NIHR PHR Review Team

The impact of home working on the health of working people and health inequalities in the population.

Systematic review working protocol

Proposed review team: Lindsay Blank (Project lead and lead reviewer), Emma Hock (Second reviewer) Anna Cantrell (Information specialist), Sue Baxter (PPI lead), Andrew Booth (methodological advice), Elizabeth Goyder (strategic lead). Topic experts: Susan Hampshaw (Doncaster Council), Simon Harvey, (Derbyshire County Council PH registrar), Annette Haywood (PHE Workplace Health group).

Summary

- This work has been commissioned to provide an independent review of existing research to establish what is known, what gaps exist in the evidence base, and to provide national and local policy makers with the best available evidence to identify the health and health inequality impacts of working at home; or 'home as the place of work' (including home/office hybrid working arrangements).

- The aim is to identify the health and health inequality impacts of working at home for the home worker and the wider population.

- The first stage of this work involved developing a mapping review informed by outline literature searching and stakeholder consultation. The mapping review has informed the search terms and inclusion criteria for this review and helped to define the data extraction and synthesis processes to be undertaken.

- Following the mapping review, a mixed methods systematic review synthesising qualitative, quantitative and observational data to identify the health and health inequality impacts of working at home will now be undertaken.

- The results of the systematic review will be summarised in an evidence informed model which will be validated with stakeholder consultation.

- In consultation with the stakeholders, the review and accompanying model will form the basis for evidence-based recommendations for policy (including guidance to employers), service development and future research.

- The final report and all associated outputs will be delivered by the end of March 2022.

Background

Home working, both as a result of restrictions during the Covid-19 pandemic and due to evolving working practices prior to the pandemic (and as a result of it), is likely to impact on a significant majority of the working population. Most of the literature on home working focus on work which would usually (or traditionally) be conducted in an office setting but may also be relevant to other industries moving forward. A previous review on homeworking were identified during the mapping phase of developing this protocol. Oakman et al. 2020: identified 23 studies considering the health impacts of home working during the Covid-19 pandemic. Ten health outcomes were reported: pain, self-reported health, safety, well-being, stress, depression, fatigue, quality of life, strain and happiness. The impact on health outcomes was strongly influenced by the degree of organisational support available to employees, colleague support,

social connectedness (outside of work), and levels of work to family conflict. Overall, women were less likely to experience improved health outcomes when working at home.

In order to "future proof" this systematic review, it will be important to consider the extent to which Covid-19-related papers are specific to impacts of lockdown restrictions (and home working during a lockdown) including the impact of school and offices closures leading to enforced homeworking for a wide range of professions - rather than the impact of home working per se - which may limit generalisability of these studies. Enforced home working during (and moving forwards as a result of) the pandemic is likely to result in more negative outcomes than where home or remote working is an option for workers and a balance between working remotely and working in the "normal" or "traditional" work location can be achieved to suit an individual. Therefore, it will be important to consider the impact of the pandemic in changing home working practices and employee choice moving forwards.

Aim and objectives

The overall aim of this review is to identify, appraise and synthesise existing research evidence that explores the impact of home working on health outcomes for working people and health inequalities in the population.

We will aim to gain a better understanding of the mechanisms that moderate the physical health, mental health, and overall wellbeing of home workers (including hybrid working where some time is spent working at home and some in the office or traditional place of work); as well as the wider impacts on health inequalities in the population. In so doing, we will make evidence based recommendations for policy (including guidance to employers), practice and future research priorities.

Specific objectives for this work are:

- To conduct a systematic review drawing on relevant, qualitative, quantitative and observational studies on the impact of home working (including hybrid models of home/office working) on the health of working people and health inequalities in the population.

- To co-produce with stakeholders, a conceptual model to represent the factors associated with the health and wellbeing of home workers (including hybrid models of home/office working) including the impact on health inequalities.

- To make evidence-based recommendations for policy (including guidance to employers), practice and future research priorities.

Stakeholder involvement: To ensure that the review is informed by, and useful to, all stakeholders who have an interest in the evidence base for home working, we will take into account the views and recommendations of diverse stakeholders.

Initially, the following stakeholders have been approached for inclusion in the project.

- NHS Midlands and Lancashire Commissioning Support group
- PHE workplace health and wellbeing group
- Strategy employers, health and inclusive employment – DWP
- PPI representatives with experience of home working

As the work develops a complete group of relevant stakeholders will be recruited and consulted at various stages of the project. A PPI group specific to this project is being developed. Potential members of the group took part in an initial online session to discuss the implications of the mapping review which informed this proposal. The team will continue to consult with the developing PPI group and wider stakeholders on current working practices and research in the field as well as key aspects of the review, including this draft protocol. We will seek their assistance in regard to Plain English wording and presentation of outputs, particularly those intended for public audiences.

Risk of bias and conflicts of interests:

We will ask individuals who participate directly in the review process to declare their interests and we will highlight the source of evidence where there is the possibility of a significant risk of bias. Formal conflicts of interest and personal perspectives of the reviewers will also be stated, particularly given that the focus of the review sits within the reviewers' direct work context.

Project plan

The work will be undertaken in two concurrent stages.

1) We will undertake a mixed methods systematic review, drawing upon quantitative, qualitative and observational studies that have identified factors influencing the health of home workers (including hybrid models of home working). The review scope will initially be limited to studies undertaken in OECD countries, as these are most likely to be relevant to the UK work context.

2) We will construct a model of the factors that impact on the health and wellbeing of home workers. We will also consider the wider impact on health inequality related outcomes in the population. An initial outline model will be produced using the results of the previous mapping review and

initial PPI and stakeholder consultations. This will be further developed and refined as the systematic review progresses.

