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What are the effects of fuel poverty?

A series of policy-relevant briefings on the legacy of research supported by Eaga Charitable Trust.

Following 25 years of supporting research on fuel poverty, the Eaga Charitable Trust (Eaga CT) closed in 2019. This series of research digests presents a summary of the research evidence under five themes: homes, people, impacts, approaches and concepts. This briefing focuses on the impacts of living in fuel poverty, mainly on a person's health and wellbeing. Readers can find more on these issues and the full breadth of Eaga CT's output in the new online fuel poverty library: www.fuelpovertylibrary.info.

1 Health and Wellbeing

Health and wellbeing have always been at the centre of Eaga CT's work. One of its first publications[1], in 1997, focused on strategically mapping out the research agenda in this area. This was supported by a further publication[2] in 1999 and a seminar[3] in 2001 that summarised progress to date and identified challenges going forward.

Broadly speaking, studies in this area can be categorised in two ways: as those concerned with the health impacts of living in fuel poverty and/or poor housing (in essence a static assessment); and those that examine how efforts to tackle fuel poverty have impacted householder health and wellbeing (an evaluation of change). It should also be noted that while this area is the main focus in several studies, it also features as a subsidiary theme in a large number of others.

Physical Health

Research on the impact of fuel poverty and poor housing on physical health has often focused on its relationship with respiratory conditions, with asthma and Chronic Obstructive Pulmonary Disease (COPD) being two of the most common examples.

- In 1998, the Trust funded three postgraduate dissertations[4] that examined the impact of poor housing on older people living with COPD in East London. Across the studies, medical and property data was compared with seasonal mortality rates, in order to determine any link between indoor conditions and the severity of individuals' symptoms.
- With a randomised controlled trial, a 2007 study[5] in Scotland assessed whether energy efficiency improvements had an effect on the health of fuel poor Scottish householders with COPD.

As well as specific conditions, studies exploring the health implications of fuel poverty have also tended to focus on particular groups recognised as having increased vulnerability.

Key Points

- Fuel poverty continues to be a reality for many households in the United Kingdom and beyond. Action is needed to reduce the incidence and severity of this social issue in order to reduce the severe impact it has on health and wellbeing.
- Experiences of cold and damp homes as well as the financial stress of managing energy budgets can affect physical and mental health and wellbeing.
- Fuel poverty affects quality of life in a broader sense, for example social life, educational attainment and social exclusion.
- People with chronic illnesses and disabilities are more likely to require energy to keep their condition stable, more likely to be in the home for long periods of time, and more likely to be out of work and therefore experience financial stress.
- Although there is a growing evidence base around the potential for fuel poverty alleviation measures to improve health and wellbeing, policies continue to be devised without fully evaluating their impact.
- Work to reduce fuel poverty can also aid carbon reduction efforts, but it should not be assumed that these two agendas are always and necessarily synergistic.
- Many beneficiaries of energy efficiency improvements may take a large part of the benefit in comfort savings, rather than energy savings. This can boost health and wellbeing but also mean that energy and carbon savings are less than models might suggest.

- Highlighting the increased negative impact on children, a 1999 study[6] identified links between poor housing conditions, increased attendance at General Practitioner (GP) surgeries and general health problems in Glasgow.
- A 2005 study[7] investigated the relationship between internal and external temperatures and the health status of older people. Findings indicated that the colder the home, the higher the risk of 'cold stress' related health conditions.
- A 2011 study[8] illustrated in detail the specific (and often greater) energy needs many disabled people required simply to keep their condition stable, and the very serious impact on their physical (and mental) health that results from not being able to meet them.

- A 2014 study[9] noted how those with chronic illnesses and disabilities are more likely to be out of work and reliant on benefits, placing them at much greater risk of fuel poverty in the first place. Based on survey data, the same study also noted how families were 'extremely concerned' about the impact of fuel poverty on their children's health.

Adopting what is referred to above as an evaluation of change, several studies have measured or investigated the impact of energy efficiency measures on health. This is a vital part of the wider narrative around efforts to tackle fuel poverty, where the goal is not solely to reduce fuel costs and/or consumption.

- Using data from parents, housing officers and GP records, a 2000 study[10] found that the installation of central heating systems was associated with a reduction in childhood asthma symptoms. Cost benefit analysis suggested the National Health Service could make significant financial savings by investing in such measures, and the lesson for those working on energy and fuel poverty was that impact criteria need to be wider than technical calculations (i.e. explicitly outlining health and social impacts also).
- A 2001 study[11] developed a statistical model using epidemiological techniques to assess if energy efficiency improvements demonstrated positive health benefits. Data on incomes, hospital admissions, Standard Assessment Procedure (SAP) ratings as well as the English House Condition Survey, national census and Met Office data were used in the model.
- One study[12] focusing on social housing residents in Nottingham reviewed the outcome of various home energy improvements on residents' asthma, taking measurements of lung flow, dust mite, humidity and mould.
- A 2004 study[13] found notable improvements in self-reported health, particularly in terms of respiratory health, following the installation of central heating systems.
- A 2018 publication[14] examined the relationship between fuel poverty/home energy efficiency and hospital admission rates for cardiovascular and respiratory diseases at the area level. The authors concluded that despite consistent evidence of the link between housing and health, policies and practice continued to be devised without properly evaluating the potential health impact.

