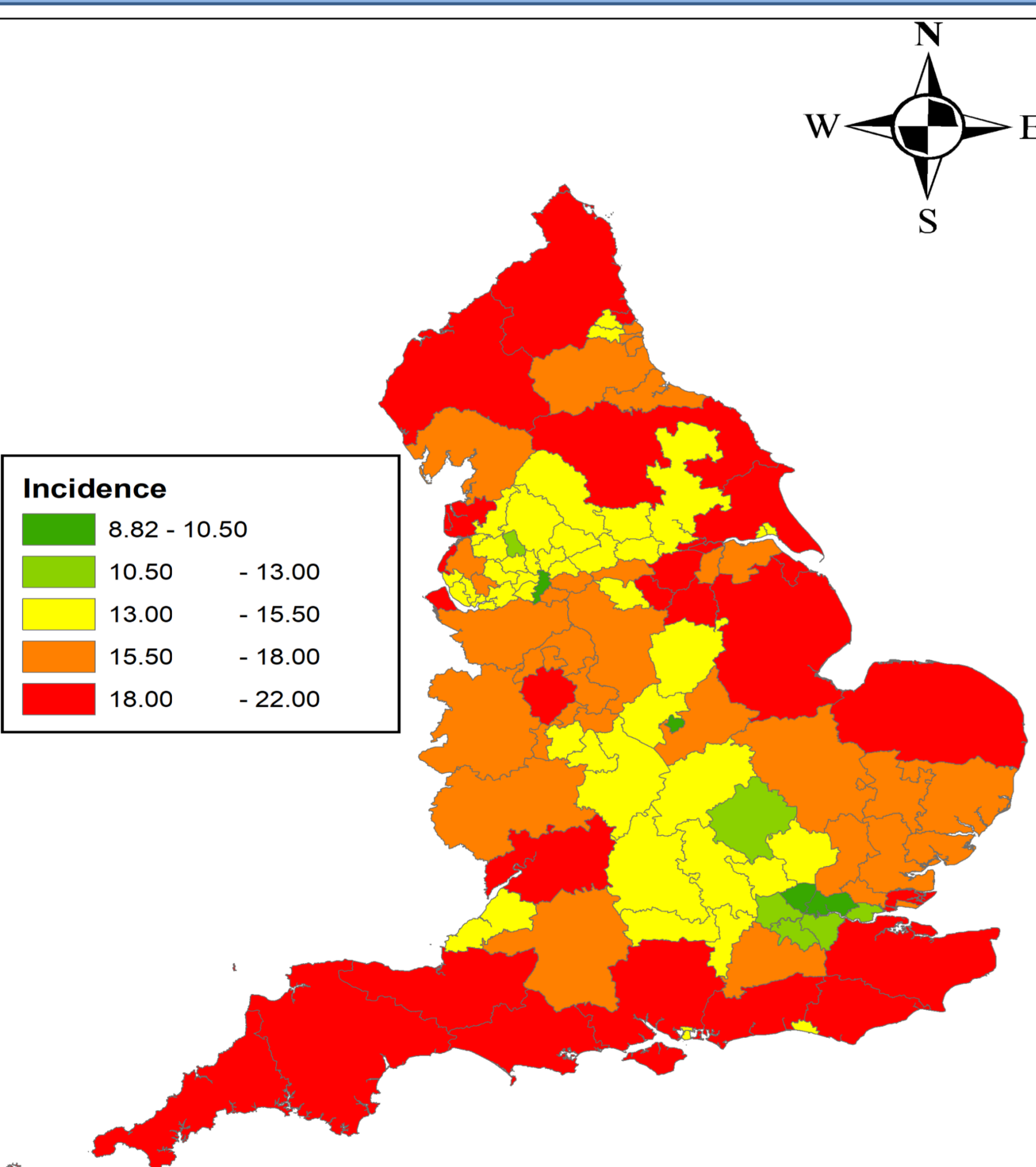• Deaths at 3 months, 6 months and 9 months

Figure 1- A map of England showing the incidence of pancreatic cancer between 2013 and 2019 in each Clinical Commissioning Group (CCG).

Incidence
8.82 - 10.50
10.50 - 13.00
13.00 - 15.50
15.50 - 18.00
18.00 - 22.00

This map of England suggests that there are differences across the country in the incidence of pancreatic cancer but the reasons for these differences aren't well understood.

References:
Cancer Research UK. (2020). Pancreatic cancer statistics. Using Cancer Incidence Data 2013-2017 (Public Health England) and Population Data 2013-2017 (Office for National Statistics) by Indices of Multiple Deprivation 2015 Income Domain Quintile, Cancer Type, Sex, and Five-Year Age Band.

The Incidence of Pancreatic Cancer in the North West Coast

Incidence
8.8 - 10.50
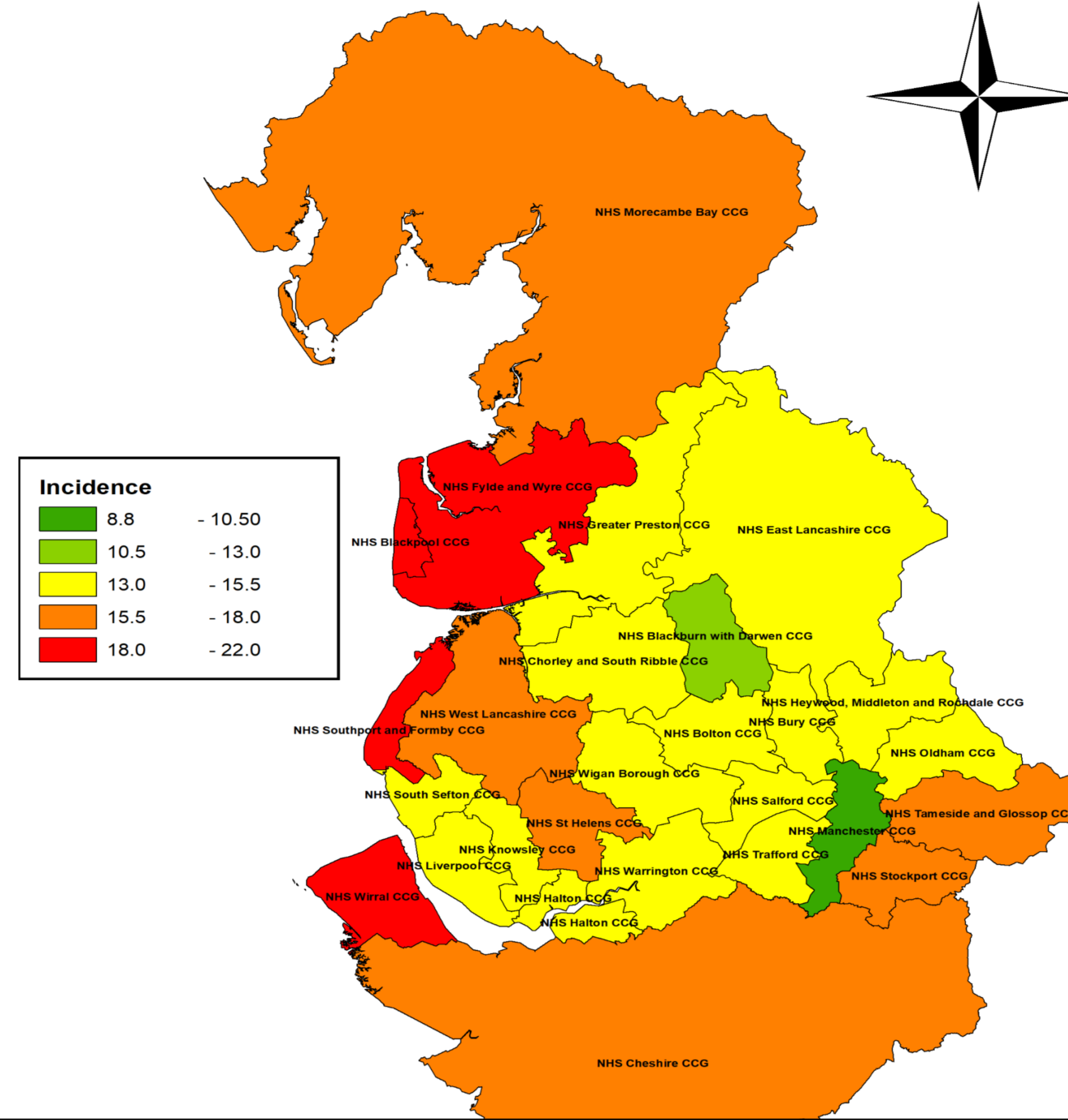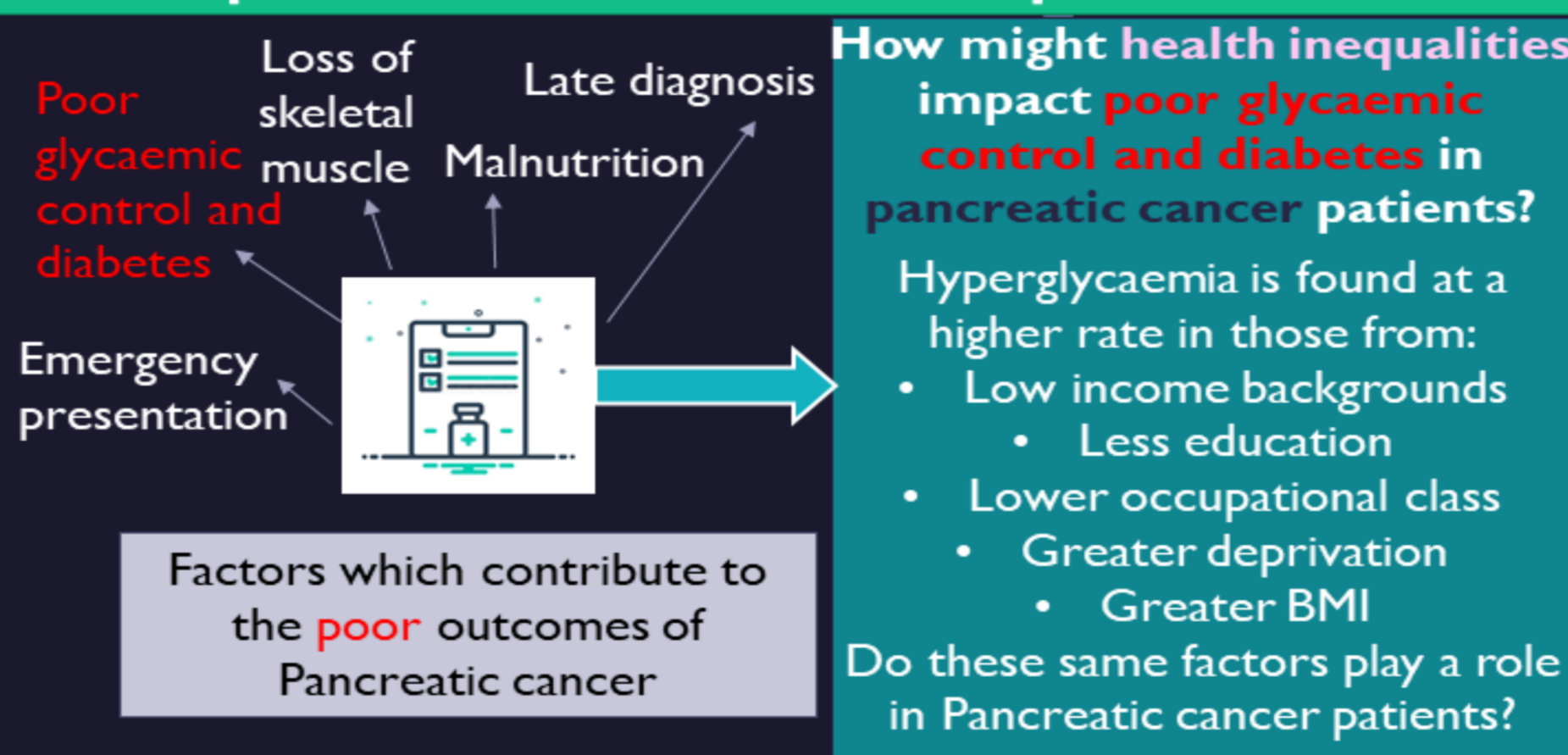10.5 - 13.0
13.0 - 15.5
15.5 - 18.0
18.0 - 22.0

