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Research article

"We can't save the planet, we're too busy saving lives": Exploring beliefs about decarbonizing the NHS

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ABSTRACT

Background: If health and social care delivery systems are to achieve net zero targets, fundamental changes are required to how organizations deliver care, how individuals practice clinically, how people access care, and how systems reduce the demand for healthcare. This paper explores how professionals, patients and citizens respond to this need for change.
Methods: We conducted a mixed methods study, comprising 12 deliberative workshops (n = 35) and a survey (n = 413) with health and social care staff, patients and citizens in the North of England.
Results: We found that while few people were aware of the net zero target, they supported it. Some, however, questioned organizational commitment, highlighting potential conflicts between cost and sustainability. Staff described a lack of agency to make changes to their practice, despite identifying many opportunities to do so. Some believed that healthcare should be exempt from carbon reduction targets. The strongest messages we found to interest, empower, and motivate people to make changes are: that individual actions matter; that we have a responsibility to set a good example of tackling climate change; and that making changes saves lives and should be a priority. We also found that people need to be reassured that the changes will not adversely affect clinical outcomes. Finally, progress towards targets needs to be tracked and publicly available.
Conclusion: Our results indicate a need for clear leadership which gives sustainability a higher priority, a need for staff training to enable conversations about the environmental effects of treatment, and support for shifting the focus from treating illness to promoting health.

1. Introduction

To address climate change, healthcare systems need to adapt by streamlining processes, reducing waste and reducing demand [1–4]. As the largest publicly funded health system in the world contributing around 6% of national carbon emissions, [5] the UK's National Health Service (NHS) has a responsibility to lead on decarbonization and has committed to reaching net zero by 2040 and achieving 80% carbon reduction by 2032 [6]. While this will require all NHS stakeholders to make changes, responsibility is often allocated to roles involved in estates management [2]. Sustainability is then perceived as the remit of a specific role, rather than a change to everybody's behavior [7]. Though the existence of such roles may have at one time been a sign of progress, they have counterintuitively limited the reach of sustainability efforts [8,9]. Instead, there is a need for all staff to change their practice to reduce consumption and waste. Progress has been made in some specialities, for example to identify the environmental impact of different anesthetic gases and provide advice for individual anesthetists to reduce their carbon footprint [10]. A global consensus statement has been produced by the World Federation of Societies of Anaesthesiologists [11]. This addresses individual practice, research, education, and the need to show leadership in environmental sustainability. This provides agency for clinicians to individually and collectively implement changes, such as using alternative anesthetic gases, and adapting their technique to utilize less gas.

As two thirds of the NHS's carbon footprint is associated with its supply chain and procurement, with the remainder attributed to care delivery, personal travel, and commissioned health services [5], other disciplines and roles need to recognize the impact their practices have, and identify and implement actions to increase environmental sustainability. Reducing use is the most effective means of ensuring healthcare sustainability but requires a shift from focusing on

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treating illness to promoting health [12] and preventing injury [13]. Changes in clinical practice will be required, including reducing tests and procedures, and changing pathways [1]. Patient behavior will also need to change yet there has been little research to explore how to communicate with the public about decarbonizing healthcare and their role in the process. This research aims to explore how health and social care staff and the public respond to information about decarbonizing the NHS and Social Care, the NHS commitment to net zero, and beliefs about this process and their role in it.

2. Materials and methods

We conducted a mixed methods study using deliberative workshops and a survey with health and social care staff, patients, and citizens in the North of England. The theoretical basis of the work was the COM-B model [14] which focuses on the role of capability, opportunity and motivation on behavior. The study went through ethical review, in line with the Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans. All participants gave informed consent to participate.