Mental Health

The impact of fuel poverty on mental health has received much less attention than physical health but has featured in a number of studies.

- Exploring the health benefits of retrofit among social housing tenants, a large-scale 2003 study[15] analysed surveys and found that mental (not physical) health seemed to be associated with housing conditions, concluding that analysis of changes to mental health could be a better indicator for measuring the impact of interventions.
- The importance of psychological wellbeing was noted in a 2004 interview study[16] where the installation of new central heating demonstrated improvements in mental health and personal relationships among residents.
- A 2010 study[17] analysed data from the Adult Psychiatric Morbidity Survey, which in 2007 included questions on energy consumption, fuel poverty and housing conditions for the first time. It concluded that individuals with a diagnosable common mental disorder (CMD) were at higher risk of fuel related poverty. The data also suggested that indicators of fuel poverty such as cold housing and reducing fuel use could function as risk markers for these forms of mental ill health.
- A 2011 literature review[18] investigating the advice and information needs of vulnerable consumers highlighted that adolescents living in fuel poverty were identified at higher risk of mental ill health.
- Student focus groups convened by the National Union of Students in 2018[19] indicated that living in cold homes in the private rented sector contributed to a deterioration in mental wellbeing.

Health Promotion and Public Health

Several studies have looked at the design and delivery of support to alleviate or avoid negative impacts on householder health and wellbeing as a result of fuel poverty.

- A 1999 study[20] mapped partnership initiatives between the housing and health sectors to identify best practice and examples of the common challenges projects face. These included a lack of time, limited budgets, lack of strategic buy-in from health authorities and representatives (e.g. GPs), need for ongoing training, and ineffective or incomplete monitoring.
- Regarding older people specifically, a 2009 study[21] stressed that resources and information targeted at this audience needed a much greater focus on the health risks associated with cold homes and fuel poverty.
- Highlighting good practice across a number of local authorities under the Department of Health's 'Warm Homes, Healthy People' scheme, a 2014 study[22] noted the instrumental role played by children's centres that were in accessible locations, where health professionals and other trusted workers were able to disseminate key messages around fuel poverty.
- A 2017 study[23] lamented the impact of public sector funding cuts on health-related fuel poverty schemes. Mapping good practice and referral networks using surveys, the study concluded that many projects were extremely vulnerable to closure despite their ability to engage some of the most marginalised households.

A number of Eaga CT funded projects have produced practical resources focused on health improvement. A package of resources[24] released in 2004, for example, was developed to support workers in the health sector in recognising signs of fuel poverty and signpost or refer people to relevant support. In addition, the Fuel Poverty and Health Toolkit[25], published in 2003, provides health professionals and managers with materials to develop a strategic framework for action.

A 2016 study[26] found that although multi-agency work was standard practice in many local authorities, few were explicitly adhering to National Institute for Health and Care Excellence (NICE) guidelines on tackling fuel poverty. Using a case study approach in the South of England, the study identified a range of challenges in adopting the NICE recommendations, including the need to overcome institutional separation, limited resources, and a lack of clear leadership.

Also examining policy in practice, a 2011 study[27] investigated local authorities' use of assessment powers under the Housing Health and Safety Rating System, in place as a means of improving the conditions for households in the private rented sector. While not widely adopted, the study concluded that it is a useful tool for both fuel poverty and health teams to drive forward. Once again, however, the scale of delivery was hampered by a lack of resources.

2 Social Exclusion

Social exclusion can be exacerbated by fuel poverty. In terms of socioeconomic exclusion, a study in 2007 in urban Nigeria[28] highlighted that access to energy infrastructure was closely connected to exclusion, and that measures to address fuel poverty should form part of wider poverty alleviation programmes. In a UK setting, a number of Eaga CT studies have explored the issue and the effect of particular interventions, whether directly focusing on fuel poverty or tackling broader social exclusion.

A notable example can be found in the evaluation of the Thrive Project in 2010[29], which looked at the impact of a practical, community-led training programme delivered in the North East of England. Adopting what is termed the Sustainable Livelihoods approach, the project used an assets-based framework to help community members develop into peer advisors and mentors, able to support others experiencing financial exclusion.

