

## Energy poverty and health

According to experts, energy poverty is defined as the inability to access needed energy and secure adequate energy services because of income limitations, energy inefficiency, mismatch between energy resources, technical infrastructures and household needs, as well as wider socio-spatial mechanisms such as energy-related social practices and socio-demographic circumstances. The negative correlation between energy poverty (EP) and health has been long established and led to the World Health Organization (WHO) declaring it a public health problem. EP can be a cause of – and an aggravating factor of – physical and psycho-social health issues; as well as a result of deep-rooted inequalities based on socioeconomic status, gender and geographical implantation.

### Energy poverty factors related to health problems

Both physical and emotional factors linked to energy practices contribute to health issues, and are worsened because of energy poverty.

**Physical comfort:** temperature in the home; level and type of dampness (humidity); lack of air movement within the home.

**Emotional engagement:** fear, worry and care regarding the energy use and payment; care, embarrassment, stigma and trust facilitating or preventing the receipt of support for energy vulnerable households.

These issues are more present in homes with little to no maintenance and the mitigation of these requires the use of energy. Therefore, low-income households suffer double penalty: they live in unhealthy or inadequate indoor environment, and cannot afford to mitigate the impact that this unhealthy environment has on their health (for example, heating a damp dwelling). They also give rise to vicious circles since the worsening of the physical health state reinforces the psycho-social malaise, and vice versa. And this general poor health condition further aggravates the degree of energy poverty: people with poor health may need to spend more time at home or need additional care in the form of a machine, which will increase their demand for energy while decreasing their income. Energy poverty and poor health are complementary and can be seen as mutually reinforcing.

Data 2017

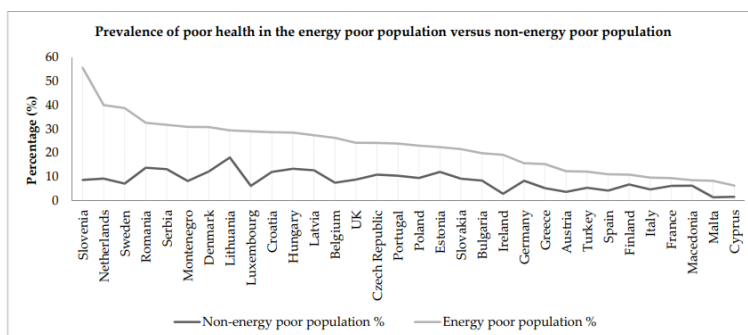


Figure 1. Line graph showing the prevalence of poor health among the energy poor and non-energy poor populations across 32 European countries.

### Impacts of energy poverty on physical health

EP causes physical health issues by failing to give people the means to mitigate the impacts of an unhealthy environment and the means to heal of an energy poverty related health condition.



**Inadequately low indoor temperatures** lead to cardiovascular and respiratory diseases, suppresses the immune system – increasing the risk of infections, and worsens existing conditions such as arthritis and rheumatism. Indeed, in a cold environment the body shifts blood to keep the vital organs warm, increasing blood pressure. But when the body is unable to warm itself, serious cold-related illnesses and injuries may occur, as well as permanent tissue damage and death.

**Damp, mold and lack of air circulation** lead to allergies, inflammations, infections and toxic effects. Microscopic spores produced by the fungi thrive in wet and closed spaces and can trigger various conditions, from headaches to strokes, stomach problems and respiratory illnesses.

**Inadequately high indoor temperatures** also put a lot of stress on the body. When failing to get rid of excessive heat through sweating, the body's core temperature rises along with the heart rate which can cause several health-related problems ultimately leading to death. Heat is the deadliest natural disaster, according to EEA data: in the last four decades, between 76,000 and 128,000 people have died in heat waves. The World Health Organization warns us that the effects of climate change will increase this risk: in the absence of adaptation, approximately 65,000 additional deaths due to heat exposure in elderly people are projected for 2030.

**Electricity supply disconnections**, a critical symptom of energy poverty, is a direct cause of several health issues that can be lethal. Particular health risks related to electricity disconnections are diabetes mellitus (inability to cook or keep fresh foods or store medicine in the fridge, resulting in a bad diet and poor medical treatment), palliative care and immobilized people treatments needing electricity to function (oxygen therapy, technical aids), or the use of CPAP devices in obstructive sleep apnea syndrome (OSAS) and heart disease.

**Dangerous equipment defective and inadequate installations** can cause serious health risks and sometimes death. Old wood-burning stoves or faulty gas boilers, coupled with poor ventilation of the rooms in which they are located, can lead to the production of carbon monoxide, with a high risk of death. Connecting a mobile electric heater to an unsuitable electrical installation can cause a fire.

### Impacts of energy poverty on psycho-social health

The typical effects on mental health due to energy poverty are anxiety, stress and depression, which are associated with living in poor housing conditions, inability to pay bills, piling up debt and harassment of utility companies. Energy poverty also leads to self-blaming and low self-esteem. Cold and damp housing, which contributes to energy poverty, can also result in increased isolation or decreased socialisation. It contributes to highlighted social or family difficulties in the home. The emotional distress can lead to lack of energy and lost school and working days.

There are also indirect health impacts of EP on mental health: it impairs children's educational attainment, emotional well-being and resilience, reduces dietary opportunities and choices, and increases the risk of accidents and injuries at home.