2.1. Deliberative workshops

Deliberative workshops are facilitated group discussions that encourage participants to explore an issue in depth, challenge each other's views, and to consider evidence on the issue so that they can reflect on it and reach an informed view. Twelve deliberative workshops with staff and the public explored their understanding of the role of the health and care system in climate change, their response to the NHS net zero commitment, how they could adapt their behavior to meet it, and barriers to doing so. Each participant attended two deliberative workshops (DW1 and DW2) and a total of 35 people took part, including staff from nine different hospital trusts (Table 1). Each workshop comprised a researcher, the participants, and a member of the local NHS Climate Change team. In the first of their two workshops participants were read a brief statement about the NHS's commitment to decarbonising and the sort of changes that might be required. After the workshop they were given a task to interview a friend, colleague or family member about the topic. During the second workshop they reported on their interview, how their interviewee responded, and how the interview had affected their own views. They also discussed what individuals can do to help tackle climate change, any changes to the workplace, infrastructure or facilities that would support change, and any barriers to change and how they could be overcome. Workshops were recorded, transcribed and analyzed using thematic analysis [15]. Workshops took place in January and February 2021.

NHS staff were recruited via newsletter advertisments, and as such, these participants were mainly those who already had an interest in climate change. Social care staff and the public were recruited through a fieldwork agency and received a financial incentive to take part. We used a screening questionnaire to include people varying in age, ethnic group, socioeconomic status, employment status, parental status, caring responsibilities, and commitment to sustainable living. For the public, we included people with long-term conditions who are regular users of healthcare systems (patients) and also people who are occasional users, such as to treat short-term conditions and for screening and vaccination services (citizens).

2.2. Online survey

Respondents were told that: "The survey talks about climate change, which is caused by carbon emissions. Tackling climate change involves reducing carbon emissions" and that "The NHS has a target to tackle climate change: 80% reduction in carbon emissions between 2028 and 2032 and removing all carbon emissions - Net Zero - by 2040." The survey comprised questions about awareness of the effect of the NHS on climate change, awareness of and support for the NHS and Social Care net zero commitment, response to a series of possible approaches to reduce carbon emissions identified from the deliberative workshops, and the Attitudes to Climate Change questionnaire [16]. The questionnaire has 15 questions that form two scales that measure beliefs about climate change and intention to take action to tackle climate change. Data were analysed using descriptive statistics and t-tests to compare responses between staff and patients/citizens.

The survey was distributed online by the West Yorkshire Health and Care Partnership to staff (n = 2000), and by a survey panel organization to patients and citizens. We received a total of 413 survey responses: 173 (42%) worked in the NHS and Social Care; and the remaining 240 (58%) were patients and citizens.

- 39% (161) identified as male, 60% (248) as female, and 1% (4) as non-binary
- 7% (29) reported having a disability
- 30% (124) reported having a long-term condition, impairment or illness. Most commonly these were a long-term condition (10%, 41), a physical or mobility impairment (6%, 25), a mental health condition (5%, 21), or a sensory impairment (4%, 16)
- 87% (359) were White British with the most common ethnic groups being Pakistani, Indian, Chinese, and mixed White and Asian.

The survey ran from March to May 2021.

3. Results

3.1. Deliberative workshops

Most participants were surprised by how much the NHS contributes to the UK's carbon emissions but recognized a need to tackle

Table 1
Participants in the deliberative workshops.

Group	Roles	Participants
1: NHS staff	Managers, people with a strategic role, people working in procurement	Six participants: four males, two females; five White British, one British Asian; age groups 25–44, 45–64.
2: NHS staff	People in clinical roles: GP, radiographer, physiotherapist, health visitor, screening practitioner, paramedic	Eight participants: one male, seven females; eight White British; age groups 25–44, 45–64.
3: NHS staff	People in clinical roles: GPs, emergency medicine, community nurse	Five participants: one male, four females; five White British; age groups 25–44, 45–64.
4: Social care staff	People working in social care: care homes; domiciliary care; day care, management	Four participants: one male, three females; two White British, one Black British; one Eastern European; age groups 18–24; 25–44, 45–64.
5. Patients	People with a long-term condition who receive regular NHS treatment, e.g. for heart disease, lymphedema, and mental health problems.	Six participants: three males, three females; four White British, one Black British, one Eastern European; age groups 18–24; 25–44, 45–64.
6. Citizens	People who are occasional users of NHS services, e.g., for GP appointments to treat minor conditions, or for screening or vaccinations.	Six participants: two males, four females; five White British, one Black British; age groups 18–24; 25–44, 45–64.

