

# The NIHR public health research programme: intervention approaches to tackle health inequalities

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## ABSTRACT

**Background** The National Institute for Health Research (NIHR) Public Health Research (PHR) Programme evaluates interventions intended to improve the health of the public and reduce inequalities in health in the UK. The aim of the research was to establish how projects funded by the PHR Programme between 2009 and 2014 addressed health inequalities.

**Methods** A health inequalities intervention framework developed by Bamba *et al.* was used to map PHR funded studies to a typology. The framework is based on interventions that are characterized by their level of action and their approach to tackling inequalities.

**Results** A total of 57 primary research projects funded by the PHR Programme were categorized using the framework; 16 PHR research projects were classified as strengthening individuals, 24 strengthening communities, 15 improving living and school/work conditions and 2 promoting healthy macro policies. Eighteen were classified as targeted interventions whereas 39 were universal.

**Conclusions** Mapping the interventions being evaluated by the PHR Programme to a typology differentiated health inequality interventions and illustrates how they are expected to have an impact. Emerging findings will contribute to the evidence base for addressing health inequalities to inform research and future commissioning of public health services.

**Keywords** public health, research, social determinants

## Background

The National Institute for Health Research (NIHR) is the research and development arm of the National Health Service (NHS). It is funded by the English Department of Health with contributions from the Chief Scientist Office in Scotland, Health and Care Research Wales, and the Health and Social Care Research and Development Public Health Agency in Northern Ireland. The NIHR aims to improve the health and wealth of the nation through research by providing a health research system in which the NHS supports outstanding individuals working in world-class facilities, conducting leading-edge research focused on the needs of patients and the public.<sup>1</sup> Funding research related public health and health inequalities is an important part of the remit of the NIHR. One of the significant funders in this area is the NIHR Public Health Research Programme (PHR) Programme which aims to evaluate interventions intended to improve the health of the public and reduce inequalities in health in

the UK. The scope is multidisciplinary and broad, covering a wide range of interventions that improve public health. When considering research proposals in a competitive funding process, weight is given to whether the research addresses a clear evidence gap followed by scientific quality, feasibility and value for money. However, although reducing health inequalities should be at the heart of the research, one of the reasons for rejecting an application is a lack of clarity on how health inequalities will be addressed. Chalmers and Glasziou highlight that research should address health problems of importance to populations and the interventions and outcomes considered important by patients and clinicians,<sup>2</sup> so if areas lack clarity it is difficult to assess this. This is important to ensure value is added in research.

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‘Health inequalities are differences between people or groups due to social, geographical, biological or other factors’.<sup>3</sup> They often have complex causes and relationships are multi-faceted. Reducing health inequalities is an important public health goal. The Marmot review explains that ‘inequalities in health arise because of inequalities in society – in the conditions in which people are born, grow, live, work and age’.<sup>4</sup> The review justifies that reducing health inequalities will require action on six policy objectives, from a range of sectors. For that reason it is important to research the effect of public health interventions on health inequalities, which may be reduced or possibly widened, even if interventions are shown to be effective in improving overall population health. For example, Chesterman *et al.* showed that NHS smoking cessation services have been effective in helping smokers from disadvantaged groups and have potential to make a useful contribution to addressing inequalities in health.<sup>5</sup> However, mass media campaigns for smoking cessation and folic acid supplementation during pregnancy, have been shown to be less effective in disadvantaged communities.<sup>6,7</sup> Bambra *et al.* highlight that evidence is lacking in the sort of interventions that might be required to tackle inequalities. They discuss how interventions intending to reduce health inequalities have been researched, which largely concentrate on modifying individual health behaviours, rather than focusing on the determinants of health.<sup>8</sup> Research on health behaviours is valuable, but the public health landscape may benefit from more research on the determinants of health considering the estimated impact that they have on the population’s health.

To build evidence to enable public health decision makers, such as those working in local authorities, to make informed choices, it is useful to review how PHR programme projects are currently addressing health inequalities, highlighting what interventions are being used, and identifying gaps in the portfolio of funded research. A framework which lays out delivery systems as shown in the Marmot review<sup>4</sup> illustrates how interventions based on the best available evidence underpin strategies that provides action on health inequalities at different levels across the lifecourse. The aim of this paper is to review what types of interventions from funded PHR programme research projects are being evaluated, and how they may impact health inequalities.