Figure 2- A map of the North West Coast showing the incidence of pancreatic cancer between 2013 and 2019 in each Clinical Commissioning Group (CCG).

The are a number of differences in the incidence of pancreatic cancer in the North West Coast as demonstrated in the map above. There a number of risk factors for pancreatic cancer, with 37% of cases thought to be caused by environment factors such as smoking. The next step in the data analysis is to analyse why these differences occur and whether it is due to environmental factors which can be prevented.

Next steps with the CCG data

The next step is to further analyse the pancreatic cancer CCG data at both a national and north west coast level. A multiple linear regression will be used to improve our understanding of why inequalities are present in both diagnosis, incidence and survival and what factors, such as population age, ethnicity and socioeconomic factors impact pancreatic cancer and it's outcomes.

Route to diagnosis - % Emergency presentation

% of Deaths within 3 Months

A.

41.50 - 44.24
44.24 - 47.18
47.18 - 50.02
50.02 - 52.86
52.86 - 55.74

B.

27.90 - 31.80
31.80 - 35.60
35.60 - 39.40
39.40 - 43.20
43.20 - 47.06

% of Pancreatic Cancer Cases in IMD1

C.

0.00 - 13.41
13.41 - 26.82
26.82 - 40.24
40.24 - 53.65
53.65 - 67.06

Figure 3- A. The percentage of patients diagnosed due to emergency presentation. **B.** The percentage of patients which die within 3 months. **C.** the percentage of cases which fall into IMD 1. Maps illustrating percentages in each CCG in England between 2013 and 2019.

These maps demonstrate the differences across the country in a range of factors – route to diagnosis – emergency presentation, percentage of deaths within 3 months and percentage of pancreatic cancer cases in IMD 1. If the route to diagnosis is emergency presentation, as shown in **figure 3a**, it is likely to mean that patients are diagnosed at a later stage with worse outcomes and fewer treatment options.
Figure 3b shows the number of deaths which occur within the 3 months of diagnosis, red areas show a higher percentage of deaths which could be due to later diagnosis, the severity of the disease, poor management of symptoms and different treatment and care options.
Figure 3c shows the number cases in quintile 1 of the IMD. This data could be used to indicate whether overall deprivation impacts, incidence, outcomes and survival and further analyses need to be carried out to analyse this data. On initial observation, it clearly demonstrates that a larger number of pancreatic cancer cases fall within IMD 1 in the North West Coast.

Blood Glucose Control in Pancreatic Cancer and how might health inequalities contribute to poor control

Poor glycaemic control and diabetes

Loss of skeletal muscle

Late diagnosis

Malnutrition

Emergency presentation

Factors which contribute to the poor outcomes of Pancreatic cancer

How might health inequalities impact poor glycaemic control and diabetes in pancreatic cancer patients?

Hyperglycaemia is found at a higher rate in those from:
• Low income backgrounds
• Less education
• Lower occupational class
• Greater deprivation
• Greater BMI
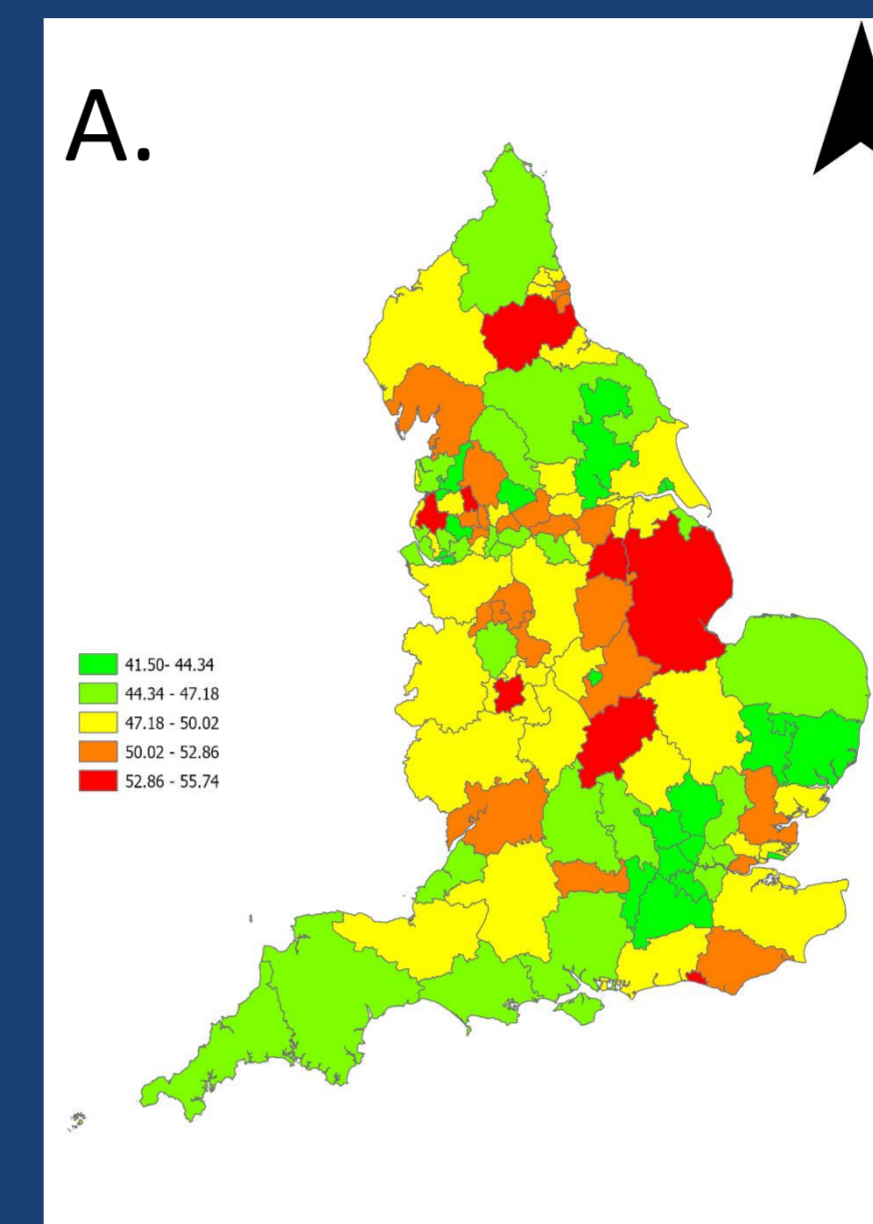Do these same factors play a role in Pancreatic cancer patients?

Blood glucose control and pancreatic cancer are temporally linked. Poor glucose control contributes to pancreatic cancer and pancreatic cancer contributes to poor glucose control.