climate change and supported the net zero target. Many staff talked about feeling proud to work in an organization that has made this commitment and several highlighted that making changes to working practices in order to cut carbon emissions is more motivating than making changes to cut costs. However, they recognized that reaching net zero would be a substantial challenge and some were skeptical that the target could be met. The public also supported the NHS and Social Care tackling climate change and talked about how the NHS has a responsibility to protect people, and this includes not causing climate change and pollution. We identified four themes in discussions.

3.1.1. Are we really serious about net zero?

This theme is about concerns that the NHS and Social Care are not serious about tackling climate change. Participants talked about there being a potential conflict between cost and sustainability. Staff highlighted a need for clear leadership to give sustainability higher priority and discussed how it will be important for senior managers to lead by example. Several described how all talk of sustainability had disappeared during the COVID-19 pandemic, whereas if the NHS were serious about reaching net zero, sustainability efforts would not be put on hold for any reason. (Source of each comment, such as the Deliberative Workshops, are indicated at the end of the statements.)

> *It is down to the leadership at the end of the day. If your leader sees it as a nuisance it won't happen. DW1.1*

Participants discussed how there is a need for publicity about targets and the challenges and efforts to achieve them. Staff talked about how sustainability needs to be something that every staff member should consider in their daily work, and as a normal topic of conversation, both between colleagues and with patients. They suggested that leaders and managers should initiate and expect these conversations.

> *It's only grandstanding if the commitment doesn't find its way into targets and ambitions and ways of assessing what we're doing. DW1.2*

Participants also discussed the importance of organizations supporting staff to make changes, for example providing e-bike loan schemes and facilities for people who cycle or run to work, and reducing incentives (e.g. mileage payments) for using a car while increasing them for cycling.

3.1.2. Healthcare is an exception

Participants discussed whether the NHS and Social Care should be exempt from moral or legal pressure to become more sustainable as its function is to improve health and save lives. Some talked about how this gives them carbon priority over other sectors. Similarly, several staff participants noted that health and social care staff should not be distracted from urgent activities in order to tackle long-term problems such as sustainability.

> *I think [in the past] we've always given ourselves a bit of a free pass: it's people's health and people's lives so we have to do it. DW1.1*

Many patients also held these views. They talked about how their own ongoing healthcare needs are more important than protecting others from the effects of climate change. They recognized that this could be viewed as selfish, but nevertheless wanted to feel confident that their own care would not be compromised and they did not want to be pressured into selecting a treatment that is less clinically effective but better for the environment.

> *Although it would be wonderful for the NHS to be able to do this, the focus should be on other companies that aren't quite as important as a lifesaving service. DW6.2*

> *I want a treatment that's best for me, not for the environment. When you're ill, I don't want to [be made to] feel guilty that my treatment is contributing more to climate change. DW5.1*

Citizens who were not heavy users of the NHS felt differently, and discussed how it is important to change practices — including treatments — to reduce carbon emissions. They supported more social prescribing and taking positive steps to stay healthy to reduce future use of the NHS and Social Care. Participants' discussions indicated a difference between serious acute conditions, for which they would not want to ask about the environmental side effects, and less urgent long-term conditions, for which they would be more likely to explore alternatives.

> *I have an EpiPen type thing that I've got to do every two weeks. But instead of using an EpiPen, throwing it away, which is mainly plastic, give me a refill, train me how to properly do it so the needle's clean, the medication's stored properly, rather than using a new one, more plastic every two weeks. Something like that, I would go for more of the environmentally friendly one because it's a long-term, lifelong condition. DW5.1*

Staff talked about how they would find it difficult to have conversations with patients that used environmental effects to frame treatment options. For example, they discussed that social prescribing needs to be presented as benefiting *the patient* rather than the environment. However, many staff discussed how health and social care professionals have a responsibility to set a good example to others by talking about ways of reducing carbon emissions.

