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After the Climate Assembly: A Mixed Methods Study on the Impacts of Participation on Political Attitudes and Climate Behaviours

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ABSTRACT

Climate assemblies are a novel method of public consultation in which quasi randomly selected citizens are brought together to learn about climate change, discuss with their fellow citizens, and recommend solutions to the commissioning body. While previous studies have considered the effects of participation on citizens' assembly members' attitudes and behaviour, there have been few studies on climate assemblies (see Andrews 2022). This is an important gap as the number for meaningful climate action to be implemented. Moreover, most studies have not provided longitudinal analysis, rely on quantitative data only and are experimental. In this paper, we explore the long-term impacts of participating in a climate assembly on the assembly members' climate knowledge, views, political engagement and consumption behaviours. We draw on a mixed method study that included survey data collected from members of Climate Assembly UK (CAUK) during and after the assembly, and interview data collected shortly after the assembly's conclusion to explore the underlying reasons for changes in a real case. We show that assembly members were more concerned about climate change and were more likely to engage in climate-conscious consumption habits following CAUK than before the assembly. Notably, these changes were evident 12 and 29 months after the end of the assembly, suggesting that members maintained the new habits and attitudes that formed following CAUK's conclusion. This paper contributes to debates about the role of citizens in climate policymaking.

1 | Introduction

In recent years, public authorities have commissioned climate assemblies in many European countries (Sandover et al. 2021). The environment (including climate change) is currently the most common issue area to be considered by a mini-public globally (OECD 2023). These processes raise important questions about the role of citizens in addressing complex and polarising policy issues and about how participation shapes citizens' attitudes and behaviours. Existing research has demonstrated that participation in mini-publics can contribute to an increase in political interest and political efficacy (Fournier et al. 2011; Geissel and Hess 2017), an increase in knowledge on the issue being considered (Setälä et al. 2010), and earlier work contends that participants in deliberation become more civic-minded and concerned with the public good following deliberation (Smith and Wales 2000; Gastil 2000; Hicks 2002; Fung 2005).

However, there is a dearth of research on the long-term implications of deliberative participation and there is only an emerging literature on the effects that participating in a climate assembly has on climate-related behaviour (see Andrews et al. 2022). This is important given the spread of climate assemblies, the need for widespread behaviour change to address the climate crisis and the importance of public engagement in contributing to this behaviour change (Climate Change Committee 2019; Willis 2020).

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Existing research on this topic has a quantitative and experimental tendency enabling understanding of the nature of changes to participants' attitudes and behaviour, but not the reasons for these changes. Further, experimental approaches are unable to replicate the actual experience of participating in a climate assembly. To fill these gaps, our mixed method case study assesses the impacts of climate assembly participation on participants' climate-related knowledge, views, behaviour and political engagement. It includes surveys conducted 12 and 29 months after the end of the climate assembly and interviews conducted several months after the culmination of the assembly.

Our case study, Climate Assembly UK (CAUK), is one example of a mini-public that focuses on climate change. Mini-publics are comprised of quasi randomly selected citizens who are invited to learn about an issue area, discuss possible policy responses with their fellow citizens, and offer recommendations to a commissioning body (Curato et al. 2021).[1]

This paper addresses two research questions: (1) How and why have assembly members' knowledge of, and attitudes toward, climate change evolved over time since the beginning of CAUK? (2) How have assembly members' behaviours—specifically consumption habits and political engagement regarding climate change—evolved over time since the beginning of CAUK?

2 | Literature Review

Advocates of climate assemblies argue that the citizens' assembly model is well-suited to address the issue of climate change (Stevenson and Dryzek 2014; Jager et al. 2020; Howarth et al. 2020). Because of the inclusion of an in-depth learning phase and time for citizen discussion in most climate assemblies, it is thought that the model can work well for examining issues that are technically complex (Smith 2021). Climate assemblies typically include professional facilitation intended to, among other goals, foster norms of inclusive, reasoned and respectful dialogue among citizen members. Others note that climate assemblies can influence the ways in which the public engages with climate change (Niemeyer 2013) and can improve communication on the topic (Devaney et al. 2020).

In addition, advocates argue that the climate assembly model can lead to different policy outputs than those that are likely to result from politician-led processes. As scholars note, citizen members in a mini-public are not constrained by the same short-term electoral incentives as elected officials; this may allow citizen members to propose more ambitious climate proposals (Smith 2021; Willis et al. 2022; Willis 2020). This is important in the context of worsening predictions on climate change. However, while there is compelling evidence about the impacts of participation in mini-publics and citizens' assemblies generally, to date, there has been little research on what happens to participants in a climate assembly over time and whether the assembly model can influence participants' perspectives on decarbonisation or their consumption habits. The emerging literature[2] on the effects of participating in a climate assembly on the assembly members' climate attitudes and behaviours suggests it is a transformative experience, for some at least, and skewed towards pro-climate positions and actions in Scotland (Andrews et al. 2022), Spain (Fernández-Martínez and Bates 2023), Luxembourg (Paulis et al. 2024) and France (Mellier and Tilikete 2025). There were exceptions though, such as the Austrian climate assembly where assembly members' concern about climate change declined during the process (Praprotnik et al. 2022). These previous findings provide cause for optimism that climate assemblies may indeed be able to promote pro-climate attitudes and behaviour amongst the participants. Yet these studies do not provide a long-term evaluation, so we do not know if the changes in preferences and behaviour endure. Moreover, some of the cases, for example, Austria (Praprotnik et al. 2022), France (Mellier and Tilikete 2025) and Spain (Fernández-Martínez and Bates 2023), had assembly members that were more concerned about climate change than the general public at the start of the process because climate attitudes *were not* selection criteria. It is then perhaps unsurprising that the assembly members became even more climate conscious when they were already climate aware. It is therefore important to study attitudes and behaviour in a case where climate attitudes *were* part of the selection criteria.

