

How going hungry affects children for their whole lives

April 9 2019, by Chris Baraniuk



A small child in Mumbai, with a shaved head, eating bread with her hand.
Credit: Wen-Yan King/Wikipedia

Kerry Wright didn't feel hungry. Not in the way you might expect. Her

tummy grumbled, yes, she could hear it. She just couldn't feel it. She called it "starvation mode". Wright, a mother of three living in Aberdeen, had hit a low point. But she needed to provide for her children, who then were just entering their teens.

By the time she was faced with the prospect of watching her own children go without, she had fallen out of contact with her parents and the rest of her family. She'd wanted a fresh start. Except that at that moment, in 2013, a fresh start was looking pretty far off. Her partner had left and her benefits were falling short. Now and again, she took paid housework jobs but never made enough money. She would scan her cupboards in despair, hoping there would be enough soup or tins of beans to at least get the next lunch together.

Because there was always so little to go round, it didn't take long before she started skipping meals. The effects soon materialised. She was tired all the time – and yet she couldn't sleep. She was hungry, but she didn't want to eat, and, if she did, she would sometimes be sick. Her head was frazzled. It was hard to keep a string of thoughts together.

Wright was exhausted but desperate not to reveal the extent of her fatigue to her children. So she would walk around the house with one hand on the furniture, holding herself steady. A severe iron deficiency, she eventually learned, accounted for the terrible fatigue and it had also made her dizzy. The dizziness was more or less constant, in fact. All of this went on for about two years.

But it wasn't her own wellbeing that she worried about most. It was her children's. Try as she might, she couldn't hide from them the fact that she wasn't well. They asked her questions: Why was she dizzy all the time? Why was she taking those pills from the doctor?

And one day she came home to find a glass of milk on the table. Her

son, worried about her, had poured it. He made her drink it while he watched – to make sure she had it all.

"It shouldn't be like that," she says now, remembering. "Kids shouldn't be worrying about their parents like that."

Today, her biggest concern is not that her physical health took a hit, but that her children's mental health did. What psychological scars were left, in the wake of watching their mother starve herself?

What happened to Wright and her family is common to far more households in wealthy countries than some may think. Food insecurity, also known as food poverty, is on the rise in the UK, the ninth-richest country in the world. The exact extent is unknown. But many other countries are struggling with this problem. There are millions of families in Europe, the US and Canada, for example, that are facing [food insecurity](#) right now.

Food banks, which hand out free supplies of food to those in need, have become more and more common in places where food insecurity has become a persistent problem. But even the groups that run them, including the Trussell Trust in the UK, say that [food banks](#) cannot be a long-term solution. The food they provide can vary in quantity and quality – often it is nutritionally limited. Systemic reform, charitable organisations say, is needed to stop families falling into the hunger trap.

Scientists have shown that hunger isn't just something transient. Hunger during childhood can have a ripple effect that we are only just beginning to understand. The long-term physical and psychological consequences of hunger are serious and have implications for the health of society itself. Food insecurity may be a ticking time-bomb for today's hungry generations – just how dangerous is it?

It was at a charity that helped local people find employment that someone first mentioned the term "food bank" to Wright. But she flinched at the idea. "No way," she thought. She was terrified that, should she seek help at a food bank, social services would take her children away. It was a reflexive reaction, she feels, left over from childhood. Her own parents distrusted outside agencies and told their children that should anyone come to the house, "keep your mouths shut".

So Wright came up with a plan. She would apply to become a volunteer at the food bank instead. "It felt a bit better," she says, "for it to be a bit of a trade."

As a volunteer she might get some support, the odd bit of food. It was worth a shot. During the first few days, she felt awkward and out of place. But then one of the workers, Kelly Donaldson, took her under her wing. She soon learned what Wright was going through so now and again Donaldson would put a small pack of food together for her new friend at the end of the day. "That's your supper for tonight," she would tell Wright, encouragingly, handing over the bag.

That food bank was the one in central Aberdeen run by Community Food Initiatives North East – known as CFINE. Besides the food bank, CFINE offers cooking courses and subsidised fruit and vegetables. And it's at CFINE's HQ that I first meet Wright in person. I arrive on a busy Wednesday, as people queue up for three-day food parcels. Helpers are passing round specific items as a small queue forms at the door.