3.1.3. The need for agency

Participants discussed how organizational rules, processes and procedures can shift responsibility away from individuals. Many staff participants talked about feeling disempowered and unable to make any meaningful changes or have any significant impact. There were discussions about how rules and directives come from the top of the organization, or that managers make decisions rather than individuals, and appear unwilling to engage in conversations about changes to increase sustainability. They highlighted that this results in individuals feeling that there is nothing they can or should do. For example, there were discussions in all the groups (staff and patients) about how people did not feel able to challenge the amount of waste produced by COVID-19 infection control processes. Inability to influence the supply chain was also discussed as making people feel powerless.

> *Some people see a barrier at the supply chain level. So they say we're only allowed to buy certain things from certain suppliers. If we're not putting pressure on the suppliers to create things that are more environmentally friendly, we can't do anything because we have to buy from them. DW3.2*

Some, including those with a procurement role, talked about how it can be difficult to know which products are more sustainable, and that a whole life-cycle assessment might be required.

Many staff participants talked about how the changes they could potentially make are insignificant compared with the energy that is wasted through inefficient buildings. This led them to feel that there is little point in them making individual changes. In contrast, they discussed how it is important that every single member of the staff feels a responsibility to identify ways of reducing carbon emissions in their own individual workspace, and reporting problems like drafty rooms so that the energy efficiency of buildings can be increased.

[In my interview with colleagues] they were all very keen to be able to participate in this and kind of be involved. DW1.2

A few staff participants talked about how some managers are discussing sustainability during annual appraisals. They highlighted that this is valuable as it emphasizes the importance of sustainability, makes it something that is relevant to that person's role and performance, and it motivates them to make changes.

While staff were positive about the need to empower themselves and their colleagues, many were hesitant about empowering patients to ask about the environmental side effects of their treatment options. They were concerned that staff would not know the answers. Some were skeptical that patients would feel confident enough to query their prescribed medications.

I don't think clinicians are really armed with that information. If somebody came to ask which of their medicines could be changed to have a lower environment impact in terms of climate change and asked for advice about the risks in and the benefits of that, I don't I don't think many people are be able to do that. DW3.1

3.1.4. Opportunities

This theme is about the ideas that people had about changes. Many suggestions were made, and people talked enthusiastically about things they would like to try. Examples included a greater focus on deprescribing, refillable medication containers, and sourcing supplies locally. Some participants talked about the need to shift the focus from healthcare to preventative care, and staff talked about a greater use of social prescribing.

We should be minimizing people's need for health care and looking at other options such as green and social prescribing. DW2.1

Participants from all groups talked about how people need to feel that their changes make a difference and highlighted that when people are both motivated and empowered to make changes, they will find ways of making the NHS more sustainable. Staff in clinical roles suggested a radical review of processes would provide an opportunity to redesign pathways in a way that considers sustainability as well as patient outcomes.

There were many discussions about capitalizing on the changes made in response to COVID-19. For example, patients now expect to have telephone or video consultations instead of face-to-face ones. People discussed how this should continue where clinically appropriate.

Sometimes there was a sense that patients were being dragged into hospital, and it was really just to make sure the consultant had actually read the radiology report or the histology report. DW1.2

3.2. Survey

Few respondents (16%, 66) reported that they were already aware that the NHS causes around 6% of the UK's carbon emissions. Awareness was higher in NHS and Social Care staff (26%, 45) than in the public (9%, 22). Most respondents (84%, 347) reported that it is important (27%, 112) or very important (57%, 235) to reduce climate change caused by the NHS, and important (27%, 111) or very important (57%, 235) to reduce climate change caused by social care. Only 5% (21) reported that it is not important to reduce climate change caused by the NHS, and the same number (5%, 21) that it is not important to reduce climate change caused by social care. Staff had stronger beliefs that it is more important to tackle climate change than the public ($t(405) = -7.5$, $p < 0.001$). While this is likely to be because staff respondents were recruited using communication networks and the public by an online panel, it nevertheless shows that there are NHS and Social Care staff who are engaged with tackling climate change and motivated to take action.