In addition to these existing studies, our research is motivated, in part, by theoretical expectations about the impacts of deliberative participation on participants. Deliberative democratic theory suggests that participating in deliberation will lead to greater concern for the common good (Gastil 2000; Hicks 2002). In addition, participatory theories of democracy note that interactions with governing institutions can lead to the development of political efficacy (cf. Pateman 1970 for a summary). These claims about the 'educative effects' of participation animate this research and we explore how members' attitudes and habits evolve after their participation in an assembly.[3]

Empirical examinations of the theorised benefits of deliberative participation have yielded mixed results. Participation in mini-publics has been associated with impacts on assembly members' attitudes and behaviours (Fishkin and Luskin 2005; Nabatchi 2010; Fournier et al. 2011), including increases in political efficacy (Gastil and Dillard 1999; Geissel and Hess 2017) and increased knowledge on the topic being discussed (Setälä et al. 2010). There is also a significant body of evidence that supports claims about the effect of mini publics on opinion formation; many studies suggest that participating in a mini-public can lead to opinion changes among members (Fishkin 2011). The majority of these studies on the impacts of participation on members rely on survey data collected at the end of a mini-public. While these data are valuable, the timing of these surveys cannot capture the durability of any changes to members' attitudes. In addition, reliance on survey data does not allow for an assessment of why attitudes evolve or not in the context of an assembly.

Despite the evidence of changes to members' attitudes, disagreement on the implications of mini-publics for citizens' behaviours and attitudes persists. Mansbridge (1999) famously argues that 'empirical political scientists could not demonstrate any positive effects on the individual character of democratic participation' (p. 292). Existing empirical work gives mixed results in terms of these types of 'educative effects' of deliberation on assembly members (Pincock 2012; Flinders et al. 2016). Spada (2019, 162) builds on this critique, arguing that the extant literature relies on a 'folk causal claim' about the educative effects of

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deliberation without adequate empirical evidence and with insufficient attention paid to isolating the causal mechanism responsible for changes in assembly members. These arguments confirm the need to re-examine theoretical assumptions and previous empirical findings regarding the individual benefits of deliberative participation, and to diversify the methods used to research this phenomenon. Further, the importance of individual behaviour change to addressing the climate crisis warrants specific examination of the relationship between climate assembly participation and climate-related behaviours, both climate-specific political engagement and consumption habits (see Andrews et al. 2022).

Previous research has demonstrated the importance of climate emotions in influencing changes in individual behaviour (Ojala 2012; Verplanken and Roy 2013) and has noted the wide range of emotional responses to learning about the climate crisis (Andrews 2022; Clayton 2020). We build on previous research that assesses the emotional experience of climate assembly participants (Andrews 2022) in probing the effects of assembly participation on members' attitudes and behaviour.

Our paper offers a uniquely detailed assessment of a single case study with three distinct contributions to the debate about citizen participation in climate change. First, most assessments of the impacts of assembly participation assess development in assembly members' attitudes following their participation, rather than considering changes in consumption habits and climate change-related political engagement following participation. This is important given the need for widespread behaviour change to address climate change, the difficulty in changing behaviour, and the hope that public engagement can provide the information about climate change that is a necessary (but not sufficient) condition for behaviour change (Climate Change Committee 2019; Willis 2020). As Newell et al. (2021) note, behaviour change is a complicated and multi-causal process; in this paper we consider climate assemblies as one potential contribution to behaviour change as explored below. Second, this project offers a novel contribution by exploring how citizens' attitudes and behaviour evolved beyond the final meeting of the assembly. We present and analyse long-term follow up survey data collected 12 and 29 months following the final assembly meeting. This type of longer-term assessment is rare, largely due to the limited evaluation budgets included in most climate assemblies that can make long-term follow up unaffordable and the challenge of keeping contact with the participants over time (see Boulianne et al. 2020 for an exception). Third, we use mixed methods, enabling us to go beyond other studies in this area (see Galende-Sánchez et al. 2024 for an exception) as we do not just address what changes to behaviour occur from participation in the mini-public, but also provide insight into why these changes occur.

3 | Case Study: Climate Assembly UK

Much of the research on the impacts of participating in mini-publics on the participants' attitudes comes from the use of experiments (Boulianne et al. 2020). Experiments are a widely used and important method in the study of deliberative democracy (Grönlund and Herne 2022). Nevertheless, they do have limitations in terms of replicating the experience of participating in a mini-public when trying to track longer-term developments and changes in attitudes and behaviour. As a result, we take a case study approach. Focusing on assembly members that have been involved in a high-profile case that feeds into the policy process is a more authentic experience than an experiment. For this reason, our case study is valuable for understanding the longer-term effects that climate assembly participation will have on the members (Elstub and Pomatto 2022). Case studies are useful for generating hypotheses (Yin 2014) and given the lack of research on the longer-term effects on attitudes and behaviour of participating in climate assemblies, it is therefore a useful approach.

Our selected case study is Climate Assembly UK (CAUK), which was one of the first national climate assemblies in the world and had the remit: 'How should the UK meet its target of net zero greenhouse gas emissions by 2050?' As it ran in the first half of 2020, it provides the opportunity to conduct the longer-term analysis that is the focus of our paper. Moreover, its design and key features are in line with most cases of citizens' assemblies that preceded it, and the subsequent raft of climate assemblies that have followed, making it a 'common case' (Yin 2014) and, therefore, a suitable selection to provide insights into how the experience of being one of its assembly members can affect attitudes and behaviour among climate assembly participants more generally. These common features include sortition for the recruitment of the assembly members, provision of expert and advocate information, facilitated small group deliberation, and a formal connection to a public authority.

