the behavioualist

Using behavioural insights to encourage local residents to save energy

Final report

Local Government Association

Folkestone & Hythe District Council

Swale Borough Council

Tonbridge & Malling Borough Council

NHS Kent and Medway NHS and Social Care Partnership Trust

KMPT Green Plan

Ashford Borough Council

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Executive summary

The challenge

The increase in global energy prices has put a significant burden on UK households in recent times. Local councils across the UK and the NHS are facing a rising demand for advice regarding energy reduction and an increase in complaints due to the limited support and funding available. To effectively support homeowners in adopting energy-saving behaviours and reducing their bills, the Local Government Association (LGA) funded a consortium of nine local authorities from Kent and Medway and the NHS in collaboration with The Behaviouralist to understand how behavioural insights can be leveraged to encourage local residents to save energy. The consortium conducted research to identify the behavioural barriers and designed and delivered an intervention to reduce energy usage amongst low to middle-income residents in Kent and Medway. Supported by The Behaviouralist, all nine local authorities and the NHS participated in all stages of this project, including intervention design and delivery as well as the monthly workshops.

Our approach

We began the project by identifying a list of key behavioural barriers that prevent homeowners from implementing low-cost energy efficiency improvements at home. To identify the barriers, we drew on the Capability, Opportunity, and Motivation – Behaviour (COM-B) model (Michie et. al., 2011) and performed three research tasks:

- Conducted a residential survey (N = 1,903) to examine homeowners' attitudes and beliefs linked to different energy-saving behaviours and saving energy at home in general.
- Interviewed eight professionals working in the energy domain to obtain a deeper understanding of the common challenges associated with saving energy. This included interviewing experts from the Energy Savings Trust (EST), Groundwork UK: Green Doctors, and Greater South East Net Zero Hub, among others.
- Conducted literature review on barriers associated with reducing energy use at home.

Based on the identified barriers, the consortium developed *Share the Warmth* - a behavioural intervention that aimed to empower residents and their close ones to save energy at home. The intervention was designed to address five key behavioural barriers identified in the research phase:

- **Lack of trust**: people may be more likely to take energy-saving advice from friends and family than from websites or government-led initiatives. The campaign encourages residents to act as trusted messengers and help their families, friends, and neighbours save energy.
- **Language and cultural barriers:** residents who join *Share the Warmth* share energy-saving tips with their friends and family in a language and under cultural norms that are appropriate.
- **Time constraints**: many people do not have sufficient time and mental resources to think about how to save energy at home. The campaign prompts residents to reach out to their time-poor friends and relatives and help them implement the tips.
- **Information overload**: many residents might feel lost in the sea of information on energy saving available on the Internet, not knowing what actions are most effective. The campaign promotes five key tips that are simple to implement, even in other people's homes.

- **Perceived costs of energy efficiency improvements**: people might incorrectly believe that energy savings can only be achieved through significant upfront investments. The campaign promotes five tips that cost little money and effort to implement and can save the resident more than £500 per year.

The project also included a series of eight workshops and a wrap-up session tailored towards introducing the consortium to behavioural science research. The workshops provided the councils with a hands-on opportunity to take part in the design and development of the campaign. The workshops were broken down as follows:

- WS1: Project kick off, goal-setting, and an introduction to the behavioural trial design process
- WS2: Conducting theoretically and locally informed behavioural research and introduction to the COM-B model
- WS3: Developing initial ideas for the behavioural intervention
- WS4: Refining the intervention concept (*Share the Warmth*) and preparing for the trial launch
- WS5: Designing and scoping a behavioural insights trial to reduce energy usage amongst low to middle income homeowners (part 1)
- WS6: Designing and scoping a behavioural insights trial to reduce energy usage amongst low to middle income homeowners (part 2) and introduction to designing for behaviour change
- WS7: Designing and scoping a behavioural insights trial to reduce energy usage amongst low to middle income homeowners (part 3)
- WS8: Final feedback and "You & the Behavioural Approach", an activity for councils to reflect on what they learned in the workshops.

Our solutions

Three interventions were originally considered, which included '*Share the Warmth*', the 'Neighbourhood challenge' (a neighbourhood-level campaign that would encourage residents to set up personalised goals to implement low-cost energy saving behaviours), and 'How-to clips with real life people' (a campaign where homeowners record short how-to videos on implementing different energy-saving behaviours at home which would then be shared by councils on social media, together with polls, quizzes and other social engagement elements). After the ideation workshop, The Behaviouralist internally evaluated all three intervention ideas and met with the individual members of the Consortium to discuss their preferences for the final intervention. The Consortium consensually decided to proceed forward with the *Share the Warmth* campaign.

The main objective of *Share the Warmth* was to teach residents five low-cost energy-saving actions and to empower the residents to help their friends and family to implement these measures. The intervention emphasised helping individuals who may not be able to take energy-saving actions on their own (e.g., the elderly, disabled, and time-poor individuals).

We designed the intervention to answer the following research questions:

- Does providing a short online training increase people's knowledge of how to effectively save energy at home?

- Which behavioural messaging strategies are most effective in getting people to commit to sharing energy-saving advice with others?
- Are those who participate in *Share the Warmth* more likely to help their close ones implement energy-saving measures than those who do not participate?

To evaluate the effectiveness of the intervention, we evaluated different versions of the *Share the Warmth* platform in a randomised controlled trial (RCT). Specifically, we randomly varied (1) whether participants received the energy-saving quiz before or after learning about the energy-saving tips, and (2) which behavioural message participants were presented with when being asked to share the warmth with others. The three behavioural messages were as follows:

- Social norms (where we highlight that the majority of other campaign participants have committed to sharing the warmth)
- Altruistic appeals (where we appeal to participants' intrinsic motivation to help others)
- Ease of the action (where we emphasise that helping out a friend or a family member to take an energy-saving action takes little effort)

The randomisation allowed us to understand the extent to which the intervention increases participants' energy-saving knowledge, and identify which message is most effective in getting people to commit to sharing the warmth.

The *Share the Warmth* intervention ran between 7th November 2022 and 31st January 2023. Residents were invited to join the challenge and visit the *Share the Warmth* website (www.sharethewarmth.org). The promotion was primarily done via local council social media (i.e., Facebook, Instagram, Twitter, LinkedIn, and NextDoor), resident and staff newsletters, and printed posters displayed in public spaces in Kent and Medway (e.g., in libraries).

Once on the website, residents were shown five energy-saving tips, took a quiz to test their knowledge, and planned who they could help. The five energy-saving tips were:

- Lowering the boiler's flow temperature to 55-65° C
- Setting the thermostat to 18°C
- Adding radiator reflective panels
- Using a water-efficient shower head
- Moving furniture away from radiators

Participants could also sign up for weekly email reminders along with additional energy-saving advice and tips. Four weeks after interacting with the *Share the Warmth* platform, participants received an email inviting them to complete a short evaluation survey.

Results

Our analysis yielded three key findings:

1. **Sharing energy-saving tips has a significant positive effect on participants' energy-saving knowledge.** We found that those in the treatment group performed better in the knowledge assessment – on average they scored 39% higher than the control group. We also found that while most participants only spent a short amount of time reading the tips without watching the videos provided with the tips, it was sufficient to considerably increase participants' energy-saving knowledge.
2. **Prompts that leverage social norms appeared to be more effective in getting participants to commit to sharing energy-saving advice with others.** We found suggestive evidence that a norm-based prompt led to 14.1-18.1% higher commitment rates, compared to the other two prompts which leveraged altruistic appeal and ease of implementation. This adds more evidence to the idea that people are more willing to participate when they are aware that others are doing the same.
3. **Residents who participated in *Share the Warmth* appeared to be more likely to help their friends and family than those who did not participate, indicative of a positive impact of the intervention.** Based on self-reported data that was collected through an evaluation survey, a higher proportion of participants (89.3%) than non-participants (32.1%) reported that they had helped others reduce energy bills in the past four weeks. Among those who helped, participants reported having helped on average more households (as well as more lower- to middle-income households) than non-participants. Compared to non-participants, participants also reported a higher likelihood of helping others save energy in the future.