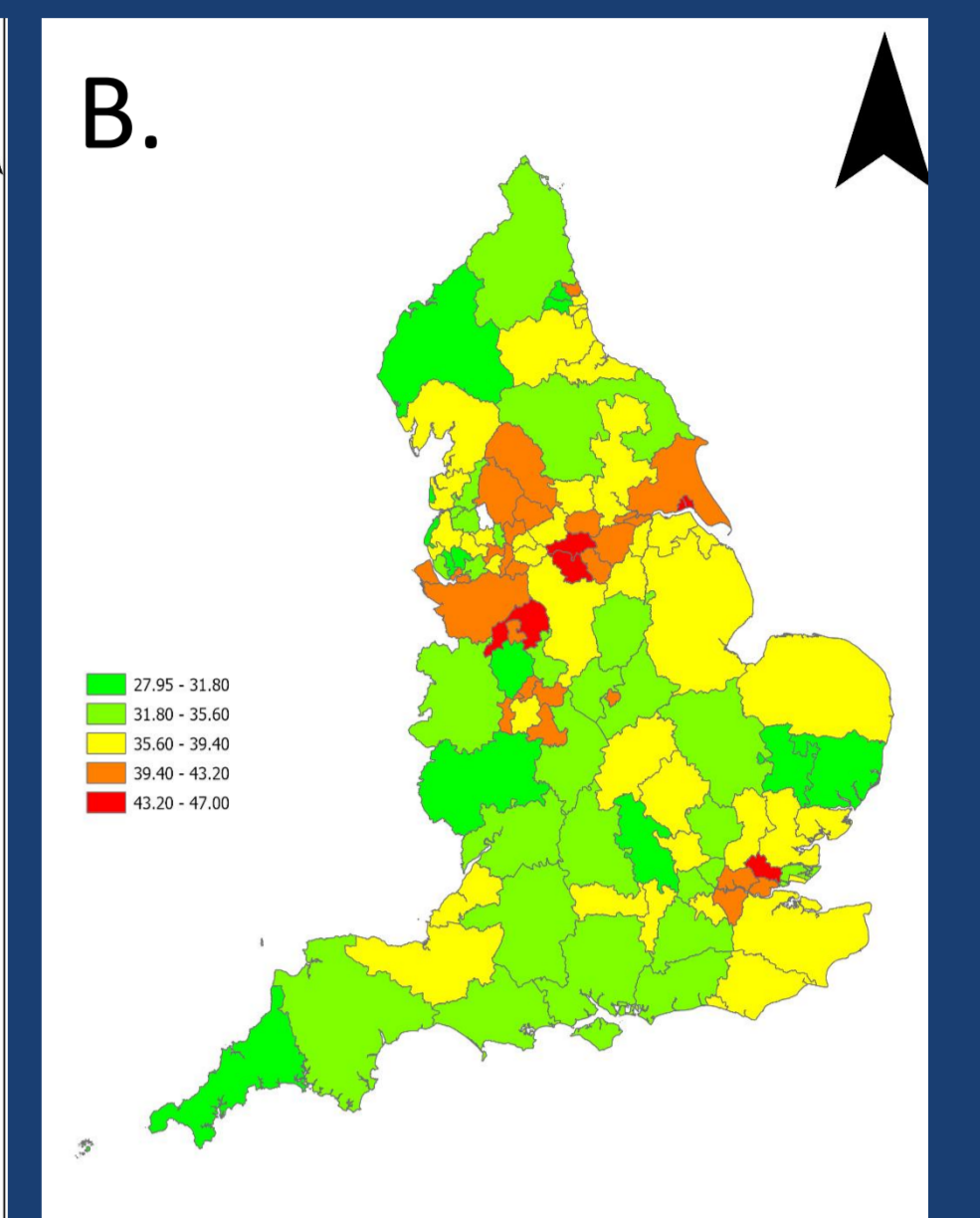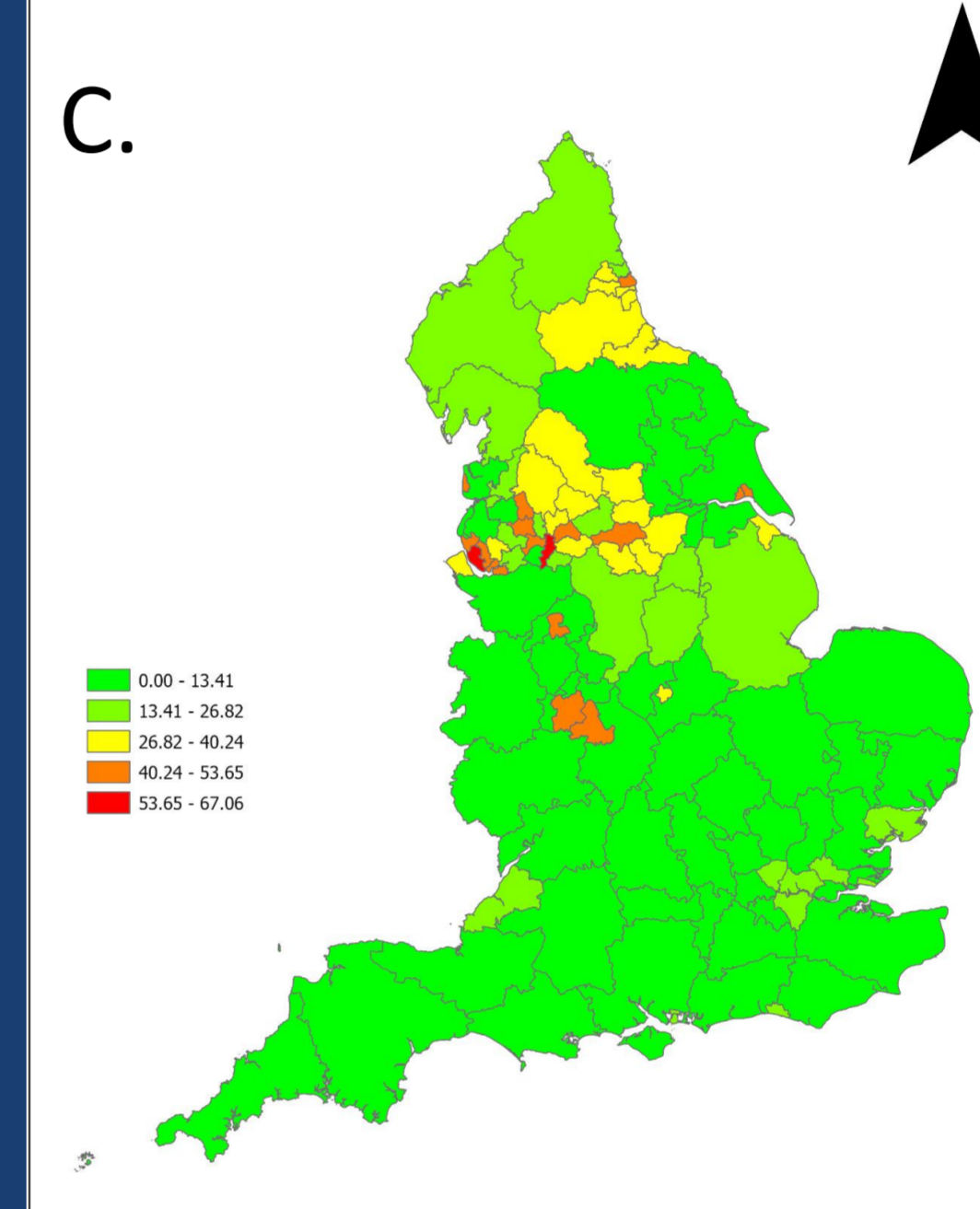Improved glucose control is shown to improve survival.

The Protocol

A protocol which examines the impact of pancreatic cancer and the socioeconomic backgrounds of these patients on glycaemic control will help to create a detailed picture of their glucose control and help us implement interventions to improve quality of life.

Continuous glucose monitors, activity trackers, food diaries and health inequality questionnaires will be used for 7 days to examine the impact of socioeconomic differences and pancreatic cancer on glycaemic control. This will help tailor interventions for pancreatic cancer patients to reduce health inequalities and improve quality of life.

7 days
Typical lifestyle continued

Public and Patient Involvement

An ARC NWC public advisor has been involved in the development and planning of this research. Discussions were had which covered the following topics regarding a family member with pancreatic cancer:

What were the main barriers to treatment?
• The cancer was missed diagnosed as IBS on multiple occasions which resulted in the pancreatic cancer being diagnosed upon emergency presentation at hospital. This resulted in late treatment.
• Access to the hospital was poor, especially during Covid-19 with a lack of opportunity for treatment options at home.

Why did these barriers exist?
• Patient's concerns were not listened to regarding initial symptoms leading to the misdiagnosis, felt this was due to overstretched services and a lack of understanding of the symptoms of pancreatic cancer.
• Treatment options were limited for patients and symptoms post-diagnosis poorly managed resulting in poor quality of life.
• Age-discriminating factors were present in regards to treatment
• Support for care at home was poor

How can these barriers be potentially overcome?
• Identify how widespread these barriers are and whether health inequalities are impacting upon them (CCG data analysis).
• Implement interventions which can better manage the symptoms for patients and improve quality of life. (CGM study & future research direction)
• Ensure clinicians are well educated on the symptoms of pancreatic cancer. (CGM study)
• Implement interventions which can improve at home care. (Future research direction)

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Health & Medicine | Lancaster University

Social support services for Dementia during the COVID-19 Pandemic: a longitudinal survey exploring service adaptations in the UK

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Public Advisors: Hilary Tetlow[a], Stanley Limbert[a]
[a] University of Liverpool, [b] NIHR ARC NWC, [c] University of Bradford

Introduction

Social support services are non-clinical services which help people with dementia and unpaid carers to live well in their communities for as long as possible.

https://ageingbetter.resourcespace.com/pages/search.php

During the COVID-19 pandemic, many social support services withdrew, or adapted their delivery models.

Aim

To compare the **types** of social support services delivered, and the **delivery methods**, employed prior to and at two time points during the COVID-19 pandemic in the UK.