Moreover, EP hampers the normal functioning in everyday areas, such as work or study, which has social consequences such as stigmatisation and reduction in social interaction. Indeed, causal relationship is established between EP and poor self-reported health status, reduced well-being and depression. Therefore, emotions are not merely a consequence of energy poverty vulnerability, but can also contribute to and shape it. As such, "wellbeing" should be

the target of energy efficiency schemes' investments. Indeed, wellbeing is linked to a number of psychosocial intermediaries that are conducive to better health in the longer term.

### Health and inequalities

Impacts on psycho-social health and impacts on physical health are equally of interest for public health authorities, as it is a vicious circle that ultimately results in growing inequalities and loss of productivity. EP acts as a generator of health issues for already disadvantaged households, which worsens even more the inequalities at play.

For example, a low-income family whose parents develop respiratory problems because of mould in the house will have trouble working and end up living in worse conditions, unable to renovate. So, more and more members of the family will get sick which will maintain the vicious circle.

We will particularly look at two social groups that are more vulnerable to EP and health-related issues: (1) women and (2) Mediterranean regions' inhabitants.

Biologically, women are more sensitive to a deviation from an optimal temperature, due to the fact that the male body has a higher muscle mass which protects from cold, as well as to the fact that female bodies only have about 70% of the sweat glands that males have. In addition, women still bear the burden of care and housework, tasks that are energy intensive and imply spending more time at the potentially not adequately warm or cold home. Moreover, women's mental health is more affected than men's as they carry most of the mental load: they are in charge of energy management in the household which can lead to conflicts with other family members and makes them responsible for dealing with unpayable debts. Also, women tend to be subject to more anxieties related to the upbringing of children in poorly suitable environments. All this leads to stress, feelings of helplessness, depression and stigma.

Then, four countries of Southern Europe, counterintuitively, are home to the highest excess winter mortality rates, defined as the surplus number of deaths occurring during the four winter months compared with the average for the non-winter seasons: Malta, Portugal, Cyprus and Spain.

But the Mediterranean region also faces concerns related to heat, as the IPCC's Sixth Assessment Report warns that the frequency and intensity of hot extremes and their accompanying extreme weather events – droughts, fires, storms – are projected to keep increasing. These events disproportionately hit the most vulnerable parts of the population, as they tend to live in the most inadequate homes (or none at all) and have the least access to cooling. In May 2022, in Greece and Portugal – two of the heatwaves most affected countries – there was a 17% and 19% increase in mortality respectively, more than double the European average. In the EU, already now about one fifth of the population (over 100 million people) cannot afford to keep their homes comfortably cool in summer. Need for space cooling may also increase households' energy consumption, especially in poor quality dwellings, potentially creating social justice issues among vulnerable population groups and also leading to psychological and social health issues, related to energy poverty, such as depressions, anxieties, marginalisation, isolation and stigmatisation.

### Solutions: research, policies and measures

Now that the concerns have been raised, the keys to resolving this issue now lie in the hands of policy makers. Data shows the role played by local policies and levels of preparation, as we see that people in the Southern Europe die of cold, while people in the Northern Europe die of heat; due to unpreparedness. Less than half of the 27 Member States have action plans to manage heat waves and their impact on the population's health. Energy poverty & health



is an inequality issue, and should be treated both as a public health priority and a priority for social mechanisms. A pilot project in the UK “Boiler on prescription” has shown that doctors prescribing double glazing and loft insulation for patients living in cold, damp homes can save on public health costs. For example, in the period 2016-2019 the Republic of Ireland funded €10 million for the Warmth and Wellbeing pilot scheme, that provided free energy efficiency upgrades for 1,300 households classified as energy poor and containing young children with chronic respiratory conditions. This scheme has been updated to the Better Energy Warmer Homes Scheme and continues its mission.

It is of utmost importance to fund research and studies to grasp the extent of the phenomenon – especially the increasing regional and gender inequalities in the distribution of EP and its impact on health, in order to design adaptation and mitigation policies and strategies that aim right: investigate why apparent national differences exist (perhaps using cluster analyses and political theory on the role of welfare state types). Special emphasis must be put on heatwaves and the danger that summertime energy poverty may represent for Mediterranean countries as, at the moment, health impacts in winter are better understood and we need more understanding on which impacts energy poverty has in summer, as well as on policies and measures to alleviate it.

In this aspect, it is important to identify the needs: vulnerable populations (elderly in urban areas, young children...) and priority areas (house design, old dwellings restoration, urban design). Likewise, it is needed to identify the means: public investment in energy efficiency schemes for people affected by energy poverty (to realise reductions in public healthcare costs), education and awareness raising about the health impacts of energy poverty, etc....

It is important to enforce adequate policies to ensure that those needing energy for their survival can have access to it. Also, we need to develop more comprehensive health approaches considering the social determinants of health and the health impacts of the economic and social environment.

It is essential to put people and their health and well-being at the centre. Energy poverty and health links must be better explored and mainstreamed into all policies at European, national and local level. At the same time, it needs to be ensured that the policy protection is efficient, without loopholes and functional to ensure protection for vulnerable people who face health problems. It would be of utmost importance to, rather than conceptualizing energy and housing as market goods, recognize them instead as rights.

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