Next steps

An important goal of this project was to increase the understanding of councils in behavioural insights techniques and their capability of running behavioural interventions in future council business. Key topics and exercises covered in the monthly workshops will be taken forward within the local councils for encouraging energy-saving behaviours as well as other challenges.

We plan to continue collaborating with colleagues across the consortium in order to build on the network and the momentum that was created. We will do this by:

- Sharing with councils and the NHS a checklist that helps practitioners determine whether an RCT should be used to evaluate an intervention and that provides a realistic estimate of the work and resources required to deliver an RCT.
- Exploring opportunities to continue working together within this network on other behavioural change challenges. Initial ideas for potential collaboration include reducing water consumption, increasing the uptake of vegetarian meals in schools, encouraging the reuse, repair, and recycling of Waste from Electrical and Electronic Equipment (WEEE), and promoting reusable takeaway packaging.
- Continuing to use tools which have made project planning and coordination, workshop delivery, interactive exercises, and feedback sharing highly efficient and enabled us to complete this project so quickly.
- Encouraging other councils to partner up as a consortium for future projects.

01 Introduction

The global increase in energy prices has put a burden on UK households. In 2021, 96% of homeowners expressed concern about the energy efficiency of their homes (*New research finds 96% of UK homeowners are concerned about their home energy efficiency*, 2021), and since April 2022, the share of households in fuel poverty has increased by more than 50% (*Fuel Poverty Statistics Explainer*, 2022). The energy concern is also pertinent in public discussions: a non-representative survey among 1903 homeowners in Kent and Medway revealed that 79% consider reducing energy use more important than it was 12 months ago (The Behaviouralist, 2022).

In light of these events, local councils across the UK face a rising demand for advice regarding energy reduction and an increase in complaints due to the limited support and funding available. Councils support the most vulnerable households through fuel and food voucher schemes. However, these schemes act only as short-term relief and are available to a limited number of households, making the approach unsustainable in the long run.

Councils can also help homeowners acquire energy-saving practices that will reduce their bills in the long term. Engaging in low-cost, simple energy-saving behaviours, such as adjusting the room thermostat, can help homeowners save hundreds of pounds per year on their energy bills (*Quick tips to save energy*, 2022). These savings are especially helpful for low- and middle-income households who are unable to afford big energy-efficient home upgrades. However, people often do not engage in these behaviours due to various behavioural barriers, such as inconvenience, lack of knowledge and information overload. By understanding these behavioural barriers and incorporating insights from behavioural science, councils can design programmes that effectively support homeowners in engaging in energy-saving behaviours and reducing their bills.

This report summarises a collaboration of nine local councils in Kent and Medway, the NHS, and The Behaviouralist. The aim was to design and scope a behavioural insights trial to reduce energy usage amongst low to middle-income residents in Kent and Medway. The remainder of the report is structured as follows. Chapter 2 provides an overview of the identified behavioural barriers to reducing energy use at home. Chapter 3 discusses '*Share the Warmth*', a behavioural intervention to reduce energy in low- and middle-income households that we tested using a Randomised Controlled Trial. Chapter 4 outlines the key learnings and recommendations, and Chapter 5 discusses the next steps for the consortium. Finally, Chapter 6 concludes the report.

02 Barriers to reducing energy use at home

Here we present a list of key behavioural barriers that prevent homeowners from implementing low-cost energy efficiency improvements at home. To identify the barriers, we have conducted and synthesised three streams of research. First, we conducted a non-representative residential survey that involved 1,903 residents in Kent and Medway. The survey examined homeowners' attitudes and beliefs linked to different energy-saving behaviours and saving energy at home in general (The Behaviouralist, 2022). Second, we interviewed eight professionals working in the energy domain to obtain a deeper understanding of the common challenges associated with saving energy. This included interviewing experts from the Energy Savings Trust (EST), Groundwork UK: Green Doctors, and Greater South East Net Zero Hub, among others. Third, we conducted a literature review of academic and grey literature that has previously investigated barriers associated with reducing energy use at home.

Lack of knowledge

Many individuals do not know what actions are the most effective to reduce their energy consumption at home. Even when aware of energy-efficient actions, homeowners may be unsure how to carry them out, such as how to operate the thermostat control (Steg, 2008; Niemeyer, 2010). Further, homeowners have a poor understanding of how their specific actions contribute to their total monthly energy use (Feng et al., 2010) as most of them learn of their energy consumption only once per month from their bills.

> *"Many people in general are confused [about their energy bills]. They just feel like 'Oh, my bills have gone up, and I don't really understand why.' There is a lot of animosity and frustration to it."* **- Expert 1**

Lack of trust

Homeowners might not trust energy-saving initiatives that come from unfamiliar sources (i.e., see them as scams). Even when an initiative comes from a credible source (e.g. a local public administration), it may still not be trusted if people believe the initiative will not work (Greenberg, 2014), when individuals know little about the problem that an initiative is trying to address, or when they do not feel responsible for it (Steg, 2008).

> *"I believe there's general confusion because companies are bombarding homeowners with information about insulation grants and they don't always trust them"* **- Expert 6**

Time constraints

Lack of time is among the main barriers to saving energy at home (Niemeyer, 2010; Cole et al., 2018). This particularly applies to individuals who are in difficult life situations and lack the mental bandwidth to think about non-urgent tasks such as home energy-efficiency improvements (Shilbach et al., 2016).

> *"Many people already have other complications and lead complex lives. It's likely they have debts and other issues that are ongoing for them."* - **Expert 3**

Perceived costs of energy efficiency improvements

Energy-saving actions that entail high upfront costs reduce homeowners' motivation to engage in them (Cole et al., 2018). Instead, individuals generally tend to be attracted by low-effort, low-cost actions (Steg 2008). However, not knowing how much saving results from a single energy-efficient action might deter their motivation.

> *"It's quite hard for people to figure out how much they'll save by doing the energy saving behaviours. It may not be obvious that it's worth their effort to change"* **- Expert 4**

Information overload

There is an overwhelming amount of information on reducing energy use (e.g., on the Internet, in communications sent to homeowners by their utility providers, and in physical communications with friends and family). This might lead to information overload, in which individuals become stressed and make poor energy-consumption decisions (Phillips-Wren and Adya, 2020) or no decisions at all (Abrardi, 2018).

> *"People are coming up with all these facts and figures, it can get overwhelming. Homeowners ask themselves: 'is that the truth? Is that accurate? I don't know, I haven't looked at that'."* **- Expert 6**

Language and cultural barriers

There are differences in how people from diverse cultural backgrounds heat, cool, cook and wash, among other energy-intensive activities. National campaigns promoting certain energy-saving behaviours might thus not be seen as sensible or understood by people belonging to cultural minorities (Sweeney et. al., 2013). Further, the discordance of language and cultures (Schouten et. al., 2020) may reduce the uptake of energy-saving behaviours. For example, in the UK, older members of minority groups may not be fluent in English and therefore struggle to understand energy saving campaigns.