Methods

A two-part telephone and online longitudinal survey addressed to **social support providers**
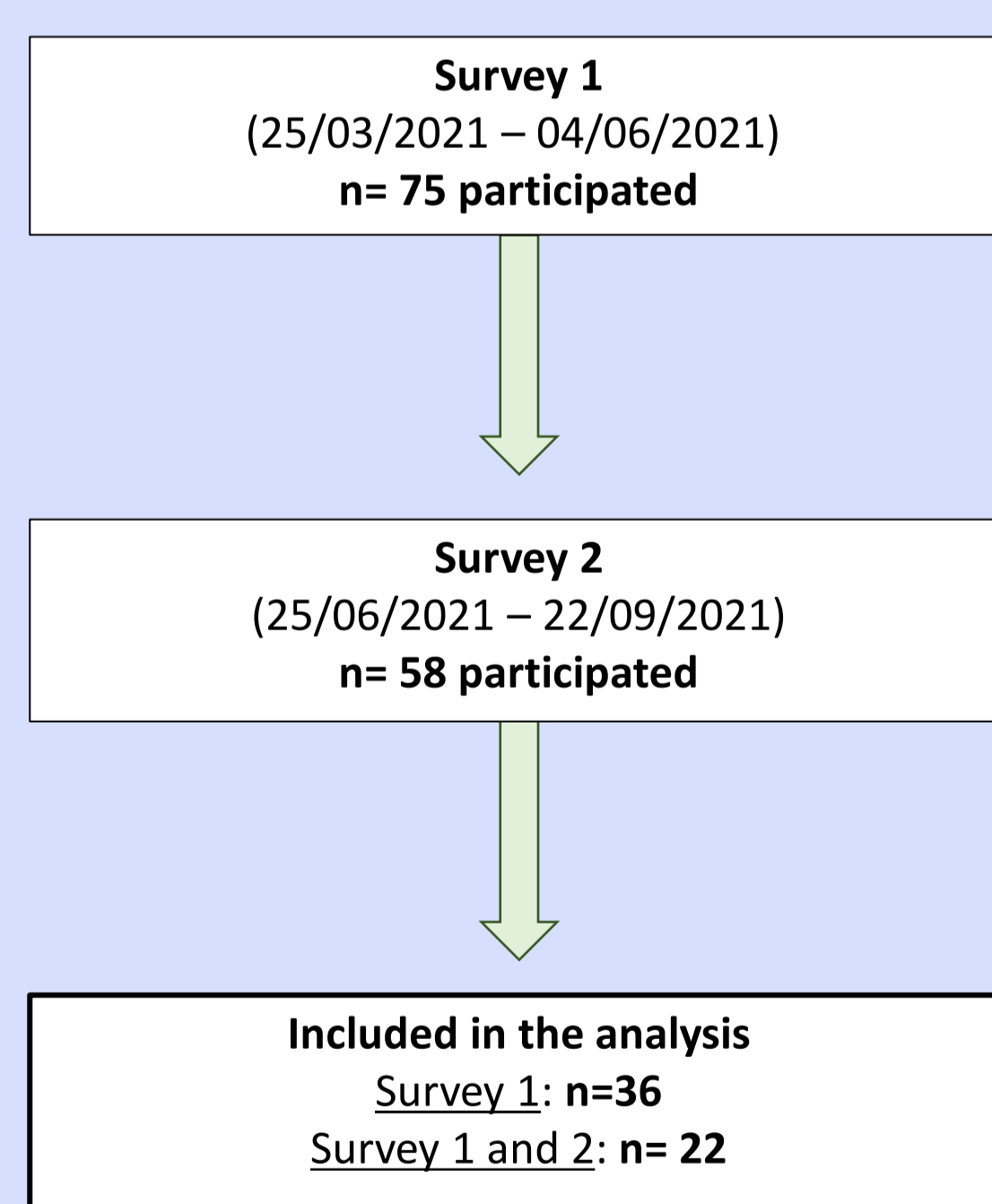
Survey 1 (March – June 2021) → **Survey 2 (June – September 2021)**
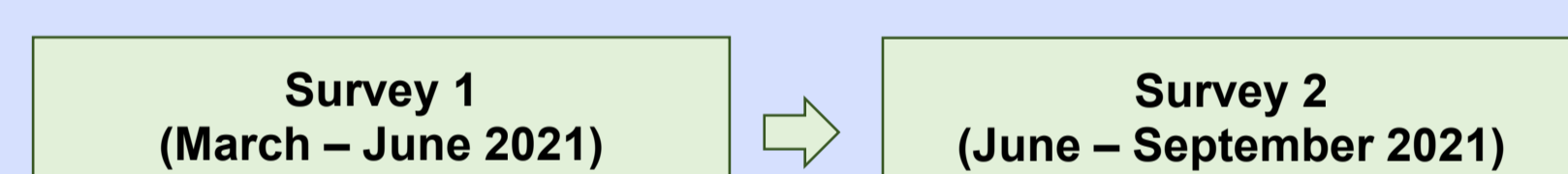
Prior COVID-19 + current services delivered, primary service, delivery method employed, usage and satisfaction

Current services delivered, primary service, delivery method employed, usage and satisfaction

Results

A total of 36 data entries were included in the Survey 1 analysis, and 22 in the Survey 1 and 2 analysis.

Figure 1. Study flow chart

Survey 1
(25/03/2021 – 04/06/2021)
n= 75 participated

↓

Survey 2
(25/06/2021 – 22/09/2021)
n= 58 participated

↓

Included in the analysis
Survey 1: n=36
Survey 1 and 2: n= 22

Social support providers

Most participants identified as female, White and were aged 55 years or older.

Participants mainly worked in a paid capacity within the third sector, and most service provision areas were classified within the 3rd or the 5th quintile of the English IMD.

Participants worked or volunteered a similar number of hours prior to, and during the COVID-19 pandemic at both timepoints (prior: mean= 26.0±5.6hours; T1: mean= 23.9 ±5.8hours; T2: mean= 25.0±6.2 hours).

Types of social support services and delivery methods employed

A pause in service delivery at the start of the COVID-19 pandemic was reported by 25% (9/36) of participants (median: 6 weeks (2-45)). Support groups and day care were the services most delivered prior to and during the COVID-19 pandemic at T1. A shift from in-person, to remote and hybrid approaches to service delivery during the COVID-19 pandemic was observed (Figures 2 and 3).

As shown in Figure 3, whilst the frequency of service delivery per regular month remained comparable throughout the study period, and slightly increased during the COVID-19 pandemic at T2, fewer care recipients accessed social support services during the COVID-19 pandemic (prior : median=31 (5-180); T1: median= 27.5 (4-220); T2: median= 26.8 (5-358)).

Figure 2. Service delivery method employed prior to and during COVID-19 T1 (n=36)
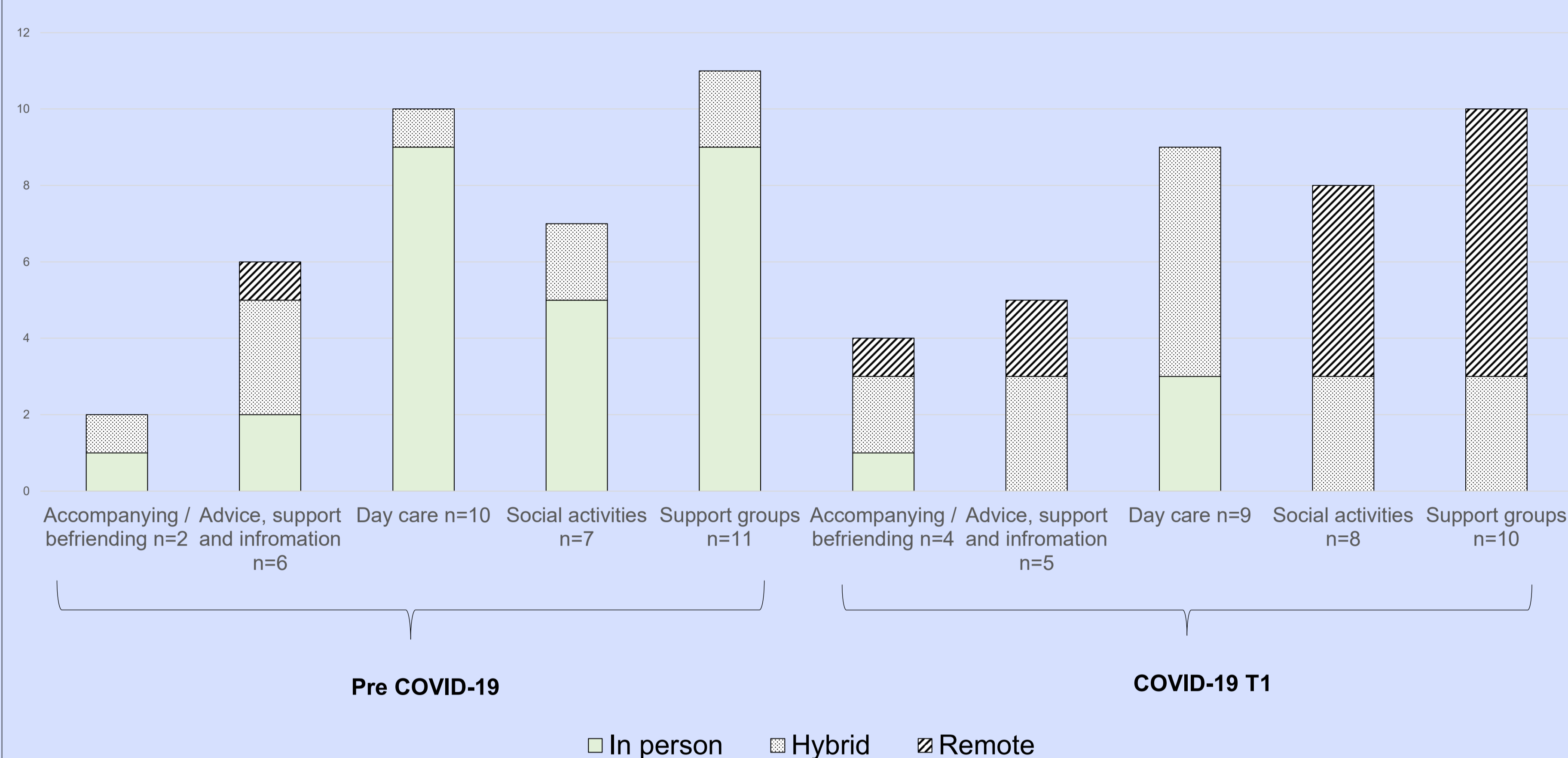

Pre COVID-19: Accompanying / befriending n=2, Advice, support and infromation n=6, Day care n=10, Social activities n=7, Support groups n=11

COVID-19 T1: Accompanying / befriending n=4, Advice, support and infromation n=5, Day care n=9, Social activities n=8, Support groups n=10

Legend: In person, Hybrid, Remote

Figure 3. Longitudinal comparison of delivery methods employed, frequency and usage of services (n=22)