A standard feature of citizens' assemblies, including those focusing on climate governance, is the recruitment of participants through a combination of random and stratified sampling to ensure demographic diversity with respect to key characteristics of the population at large and sometimes attitudes to the topic to be considered too (Curato et al. 2021). Interacting and discussing important issues with a diversity of people that they would not often engage with on such topics is an important part of the citizens' assembly process that can have effects on the assembly members' attitudes and behaviour during and after the process (Nordbrandt 2021). CAUK was comprised of 108 randomly selected members designed to ensure that the membership was broadly representative of the UK population with respect to key demographics (including age, gender, level of education, ethnicity, postcode [to enable geographic stratification]), and attitudes to climate change (Elstub, Farrell, et al. 2021). Assembly membership was broadly representative of the UK population on key demographics (Climate Assembly UK 2020).

On the first meeting weekend, the CAUK assembly members were asked how concerned they were about climate change. Given that some of the existing climate assembly studies did not have climate attitudes as an aspect of recruitment, this adds value to the CAUK case.

Like the UK population, most of them were 'fairly concerned', or 'very concerned'. As illustrated in Table 1, a slightly larger percentage of the assembly members (88%) report that they were 'very' or 'fairly' concerned (at the start of CAUK)

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TABLE 1 | Concern about climate change expressed by assembly members before CAUK compared to the UK population.

	% of assembly members at recruitment to CAUK	% of assembly members before weekend 1—Friday	% of UK population
Very concerned	49.1	45.7	52
Fairly concerned	32.4	42.6	33
Not very concerned	14.8	10.6	9
Not at all concerned	2.8	1.1	5
Other	0.9		1

than the general public as a whole (80%) (Elstub, Farrell, et al. 2021). Concern about climate change among assembly members rose from 83% at the point of initial recruitment to the start of CAUK (88%); however, there was no statistically significant mean difference in concern between these points (Elstub, Farrell, et al. 2021). It seems those concerned about climate change were more likely to accept the invitation to participate in a climate assembly than those less concerned, but that some assembly members perhaps looked into the climate change issue before attending the assembly, which raised their concern between recruitment and the start of the process. Overall, though, the assembly had a mixture of people with different attitudes to climate change.

One of the logics behind the sortition process used to recruit participants in citizens' assemblies is to engage some people that are not usually politically active. This is important for our focus here too. To lower the barriers to participation, assembly members were given a financial award each time they attended, and their travel, accommodation, and subsistence costs were covered (Climate Assembly UK 2020). To assess whether these measures had been successful, at the first weekend, assembly members were asked about their political activity over the year prior. Less than half had engaged in each of the listed political activities,[4] with the exception of signing a petition. Our results show that the AMs were therefore not a particularly politically active group.

Another usual feature of citizens' assemblies is that the assembly members are provided with information around the topic under consideration, usually from a range of expert and advocate witnesses (Curato et al. 2021). Research suggests that this information can help participants learn more about the topic, but also have a bearing on their views and behaviour during and after the process (Thompson et al. 2021). Quality information is also one element needed to ensure deep, contextualised and dynamic behaviour change on climate (Newell et al. 2021). In CAUK, a range of 47 expert and advocate witnesses from academia, the private, public and charity sectors gave presentations to the assembly members and answered their questions. The plenary evidence sessions included climate change, practical and ethical challenges on achieving net-zero, energy, electricity, removing greenhouse gases from the atmosphere, future climate scenarios and the impact of the Covid-19 pandemic on the path to net-zero. Although not formally part of the process, the assembly members also received a talk and question and answer session with Sir David Attenborough, a famous broadcaster and biologist over one of the evening meals, which created much excitement (Elstub, Farrell, et al. 2021).

The evaluations of CAUK on the information provided in the assembly are mixed. In their commissioned evaluation, Elstub, Carrick, et al. (2021, 4) conclude that 'the provision of evidence in CAUK provided crucial information to assist the assembly members in determining ways the UK can decarbonise'. This evaluation highlights the support provided to the assembly members to engage with this information including a critical thinking session and the variety of formats in which it was presented. The assembly members themselves also thought that the information was balanced and sufficient to address the task. In separate assessment, Cherry et al. (2021) point out that the manner of information provision in CAUK was primarily top-down with the structure and content of the information provision decided in advance by experts, and approved by advisory and academic committees that oversaw the process, with little opportunity for the assembly members to provide input. This also meant the information was of a technical nature which could have limited the opportunities to generate behaviour change. They further make the case that the evidence provided lacked systemic components which others have suggested are required for deep behaviour change on climate (Newell et al. 2021; Elstub and Escobar 2025). Yet, neither of these studies reflect on whether the information and its format would prompt behaviour change in the assembly members and this was not an explicit goal of the CAUK organisers or commissioners.

For part of the process, the assembly members were also split into three thematic groups: (1) how we travel; (2) in the home; and (3) what we buy, land use, food and farming. A consequence of this is that the 30–35 assembly members in each of these groups were provided with further information on their theme. Each thematic group was formed through random selection and stratified, based on the same criteria used at the recruitment stage, to ensure that the membership of each group was diverse. The 'travel' group focused on personal travel with a particular focus on cars, public transport and air travel. The 'in the home' group focused on heating, hot water and electricity. The 'what we buy/land use' group focused on food purchasing, farming and land use (Climate Assembly UK 2020). Whilst 'farming and land use' are perhaps less relevant to assembly members' daily lives, the other topics across the three thematic groups are familiar to most people. As such, we might anticipate they could change their attitudes and behaviour post-assembly. Nevertheless, this split also meant assembly members' knowledge of the topics covered in other thematic groups was compromised, as was their time to deliberate on them (Elstub, Carrick, et al. 2021).