The food parcels are presented as nondescript white carrier bags stuffed with milk, several tins of food, cereal, rice or pasta, and sauce. Within about 20 minutes, two rows of the bags stacked on shelves disappear. It won't be long till they're replenished. I'm told that a few weeks ago, CFINE gave out 179 of these bags in a single day, the highest number the charity had ever recorded.

Reliance on food banks in Aberdeen is high. There are 20 such services in the city – more than in any other city in Scotland, including the more populated Glasgow and Edinburgh. Food banks are becoming a more common sight in many places – for example in rural US communities, in Canadian cities, and in wealthy European countries. Scotland is by no means an outlier.

Before we get a chance to meet, I spot Wright darting into an interview room to give advice to a young man. He has long hair, camo trousers. His dog has come with him. Wright is now part of the financial capability team. It's her job to help people manage their finances. The role includes assisting them with benefits applications – exactly the sort of hoops she had had to learn to jump through herself, in order to keep her family fed.

Wright tells me she still worries about what her children have been through.

"My children's health wasn't compromised in the physical sense, but I would say in terms of their mental wellbeing, absolutely," she explains. "They were concerned and worried about their mum. They were anxious about going to school because they weren't sure about what was going on with my health."

Signs are gathering apace that more and more children in rich countries are experiencing hunger and its negative effects. Just over a week before my visit to Scotland, the United Nations special rapporteur on extreme poverty and human rights criticised the British government for the scenes of poverty he had witnessed on a trip to the UK. The extent of child poverty in the UK was, he said, "not just a disgrace, but a social calamity and an economic disaster, all rolled into one".

"Children are showing up at school with empty stomachs, and schools

are collecting food on an ad hoc basis and sending it home because teachers know that their students will otherwise go hungry," he said.

All of the workers I speak to at British food banks say they have noticed a sharp rise in demand in the past year. One reason cited is changes and cuts to benefits, in particular the new Universal Credit system, which can lead to gaps between payments that leave people unable to pay for essentials.

In February, work and pensions secretary Amber Rudd acknowledged that "challenges" with the implementation of the system had been a cause of the food bank boom.

The situation is no better across the Atlantic. In the US, one in five children go to school hungry. Canada had its own visit from a UN special rapporteur in 2012. He too found food insecurity to be a growing problem.

Wherever hunger is rising, the implications are bad. The Royal College of Paediatrics and Child Health and the Trussell Trust are among those concerned about how food insecurity may be affecting children's health. But what, specifically, would those effects be?

In a phone call to Valerie Tarasuk at the University of Toronto, I mention Kerry Wright's experience and her worries about her children's mental wellbeing.

"The woman's obviously very astute," says Tarasuk. "That's exactly what we need to be concerned about amongst those children."

Tarasuk is a professor of nutritional sciences and an expert on the relationship between food insecurity and health. She and colleagues have analysed national data on tens of thousands of Canadians to show that

the more severe a person's experience of food insecurity, the more likely they are to seek help from healthcare services. But she also tracks research that explores the long-term effects on children who live in food-insecure homes.

Studies by a team at the University of Calgary, including Sharon Kirkpatrick and Lynn McIntyre, have shown that going hungry just a handful of times is associated with poorer physical and mental health. It also means that children are less likely to finish school.

In one six-year study, McIntyre and colleagues found that young people who had experienced hunger had a significantly higher risk of developing depressive symptoms. And another large analysis showed that children who went hungry were similarly at risk of developing some kind of health problem within the next ten years. Hunger, the researchers wrote, had a "toxic" effect:

"Higher odds of chronic conditions and of asthma were observed among youth who experienced multiple episodes of hunger compared with those who were never hungry."

These findings held up even when other things that could influence health were factored in – hunger really does appear to play a defining role.

"The exposure that children have leaves an indelible mark on them," says Tarasuk. "It's really a bad idea to be leaving so many languishing in this situation."

In the UK, long-term data like that used by Tarasuk and her colleagues is hard to come by. But there are efforts to broaden our knowledge of how food insecurity is related to health, albeit within quite localised contexts.