Pre COVID-19, COVID-19 T1, COVID-19 T2

Legend: In person, Hybrid, Remote, Care Recipients, Frequency
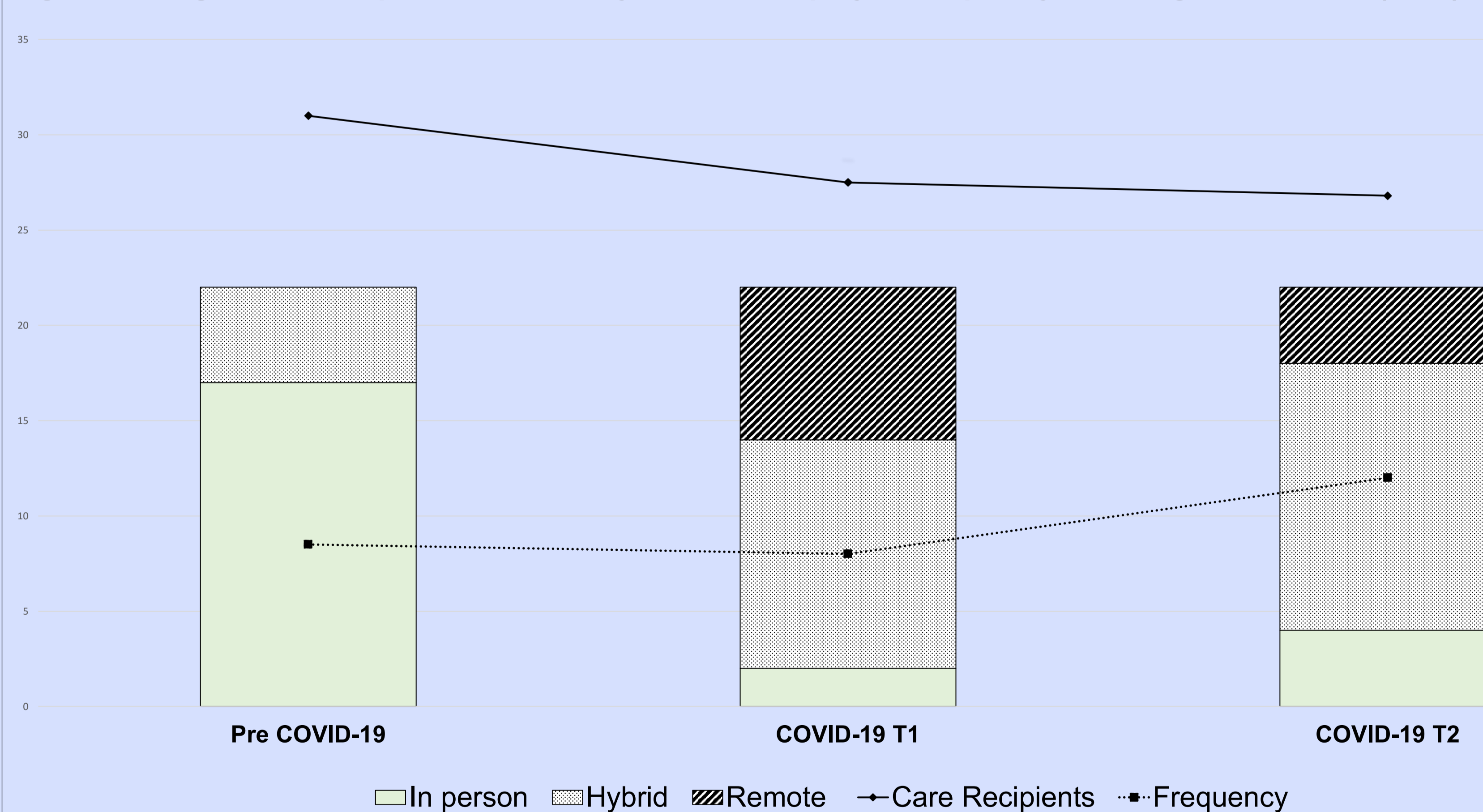
Median number of times services were delivered per regular month
Median number of care recipients accessing services during a regular month

Information Communication Technology formats employed

Prior to the COVID-19 pandemic, 36% (13/36) of participants used at least one information communication technology (ICT) format in service delivery, and the telephone was the most employed format.

During the COVID-19 pandemic at T1, 91% (33/36) of participants used at least one ICT format in service delivery, and video-conferencing software, telephone calls and e-mails were the most employed formats.
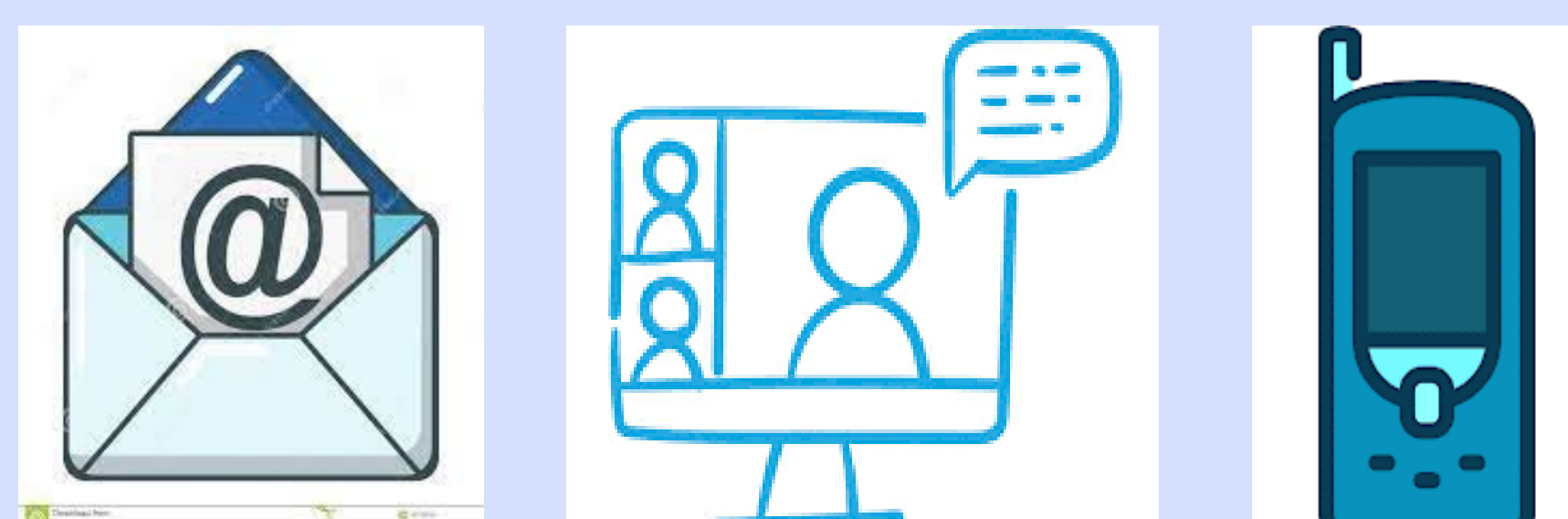
COVID-19 mitigation measures

Mitigation measures were implemented whilst delivering services in-person during the COVID-19 pandemic (median number of measures implemented per service: T1: 6 (2-9); T2: 4 (2-9)).

Social distancing, wearing PPE, and the vaccination of service providers, were the most implemented measures.

Conclusion

Fewer care recipients accessed social support services during the COVID-19 pandemic, which is likely to cause **negative long-term consequences.**

A hybrid approach to service delivery is likely to continue, and to avoid the **widening of inequalities** in access, services should cater for care recipients who are digitally excluded or, who prefer to access services in-person. Service non-access may lead **poorer social** and **health outcomes** for some care recipients.
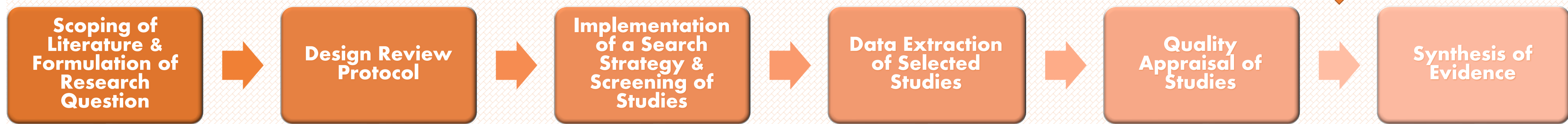
The Social Determinants of Multimorbidity within Emergency Hospital Admissions

Sam Meredith[1,3], Professor Tony Marson[1], Professor Sarah Rodgers[2,3], Dr Keith Bodger[3], Dr Jennifer Downing[1,3]
1) NIHR, ARC NWC, Person-Centred Complex Care
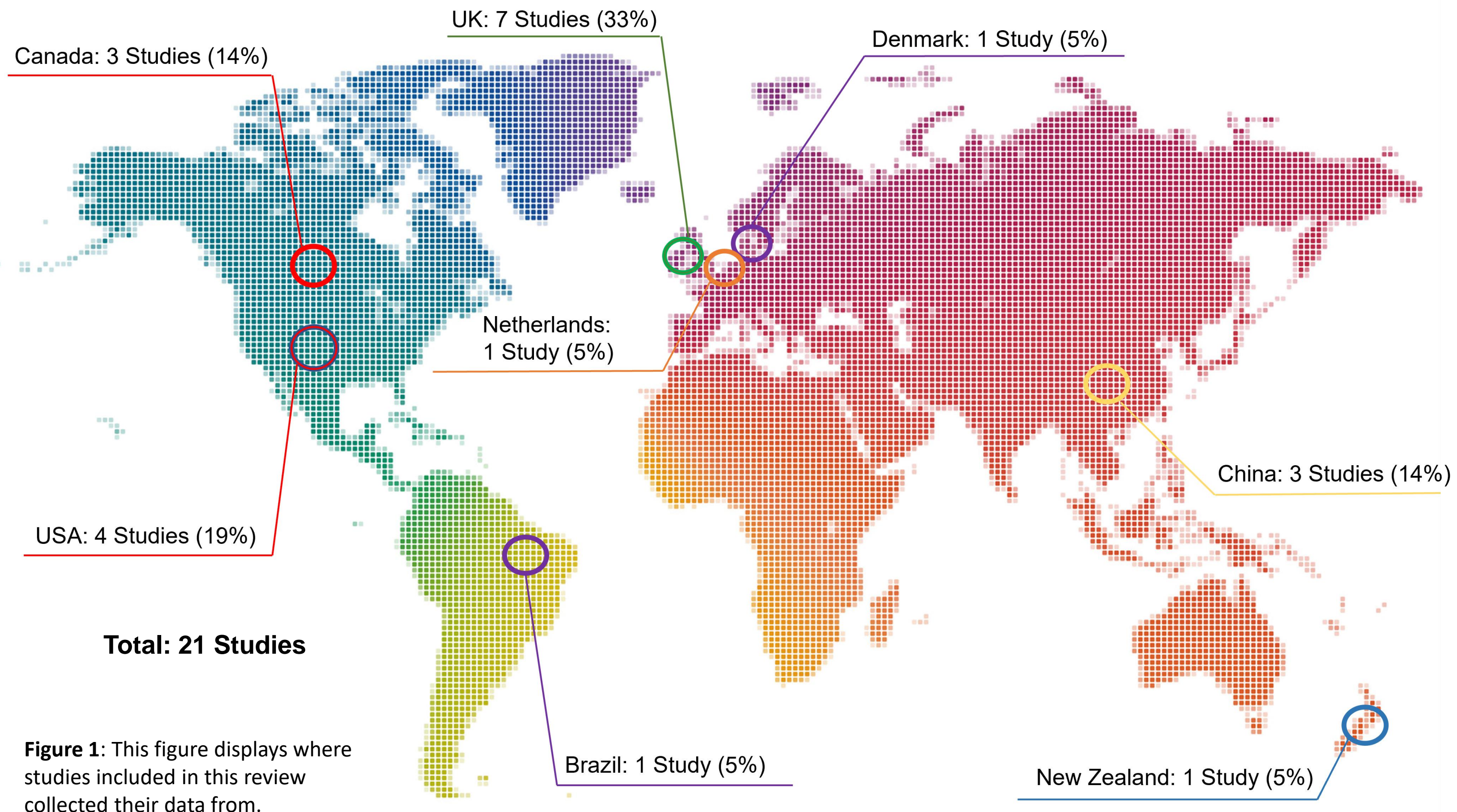2) NIHR, ARC NWC, Care & Health Informatics
3) University of Liverpool

Project Workflow

We Are Here

Scoping of Literature & Formulation of Research Question → Design Review Protocol → Implementation of a Search Strategy & Screening of Studies → Data Extraction of Selected Studies → Quality Appraisal of Studies → Synthesis of Evidence

Project Summary

- This systematic review focuses on the use of emergency care by multimorbid populations.