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A defining feature of citizens' assemblies is that, after receiving this information, the assembly members collectively deliberate on it, and provide their own views, information and experiences on the topic, and hear those of others, before agreeing recommendations (Curato et al. 2021). In CAUK, the assembly members were frequently split into small, diverse, in-person and online, groups to discuss issues and recommendations, supported by a facilitator tasked with ensuring these discussions were inclusive, reasoned and respectful. In all they met for three in person weekends (Weekends 1–3) and three online (Weekends 4a, 4b and 4c) (Elstub, Farrell, et al. 2021).[5]

Whilst it is not a defining feature of citizens' assemblies, we are increasingly seeing citizens' assemblies formally connected to a public authority (OECD 2020), which is thought to increase their chances of having policy impact (Arnold and Warren 2023). Experiments can never really replicate the experience of participating in an actual citizens' assembly that has been commissioned by a public authority and the hopes and anxieties that may be present amongst the assembly members over whether their recommendations will affect policy, and the consequential delight or frustration if they do or do not. CAUK was commissioned by six select committees from the House of Commons: Business Energy and Industrial Strategy; Environmental Audit; Housing, Communities and Local Government; Science and Technology; Transport; and Treasury. Whilst this is not as strong a link as if commissioned by the government, it still gave CAUK a credible opportunity to influence UK parliamentary debates on climate action. It fed into a number of the select committee inquiries and there were a series of briefings held in parliament to discuss the CAUK recommendations too.[6] The assembly members themselves certainly hoped that their recommendations would have some bearing (Elstub, Farrell, et al. 2021). The link to parliament also made CAUK more newsworthy and it received television, radio, newspaper and social media coverage, including a BBC broadcast documentary following a selection of the assembly members (Elstub, Farrell, et al. 2021).

4 | Methods

To address the research questions, primary data were collected from assembly members via surveys, conducted before, during and after the assembly, and from 28 interviews, conducted after the assembly, as summarised in Table 2.

The explanatory sequential mixed methods approach is suitable for, and often used in, assessing deliberative innovations, while overcoming many of the limitations of using quantitative or qualitative methods alone (Escobar and Thompson 2019). The merged analysis in mixed methods studies can enable meta-inferences unavailable via a singular approach (Curry and Nunez-Smith 2015). Surveys are used extensively in mini-public research to assess changes in assembly members' attitudes and knowledge (Elstub 2014). However, they are limited with respect to enabling understanding of why these changes occur, a gap which qualitative interviews can fill (Tailpin 2019). In contrast, it is hard to generalise about the experience of all assembly members from interviews with a subset, a limitation which surveys can help address. The latter can also be administered more frequently through the assembly process to gain insight into the evolution of the assembly members. We analysed our two datasets (survey data and interview data) sequentially to enable emerging findings from one dataset to help build data collection instruments and analytical approaches in the subsequent ones.

TABLE 2 | Summary of data collection methods.

Method	Administered	Number of responses (% of 108 members)
Assembly member surveys	Before weekend 1—Friday	96 (89%)
	After weekend 1—Sunday	96 (89%)
	Before weekend 2—Friday	94 (87%)
	After weekend 2—Sunday	99 (92%)
	Before weekend 3—Friday	95 (88%)
	After weekend 3—Sunday	96 (89%)
	Before weekend 4a	93 (86%)
	After weekend 4c	93 (86%)
	April 2021	75 (69%)
	September 2022	62 (57%)
Interviews	After weekend 4c	28 (26%)

Specifically, surveys were issued to assembly members at the start, during and end of the assembly process. Analysis of these informed the semi-structured interviews with a smaller sample of assembly members a few months after the assembly. Analysis of both these datasets informed the survey design and analysis of the surveys issued around one and 2 years later.

As summarised in Table 2, to assess the effect of CAUK on assembly members' attitudes and behaviour over time, we conducted surveys before and after each in-person weekend (on the Friday evening and Sunday afternoons of Weekends 1–3), and before and after the online weekends (before Weekend 4a and after Weekend 4c). Follow-up surveys were completed in April 2021, almost 1 year after the end of CAUK, and in September 2022, around 2 years after the launch of the results report. The surveys comprised open and closed questions, collecting quantitative and qualitative data about the assembly members' attitudes toward and knowledge about climate change, and their engagement in the assembly. Given this was field research of naturally existing climate assembly cases, we were unable to set up a control group. To mitigate this, we use data from national surveys about climate change that were sequenced with the assembly member surveys (Elstub et al. 2025). At the end of the last participant survey conducted during CAUK (after Weekend 4c), 75 assembly members indicated that they were willing to be interviewed. To select interviewees, we created an initial sample of 30 members that broadly reflected the demographic

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(gender, age, qualification, ethnicity, geography) and attitudinal (concern about climate change at the beginning of the process) makeup of the assembly members. Potential interviewees were contacted via email. If they declined, another person was chosen from the list who resembled the person who declined as closely as possible in terms of demographics and attitudes toward climate change.

The interviewees were demographically diverse; however, they differed slightly from the make-up of the assembly members: there were higher proportions of male, over 60 years old, white, in possession of Level 4 education, and living in rural areas. A larger proportion of the interviewees said they were 'not very concerned' about climate change than in the whole assembly.[7]

We then conducted 28 semi-structured interviews to collect in-depth qualitative data about the assembly members' motivation for participating in the assembly, their perspectives on specific aspects of the experience (information provision, discussion with fellow members), and their perspectives and level of engagement on climate change and politics. The interviewees were asked to reflect on how they think that participation in CAUK has affected their attitudes and behaviour. The interviews were conducted online via video conferencing software during June and July 2020 (1–2 months after the end of CAUK). This gave time for reflection on their experience (whereas the surveys captured an immediate response). Yet, it was not so long that they would have forgotten the experience of participating in CAUK. The interviews were recorded and subsequently transcribed.