Inconvenience

Energy-efficient behaviours, such as having appliances switched off at the wall, can inconvenience individuals, thus decreasing engagement. Energy efficiency is not only the result of environmental concerns but also of comfort (Steg, 2008). If individuals find energy-saving behaviours inconvenient, they will not be as keen to engage.

> *"Convenience plays a part for some people. You may suggest they switch off their appliances at the main supply, but they might be hesitant to do that, for reasons as simple as 'I like to have my WiFi router open, I don't want to turn it off'."* **- Expert 1**

Short-term thinking

Individuals have a general tendency to value immediate rewards higher than future ones (Abrardi, 2018). This present-biasedness affects the energy consumption of homeowners in multiple ways. For example, many individuals prefer immediate comfort now (e.g. setting a thermostat a bit higher) than achieving energy savings at the end of the month. Further, when shopping for appliances, individuals might choose to purchase a cheaper product rather than a low-consumption one to save immediately and forsake long-term savings.

> *"People don't see the other measures as a long-term solution for them. They're only looking at the now rather than what's going to happen in the next few months."* **- Expert 3**

Incorrect beliefs (a lack of perceived need)

Homeowners might incorrectly believe they have already done everything they can to make their home energy-efficient. Similarly, they may be deterred from taking up energy-saving behaviours if they believe that these problems do not apply to them or that they are not responsible for the impact their actions have on their environment (Niemeyer, 2010).

> *"If you ask people: 'Would you like a consultation to show you how to save energy at home?' There is a significant number of people that will say, 'I don't need that, I know everything I need to'."* **- Expert 5**

Poor mental models

Individuals may know little about how energy use is related to their behaviour and so may tend to rely on simple heuristics that are not always accurate, such as assuming bigger appliances consume more energy (Steg, 2008). These mental shortcuts may result in suboptimal decision-making as individuals cannot properly balance the benefits and costs of their behaviours (Abrardi, 2018).

> *"We still speak to quite a lot of households regarding switching off appliances. They don't realise that having an appliance on standby is going to cost them money."* **- Expert 1**

Inertia

People are inherently reluctant to change and are more comfortable with outcomes that are known with certainty, like continuing with existing behaviours, than those that are uncertain, such as the future energy savings stemming from behaviour change. Even when the outcome of their habitual behaviour is detrimental to their overall goals, individuals may be persistent in maintaining their established routines (Abrardi, 2018).

> *"It's not necessarily an unwillingness to change, but people are comfortable in the way that they live their lives."* **- Expert 1**

03 *Share the Warmth:* A behavioural intervention to reduce energy use among low- and middle-income households

In this section, we describe *Share the Warmth* - a behavioural intervention developed in collaboration with a consortium of 9 local councils in Kent and Medway and the NHS. The aim of *Share the Warmth* was to address several behavioural barriers identified in the research phase and empower residents and their close ones to save energy at home. Box 1 breaks down how the intervention design addressed the barriers including lack of trust, cultural barriers, time constraints, information overload, and the perceived costs of energy efficiency improvements.

Box 1. What behavioural barriers does *Share the Warmth* address?

1. **Lack of trust** - People may be more likely to take energy-saving advice from friends and family than from websites or government-led initiatives. The campaign encourages residents to act as trusted messengers and help their families, friends, and neighbours save energy.
2. **Cultural barriers** - Residents who join *Share the Warmth* share energy-saving tips with their friends and family in a language and under cultural norms that are appropriate.
3. **Time constraints** - Many people do not have sufficient time and mental resources to think about how to save energy at home. The campaign prompts residents to reach out to their time-poor friends and relatives and help them implement the tips.
4. **Information overload** - Many residents might feel lost in the sea of information on energy saving available on the Internet, not knowing what actions are most effective. The campaign promotes five key tips that are simple to implement, even in other people's homes.
5. **Perceived costs of energy efficiency improvements** - People might incorrectly believe that energy savings can only be achieved through significant upfront investments. The campaign promotes five tips that cost little money and effort to implement and can save the resident more than £500 per year.

Intervention objectives

Three interventions were originally considered, which included '*Share the Warmth*', the 'Neighbourhood challenge' (a neighbourhood-level campaign that would encourage residents to set up personalised goals to implement low-cost energy saving behaviours), and 'How-to clips with real life people' (a campaign where homeowners record short how-to videos on implementing different energy-saving behaviours at home which would then be shared by councils on social media, together with polls, quizzes and other social engagement elements). After the ideation workshop, The Behaviouralist internally evaluated all three intervention ideas and met with the individual members of the Consortium to discuss their preferences for the final intervention. The Consortium consensually decided to proceed forward with the *Share the Warmth* concept.

The main objective of *Share the Warmth* was to teach residents five low-cost and effective energy-saving actions and to empower the residents to help their friends and family to implement these tips. The intervention emphasised helping individuals who may not be able to take energy-saving actions on their own (e.g., the elderly, disabled, and time-poor individuals).

We have designed the intervention to answer the following research questions:

- Does providing a short online training increase people's knowledge of how to effectively save energy at home?
- Which messaging strategies are most effective in getting people to commit to sharing energy-saving advice with others?
- Are those who participate in *Share the Warmth* more likely to help their close ones implement energy-saving measures than those who do not participate?

Target population

The participation in *Share the Warmth* was open to any English-speaking individual with Internet access. However, we primarily aimed the intervention at lower- to middle-income homeowners (i.e., with a total annual household income of £25,000 - £45,000 per year) living in Kent or Medway. This was because this income group is still likely to suffer from rising costs in energy bills but might not qualify for low-income support schemes while also not having sufficient finance to invest in major energy-efficiency improvements (e.g., purchasing a heat pump).

The consortium has engaged in several efforts to reach the primary target group. First, the campaign visuals and messages were designed to appeal to lower and middle-income households. For example, the messaging emphasised saving on bills and put less emphasis on positive environmental impact, which tends to resonate more strongly with higher income groups. Second, some consortium members used targeted advertising on social media to promote *Share the Warmth* to people from low- and middle-income groups.

Intervention procedure

The *Share the Warmth* intervention ran between 7th November 2022 and 31st January 2023. During this time, people were invited to join the challenge and visit the *Share the Warmth* website (www.sharethewarmth.org), which was designed to address several barriers identified in the research phase (Box 1). The promotion was primarily done via local council social media (i.e., Facebook, Instagram, Twitter, LinkedIn, and NextDoor), resident and staff newsletters, and printed posters displayed in public spaces in Kent and Medway (e.g., in libraries).

Once on the website, residents were shown five energy-saving tips, took a quiz to test their knowledge, and planned who they could help. The five energy-saving tips were:

- Lowering the boiler's flow temperature to 55-65° C
- Setting the thermostat to 18°C
- Adding radiator reflective panels
- Using a water-efficient shower head
- Moving furniture away from radiators

Participants could also sign up for weekly email reminders along with additional energy-saving advice and tips. Four weeks after interacting with the *Share the Warmth* platform, participants received an email inviting them to complete a short evaluation survey.