Policy Impact on Social Exclusion

A number of studies have examined the social impact of national policies. In some cases, where policies have been designed with other priorities such as climate change in mind, positive impacts on social exclusion have been noted.

Negative impacts or challenges in policy delivery have been outlined, with a general view that existing policies have often been insufficiently targeted at the most socially excluded, who were often experiencing the greatest levels of fuel poverty. A 2008 study[30] called for better targeting of those in the greatest fuel poverty by local energy saving schemes. However, in a 2004 study[31] the analysis of the Warm Front grants found that single pensioners, occupants of less energy efficient dwellings and low-income households were not being reached.

3 Sustainability and Climate Change

A number of studies have considered fuel poverty in policy, practice and research in relation to efforts focused on reducing carbon emissions and energy demand, as part of the wider climate change agenda.

Policy Impacts

Over the past twenty-five years, UK governments have introduced a series of major policy and legislative initiatives intended to reflect global commitments to reduce greenhouse gas emissions. Examples have included the Green Deal, Warm Front, the Energy Company Obligation (ECO), and many locally based schemes. Eaga CT has funded several evaluations to examine such initiatives and policies, for instance by analysing impact, assessing underlying rationale and need, evaluating delivery frameworks, and assessments of progress and success against targets.

- In Nigeria, a 2007 study[32] found that despite policy in this area being well-developed, delivery was being severely hampered by a lack of finance, technical support and an absence of political commitment.
- A 2008 study[33] concluded that local authorities could achieve far greater carbon reductions if they were targeted at fuel poor households in private rented sector housing.
- A 2010 study[34] analysed the Low Carbon Transition Plan and concluded that this approach to reducing emissions risked excluding low income households.
- Also evidencing the risk of excluding vulnerable households, a 2012 study[35] suggested that many fuel poor households could be excluded by the Green Deal's private sector delivery model.
- In Germany, a 2015 study[36] concluded that the prioritisation given to sustainable energy in German policy has meant that fuel poverty has not gained the same visibility as in the UK.
- Comparing UK policy to that of other European Union nations, a 2017 study[37] argued that the former has been less successful to date, due to several key factors including: cuts to funding, relatively poor information on low carbon choices and a lack of stable policy objectives combined with a top down approach. The study criticises UK policy for a narrow focus on economic and environmental benefits, since these reduce the 'selling points' to stakeholders.

Practical Measures

A number of studies have been focused on practical measures and have explored different retrofit techniques and technologies aimed at carbon reduction. In 2014, for example, a study[38] investigated the use of hemp shiv and clay bio-composites, arguing that it not only offers a carbon neutral form of manufacturing, but also offers greater reductions in energy use.

Other studies have sought to test the practical impact of particular retrofit methodologies for so called 'hard to treat' properties.

- A 2008 study[39] in Edinburgh devised a toolkit for managing historic buildings. Analysis suggested good reductions could be made in energy consumption, emissions and fuel poverty among residents, while minimising the impact on the architecture and fabric.
- A 2014 study[40] highlighted that retrofit measures do not automatically lead to reduced carbon emissions and that behavioural factors are important. Through interviews with householders who had received a new boiler, the study called for more 'bottom up' and participatory approaches, in which the design and delivery of retrofit involves residents.

Another key area relates to the contribution of renewables to sustainable energy futures and climate change targets. While this is covered in greater depth in the Approaches topic guide, a number of key findings concerning their impact are included here.

- A 2011 study[41] indicated that ground source heat pumps were the most effective technology under the Feed in Tariffs (FITs) and Renewable Heat Incentive (RHI) schemes but must be installed properly and with adequate guidance to householders to make a positive contribution to climate and sustainability goals.
- A 2014 study[42] looked at photovoltaic (PV) systems and found that impact and effectiveness depend on a wide range of influences, noting again the importance of householder knowledge and behaviour.
- Resident participation was an issue in a 2016 study[43] in Wales, where despite the potential to deliver significant environmental (and social) benefits, a fear of losing control, metering requirements and barriers for prepayment customers meant many residents chose not to participate.

Despite much work in this area, in certain contexts domestic emissions continue to rise. Fuel poverty alleviation and energy efficiency schemes may at times work against each other. For some households, the money saved or gained as a result of retrofit measures will ultimately be used to consume more energy, bringing them up to a healthy or comfortable level of energy use in the home. This is not a new phenomenon: it was discussed in a 1997 Eaga CT publication[44] that estimated somewhere between 20 and 30% of energy savings could be 'lost' to 'takeback' as people increased the warmth of their house and this was likely to be more pronounced in low-income households. A 2008 study[45], however, demonstrated that this is not always the case and using the 'Act on CO2' calculator found that across households in the east and west of England, carbon savings were highest among fuel poor households.

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All references are available online in the Fuel Poverty Library: www.fuelpovertylibrary.info/projects

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