Interview transcripts were manually coded using NVivo 12. Deductive and inductive codes were developed. First, deductive codes were developed from the literature on mini-publics and from previous experience in evaluating citizens' assemblies. Second, six interviews were randomly sampled and used to develop inductive codes; topics and concerns raised in these transcripts informed the creation of inductive codes. The deductive and inductive codes were used to create the initial codebook. Finally, where a new code emerged during the analysis of the remaining transcripts, which was outside the initial codebook, it was noted, defined and then applied to all previously coded interviews (Hennink et al. 2011). In our findings below, we share representative quotations from interviewees to highlight common themes from our analysis.

On the first weekend of the assembly, the research team sought consent from each participant for their survey data to be collected and used in our research. Of the 108 assembly members, 99 consented and their responses to the surveys conducted throughout the assembly are included in this dataset. The 99 consenting assembly members were broadly representative of the 108 assembly members in terms of the key demographics and attitude to climate change, as illustrated in Table 3. Therefore, we conclude that the abstention of nine assembly members did not overly affect our survey results. The characteristics of those surveyed, compared to the 108 assembly members, are also summarised in Table 3.

In addition to data collected from the members of CAUK, we also analysed survey data from the UK public to better understand how public opinion on climate-related questions evolved over the time period studied. The public survey data were collected by the CAUK evaluation team in four waves and probed respondents' 'awareness of, and attitudes toward CAUK' and levels of 'concern for, and knowledge of climate change.' Data collection coincided with major milestones in the CAUK timeline: the beginning and end of the assembly, the release of the assembly's final report, and the 1 year anniversary of the final report's publication (Elstub, Farrell, et al. 2021). Respondents to these surveys were generally representative of the UK public but respondents were slightly older and there was a higher proportion of women among respondents than among the UK public. Multivariate analysis was carried out using SPSS.

In the next section we present the results of our analysis, including descriptive statistics, measures of central tendency, *T*-tests to compare the means of different variables, and Chi-square tests to assess the significance of relationships between two variables. We illustrate our quantitative findings with qualitative data from responses to open questions in the surveys and interview transcripts.

5 | Findings

In this section we present the findings from our surveys and interviews in relation to the knowledge acquisition of the assembly members, their attitudes to climate change and their climate-related behaviour during the assembly and after.

5.1 | Knowledge About Climate Change

Assembly members were asked about their knowledge of climate change in each survey. As demonstrated in Figure 1, many assembly members reported an increase in their knowledge on the issue of climate change. In aggregate, the members of the assembly experienced an increase in their knowledge about the topic being discussed; the percentage of assembly members that reported that they knew a 'great deal' about climate change increased from 6% at the beginning of the assembly to 14% at the end of the assembly. The percentage of members who felt they knew a 'great deal' continued to increase following the assembly, with 17% and 18% reporting this in April 2021 and September 2022, respectively.

By the end of the assembly, very few members reported having limited knowledge of the topic. The percentage of assembly members that reported that they knew 'only a little' or 'nothing at all' about climate change fell from almost half (48.4%) before the assembly began to less than 12% in the following surveys.

Multivariate analysis shows that the demographic variables did not influence the extent assembly members acquired knowledge about climate change (see Table A1). No statistically significant relationships were identified between key demographics and the change in knowledge about climate change over time. This indicates that the extent of knowledge acquisition was similar across assembly members, regardless of age, ethnicity, gender and crucially, level of education. However, it is acknowledged that other demographic variables, which were not included in the assembly

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TABLE 3 | Comparing the demographic and attitudinal characteristics of the survey respondents and interviewees with the 108 assembly members.

		108 assembly members	99 survey respondents	26 interviewees	75 survey respondents April 21	61 survey respondents Sept 22
Gender	Male	49%	46%	58%	45%	48%
	Female	51%	54%	42%	55%	52%
Age	16–29	23%	21%	19%	16%	12%
	30–44	26%	25%	23%	23%	20%
	45–59	24%	25%	27%	30%	34%
	60+	27%	28%	31%	31%	34%
Educational qualifications	None/Level 1 (1–4 GCSEs)	36%	37%	27%	38%	32%
	Level 2 (> 5 GCSEs) or Level 3 (> 2 A-levels)	34%	32%	35%	31%	29%
	Level 4 (degree or higher)	30%	30%	38%	31%	39%
Ethnicity	White	83%	85%	88%	85%	85%
	BAME	17%	15%	12%	15%	15%
Residence	Rural	20%	22%	31%	28%	32%
	Urban	80%	78%	69%	72%	68%
Views on climate change (recorded before CAUK)	Very concerned	49%	51%	46%	51%	50%
	Fairly concerned	32%	32%	27%	30%	33%
	Not very concerned	15%	14%	27%	16%	16%
	Not at all concerned	3%	3%	0%	3%	2%
	Other	1%	0%	0%	0%	0%

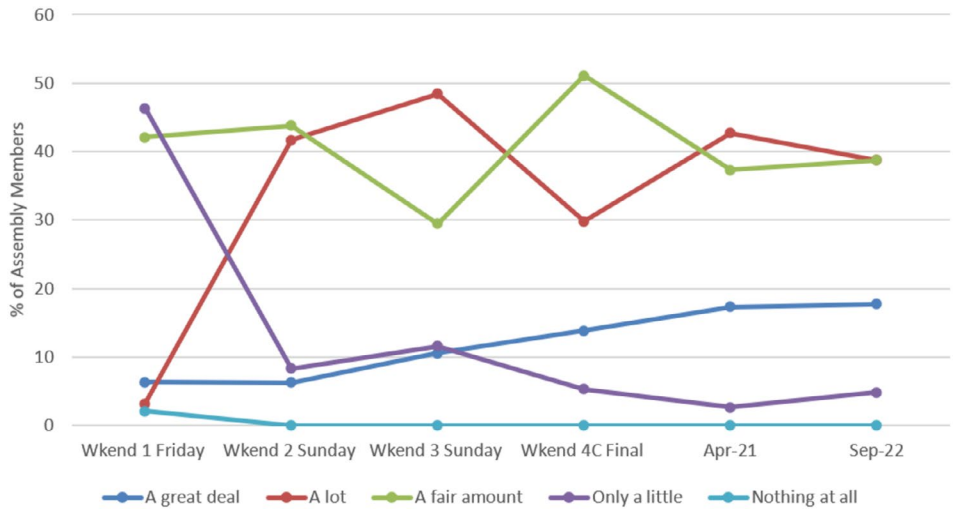


FIGURE 1 | Self-reported knowledge of climate change.