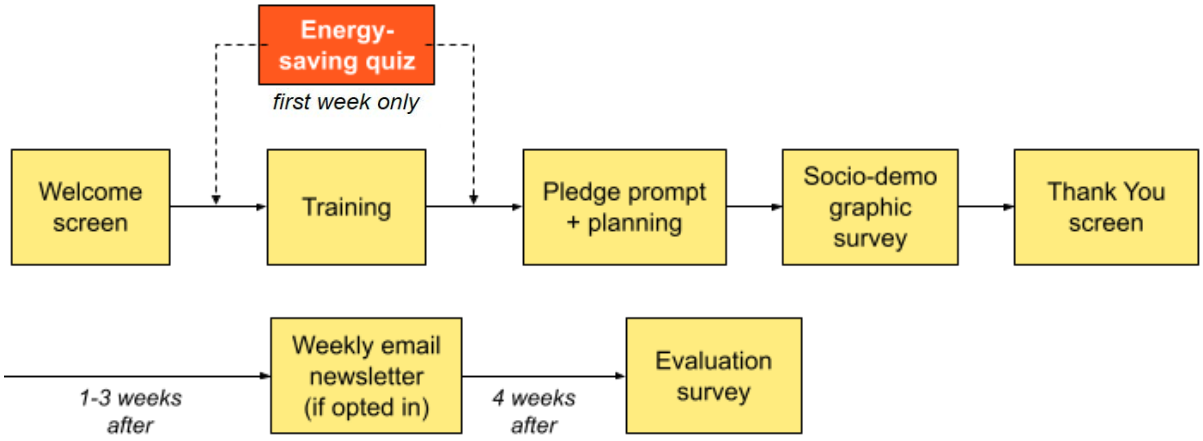

Figure 1: A flowchart of the complete intervention. We provide more information on the individual elements in the online appendix.

Randomised elements

We tested different versions of the *Share the Warmth* platform. Specifically, we randomly varied (1) whether participants received the energy-saving quiz before or after learning about the energy-saving tips, and (2) which behavioural message participants were presented when being asked to share the warmth with others. The randomisation allowed us to understand the extent to which the intervention increases participants' energy-saving knowledge, and identify which message is most effective in getting people to commit to sharing the warmth. Below we describe the randomised elements in detail.

Energy-saving quiz

To evaluate the impact of providing energy-saving tips on knowledge, we randomly assigned participants to either the control group (where participants first took the energy-saving quiz and then went through the tips) or the treatment group (where participants first went through the tips and then took the quiz). The quiz element and the corresponding randomisation were, however, implemented only during the first week of the intervention. The reason for removing the quiz after the first week was to reduce completion time and minimise dropout.

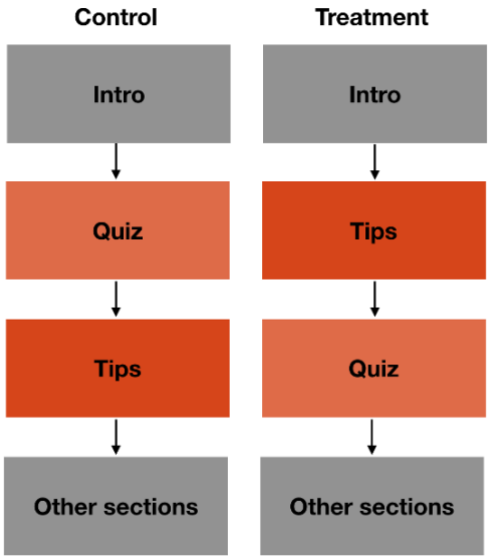

Figure 2: Flowchart depicting the difference between the control group journey and the treatment group journey.

Pledge messages

We also tested out different messages to identify which messages are the most effective in encouraging participants to commit to helping others save energy. We randomly assigned the campaign participants to three groups. Each group was shown a different version of the message that prompted the participant to share the warmth. The three message versions were as follows (see Table 1 for the precise wording):

- Social norms (where we highlight that the majority of other campaign participants have committed to sharing the warmth)
- Altruistic appeals (where we appeal to participants' intrinsic motivation to help others)
- Ease of the action (where we emphasise that helping out a friend or a family member to take an energy-saving action takes little effort)

Condition	Message
Social norms	79% of the people who have visited this website have pledged to help others. Please join the majority and share the warmth in Kent and Medway this winter!
Altruistic appeal	A lot of people will be unable to pay their energy bills in the coming months. You can make a huge difference to your loved ones' health and happiness this winter. Please share the warmth!
Ease of action	Sharing the warmth is super easy. One call or a short visit to your friend or relative is all it takes!

Table 1: Messages used in different conditions

Results

Sample characteristics

Sample size: Across the trial period, 1,749 people accessed the *Share the Warmth* website and 295 of them (17%) completed all sections on the website.

Gender: Our participants are predominantly female (77%).

Age: The majority of participants are aged 45 and above (39% are aged 45-60 years and 30% are aged 61 and above). 5% are aged 18-29 years and 18% are aged 30-44 years.

Household income: About 26% of the participants are from lower- to middle-income households (i.e., with a total annual household income of £25,000 - £45,000 per year). Figure 3 provides a breakdown of reported annual household income.

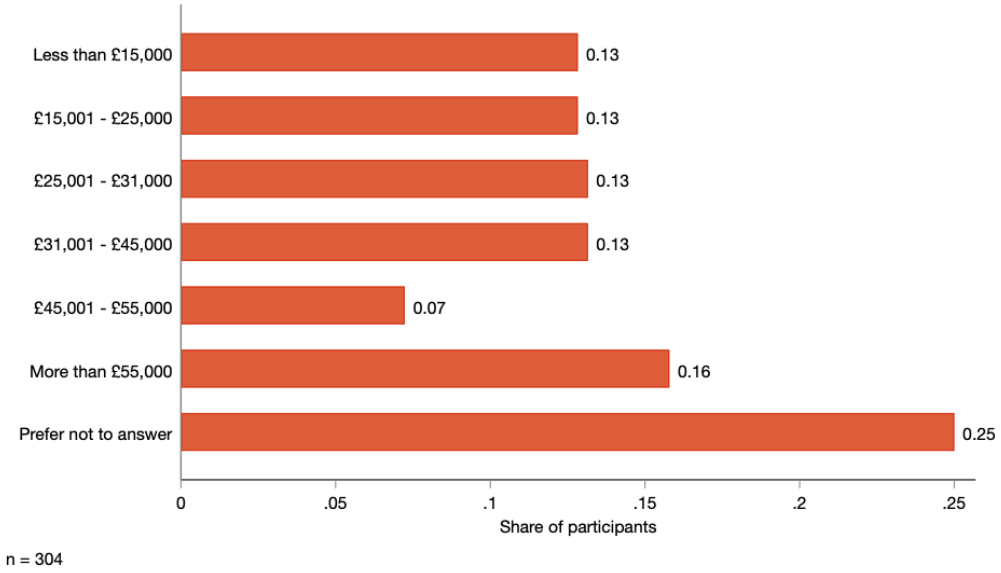

Figure 3: Annual household income

Experimental findings

Effect of online training on energy-saving knowledge

We analysed data for all participants who received and took the quiz (i.e., participants who accessed the platform during the first week) to evaluate the effectiveness of providing online training on energy-saving knowledge. As shown in Figure 3, we found that the treatment group performed significantly better than the control group in the quiz. On average, treatment participants scored 1.85 points higher than the control group (which scored 4.7 points out of the 8 points possible) – a 39.4% increase relative to the control group's quiz score.