- Current research has not yet been synthesised and clarified around which social factors are associated with increased levels of multimorbid hospital admissions.

- This review seeks to uncover more granular detail surrounding the social determinants associated with multimorbidity (MM) within emergency hospital admissions (EHA).

- This review will provide evidence for researchers and health care providers alike to improve care for MM patients by indicating which social determinants are most associated with the EHA of MM individuals.


Canada: 3 Studies (14%)
UK: 7 Studies (33%)
Denmark: 1 Study (5%)
Netherlands: 1 Study (5%)
China: 3 Studies (14%)
USA: 4 Studies (19%)
Brazil: 1 Study (5%)
New Zealand: 1 Study (5%)

Total: 21 Studies

Figure 1: This figure displays where studies included in this review collected their data from.

Methods

- Inclusion and exclusion criteria domains informed by The Joanna Briggs Institute Approach: Conducting Systematic Reviews of Association.[1]
- Six databases searched. Including Ovid Medline, Embase, Web of Science, PsycINFO, CINAHL, and CENTRAL. 7 grey literature resources were searched.
- Data extraction was informed and guided by the CHARMS-PF checklist and the PROGRESS-PLUS tool.[3,4]
- Quality Assessment was informed by the NICE quality appraisal checklist for assessing quantitative studies reporting correlations and associations.[2]
- Reporting of evidence was informed by the PRISMA-E statement to capture health inequality and health equity aspects of the review results. Meta-analysis will be carried out where possible. [5]

Working Results

- Deprivation was reported as an associated factor of EHA of MM patients across five studies. One study unveiled notable synergistic effects between smoking, high deprivation and the EHA of MM patients.

- Male sex was reported across five studies as an associated factor, with only one reporting Female sex. Male sex significantly modified the association between EHA and MM patients, whilst MM females generally displayed a lower risk of EHA.

- Low income, low education attainment and old age were all reported across three studies. All three factors displayed significant associations with MM patients in EHA settings.

- An interesting relationship was unveiled within one study whereby younger MM patients with a mental health condition were at higher risk of EHA than older MM patients with a mental health condition.

- Other factors reported as being associated with EHA of MM patients were unemployment, urban living areas, ethnicity, lack of fruit and vegetable intake (diet), exercise, BMI, smoking, homelessness, and mental health.

Figure 2: Word cloud produced on R. Larger words represent associations reported within the review with greater frequency.
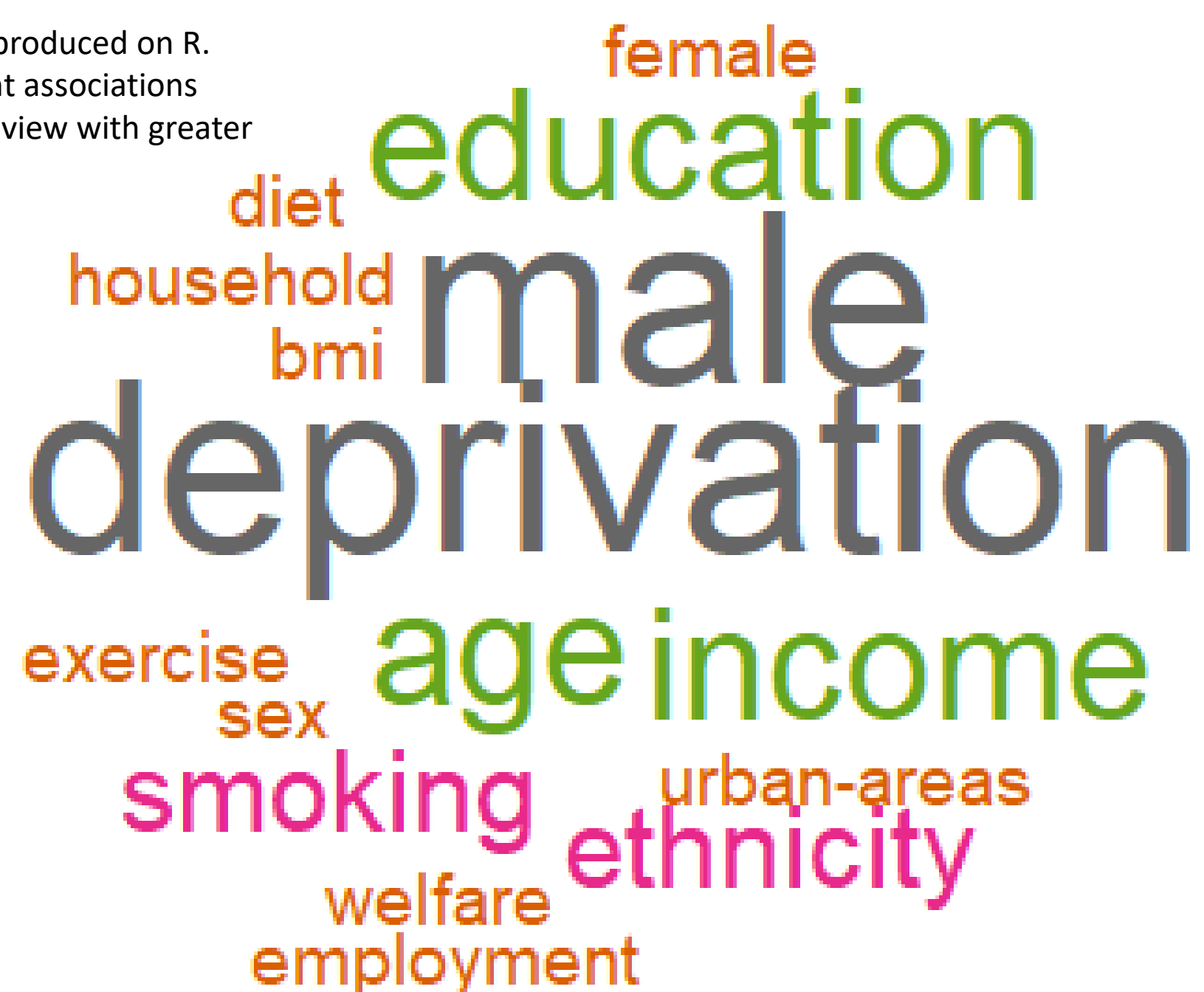
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NIHR | Applied Research Collaboration North West Coast

Using big data to assess if green-blue spaces are protective against developing a mental health disorder
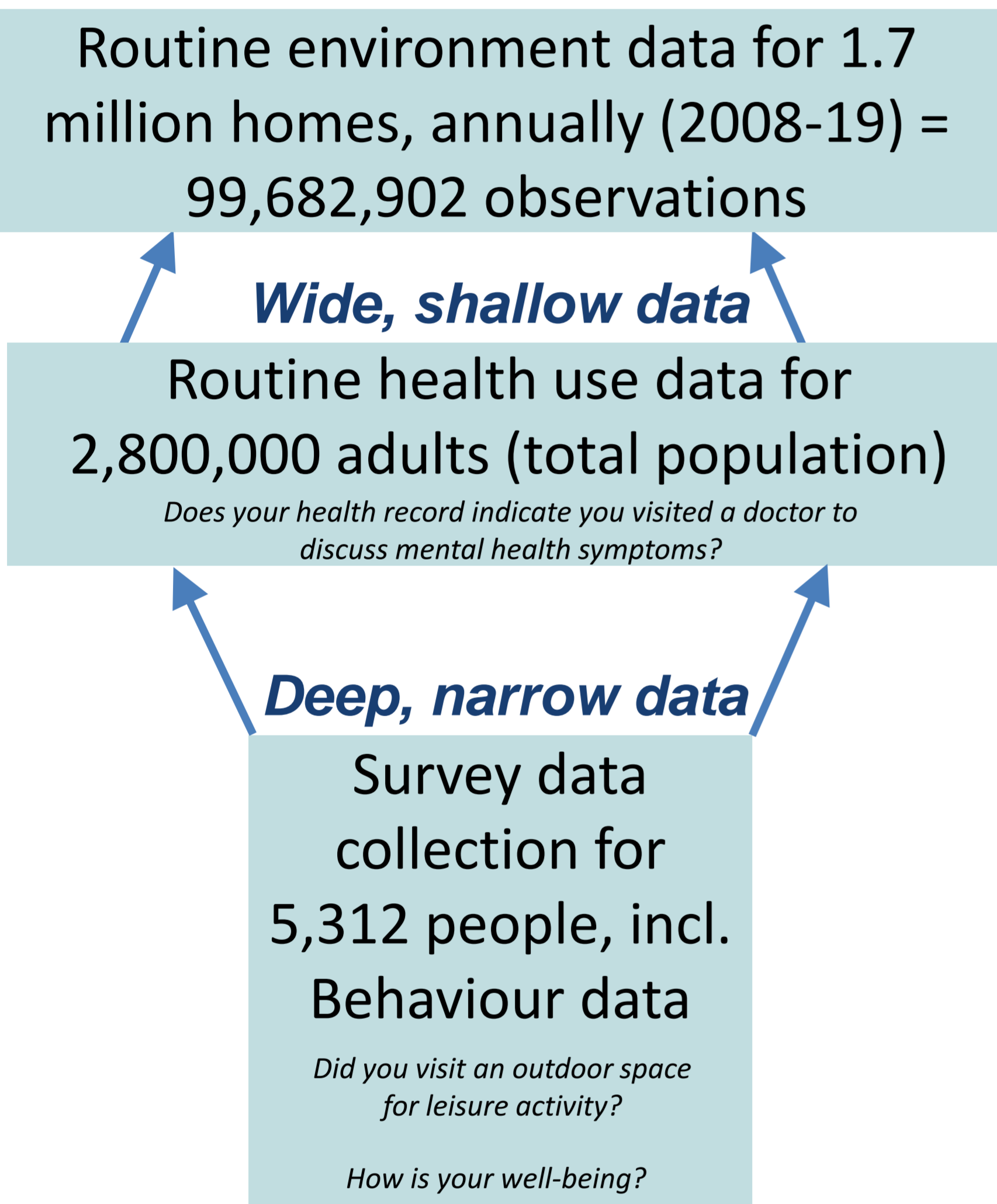
Background and methods

We investigated whether people who live near or visit green (parks, woodlands) and blue (riversides, beaches) spaces have fewer common mental health disorders (anxiety or depression), and better well-being.