A major research effort led by King's College London is currently under way in two large boroughs in the south of the capital, Lambeth and Southwark. It's led by Ingrid Wolfe, who is also a paediatric consultant. She says part of her own motivation to become involved in the study was seeing more children admitted to A&E with seizures caused by vitamin deficiencies. "Very, very acutely significant malnutrition," she says.

The Children and Young People's Health Partnership (CYPHP, ironically pronounced "chip") is Wolfe and her colleagues' effort to study the biopsychosocial context for young people who use healthcare. In other words, it's an attempt to understand what things going on in a young person's life may have influenced the condition that brings them to the doctor.

The team are initially focusing on young people who present with one of four "tracer" conditions – eczema, constipation, asthma and epilepsy. There are now around 1,000 CYPHP participants and the programme will add more in the coming years.

Wolfe says that participants fill in a detailed online questionnaire about their home life. The questions include things about the stability of the home environment, food and young people's social lives.

There are already indications that food insecurity may be a bigger factor in young people's health than was previously known. Among the first 1,000 participants with constipation – one of the four tracer conditions – food insecurity has turned out to be a concern in 90 per cent of their cases.

Ultimately, CYPHP seeks to improve children's health by finding out what factors can affect wellbeing so that they can be tackled – rather than waiting for children to get to the point of requiring medical treatment. By then, the compounding issues could be far tougher to

correct.

The fact that food insecurity in a rich country can be so detrimental to a child's long-term health is troubling. Even more unnerving is the realisation that, while Canada and the US have made efforts to track food insecurity across the population, there is no equivalent measurement in the UK. However, this will soon change: the Department for Work and Pensions is to include questions about food insecurity in its annual household survey of living standards. The first data will be available in 2021.

Conditions associated with food insecurity are already very visible to doctors, however. One who regularly sees the effects of hunger in children is Ronny Cheung, a consultant general paediatrician in London. Being a consultant, if children are referred to him with health issues related to malnutrition, that generally means the malnutrition is severe.

He sends me data that shows how, in the past 20 years, England has seen a noticeable rise in rickets cases that have required hospitalisation. There are now more child hospitalisations for rickets than at any time in the past five decades. Rickets may not always be tied solely to diet, because the vitamin D deficiency can also be caused by a lack of sunlight. However, "nutritional rickets" is diagnosable when it becomes clear that a child's food intake has been sub-par.

When I meet him in a tiny office in a central London hospital, Cheung recalls the case of an 18-month-old boy he treated recently. The boy's mother had taken him to the GP because he was having difficulty learning to walk. When Cheung brought him in for more detailed examination, it became clear why. He was severely bow-legged, a distinctive symptom of rickets. Not only that, but the boy had developed bony nobbles at the ends of his ribs all the way up, known as a rachitic rosary.

"This is really rare," Cheung tells me. "This is like textbook stuff that no one sees, and this kid had them because the deficiency was so severe."

Once he had talked to the boy's mother about his diet, it became clear this was a case of nutritional rickets. After a course of supplements followed by an improved diet plan, the boy's rickets reversed. At such a young age, children are growing so quickly that their bones can correct themselves – so long as the body starts receiving the right nutrients.

Cheung thinks we shouldn't view such cases as anomalies. "When we're seeing spikes of rare diseases, that's telling us that there's a whole issue underneath that we're not testing for or that we don't know about. This is a beacon, right? That's what that is."

We know that poor nutrition can affect children's health. But what's actually happening in the body here? Besides lowered vitamin D levels, what else may be different about a malnourished child's nutrient intake?

In a home where parents or guardians are relying on cheaper food, children's consumption of sugary and fatty foods will usually increase. Diets may become less balanced and so intake of micronutrients will decrease as a result. Some of the first deficiencies to emerge might be iron deficiency – as experienced by Kerry Wright – along with vitamin A and iodine deficiencies.

Iodine – plentiful in white fish and dairy products – is particularly important for brain development. The British Medical Association says iodine deficiency is "the primary cause of preventable mental retardation and brain damage, having the most devastating impact on the brain of the developing foetus and young children in the first few years of life".

A poor diet, particularly one high in sugar, can also lead to dental problems. Between 2013 and 2018 there was an 18 per cent rise in

extractions of multiple teeth among under-18s in England. In 2017/18 there were 45,000 such extractions – which in total cost £38.9 million. This is also associated with food insecurity: dental caries is more common in deprived areas.