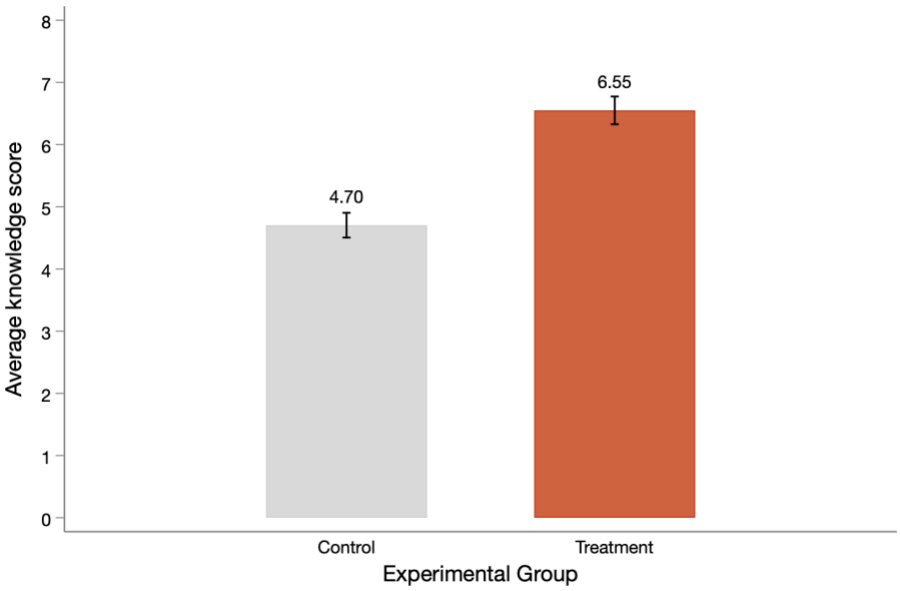

Figure 4: Average quiz score between control and treatment participants

Comparative effect of behavioural messaging on commitment rate

Overall, the rate of commitment to sharing the warmth was high. Among those who were asked whether they would like to commit (n = 605), about 73% committed to helping a friend or family member implement one or more energy-saving tips they had learned in the campaign.

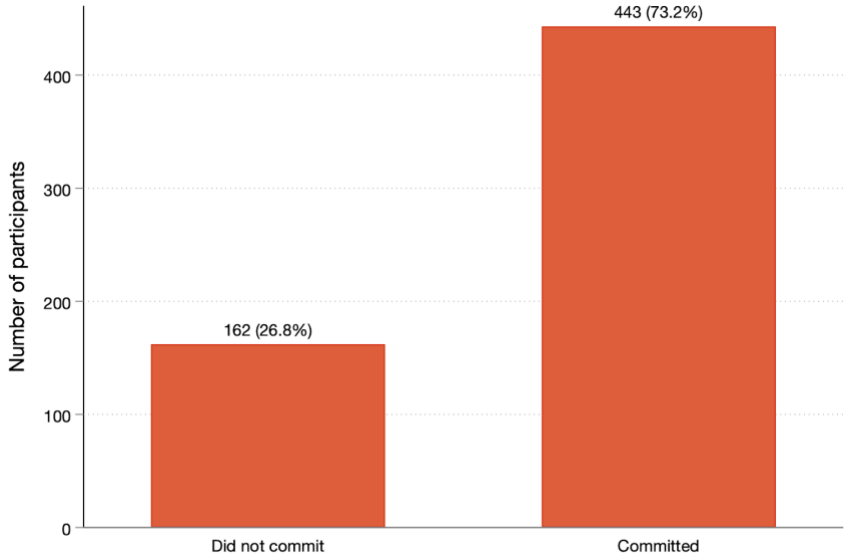

Figure 5: Overall commitment rate

To identify the most effective behavioural messaging for encouraging participants to commit to sharing energy-saving advice with others, we analysed data for all participants who were asked whether they would like to make a commitment and did not find statistically significant differences between the three conditions. However, we found significant differences when only participants who were asked whether they would like to commit after the first week (i.e., after the quiz section was removed to reduce dropout) were included in the analysis. Compared to the commitment prompts that leveraged altruistic appeal and ease of implementation, the social norm-based prompt appeared to be more effective, as shown in Figure 6. The social norm messaging led to a 14.1% to 18.1% higher commitment rates than the other two messages.

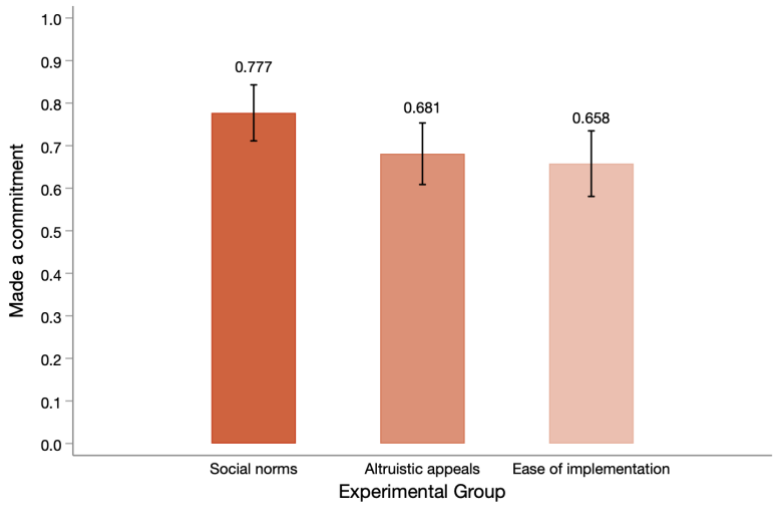

Figure 6: Average commitment rates between the three randomised conditions

There are two possible reasons for the significant differences observed only when participants in the first week were excluded. First, after the quiz section was dropped, it took less time and effort before participants were shown the commitment prompt. It is possible that participants therefore had more mental resources and were more attentive to the messaging, thus increasing adherence to the intervention. Alternatively, it is possible that the shorter version of the platform allowed for more participants who would have dropped out otherwise to make enough progress to receive the commitment prompt. This group of participants may have gone through the platform without much conscious thought. For those who received the social norm-based prompt, it is possible that they were more likely to click ‘yes’ to making a commitment when they saw that the majority of other participants also made a commitment, compared to those who received the other two versions.

Observational findings

Engagement with the intervention

Among participants who committed to sharing the warmth and were asked if they would like to receive weekly reminder emails, about two thirds of them opted in, indicating that most people are interested in and value the reminders. However, we found that only about 11% of participants downloaded the energy-saving checklist, which was sent via email right after participants completed all sections on the website. This observation suggests that to increase participants' engagement with important resources, future programmes should integrate the materials into the main platform for the intervention itself, rather than having participants go through another channel to access the materials (e.g., having to open an email and then clicking on a link within the email to access the materials).

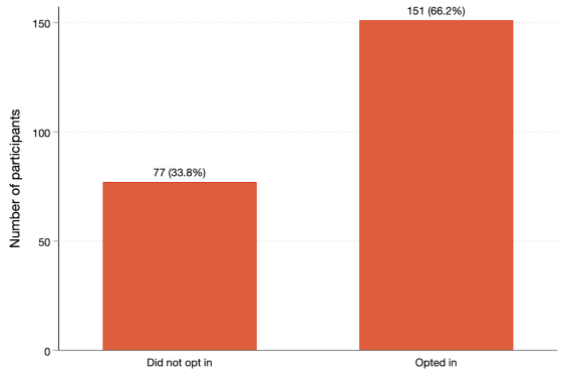

Figure 7: Reminder opt-in rate

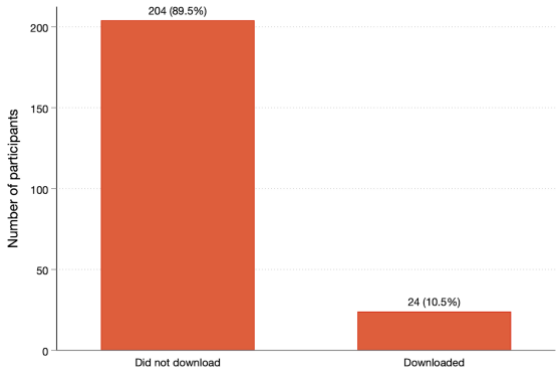

Figure 8: Checklist download rate

As part of the intervention, participants were asked to think about whom they might help implement energy-saving measures as soon as they accessed the website. We found that many participants visited the platform without having anyone specific in mind they would like to help. One potential explanation is that these participants were primarily interested in learning about the tips themselves, as opposed to helping others implement the tips.