Respondents were told that the NHS has a target to tackle climate change: an 80% reduction in carbon emissions between 2028 and 2032 and net zero by 2040. Again, more NHS and Social Care staff (32%, 55) reported being already aware of this than the public (9%, 22). Most people agreed with this target (Fig. 1). Support was stronger in staff (81%, 140) than the public (69%, 166). Very few people disagreed: only 5% (9) of staff and 7% (17) of the public.

Respondents were asked which potential ideas for meeting the net zero commitment should be implemented. The percentage who selected each option is shown in Figs. 2 (staff) and 3 (the public). There was strong support from staff for most ideas, particularly for: arranging appointments that minimize the need for patients to travel; showing patients and clients how to be more sustainable; a website with carbon emissions targets and progress towards them; taking carbon awareness training; and sustainability not being the final item on agendas. The ideas most supported by the public were: appointments that minimize the need to travel; hospital websites with carbon emission targets and progress; and staff showing people how to be more sustainable.

The results from the Attitudes to Climate Change questionnaire show no differences between staff (mean = 36.5) and the public

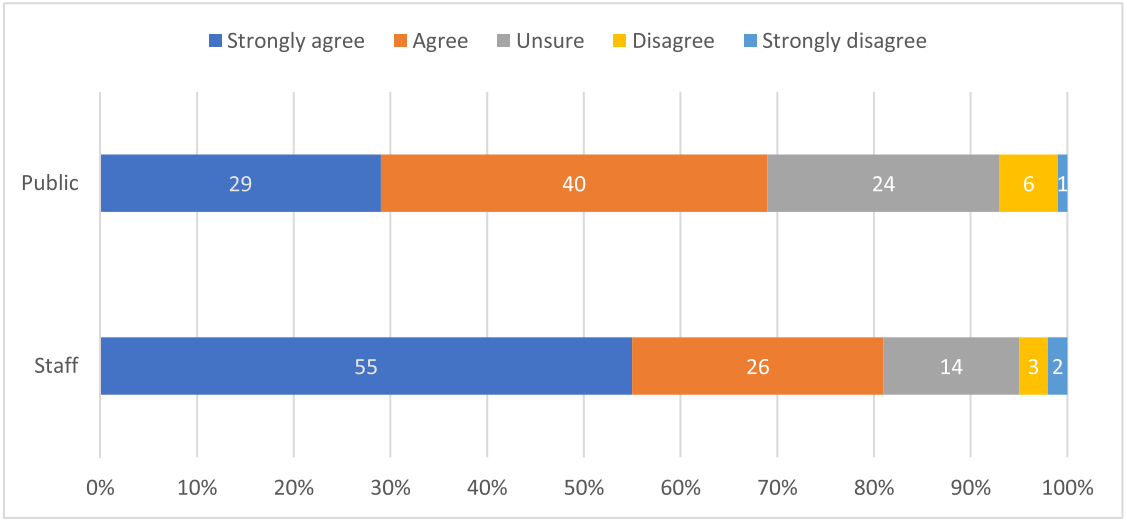

Fig. 1. Support for the Net Zero target.