We assessed the availability of local green and blue spaces. Annual exposure and access to local green and blue spaces were extracted from planning and satellite data. We linked these data to anonymised health records of **2,801,483 adults** registered with a general practitioner from 2008 to 2019. We had **24.9 million-person years of follow up** with **99,682,902 observations** of all adults aged 16 years or over.

We linked consented survey answers about leisure visits to natural environments and well-being for **5,312 survey participants**.

A structural determinant of health

Routine environment data for 1.7 million homes, annually (2008-19) = 99,682,902 observations

Wide, shallow data

Routine health use data for 2,800,000 adults (total population)

Does your health record indicate you visited a doctor to discuss mental health symptoms?

Deep, narrow data

Survey data collection for 5,312 people, incl. Behaviour data

Did you visit an outdoor space for leisure activity?

How is your well-being?

What about the people who experienced changes in greenness themselves?

For people who experienced *changing* amounts of green and blue space: we found no evidence that *changing* amounts of green and blue space affected how likely someone was to seek help for a common mental health disorder.

This may be because we saw mostly small changes in green and blue space, and we may not have allowed enough time between moving home and recording mental health.

In future work, we would like to add a longer follow up time after people moved home to see if things settle down after a move.
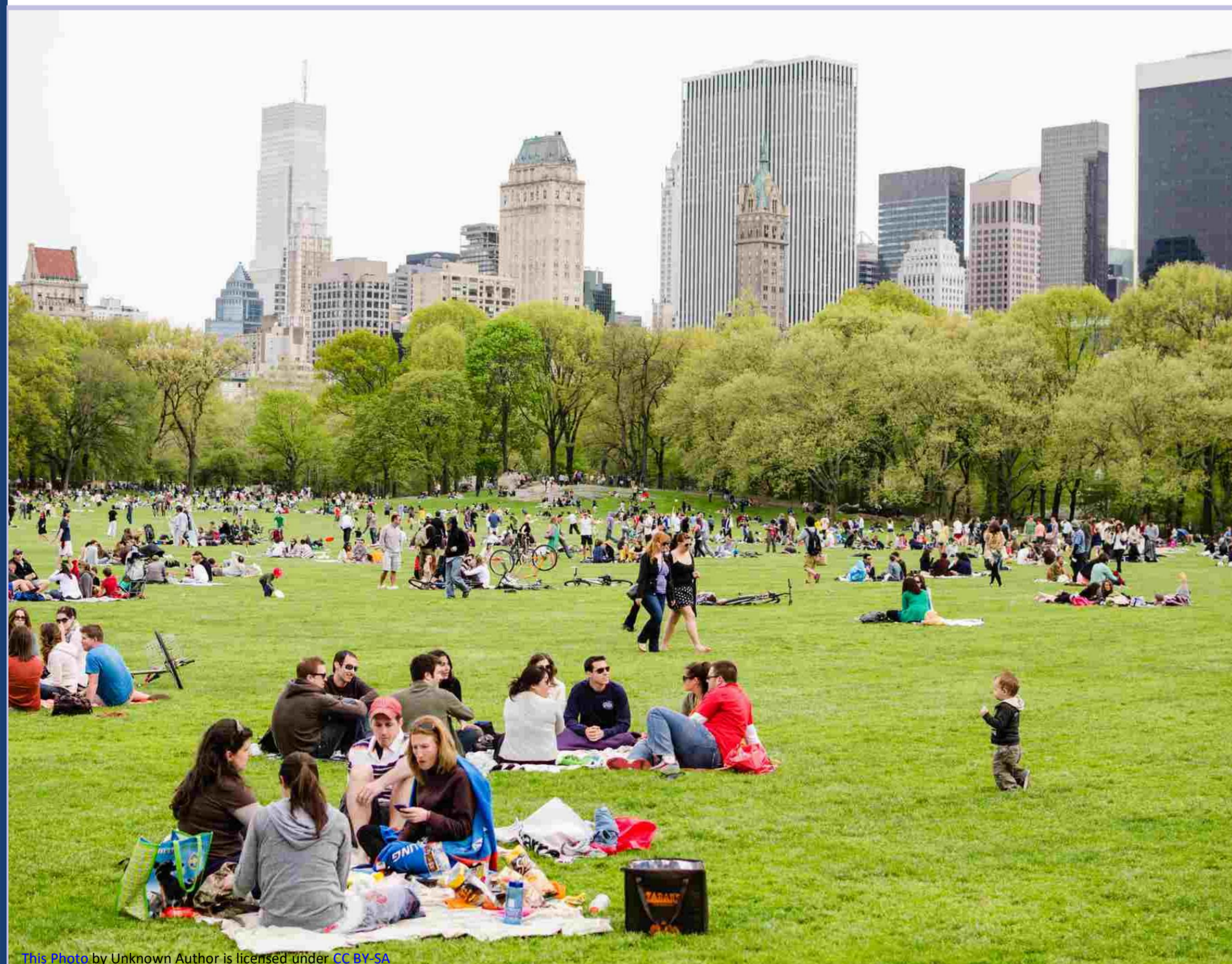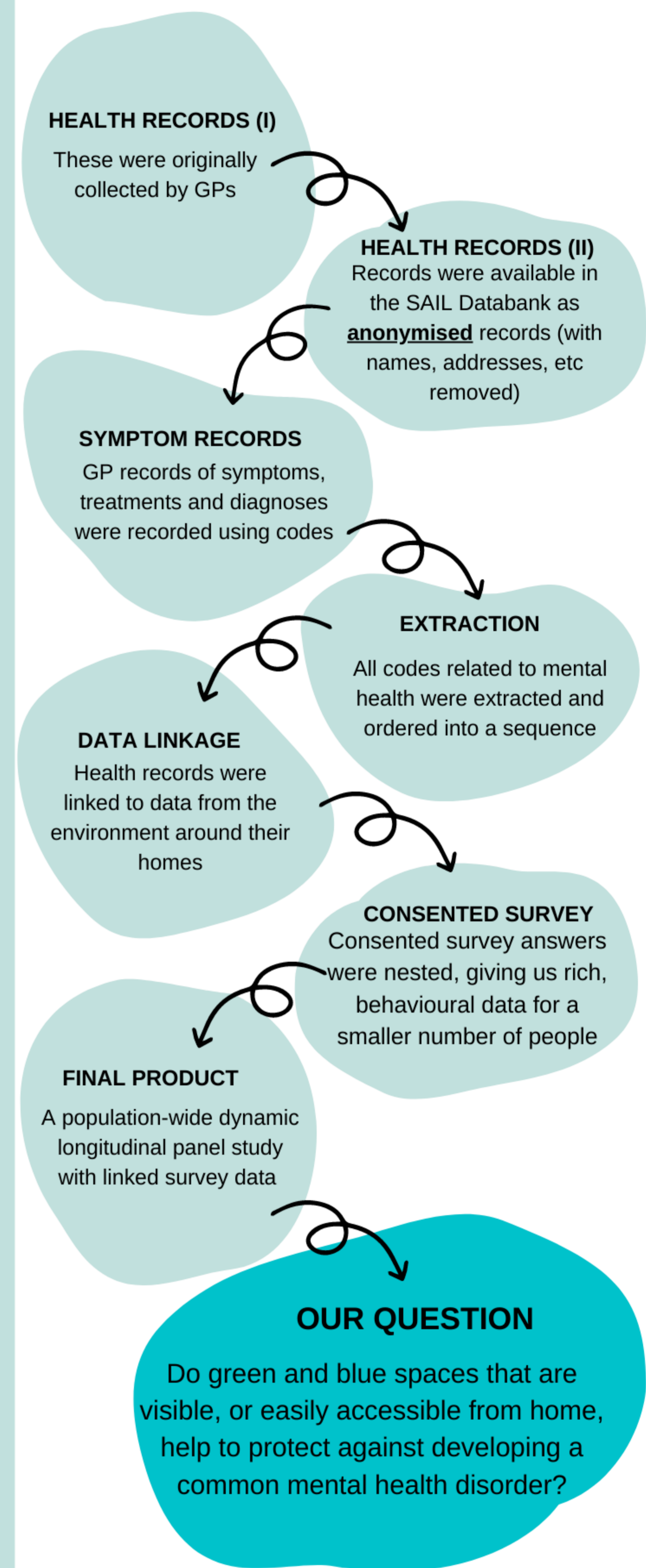

Key Findings:

People who lived in homes surrounded by more vegetation, or had access to more green and blue spaces nearby, had **better well-being**, and were **20% less likely to have a mental health disorder** recorded by their General Practitioner (GP). Compared to similar people who lived in homes with less green or blue spaces.

People who **used green and blue spaces for leisure**, especially those with the greatest levels of deprivation, had **better well-being** and were **less likely to have a mental health disorder** recorded by their GP.

Implications for Decision Makers

1 PROVISION

An important finding was that people in deprived communities appear to benefit the most.

Provision of green and blue spaces could be a strategy to improve the mental health of people living in disadvantaged areas.