After making the commitment, participants were asked again to pick a person to reach out to. Over half of the participants reported that they would help a relative and about a quarter chose to help their friend. This observation reflects the typical social proximity patterns – people feel more obliged to help their close family and less obliged to help people who are more distant in their social network.

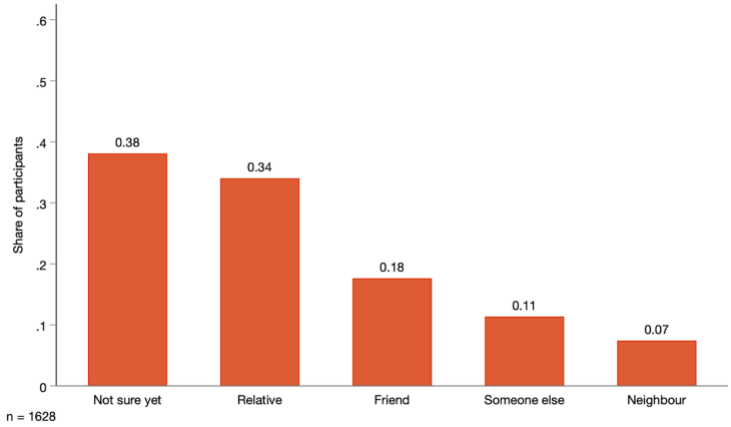

Figure 9: Friend or family member who might need help

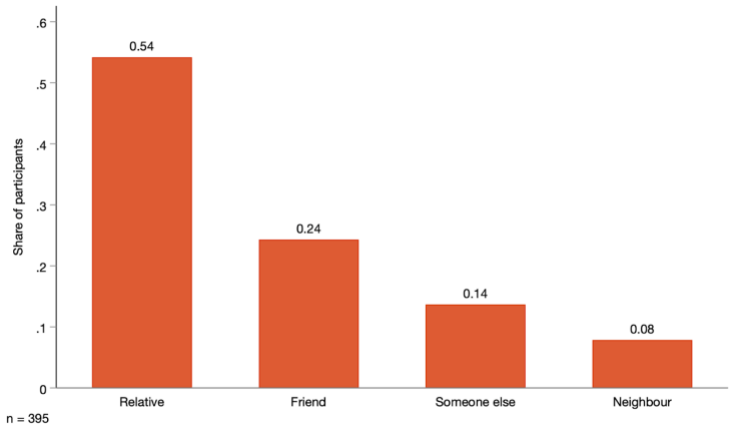

Figure 10: Friends or family member participants committed to helping

Participation in *Share the Warmth* and helping others save energy

An important research question of the intervention is whether those who participated in *Share the Warmth* were more likely to help their close ones implement energy saving measures. While we were unable to generate experimental evidence on this question, we analysed observational, self-reported data that was collected through an evaluation survey for both *Share the Warmth* participants and non-participants.

Overall, it appears that *Share the Warmth* participants were more likely than non-participants to help their close ones implement energy saving measures. A higher proportion of participants (89.3%) than non-participants (32.1%) reported that they had helped others reduce energy bills in the past four weeks. Among those who helped, participants reported having helped on average more households (as well as more lower- to middle-income households) than non-participants. Compared to non-participants, participants also reported a higher likelihood of helping others save energy in the future.

Participants		Non-participants[1]
28	**Sample size**	193
89.3%	**Proportion who helped others reduce energy bills**	32.1%
3.3 households (2.4 were lower- to middle-income)	**Number of households helped**	2.2 households (1.6 were lower- to middle-income)
Higher	**Likelihood of helping others in the future**	Lower

Table 2: Comparison between participants and non-participants

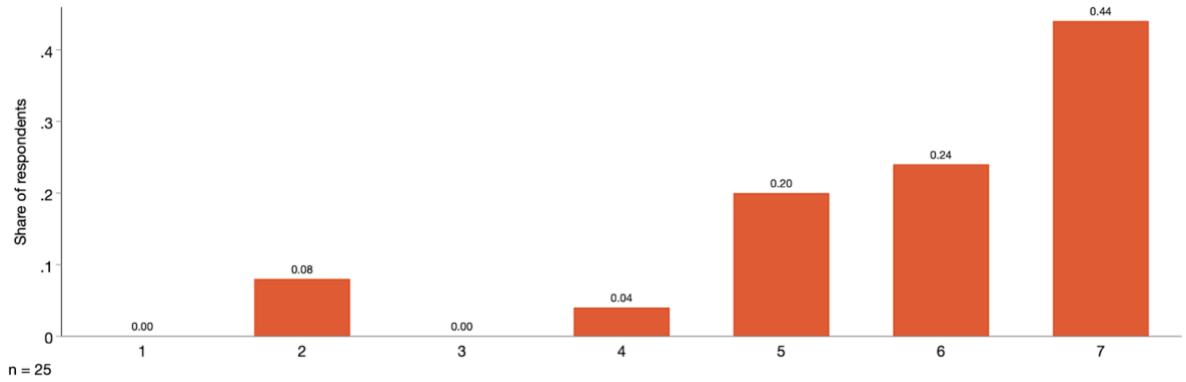

Figure 11: Participants' likelihood of helping others – on a scale of 1 (not at all likely) to 7 (extremely likely)

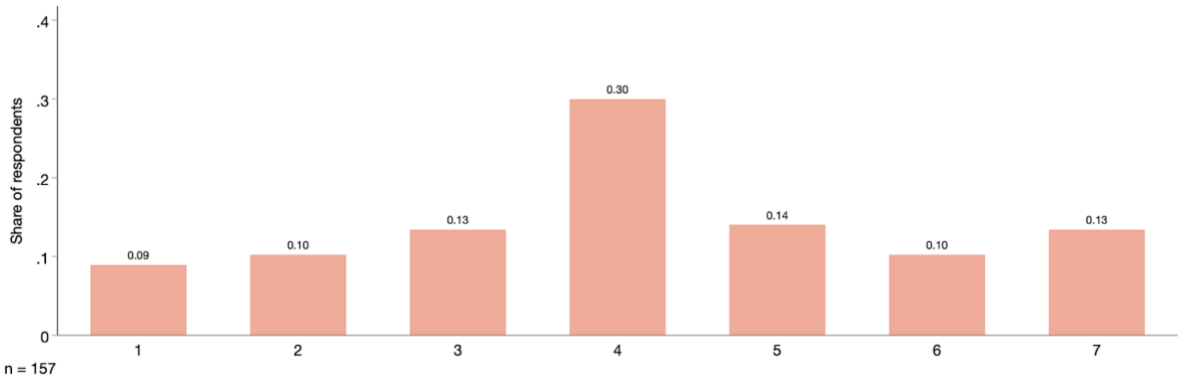

Figure 12: Non-participants' likelihood of helping others – on a scale of 1 (not at all likely) to 7 (extremely likely)

[1] Non-participants are defined as individuals who did not access the *Share the Warmth* website. They include those who had heard about *Share the Warmth* and decided not to participate and those who had not heard about *Share the Warmth*.