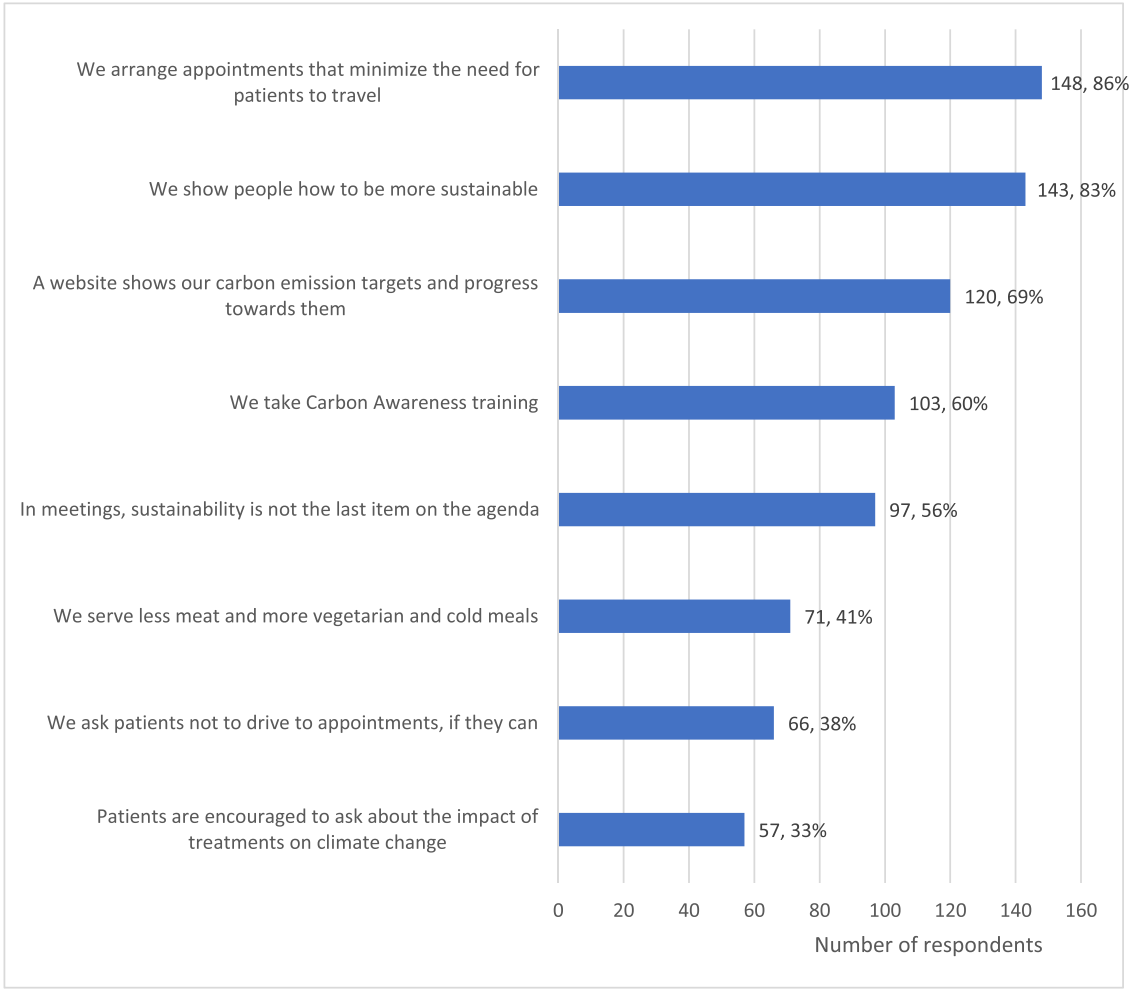

Fig. 2. The number of staff who thought each idea should be implemented.