## Methods

A public health intervention framework was selected based on the suitability of whether it could be used to assess the current landscape of PHR research projects in regards to health inequalities. It was decided to use the framework

developed by Bambra *et al.* which was based on two models developed by Whitehead,<sup>9</sup> and Graham and Kelly,<sup>10</sup> which enables public health interventions to be categorized by a number of different types of components, as shown in Box 1.<sup>11</sup> A retrospective review of PHR funded projects (from the start of the programme in 2009 to the start of January 2014) was completed and these were mapped onto the framework. Secondary research was excluded as these types of studies do not typically have a single intervention and may cross multiple categories. HD and LO independently categorized each PHR project. Initially, 10 were reviewed and the results were compared and discussed, then the remainder of the portfolio was categorized. Any disagreements with categorizations were resolved through consensus discussion and if there had been any agreements that could still not have been reached, this would have been settled by another pre-identified senior member of programme staff. A record was kept of the characteristics of the different levels of interventions to enable reflection on the types of interventions under each category.

## Results

A total of 57 PHR projects were categorized using the framework. Table 1 shows the number of projects in each category, with examples of the types of interventions included.

These examples show some of the characteristics recorded from each level of action and approach.

### Strengthening individuals

The strengthening individuals category were mainly targeted person-based interventions that often aimed to improve the health of disadvantaged individuals. The interventions were usually based on individual characteristics and health behaviours.

One example of a successful person based intervention funded by the PHR Programme is an intervention to reduce alcohol-related harm in disadvantaged men, delivered by mobile phone. The study showed that disadvantaged men can be recruited and retained in an alcohol intervention trial. The text messages sent were well received and elicited the types of response intended. A full trial of the intervention is now being carried out, which will further be able to assess the impact of inequalities.<sup>12</sup>

### Strengthening communities

The strengthening communities category included improving the health of disadvantaged communities by addressing the social inequalities that underpin health inequalities, such as social capital, cohesion and reducing isolation.<sup>13</sup> This may

**Box 1**

The Bamba *et al.* framework shows that interventions are characterized by their *level* of action and their *approach* to tackling inequalities.<sup>11</sup>

Firstly, Whitehead (2007),<sup>9</sup> stated there are four 'levels' of interventions to tackle inequalities:

**Strengthening individuals** (person based strategies to improve the health of disadvantaged individuals). In the framework, individual level interventions were defined as those that included individualized/one-to-one health promotion, education, advice, counselling or subsidy and were conducted in a health care or research setting, or in participant's homes.

**Strengthening communities** (improving the health of disadvantaged communities and local areas by building social cohesion and mutual support). In the framework community level interventions were defined as group-based health promotion, education, advice, counselling or subsidy only interventions, or interventions conducted in a community setting (e.g. a school, community centre, sports centre or shop).

**Improving living and school/work environments** (reducing exposure to health-damaging material and psychosocial environments across the whole population). Societal-environment level interventions were defined as those that included a change in environment or access to environment.

**Promoting healthy macro policy** (improving the macro-economic, cultural and environmental context, which influences the standard of living achieved by the whole population). Societal-policy level interventions were defined as macro-level policies such as taxation, advertising restriction or subsidies.

Secondly, Graham and Kelly<sup>10</sup> explained that these interventions are underpinned by one of three different *approaches* to health inequality:

**Disadvantage:** improving the absolute position of the most disadvantaged individuals and groups.

**Gap:** reducing the relative gap between the best and worst off groups.

**Gradient:** reducing the entire social gradient.

Therefore Bamba *et al.* expressed that interventions are either:

**Targeted:** individual level interventions which are underpinned by health as disadvantage.

**Universal:** living, work, and school conditions interventions which potentially influence the entire social gradient in health. In this case, universal interventions include those that span across the social gradient, and those that include everyone in a whole setting. For example, an educational intervention in a school which includes all pupils to take part.

involve communities working together to tackle a community problem, such as reducing crime.

An example of a PHR research project in communities is a project that looked at approaches to community engagement in the New Deal for Communities regeneration initiative.<sup>14</sup> The results revealed that the greater the levels of control that residents have over decisions affecting their lives, the more likely there are to be positive effects, although, no one approach to community engagement was more successful than the others in engaging more or different groups.

### Improving living and school/work conditions

The improving living, work and school environment category included interventions that change environment or the access to environment, transport and housing across the population.

'On the buses: a mixed-method evaluation of the impact of free bus travel for young people on the public health' is an example of a project that aims to improve living conditions.<sup>15</sup> The research aimed to assess the impact of free bus

travel for young people on the health of the public. It particularly focused on the effects on young people, but also the consequential effects on other population groups. The study highlighted that transport systems have the potential to be both health promoting or harmful to health and can contribute to the generating or reducing health inequalities. The results showed that the free bus travel scheme appears to have encouraged more use of bus transport for short trips without significant impact on overall active travel. There was evidence for benefits on social determinants of health, for example, normalization of bus travel and greater social inclusion.