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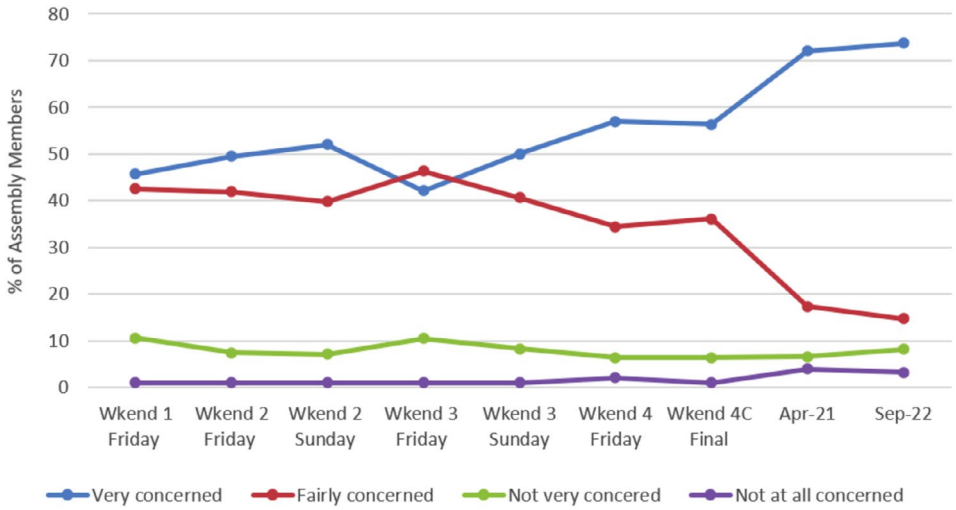


FIGURE 2 | Self-reported concern about climate change.

member surveys, such as income, may influence the change in knowledge over time.

The analysis does indicate that pre-existing concern about climate change (self report at recruitment) influenced change in knowledge between the start and end of CAUK (Friday on Weekend 1 and Sunday on Weekend 4c). Interestingly, lower pre-existing concern about climate change increased the extent to which knowledge increased between the start and end of CAUK.

The general increase in knowledge indicated in the survey responses was supported by the interview data. One member described the learning phase thusly: 'I walked in with very little knowledge and walked out with a great deal more understanding. It was a condensed programme of bringing us up to the same level of understanding'. (Interview, Member 12,457). This assembly member's perspective on their learning was reflected in multiple interviews.

Assembly members' knowledge increased significantly between the first and second weekends. This finding is not surprising for two related reasons. First, the Assembly membership was chosen to be representative of the UK public; this necessarily includes a range of perspectives and levels of knowledge on the issue of climate change (Mulholland et al. 2020; Elstub, Farrell, et al. 2021). Second, the first two weekends of the Assembly included an extensive learning phase in which presentations were given to members on the basic mechanics of the issue. Using *T*-tests to compare means, there is a statistically significant ($p < 0.01$) increase in assembly members' mean level of knowledge at the end of the assembly (2.53) and 1 year from the end of the assembly, April 2021 (2.24).[8] Although the effect size is small (0.29), this suggests that assembly members continued to acquire knowledge about climate change beyond the context of the learning phase of CAUK. In interviews, many respondents indicated that they were more attuned to news and other information about climate change following the assembly experience, noting that they were more likely to read about and follow up on the issue than before. As one member described their awareness of climate change post assembly: 'I know it's there and I'm following what's going on. If I see an article, say six months ago I'd have passed it by and not read it. Now, I'm reading it and you're finding out more...' (Interview, Member 10,904). Another member described how CAUK had changed their media consumption habits: 'anything that comes up on TV or press releases or anything that's written, I will certainly be more alert to it. I'll listen far more closely'. (Interview, Member 11,269).

In sum, our quantitative data suggest assembly members accrued knowledge about climate change through and after the assembly process, regardless of demographics, including their level of education. The qualitative data support this and indicate the assembly members' interest in learning more about the topic outside of the assembly was also enhanced.

5.2 | Concern About Climate Change

The percentage of assembly members who reported being 'very concerned' about climate change increased throughout CAUK and increased further in the two follow-up surveys, with the highest percentage of assembly members being 'very concerned' recorded in the final survey (September 2022). The results are presented in Figure 2.

The median response to the question probing concern about climate change rose from 'fairly concerned' at the beginning of CAUK to 'very concerned' by the final weekend. In addition, the mean level of concern among all assembly members increased throughout the assembly and reached its highest point 1 year following the end of the assembly (April 2021). Using *T*-test to compare means, there is a statistically significant ($p < 0.05$) mean difference between reported levels of concern at the beginning of the CA (1.65) and the end of the assembly (1.53).[9] There is also a statistically significant ($p < 0.01$) difference between level of concern at the beginning of the assembly and the two follow-up surveys in April 2021 (1.41) and September 2022 (1.45). Although the effect size is small (0.12–0.28 relative to the 4 point scale), this does indicate that, on average, assembly members became more

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concerned about climate change during the assembly and that this heightened concern (compared with before CAUK) has remained since, though decreasing slightly by September 2022.