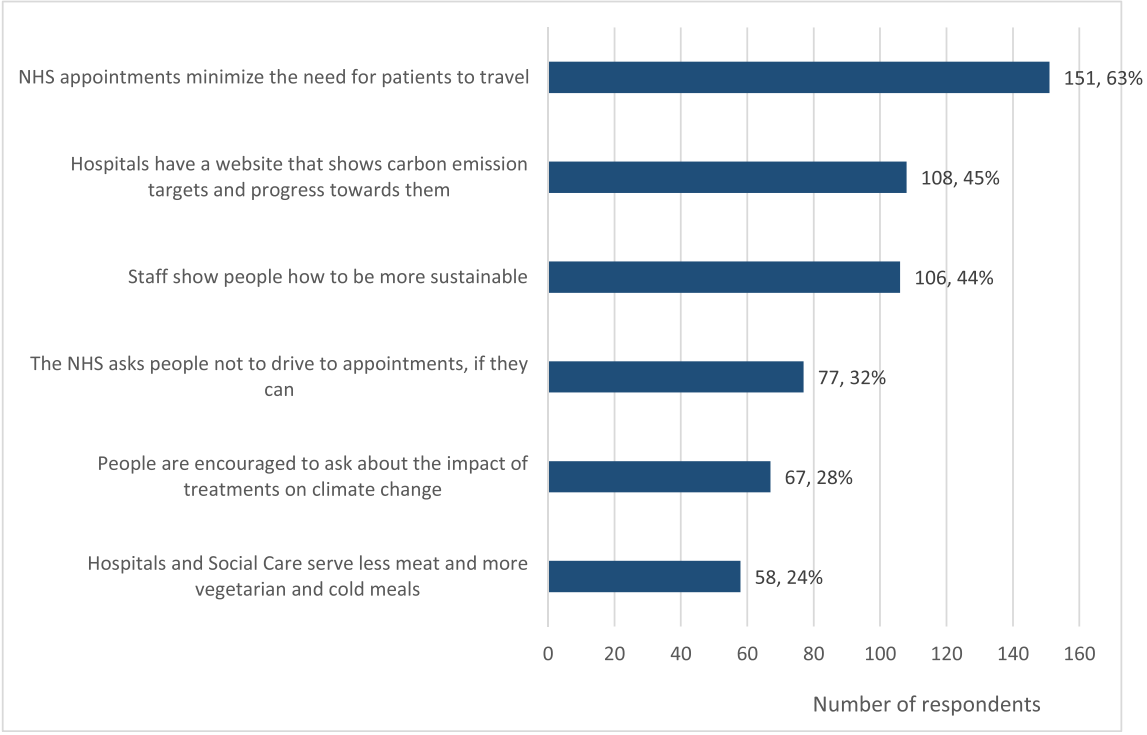

Fig. 3. The number of the public who thought each idea should be implemented.

(mean = 35.6) in the scale measuring attitudes towards climate change ($t = 0.82$, $p = 0.4$). However, there is a difference between staff (mean = 11.4) and the public (mean = 14.5, $t = -6.15$, $p < 0.001$) in the scale measuring intentions, indicating that staff have greater intentions to take action to tackle climate change.

4. Discussion

We found that while people recognize the need to tackle climate change, support the NHS and Social Care doing so, and are prepared to make changes, they are skeptical about achieving net zero. Themes from the deliberative workshops explain why. First, there are concerns about organizational commitment to sustainability. This goes beyond suspecting greenwashing as a means of exaggerating the progress made, to questioning whether leaders are willing to implement the scope and scale of changes required [1]. This suggests a need to communicate a plan for what will change to achieve carbon reduction, and also to be candid about how carbon offsetting is likely to be one of the ways that Net Zero targets will be met. For example, NHS Forests could be used in carbon calculations, and it is likely that carbon capture and storage will also be required [6]. Second, people think that health and social care should be exempt from carbon reduction targets as the immediate task of saving lives should take priority. Evidence of this "moral offset" has been discussed in previous research, and it creates additional barriers to change in the NHS which is already hampered by focusing on how to cope with increasing demand and solving immediate problems and crises [1]. Meeting net zero commitments requires staff to accept an expanded notion of the principle "first do no harm" beyond care for individual patients to a duty to protect the Earth's natural system [12b].