### Promoting healthy macro policies

The category for promoting healthy macro policy includes population-level interventions that aim to improve the macro-economic, cultural and environmental context that effect the standard of living. This may include interventions such as restrictions on advertising and fiscal measures, for example taxing foods with a high fat or sugar content. Due to the remit of the programme there were only two PHR

**Table 1** Results of PHR project classification

	<i>Intervention examples</i>	<i>Targeted</i>	<i>Universal</i>	<i>Total</i>
Strengthening individuals	<ul style="list-style-type: none"> <li>– Brief interventions delivered by mobile phone</li> <li>– Gender-sensitive weight loss and healthy living programme</li> <li>– Brief alcohol intervention to prevent hazardous drinking</li> <li>– Group Family Nurse Partnership</li> <li>– A peer-led walking programme to increase physical activity in inactive older adults</li> <li>– A falls prevention programme for older people</li> </ul>	15	1	16
Strengthening communities	<ul style="list-style-type: none"> <li>– A school based cognitive behaviour therapy programme</li> <li>– A family-based community intervention for childhood overweight and obesity</li> <li>– Community engagement initiatives</li> <li>– Workplace schemes to encourage active commuting</li> <li>– An alcohol misuse prevention programme</li> </ul>	2	22	24
Improving living and school/work conditions	<ul style="list-style-type: none"> <li>– Housing regeneration programmes</li> <li>– Using available green spaces</li> <li>– Impact of changing levels of street lighting</li> <li>– The health impact of newly built roads</li> </ul>	1	14	15
Promoting healthy macro policies	<ul style="list-style-type: none"> <li>– Smoking Point of Sale Legislation</li> <li>– The regulation of alcohol</li> </ul>	0	2	2
Total		18	39	57

projects in this category, as policy evaluation can be covered by the Policy Research Programme (PRP).

Determining the Impact of Smoking Point of Sale Legislation Among Youth (DISPLAY) study is an example of a piece of ongoing research in this category to provide evidence for future policy. The aim of the study is to assess the impact of the Tobacco and Primary Medical Services (Scotland) Act 2010 (that bans of point of sale advertising) on young people's exposure to tobacco advertising, their attitudes towards smoking and their smoking behaviour. The researchers explain that the legislation has the potential to have a major impact on young people's attitudes to smoking and smoking behaviour and in the longer term reduce health inequalities.<sup>16</sup>

## Discussion

### Main finding of this study

The aim of this research was to review what types of interventions from funded PHR programme research projects are being evaluated, and how they may impact health inequalities. Bambra *et al.*'s framework was identified to help answer this question, which has highlighted a number of interesting findings. Firstly, the majority of projects were classified as universal rather than targeted. It has been argued that universal interventions are more efficient at reducing inequalities compared to targeted programmes, and that they tackle the socioeconomic

gradient, not just those at the bottom of the social scale.<sup>17</sup> For the purpose of this analysis, universal interventions include those that span across the social gradient and those that include everyone across a whole setting. For example, an educational intervention in a school which includes all pupils to take part. Some researchers have argued that such population-wide intervention strategy may inadvertently worsen socioeconomic inequalities, because although compliance to interventions may be higher, socioeconomically advantaged individuals tend to respond earlier and to a greater degree than those who are disadvantaged.<sup>18</sup> Interventions that focus on the individual are commonly used and should be evaluated, although it has been debated that they can sometimes fail to take into account context.<sup>11</sup> For example, some individuals might find it easier to adopt the intervention than others, because of their access to certain types of resources and social capital. In addition, this approach, if not careful, can sometimes seem to carry an implicit sense of victim blaming if change is not achieved.<sup>19</sup> A rapid overview of systematic reviews identified types of intervention impacting inequalities and concluded that further evidence would be valuable and researchers should explore what kind of interventions increase or reduce inequalities.<sup>20</sup> There are other approaches, which include a mix of universal and targeted interventions, which were not picked up by this research. For instance 'proportionate universalism', which is the notion that interventions should be both universal, but

targeted to where there is more need. This concept is championed in the Marmot Review.<sup>21</sup> It states, 'to reduce the steepness of the social gradient in health, actions must be universal, but with a scale and intensity that is proportionate to the level of disadvantage'. None of the projects funded by PHR, in this timeframe, explicitly stated they are using this concept. However, some projects maybe using this approach, for instance, projects evaluating the Family Nurse Partnership are targeting those who live in disadvantaged circumstances, although the intervention is available to all.<sup>22,23</sup>