The developing model will be used in the following ways during the review process:

- To guide and inform consultations with our PPI group and stakeholders
- As a framework to inform the development of data extraction and evidence synthesis
- As an outline onto which to map the emerging findings from the evidence synthesis
- As a visual representation of the review findings to indicate both where evidence exists, the strength of that evidence and where there are evidence gaps.

Proposed methodological approach

Health inequalities in home workers and the wider population

We will use the criteria set out by the PROGRESS-Plus (2021) dimensions to ensure that all relevant aspects of potential inequalities as a result of home working are considered. These considerations will be embedded throughout the systematic review and accompanying model. Particular note will also be taken of where there are gaps in the evidence relating to specific aspects of inequalities.

Literature search and screening

We will begin by conducting searches in relevant databases. The search will comprise subject headings and free-text terms and will be initially developed on MEDLINE then adapted for the other databases.

We will search the following databases:

- MEDLINE
- EMBASE
- Web of Science (Science Citation Index and Social Science Citation Index)
- Applied Social Sciences Index and Abstracts (ASSIA)
- International Bibliography of Social Sciences (IBSS)
- PsycINFO
- LabourDiscovery

The initial search will be restricted to papers in English from OECD countries. Searches will also be limited to articles published from 2010-current. Depending on the results of the initial database searches, further searches may be undertaken by refining the terms.

The initial database searching will be accompanied by the following search methods:

- Scrutiny of reference lists of included papers
- Searches for UK grey literature
- Search of relevant key websites
- Scrutiny of recent policy documents for peer reviewed evidence.
- Citation searching of key included papers

Search results will be downloaded to a reference management system (EndNote) and screened against the inclusion criteria by one reviewer, with a 10% sample screened by a second reviewer. Uncertainties will be resolved by discussion between the two reviewers and among the wider review team as required.

Identification of relevant evidence

PICOS

Population

The population will include anyone in the working population who spends all or some of their working time at home. This will include hybrid models of home working where some time is spent working at home and some in the office or other traditional place of work. Other aspects of flexible and remote working which do not relate directly to home working e.g. studies about flexible office hours or working in remote locations away from the home, along with the impact of work accessibility (e.g. the impact of remote access to emails on home life) will be considered to be outside the scope of this review.

Context

The extent to which people have been asked to work at home has escalated dramatically in response to the COVID-19 pandemic. The review and model will take account of this, whilst also considering evidence from before the pandemic and considering the implications for future research and policy directions.

Outcomes

Any factor that has been shown to be associated with the health of people working at home. This will include all measures of physical health (including self-reported outcomes), mental health (including clinical indicators such as diagnosis and treatment and/or referral for depression and anxiety alongside self-reported measures). All measures associated with wellbeing including but not limited to wellbeing, happiness, mood, and stress related outcomes will also be included.

Studies

We will include quantitative, qualitative, and observational studies. Studies with and without a comparator group will be included. Books and dissertations will be excluded (but reference lists may be checked for relevance in specific cases). Case studies will be considered on an individual basis in terms of their study design and risk of bias.

Data extraction and quality appraisal

We will extract and tabulate key data from the included papers. Data extraction will be performed by one reviewer, with a 10% sample checked for accuracy and consistency. For qualitative papers we will extract data from both the authors findings and from raw data within the published paper. A data extraction forms for each type of study design (quantitative, qualitative, and observational) will be designed, piloted and refined. Quality (risk of bias) assessment will be undertaken using appropriate tools for the types of study designs included. Quality assessment will be performed by one reviewer, with a 10% sample checked for accuracy and consistency. The overall quality of the evidence base will also be considered.

Methods of synthesis

The extracted data will be synthesised narratively. Additional forms of analysis and synthesis will depend on the characteristics of the evidence identified. We will seek to characterise key features of the literature including strengths, limitations and gaps. These will be validated by our PPI and stakeholder participants and reflected in the associated model as it develops. Assessment of the overall quality and relevance of evidence will form part of the narrative synthesis. We will describe the volume, quality and degree of consistency in the evidence, and where there are gaps requiring future primary research.

Registration and outputs

We will make the protocol available via the PHR programme website, our own website and PROSPERO.

The evidence synthesis and final model will be shared with national policy makers, and organisations representing employers and employees. The main outputs will consist of:

- A report for the NIHR PHR programme (subsequent publication in the NIHR Journal Library or via The University of Sheffield – to be confirmed by NIHR)
- Peer-reviewed journal article and associated conference presentation
- Evidence briefing for decision-makers
- Summary materials for public audiences
- Social media outputs (primarily via Twitter) linked to the outputs above

Timetable

This table outlines our proposed timeline for completion of the review. We will hold regular fortnightly team meetings to monitor progress and will keep the PHR programme team informed of progress at regular intervals.

	Mar 21	Apr 21	May 2021	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21	Dec 21
Scoping/protocol development	░░	██								
Evidence identification			██	██	██					
Data extraction/ QA			██	██	██	██				
Analysis and report writing				██	██	██	██			
Delivery of draft report								██		
Completion final report									██	
PPI/stakeholder consultations	░░			██				██		
Conceptual framework dev		██	██	██	██	██	██			
Dissemination									██	██

References

Oakman J, Kinsman N, Stuckey R, Graham M, Weale V. A rapid review of mental and physical health effects of working at home: how do we optimise health? BMC Public Health. 2020;20(1):1825.

LabourDiscovery Database:

https://ilo.primo.exlibrisgroup.com/discovery/search?sortby=rank&vid=41ILO_INST:41ILO_V1&lang=en

Progress Plus Dimensions (2021) https://methods.cochrane.org/equity/projects/evidence-equity/progress-plus