2 DATA LINKAGE

This research used data linkage that generated evidence of environments and behaviours in settings outside of the health system that impacted on people's health.

Data infrastructure experts should include, as standard, linkages to residential environments and to participant behaviour data to ensure **wider systems such as people's home environments may be included** in future analyses.

OUR BIG DATA PROJECT

HEALTH RECORDS (I)
These were originally collected by GPs

HEALTH RECORDS (II)
Records were available in the SAIL Databank as **anonymised** records (with names, addresses, etc removed)

SYMPTOM RECORDS
GP records of symptoms, treatments and diagnoses were recorded using codes

EXTRACTION
All codes related to mental health were extracted and ordered into a sequence

DATA LINKAGE
Health records were linked to data from the environment around their homes

CONSENTED SURVEY
Consented survey answers were nested, giving us rich, behavioural data for a smaller number of people

FINAL PRODUCT
A population-wide dynamic longitudinal panel study with linked survey data

OUR QUESTION
Do green and blue spaces that are visible, or easily accessible from home, help to protect against developing a common mental health disorder?

Collaborators

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Developing an Industry Specific, Evidence-Informed Toolkit to Improve the Health of Contact Centre Advisors

1 THE PROBLEM FOR ADVISORS

Unique Working Conditions

- **Sitting** down for **80%** of the shift.
- Lack of **job control.**
- **High stress** and productivity requirements.

+

Upstream Determinants of Health

- **Low incomes**, typically from **deprived areas** and have **low levels of education.**

=

Excessive rates of sickness absence and employee attrition compared to the rest of the UK

- Due to **stress** and **higher engagement in unhealthy lifestyle behaviours** (low physical activity, poor diet, smoking and alcohol consumption).
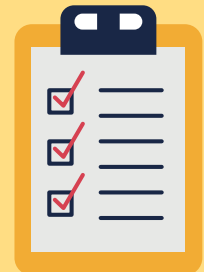
2 The Overarching Aim

This PhD aims to **produce the first industry-specific toolkit** to support contact centres to adopt and implement evidence-informed workplace **health policies and interventions** to improve **working conditions** and **lifestyle factors** of call agents.

3 RESEARCH QUESTIONS AND METHODOLOGY

Study 1

- **Survey**, across 700+ contact centres in the North West of England.
- Policies and interventions will be **mapped to the Behaviour Change Wheel.**

What policies and interventions do contact centres implement to improve the working conditions and lifestyle factors of call agents?

What influences **adoption** *and* **implementation** *of contact centre health policies and interventions?*

Study 2

Focus groups and **interviews** with health and wellbeing staff and advisors.

Which workplace health policies and interventions are perceived to be **effective**, *and why?*

Study 3

Will use study 2's results to create a list of: factors perceived to influence the adoption and implementation of contact centre health policies and interventions, and those perceived to be effective.

Participants will then score the list for importance using a Delphi survey method. This will directly inform the toolkit.

4 MAIN OUTCOME - THE TOOLKIT

The toolkit will be designed to provide evidence informed resources that contact centres can use to implement policies and interventions to improve the health and work conditions of their advisors.

- ✓ **New Knowledge.**
- ✓ **Underpinned by theory.**
- ✓ **Designed for sustained implementation.**
- ✓ **Evidence-informed.**
- ✓ **Tailored to the contact centre setting.**

Toolkit

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Liverpool John Moores University (LJMU), School of Sports and Exercise Sciences, Supervisory team within LJMU and Lancaster University.

Lancaster University

NIHR | Joint Translational Research Collaboration

LIVERPOOL JOHN MOORES UNIVERSITY

Making UKROC data at Rakehead Rehabilitation Centre meaningful to staff, patients and the Integrated Care System: is our service fair and equitable?

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Background

Data collection is a routine part our practice but often routine data are not used to their full potential. The UK Rehabilitation Outcomes Collaborative (UKROC) collects data from inpatient specialist neuro rehabilitation centres in England. ELHT Neurorehabilitation team was awarded a NIHR Applied Research Collaboration North West Coast (ARC NWC) Data Science Internship (August 2020-2021) which enabled a unique opportunity for dedicated time and support to conduct a detailed analysis of our data.

Methods

This project utilises existing data from UKROC and the electronic notes system (EMIS).a sub-set (32) of pre Covid patients were analysed. Four subjects (12.5%) had missing data and were excluded from the analysis. Patients were described from a demographic, clinical and social perspective. A detailed understanding of the neurorehabilitation provided for these patients was explored for factors that could influence rehabilitation and outcomes for this group.

Findings

Therapy Intensity

We found a range of between 44% and 98% of our subjects met the Sentinel Stroke National Audit Programme (SSNAP) daily target for amount of therapy received, dependent on therapy discipline. Reasons for the lower figure for Physiotherapy input and significantly lower figure for SLT input are considered in the discussion section.

	SLT	OT	Physio
% of subjects meeting SSNAP daily therapy intensity target	44	92	78

Age

The majority of our subjects (46%) were in the 41-60 age bracket.

Count of subjects in age groups
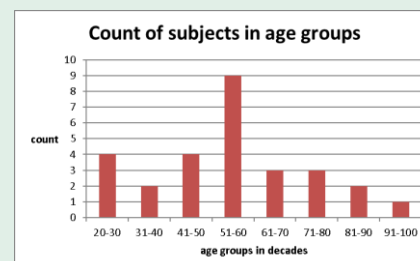
Gender

The majority of our subjects (64%) were male.

Gender — Male, Female
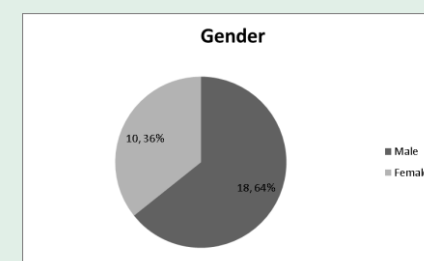
Ethnic group

The majority of our subjects were White British.

Ethnic Group — British Asian Pakistani, Chinese, White British
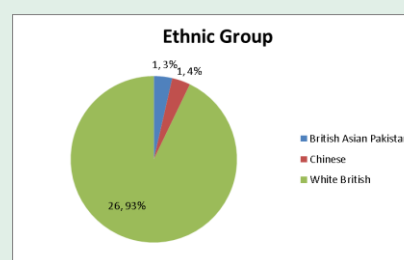
Indices of Multiple Deprivation (IMD, 2019)

The majority of our subjects (61%) live in areas of highest deprivation.

No of subjects vs Indices of Multiple Deprivation
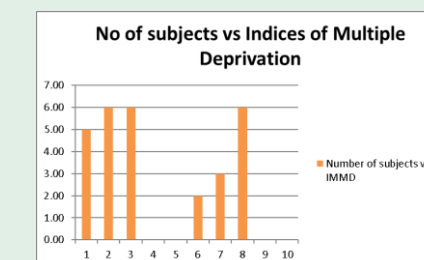
Therapy intensity and IMD category

Average amount of therapy in minutes per LOS per IMD category
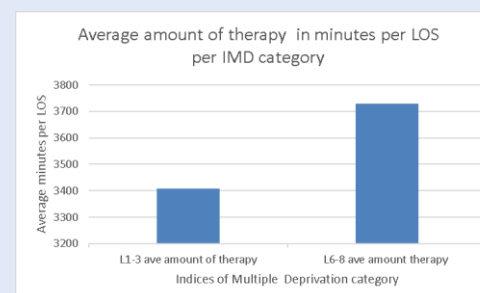
We found our least deprived group (IMD L6-8) received slightly more: 3728 mins (62 hours) rehab per stay than our most deprived group (IMD L1-3) who received 3409 mins rehab per stay (57 hours).

Increase in Functional Independence Measure (modified 2010) scores by IMD category

FIM increase by IMD category
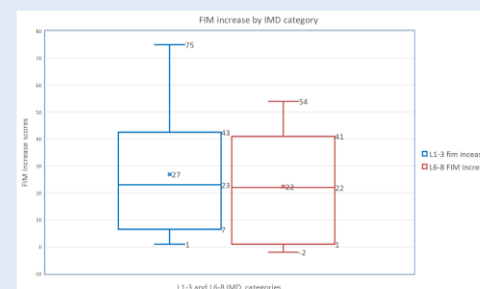
We found a greater spread and larger increase in FIM scores in our most deprived group (IMD L1-3) compared with our least deprived group (IMD L6-8).

Discussion

- Age and gender of our population are comparable to general caseload.
- Predominantly White British heritage: not representative of local population. Limited generalisation.
- Significant majority (61%) from most deprived areas (L1-3 IMD) of England. No subjects from IMD areas L9-10.
- Most deprived IMD group appears to receive slightly less therapy than our least deprived group. Further investigation required. Limitation = each subject had a different length of stay which influences amount of therapy received. Helpful to explore average amount of rehab per day per IMD group to see if the data shows up any different findings.
- Physiotherapy, & especially SLT intensity figures were disappointing & require more accurate data collection. Use of MDT outcome measure has impact: unable to collect accurate data on SLT for Dysphagia and Physiotherapy for non motor tasks without detailed examination of each subjects' FIM FAM assessment. Time limitation impact.
- Rehab proved effective for both groups with a greater range and spread of increase in FIM scores in our IMD L1-3 group. Comparison with pre treatment FIM scores & consideration of ceiling effect for L6-8 group would be beneficial.
- If time allowed, analysis of age and FIM increases, and gender and FIM increases would have been an avenue to explore.

Application and future development

Feedback to Rakehead patients and staff group will be given in the form of this poster. Data will be used to inform service and workforce planning for the Lancashire & South Cumbria Integrated Care System Neuro Rehab Pathway.

Conclusion

Incomplete data, small sample size, lack of specific data within UKROC or EMIS re amount of therapy provided & no single disciplinary outcome measure within UKROC data means our findings on therapy intensity, fairness & equity are limited. Further research could concentrate on consistent data collection, larger sample size, and accessing patients from a wider range of ethnic groups. We should explore how to support our patients who live in areas of deprivation to gain the best from neurorehabilitation. To more accurately measure our impact, we need to decide whether to continue with a multidisciplinary outcome measure such as the FIM FAM and/or use single discipline measures. Effective methods of analysing neurorehabilitation intensity could be implemented. Finally, NHS R&D departments need to support research clinicians in a timely manner to enable external funding to be used effectively.

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