Secondly, interventions were also more likely to target communities, rather than any of the other three approaches. This can be a popular approach in public health as it empowers people, within a network, to gain control over factors influencing health. Some may argue that individuals in socially disadvantaged groups can find it difficult to change their behaviour, potentially because of lack of resources or they may already have existing health problems.<sup>11</sup> Health inequalities literature often stresses how interventions that address determinants of health are important, for example living conditions and access to transport, as it may impact on reducing the social gradient. However, it has been suggested that some settings may work better than others, due to context. For example a workplace intervention may be more effective at some work settings than others, depending on occupational groups and socioeconomic status, such as managerial and professional workers or routine and manual workers. As previously highlighted, Bambra *et al.* explain that interventions intending to reduce health inequalities have been researched, but largely concentrate on modifying individual health behaviours.<sup>24</sup> This may indicate that health behaviours are often simpler to distinguish and target in research, with evidence on tackling the wider social determinants being more limited.<sup>8</sup>

Only two interventions were classified as 'promoting healthy macro policies' mainly due to the remit of the PHR programme. It has been debated where the line should be drawn between government and individual responsibility for health.<sup>14</sup> However, it has also been argued that public health policy can be an opportunity to create supportive environments for people to live a healthier life, with a long-term effect at low cost. For example, policy driven interventions can be most effective where individuals on their own cannot effect significant social change, for example banning smoking in public places. It is important that policies are assessed, and are based on evidence that can be justified in ethical terms.<sup>15</sup>

### What is already known on this topic

There is a strong case that action taken to reduce health inequalities can benefit society in many ways.<sup>21</sup> It may mean

people live longer healthier lives and there may be economic benefits from reducing losses from illnesses associated with health inequalities. Therefore it is imperative that good quality intervention research produces evidence, which can be used by public health professionals and decision makers to help tackle health inequalities. It is important to look at a variety of interventions to build the evidence base to help public health decision makers.

One of the difficulties that has been highlighted is framing health inequalities as an issue of individual or community health behaviours rather than population health. Research on health behaviours is valuable, but the public health landscape may benefit from more research on the determinants of health considering the estimated impact that they have on the population's health. It appears that interventions that focus on health behaviours are more readily linked to outcomes and are easier to identify, implement and evaluate. Research affecting the determinants of health may present methodological complexities requiring multidisciplinary perspectives.<sup>25</sup>

### What this study adds

This study has several strengths, including that to our knowledge, this is the first project that looks at the spread of public health approaches, in a cohort of funded research projects, in relation to health inequalities. The paper is a starting point for building a picture of the interventions, but much of the research has not yet been completed, so the effectiveness is currently unknown. In the future, once impact of the interventions can be demonstrated further research can build upon the framework. The emerging findings could provide useful evidence for local decision makers when considering the implementation of new public health interventions or the re-evaluation of existing services. This will help develop the evidence base, which will in turn improve delivery systems, as earlier discussed in the Marmot review.<sup>4</sup> Such information would inform public debate on the effectiveness of interventions and potential investment for future delivery. This will also build upon Bambra *et al.*'s research using a typology that differentiates health inequality interventions by their underlying theory.<sup>11</sup> This provides an opportunity to reflect on the balance and breadth of the NIHR PHR Programme, which funds public health interventions, in relation to health inequalities to help identify potential gaps in the portfolio and direct future plans for research commissioning. For example, it may be useful to highlight that the PHR programme is interested in receiving robust research proposals on prospective evaluative studies of interventions that address the social determinants of health. The outcomes of the research also give the PHR

Programme, and potentially other research funders, the chance to assess whether areas of importance are being addressed, and ensures value is added in research.

### Limitations of this study

There are a number of limitations to acknowledge. Firstly, the PHR Programme has only been funding projects for six years so there were a limited number of projects to classify and many have not yet been completed. However, the work presented in this paper should be considered the first step in a longer-term process of subsequent research, such as extending the categorization with the evidence of effectiveness of the interventions, and to cover projects from other NIHR programmes and other funders of PHR, to assess whether research is conducted in way that has potential to address health inequalities and the impact of research on health inequalities. Once impact has been demonstrated in a particular area or setting, for example there are a number of studies nearing completion set in schools, a future evidence synthesis could strengthen information for decision makers.

Secondly, two people conducted the retrospective review of the PHR portfolio. There is a possibility that someone with different expertise would have classified the portfolio differently. Lastly, there were a number of other frameworks that may have been used, which may have given a different picture.

### Conclusion

Using the framework developed by Bambra *et al.* this paper presents a typology of possible interventions to tackle health inequalities. By separating out the interventions of funded PHR projects into a typology in relation to health inequalities, we have differentiated them by their characteristics. Understanding the impact of public health interventions on health inequalities will help public health decision makers and researchers reflect on the range of interventions available and their potential effectiveness for a population. Once the effectiveness of interventions is published in time, such knowledge can may support local commissioning decisions for new or existing public health interventions.

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