Limitation

There are, however, a number of caveats regarding the observational findings and they should therefore be interpreted with caution. First, our sample size for the evaluation survey (particularly for participants) was low, greatly limiting the generalisability of the results. Second, the survey data was self-reported and therefore has potentially low reliability due to measurement errors and biases (e.g., social desirability bias and recall bias). Third, participants who answered the evaluation survey were likely those who were most engaged and positively influenced by the interventions. The positive results observed for the participants might therefore be driven by a group of ‘best performers’, rather than being an accurate representation of how the average participants were influenced by the interventions.

04 Key learnings and recommendations

Who was most likely to engage with the campaign?

We found that women aged 45-60 years were the most likely to engage with the campaign. This finding makes intuitive sense as the primary channel and platform (i.e, Facebook) through which the campaign was disseminated likely affected the socio-demographic profile that participated in the campaign. The campaign also attracted participants across all income levels, including residents from higher income groups, suggesting a general public interest in energy saving regardless of one's income level. Nevertheless, we cannot say for certain who benefited most from the campaign due to the low response rate for the evaluation survey, as those who interacted with the platform may have reached out to mostly people within the income band of interest.

We were quite successful in engaging people with the initial household survey, which signifies the public's interest in energy saving. However, engagement with the *Share the Warmth* campaign was much lower (as indicated by the high dropout rate), possibly due to the fact that it asked people to commit to help others, as opposed to simply providing their opinion. More specifically, we found that many people dropped out of the campaign right after learning the energy-saving tips, which suggests that we might have primarily attracted people who were looking for information on grants or in need of energy-saving advice, as opposed to people who were keen on committing to help their family and friends.

There are a number of factors that may have contributed to the relatively low engagement. Some suggestions include people being more interested in receiving financial grants than tips to reduce their bills and a number of other events taking place when the campaign was rolled-out (e.g., the World Cup and holiday celebrations), which might have decreased the reception of the campaign amongst people.

Several things could be done to improve engagement rates across different demographics.

Recommendations:

1. The campaign could better target the young people and other communities who are inclined to help older people by making use of offline communications - although this would take more time to plan and implement - or through social media platforms most frequented by the younger population (e.g., using TikTok rather than Facebook);
2. The messaging of the campaign could be adjusted to better recognise people's situations, for example future campaigns could address the monthly struggle to pay their bill;
3. Better incentives could be put in place to encourage participation (e.g., add more of a social element to helping others implement energy saving tips);
4. Enrolling on the campaign could be made easier (e.g., people would simply enter their name and who they want to help) - but this may risk a total lack of commitment;
5. The best time to roll-out the campaign could have been better identified so as to make the best of the dissemination efforts (e.g., planning ahead to avoid a clash with special events such as the World Cup).

Does providing a short online training increase people's knowledge of how to effectively save energy at home?

Sharing energy-saving tips has a significant positive effect on participants' energy-saving knowledge. We found that those in the treatment group performed better in the knowledge assessment – on average they scored 39% higher than the control group. We also found that most participants did not watch the videos provided with the tips, as the median time spent on each tip page was 8-20 seconds. Nevertheless, even such a short amount of time dedicated to reading the tips was sufficient to considerably increase participants' energy-saving knowledge.

This shows that clear and concise communications can be very effective in increasing knowledge and raising awareness. People needed just a few minutes to improve their energy-saving knowledge. The challenge is how to get people to read the concise tips.

Recommendations:

1. Sharing tips had an impressive positive effect for teaching people new information, future campaigns could continue applying them even for non-energy related programs;
2. Clear and concise communications may be key when sharing informational tips;
3. The key to getting more people to read the tips may be to reach out to them at a time when they are actively looking for energy-saving information (e.g., after they receive their energy bills).

Which messaging strategies are most effective in getting people to commit to sharing energy-saving advice with others?

Prompts that leverage social norms are suggestively more effective in getting participants to share energy-saving advice with others. We found evidence that this type of prompts lead to 14.1-18.1% higher commitment rates, compared to the other two prompts which leveraged altruistic appeal and ease of implementation. This adds more evidence to the idea that people are more willing to participate when they are aware that others are doing the same.

Recommendations:

1. Further research should be conducted on the effectiveness of social norm-based messaging on the promotion and uptake of commitment campaigns, as our findings here are only suggestive;
2. Councils should look for more opportunities to highlight the positive behaviour of others.

How many campaign participants committed to sharing the warmth?

Among those who were asked whether they would like to commit, the commitment rate was very high (73%). The following points suggest that people who agreed to commit by clicking on the "Commit" button were very motivated to reach out to their friends and family and provide them with energy-saving advice:

- 66% of those who committed and were asked if they would like to receive weekly reminders with extra advice opted in;
- 18% of people who committed also voluntarily provided additional details to make a specific plan (e.g. specifying when they will reach out to their friends and family in the coming weeks)

Recommendations:

1. Asking people to commit is a good way to segment individuals who are actually willing to carry out the suggested actions.

What were the top reasons for people to not commit to sharing the warmth?

Among those who did not commit, low relevance of the tips was cited as the top reason (e.g. not everyone has a combination boiler; or a person cannot afford to turn their thermostat on at all). **The main reasons cited by non-participants for not taking part** were already being aware of energy-saving tips and already taking actions to save energy at home.

Recommendations:

1. Future campaigns could increase their relevance by providing a larger number of tips;
2. Campaigns could also offer information that is not as readily available.

What energy-saving actions did the participants decide to help their friends and family to implement?

The three most popular energy-saving tips that participants committed to helping their friends and family implement, and that were actually implemented, were moving furniture away from radiators, changing the boiler's flow temperature, and turning down the thermostat. Meanwhile, there was less interest in changing showerheads and installing reflective radiator panels. **One reason for this may be that people simply opted in for the easiest actions**, as showerhead purchase and replacement and fitting radiator panels might cost more effort and time.

Recommendations:

1. Future campaigns that promote energy-saving behaviours could focus on presenting simple behaviours that are easily applied, as these seem to be the ones people are most likely to adopt;
2. Alternatively, future campaigns could help promote resource-intensive actions that are less popular (e.g., retrofitting) by means such as framing the action as a gain, rather than a loss, helping people overcome the greater frictions associated with these actions.

Are those who participated in *Share the Warmth* more likely to help their close ones implement energy-saving measures?

People who participated in STW were more likely to help their close ones than those who did not participate. This is indicative of a positive impact from the STW campaign on the helping behaviour of participants. Additionally, participants also helped more households than did non-participants. **Regarding future behaviour**, participants stated having higher intentions to help others in the coming months than did non-participants.

Recommendations:

1. Future research should aim to generate experimental evidence for this research question;
2. Councils should consider rolling out similar programmes in the future, implementing a randomised controlled trial (RCT) in order to get more conclusive evidence regarding the programme's success.

05 Next steps as a consortium

An important goal of this project was to increase the understanding of councils in behavioural insights techniques and their capability of running behavioural interventions in future council business. By providing training through monthly workshops, we helped participating councils and the NHS team develop their ability to apply behavioural insights across their work.