Finally, people don't feel empowered to make changes. Staff lacked the agency to make decisions about their practice both in terms of knowing what changes to make and having the autonomy to make them. Staff were aware of the complexity of life-cycle assessments [10] and felt reliant on procurement services to make decisions on which products have a lower carbon footprint. However, participants who worked in a procurement role often described lacking the necessary information and expertise to reach these decisions. Nevertheless, staff, patients and citizens generated many ideas about making health and social care more sustainable. These included changes that align with the NHS's plan for carbon saving activities, for example using video or telephone consultations rather than face-to-face ones, and deprescribing. COVID-19 has had a mixed effect: accelerating the move away from face-to-face consultations, while increasing waste from infection control measures. Our results show a desire for a more fundamental review of how to introduce safe and sustainable practices, such as a review of clinical pathways, a shift of focus to preventative care, and the use of social prescribing. This supports the recommendation to include environmental sustainability when measuring the impact of quality improvement projects [17]. While healthcare professionals have been identified as being well positioned to bring about such changes [4], our results indicate that these changes will not happen without clear leadership which gives sustainability a higher priority and recognizes the importance of moving away from responsibility for sustainability lying with a single person or department [8,9]. As a quarter of our survey respondents (both staff and the public) were unsure about their support for net zero goals, there is a need to communicate the urgency and extent of changes required.

Our findings indicate that for many, climate change remains a distant, abstract concept, rather than a change that is currently adversely affecting people's health. Our participants accepted the speed and extent of action to tackle COVID-19, but we did not find the same acceptance that tackling climate change will require changes at a similar scale [1]. There was little discussion or acknowledgement of the current health impacts of climate change, such as increases in respiratory diseases [18]. Nor was there discussion of how delivering healthcare contributes to climate change, or how climate change could impact on healthcare delivery. There is a need to align actions with the United Nations Conference of the Parties (COP) 26 Health Programme which acknowledges the vulnerability of health systems to climate change, and the impact of healthcare systems on the climate. Rather than seeing climate change as an abstract and distant concept, healthcare professionals should recognize that the climate crisis is a health crisis and therefore climate action is a core part of professional responsibilities [9], as has been identified in anesthetics [11].

Our results indicate that the NHS must adapt to a changing context. We identified support for shifting the focus from illness to promoting health [12,17] and that it is important to talk about how decarbonization benefits public health as well as planetary health [3]. However, staff will need support in changing their focus as many reported they would not feel comfortable having discussions with patients about the environmental effects of treatments. There is a role for professional and regulatory healthcare organizations, such as the UK Royal Colleges, in education and training, and in leading by example. While some professional or healthcare organizations are doing so [e.g. 11], others are not [19]. Patients are likely to resist any suggestion that planetary health should take precedence over their own and there is a role for patient support organizations in raising awareness of sustainable choices.

Finally, our results indicate a rhetoric-reality gap, whereby support for sustainability is rarely dismissed, but at an organizational level remains under-supported and under-resourced, with initiatives or projects ultimately giving way under the strain of other priorities [20]. The nature by which sustainability is viewed determines the perceived opportunities and barriers for action; though power pointing - in which responsibility is perceived as the responsibility of a more powerful individual or organization [21] - was evident within our results. Changing the narrative and broadening understanding of sustainability would engage and empower a wider selection of stakeholders.

The strengths of this study are in exploring the views of a wide range of participants that include staff in a variety of clinical and managerial roles, patients and citizens. Because each participant interviewed a colleague, friend or family member, we captured the views of a wider range of people and insight into how making the NHS more sustainable is discussed in workplaces and homes. The limitations included the lack of diversity in the qualitative sample, e.g. all were all from the same region in the UK, and they were mainly White British. The number of participants in the workshops was small, and there were more females than males, particularly for the clinical staff. Furthermore, the staff who participated are likely to be those with an existing interest in tackling climate change. Nevertheless, the barriers identified are likely to be even more pertinent for staff across the NHS and Social Care sector who do not have this existing interest.

5. Conclusion

It is important for NHS and Social Care organizations to be clear that net zero is a serious target that everybody needs to work towards. Individuals need to be supported to make changes to their working practices, and to see climate action as a core part of their professional responsibilities. Progress towards targets needs to be tracked and publicly available.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.joclim.2023.100241.

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