Interestingly, there was a small number of assembly members who reported being 'not at all concerned' about climate change that stayed consistent throughout the assembly experience. One person responded in this way in both the first and final weekends of CAUK. Furthermore, the number of assembly members who reported as 'not at all concerned' about climate change increased in the two follow-up surveys: three people (4.0%) in April 2021 and two people (3.3%) in September 2022.

Multivariate regression analysis indicates that demographic variables did not influence the extent assembly members' concern about climate change changed over and after CAUK (see Table A2). Similar to the knowledge results, analysis indicates that the lower the pre-existing concern about climate change (self report at recruitment), the higher the increase in concern between the start and end of CAUK (Friday on Weekend 1 and Sunday on Weekend 4c).

To probe members' feelings on the urgency of the climate crisis, members were asked 'which of the following best describes your views about the way in which climate change needs to be addressed, if at all?'[10] This is closely related to, but distinct from, members' concern about climate change. The results are presented in Figure 3.

The median response remained at 'high level of urgency' throughout the process except for after Weekend 3, when it rose to 'extremely high level of urgency'. The median response rose further to 'extremely high level of urgency' 2 years on from the launch of the report. The results of *T*-tests show no statistically significant mean differences in the assembly members' view of the urgency of action on climate change.

Multivariate analysis shows that key demographics do not influence the extent assembly members changed their views on the urgency of action on climate change during and after CAUK (see Table A3).

5.3 | Consumption Habits

Figure 4 indicates that assembly members' consumption habits changed between before CAUK (at the recruitment of members) and since.[11] For example, more members reported reducing their meat and dairy consumption than reported changing other consumption habits; before taking part, 28% reported reducing their meat and dairy consumption in the year prior, while 57% of respondents reported reducing their meat and dairy consumption

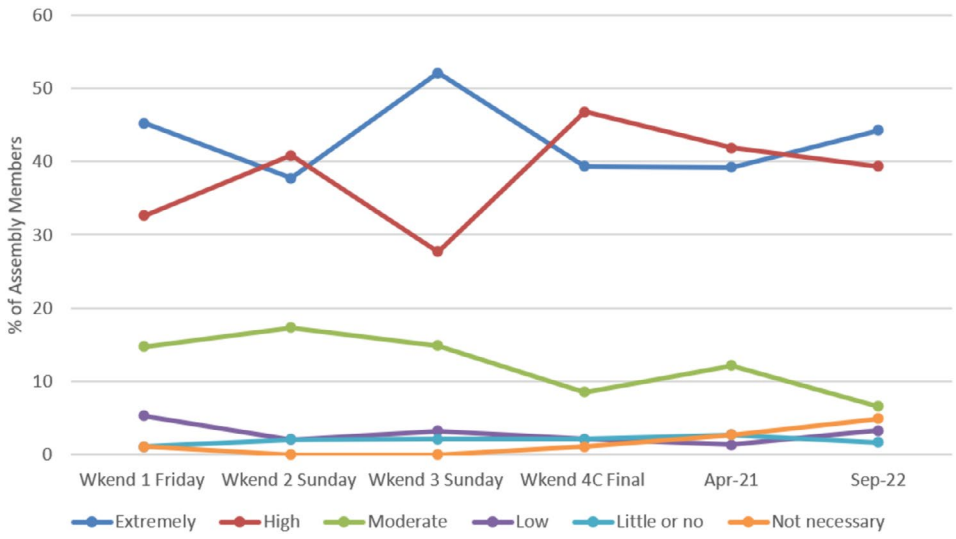


FIGURE 3 | Self-reported sense of urgency of action on climate change.

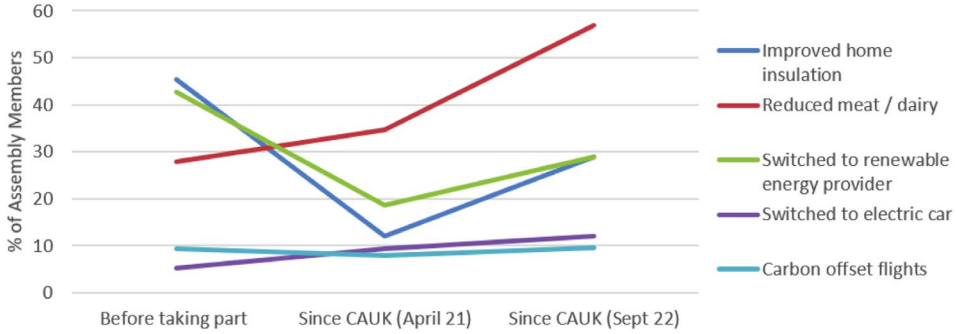


FIGURE 4 | Self-reported changes in consumption related behaviour.

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in the 2 years following CAUK's conclusion. This is supported by the results of *T*-tests that indicate statistically significant ($p < 0.01$) differences between the mean before CAUK (1.71) and 2 years since, in September 2022 (1.46).[12]

Multivariate analysis shows that age, gender and ethnicity do not influence the likelihood of assembly members changing their consumption habits 1 or 2 years after CAUK (see Tables A4 and A5). However, there was a statistically significant relationship between education and consumption habits. Assembly members with no or Level 1 educational qualifications were less likely to improve their home insulation ($p < 0.05$) and reduce the amount of meat and dairy in the diet ($p < 0.01$) between the end of CAUK and April 2021 than those with higher educational qualifications (Level 2 and above). They were also less likely to switch to a renewable energy supplier ($p < 0.01$) between the end of CAUK and September 2022.

Pre-existing concern for climate change does not influence the likelihood of assembly members changing their consumption habits. The analysis therefore indicates that changes in consumption habits since CAUK occurred regardless of key demographics and attitudes to climate change. It is acknowledged that other variables such as home ownership and income, which were not included in the assembly member survey, may influence the assembly members' consumption habits.