And let us not forget obesity. People sometimes hear the word "malnutrition" and think that it means a lack of food resulting in someone becoming wan and emaciated. In fact, while under-nourishment is a form of malnutrition, obesity is another. It's just the other end of the scale.

The Royal College of Paediatrics and Child Health says that obesity is correlated with deprivation. "In England it appears that overweight and obesity may be reducing over time in the least deprived but not amongst the most deprived."

The thing is, micronutrient deficiencies, tooth decay and even obesity may never provoke a response from doctors unless the problems they cause become severe. Kelly Donaldson, Wright's friend at CFINE, says she and her three children became obese as a consequence of relying on cheap, easy-to-cook food. "It was easy enough to get like a bag of chips and a bag of sausages rather than going out and buying healthier stuff," she explains. "The doctor says they were healthy enough children, just a bit 'pudgy' I think was the word he used."

When Donaldson learned just how transformative a healthy diet could be while working at CFINE, she changed her cooking habits at home. She has already noticed weight loss in her youngest boy.

Improving diets can't just be done by food banks. Even the organisations that run them say that. But there is another way – what's called a "person-centred approach".

This is currently unfolding across the UK, although not in hospitals or doctors' surgeries. It's the work of charities.

"I like talking to folk," says Sheena Boyd, with a big smile. "You'll understand that by the end of the day." She laughs heartily. She is a project leader at a charity called Centrestage, which is based in the town of Kilmarnock, south-west of Glasgow. Her job is to manage two programmes: one that provides fresh meals to people in deprived areas and another that runs community cooking courses.

Before she worked here Boyd was employed by a bank. Then her friend, who worked for Centrestage, took her on a tour of the charity's activities. She was overwhelmed. Her friend announced that there was a job opening – it was Boyd's if she wanted it. She didn't have to think twice before accepting.

"I just saw the help that's here for these people, that I wasn't able to do in the bank," she explains. The spark had ignited in her mind: "I can go out and help these people."

When Centrestage was launched, 13 years ago, its founders had no intention of feeding people. They wanted to provide a theatre group for locals. The idea was to put on big shows with a bit more buzz and pizzazz than is possible for, say, school drama departments. Plus, anyone would be able to join in, no matter their age or background.

It was only as the leaders started working more closely with local communities that they realised food insecurity was such a problem – indeed, it could even be a barrier to people taking part in something like a theatre project. If you're hungry, you can't be expected to perform in front of hundreds or work for hours backstage.

Centrestage continues to put on community shows, but filling bellies is

now a key objective. The group's slogan is "Fun, food, folk."

"That's our motto," says Boyd. "Everything is fun, everything is making sure people are relaxed, they feel welcome, they don't feel intimidated, they don't feel judged."

She has seen for herself how a lack of food can take its toll on young people. Children may become fatigued due to hunger – but they may also experience the opposite effect. For children with ADHD, for example, hunger can trigger hyperactivity. At one cooking course, Boyd's effort to start the class was hampered by a boy running around the room. She handed out sandwiches. "Once he'd eaten, he calmed down," she says.

Centrestage's On the Road project is a double-decker bus that travels around and dishes up meals. Boyd is eager to show me the bus, which today is in an area called Shortlees, in the south of Kilmarnock where, shockingly, 37 per cent of children live in poverty. But before I see the bus, I need to witness the kitchen that churns out thousands of prepared meals every week, says Boyd.

We pull up to a big grey warehouse unit on an industrial estate. The sky is grey too. But when the door beeps as we enter Centrestage's unit, the smell of cooking suddenly provides colour. Chefs hurry about, all in black and comfy walking shoes, with jugs of various mixtures or huge trays for the ovens.

The food portions cooked here are given to people at Centrestage locations. You can also buy them, for just a pound or so, in the café. I try one later – pasta with roast vegetables, a tasty sauce and some cheese sprinkled on top. A genuinely enjoyable meal. Also available that day was paneer curry with rice, and pots of red pepper soup.