Key topics and exercises covered in the training, including understanding the basics of the behavioural design process, using the COM-B model to identify the barriers to the target behaviour, learning about different behavioural techniques, using behavioural science to design and test interventions that address the identified barriers, and learning about interpreting, disseminating, and integrating trial findings into future work will be taken forward within the local councils for encouraging energy-saving behaviours as well as other challenges. For example, Kent County Council is working on setting up a Climate Change sub group for national behaviour change leads, facilitating a community of practice for behaviour change practitioners in Kent, and scoping a behavioural project to reduce the environmental impact of school meals with a caterer. Similarly, Ashford Borough Council is working on increasing the reuse, repair, and recycling of Waste from Electrical and Electronic Equipment (WEEE) and Gravesham Borough Council is applying the learnings from this project to its future work on resident engagement, community events, and informational campaigns.

We plan to continue collaborating with colleagues across the consortium in order to build on the network and the momentum that was created. We will do this by:

- Sharing with councils a checklist that helps practitioners determine whether a randomised controlled trial (RCT) should be used to evaluate the efficacy of a given intervention. The checklist can also provide a realistic estimate of the work and resources required to deliver an RCT.
- Exploring opportunities to continue working together within this network on other behavioural change challenges. Initial ideas for potential collaboration include reducing water consumption, increasing the uptake of vegetarian meals in schools, encouraging reuse, repair, and recycling of Waste from Electrical and Electronic Equipment (WEEE) items, and promoting reusable takeaway packaging.
- Continuing to use tools (e.g., Zoom, Miro, and Google Docs) which have made project planning and coordination, workshop delivery, interactive exercises, and feedback sharing highly efficient and enabled us to complete this project so quickly.
- Encouraging other councils to partner up as a consortium for future projects as this approach allows councils to deliver and test interventions on a larger scale and encourages participating councils to share resources and learnings with each other.

06 Conclusion

This project set out to understand how behavioural insights can be leveraged to encourage people to save energy in the Kent and Medway areas. From the randomised controlled trials embedded in the *Share the Warmth* platform, we found that sharing energy-saving tips has a significant positive effect on participants' energy-saving knowledge. Those in the treatment group scored on average 39% higher than the control group in the knowledge assessment. Encouragingly, though most participants only spent a short amount of time reading the tips without watching the videos provided with the tips, it was sufficient to considerably increase participants' energy-saving knowledge. Additionally, we found suggestive evidence that prompts that leverage social norms are more effective in getting participants to commit to sharing energy-saving advice with others. The norm-based prompt led to 14.1-18.1% higher commitment rates, compared to the other two prompts which leveraged altruistic appeal and ease of implementation, suggesting that people are more willing to participate when they are aware that others are doing the same.

Across a number of metrics, we observed that residents who participated in the *Share the Warmth* campaign were more likely to help others implement energy-saving behaviours at home when compared to those who did not participate, indicative of a positive impact of the intervention. Based on self-reported data that was collected through an evaluation survey, a higher proportion of participants (89.3%) than non-participants (32.1%) reported that they had helped others reduce energy bills in the past four weeks. Among those who helped, participants reported having helped on average more households (as well as more lower- to middle-income households) than non-participants. Participants also self-reported higher intentions to help others in the coming months than did non-participants.

These findings are very encouraging. We anticipate that the key learnings and recommendations that resulted from this project will help councils implement similar programmes in the future. We also recommend further research in the area of social norms messaging as our results were only suggestive.

Limitations

Regarding our observational findings, a few caveats are worth mentioning. As the sample size for the evaluation survey was low (particularly for participants), our observational findings are likely to have low generalisability. Additionally, the survey data was self-reported, making it susceptible to low reliability. Finally, it is likely that participants who answered the evaluation survey were the most engaged and positively influenced by the interventions.

Future campaigns

Future campaigns that wish to share information should consider selecting a specific target segment to whom to address all communications. This selection would also allow for a better choice of communication means and messages, tailored to the chosen target audience. Campaign timings should also be considered and planned ahead accordingly in the future to ensure that the communications are not overshadowed by special events (e.g., the World Cup). Clear and concise communications and relevance are key aspects that should be considered when sharing informational tips. Finally, future research should aim to generate experimental evidence for the research questions studied in this project using a randomised control trial (RCT) in order to robustly evaluate the effectiveness of the intervention.

07 Bibliography

Abrardi, L. (2018). Behavioral barriers and the energy efficiency gap: a survey of the literature. *Journal of Industrial and Business Economics, 46*, 25-43. https://doi.org/10.1007/s40812-018-0107-z

Cole, J. C., McDonald, J. B., Wen, X. and Kramer, R. A. (2018). Marketing energy efficiency: perceived benefits and barriers to home energy efficiency. *Energy Efficiency, 11,* 1811–1824. https://doi.org/10.1007/s12053-018-9614-z

Feng, D., Sovacool, S. K. and Vu, K. M. (2010). The barriers to energy efficiency in China: Assessing household electricity savings and consumer behavior in Liaoning Province. *Energy Policy, 38*(2), 1202-1209. https://doi.org/10.1016/j.enpol.2009.11.012

Fuel Poverty Statistics Explainer (2022, November). National Energy Action. https://www.nea.org.uk/energy-crisis/fuel-poverty-statistics-explainer/

Greenberg, M. R. (2014). Energy policy and research: The underappreciation of trust. *Energy Research & Social Science, 1*, 152-160. https://doi.org/10.1016/j.erss.2014.02.004

Michie, S., van Stralen, M.M. and West, R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Sci, 6*(42). https://doi.org/10.1186/1748-5908-6-42

New research finds 96% of UK homeowners are concerned about their home energy efficiency. (2021, January 21). Energy Saving Trust. https://energysavingtrust.org.uk/new-research-finds-96-of-uk-homeowners-are-concerned-about-their-home-energy-efficiency-yet-one-in-five-arent-taking-simple-steps-to-improve-it/

Niemeyer, S. (2010). Consumer voices: adoption of residential energy-efficient practices. *International Journal of Consumer Studies, 34*(2), 140-145. https://doi.org/10.1111/j.1470-6431.2009.00841.x

Phillips-Wren, G. and Adya, M. (2020). Decision making under stress: the role of information overload, time pressure, complexity, and uncertainty. *Journal of Decision Systems, 29*(1), 213-225. https://doi.org/10.1080/12460125.2020.1768680

Quick tips to save energy (2022, November 3). https://energysavingtrust.org.uk/hub/quick-tips-to-save-energy/

Schouten, B. C., Cox, A., Duran, G., Kerremans, K., Banning, L. K., Lahdidioui, A., van den Muijsenbergh, M., Schinkel, S., Sungur, H., Suurmond, J., Zendedel, R. and Krystallidou, D. (2020). Mitigating language and cultural barriers in healthcare communication: Toward a holistic approach. *Patient Education and Counseling, 103*(12), 2604-2608. https://doi.org/10.1016/j.pec.2020.05.001

The Behaviouralist (2022). *LGA Behavioural Insights Programme: Reducing energy usage among homeowners consortium.* LGA Behavioural Insights Programme and The Behaviouralist. https://www.local.gov.uk/our-support/financial-resilience-and-economic-recovery/behavioural-insights/projects#climate-environment-waste

Shilbach, F., Schofield, H. and Mullainathan, S. (2018). The Psychological Lives of the Poor. *American Economic Review, 106*(5), 435-440. https://doi.org/10.1257/aer.p20161101

Steg, L. (2008). Promoting household energy conservation. *Energy Policy, 36*(12), 4449-4453. https://doi.org/10.1016/j.enpol.2008.09.027

Sweeney, J. C., Kresling, J., Webb, D., Soutar, G. N. and Mazzarol, T. (2013). Energy saving behaviours: Development of a practice-based model. *Energy Policy, 61*, 371-381. https://doi.org/10.1016/j.enpol.2013.06.121