Boyd introduces me to the head chef, catering manager Kevin Alexander. He's the one in charge of kitchen operations – and is ultimately responsible for turning food donations into meals. The raw materials largely come from a country-wide scheme called FareShare, which redistributes surplus food from farms, food suppliers, supermarkets and other food industry businesses – the same programme is also used by CFINE up in Aberdeen. Alexander never knows what he's going to have to work with from one week to the next. Today, he has a range of things he's trying to use up – from pastry tartlet cases to fresh beetroot.

It's a short drive from the kitchens to Shortlees. The double-decker bus is parked up and, even on a chilly November day, local people are gathered round, sitting outside and having something to eat, or simply enjoying a chat.

On the upper level of the bus there's a soft play area where parents can bring their kids. Here I meet two mothers, each with a young daughter making avid use of the play area. One of the women explains that she has osteoarthritis in her wrist, so cooking at home isn't always easy. Despite this, she has never wanted to use a food bank.

"I kind of thought that's what this was," she says. "I didn't really want to take anything off the bus. Then I heard it wasn't a food bank."

As the bus's driver, Ian Maconochie, says, food banks often ask for vouchers – or "chitties" – before handing out supplies. "Nae chitties here," he says, "nae chitties."

Volunteers will happily hand out food for free, though they do ask if people can try to budget each week and make a small donation, say a pound or two pounds. Either way, Maconochie says, no one gets turned away. The number of people that make use of the bus and Centrestage's

other food distribution points is staggering. Between July and September 2018, adults received food nearly 6,000 times and children on about 2,200 occasions.

The other part of Boyd's role involves helping people to learn to cook so they can better fend for themselves. Centrestage has acquired an old school in Kilmarnock, which in the next few years will be remodelled to become the charity's headquarters. The old canteen will become a café serving low-cost meals. The assembly hall will be converted into their flagship theatre space. Classrooms will be let out to local initiatives seeking to teach people skills, such as hairdressing.

And the old home economics department will be where Boyd organises her cooking courses. The first time she saw the rows of sinks and hobs, she was overwhelmed. "I just burst out crying," she recalls.

Boyd and her co-workers, along with many volunteers, are trying to tackle poverty in an intentionally holistic way. People's wellbeing can very quickly be affected by hunger, but that's never the whole story. So besides the cheap meals and cooking workshops, Centrestage staff and volunteers aim to help with benefits forms, or housing applications, or employment issues. The woman bringing her daughter to the bus was right: this isn't a food bank. It's much more than that. As Boyd puts it, "We can say, 'Right, what's going on? We can help you in any other way.'"

Kerry Wright and her colleagues at CFINE in Aberdeen also find themselves providing a wide range of support to [local people](#). Charities like this aim to get under the skin of something much bigger: deprivation itself. Food might just be the first thing that brings someone through the door.

CFINE's chief executive, Dave Simmers, would like his organisation to

focus on helping people to help themselves. But the level of crisis he sees people in means running the food bank as well is essential.

"We don't like food banks at all," he says, as the workers hand out the food parcels just a few feet away from his office door. "They're not helpful, they erode dignity, they create dependence and they change nothing.

"But, essentially, people are hungry."

Wright's life may have been saved by CFINE's food bank, even though she came to it ostensibly as a volunteer rather than a user. And yet Simmers's point about food banks being unhelpful makes sense in the wider context of a hungry nation. Improving the fairness of the benefits system and monitoring and safeguarding child nutrition would be some first steps that could move families away from reliance on food banks.

For Wright, it was working for a food charity that really got her back on her feet. Not access to free food. Today, she expresses a true zeal for the job she does. She now works 29 hours per week at CFINE. She finally has a steady flow of income. This year, she says, she will become debt-free for the first time in a long time. She's being very cautious, though. If it's a bit chilly, she tries not to put an extra £10 in the gas meter – in case it means she gets low on [food](#) the following week.

But her children's physical health is good. They have become more active. Now they play sports and one goes to cadets.

And meeting her at CFINE, I get a sense that Wright, like her friend Kelly Donaldson, has found a role that doesn't just help her in the here and now – it's something she can build on.

"I've got a loyalty to here," she says. "Because they are genuinely helping

people transform their circumstances. That has an effect on [physical health](#), mental health and life situations."

Donaldson pipes up and points out how Wright is clearly happier now. She gets up every day. Puts her make-up on. Goes to work. That makes a huge difference – for the whole household.

"It does," says Wright. "It has an impact on your children."

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