5.4 | Political Engagement on Climate Change

As illustrated in Figure 5, the percentage of respondents who reported signing a petition about climate change, contacting a politician about climate change, joining a nature or climate organisation, or attending a demonstration about climate change increased between the first weekend survey and the second follow up survey in September 2022. The largest increases are shown in the percentage of members who signed a petition about climate change (24%–50%) or contacted a politician about climate change (9.3%–24%). The percentage of assembly members who reported running for office between the first and final surveys did not increase.

Multivariate analysis (see Tables A6 and A7) shows that key demographics and concern for climate change do not influence the likelihood of assembly members' political engagement between the end of CAUK and 1 and 2 years after. The exception is signing a petition; younger assembly members were more likely to sign a petition by April 2021 and female assembly members were more likely to sign a petition by September 2022. For both 1 and 2 years after CAUK, the likelihood of an assembly member signing a petition increased with their pre-existing concern for climate change; those who were concerned about climate change before CAUK were more likely to sign a petition afterwards.

These findings were supported by the interview data, where members noted their recent political participation: 'I've just written a letter to my MP last week, and I wrote one a few weeks before that as well, particularly about the citizens assembly'. (Interview, Member 11,983). Many noted an interest in receiving additional information about climate change, and for some this may explain the decision to join a nature or climate organisation: 'Yes, like Greenpeace. I've put my name down to get news from them' (Interview, Member 12,728). Another interviewee noted that their interest in the impacts of CAUK on parliament's decision-making has had spillover effects on their political engagement: 'because I definitely want to keep up to date with stuff that we've discussed and seen how they're going to act towards what we've said, and I'm keeping up to date with that. I'll probably look at politics as a whole in general more' (Member 12,088).

As demonstrated in the survey data, for some assembly members, there was no change in political participation following the assembly. When probed in interviews, members shared reasons as to why the experience was unlikely to have an impact on their political engagement: 'I look at it from a scientific and climate angle. I don't look at it from a political angle at all. I know the politicians have got to make the decisions in the end, but I didn't look at it from that angle at all' (Interview, Member 11,269). This member shared that there was no 'political discussion' taking place during the assembly but rather that the members spent their time 'concentrating on what facts they were given'. This quotation reflected the sentiments of multiple interviewees; another participant shared that the experience was unlikely to encourage them to be more politically active and that they viewed the experience as follows: 'it was an opportunity, that's basically it, to interact with other people' (Interview, Member 12,395). This response suggests that the member may have felt that CAUK was a unique opportunity that is distinct from other types of

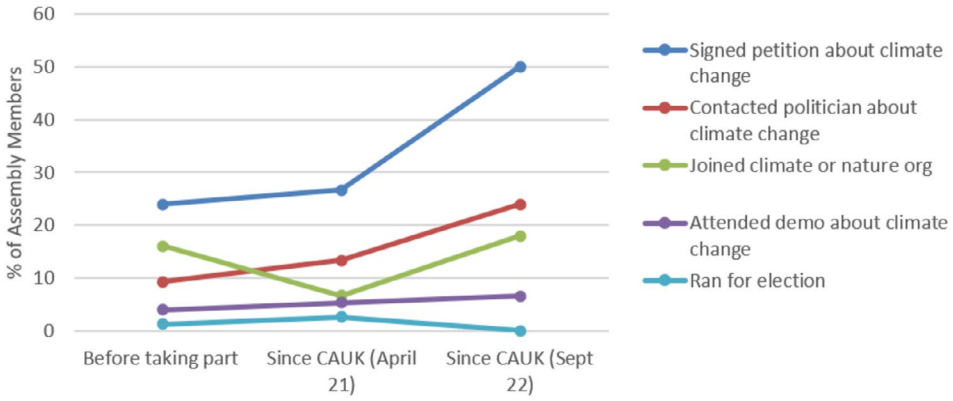


FIGURE 5 | Self-reported changes in political engagement.

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political engagement. Multiple interviewees made a distinction between 'political engagement' on one hand and the assembly experience on the other.

6 | Discussion

Our findings show that assembly members learnt about climate change, and that their views and behaviour became more pro-environment after Climate Assembly UK. We show that some of these changes endured over time. These findings help us understand what role climate assemblies can play in addressing the climate crisis by encouraging sustained changes in members' behaviours and attitudes. In this section, we explore potential explanations for the observed changes to behaviours and attitudes and consider the implications of our findings for climate governance and for the role of citizens in addressing the climate crisis.

6.1 | Why Did Members' Attitudes Change?

Our data show that learning took place throughout the assembly, with members reporting knowledge gain both at the beginning of the assembly and throughout the assembly process. This suggests that in addition to the dedicated learning phase that took place during the first weekend of the assembly, other components of the assembly agenda including the facilitated small group discussion may have been important for members' knowledge acquisition. The opportunities for social learning that are afforded by a mini-public may explain some of this longer learning process. Social learning is defined as 'learning from and about others' (Curato and Niemeyer 2013, 14). In interviews, members noted that the opportunity to discuss the issue of climate change with their fellow members both formally (in facilitated discussion in small groups) and informally (at mealtimes, and in the pub in the evenings) was important for members' understanding of the topic. This social learning is unique to the climate assembly model, as opportunities for dialogue on policy issues with other citizens tend to be scarce outside of an assembly setting. Our results suggest that this opportunity is important for attitude change among members. Alternatively, the time lag between the provision of information and the results showing that respondents' knowledge had increased may be the result of the time needed for personal reflection to consolidate learning after receiving new information.

The information environment in which citizens engage with the issue of climate outside of a climate assembly often can be confusing and overwhelming. The prevalence of misinformation on the cause and severity of the climate crisis, exacerbated by entrenched and powerful interests (Weber and Stern 2011) and the strategy of 'manufacturing uncertainty' (McCright et al. 2016) can make it difficult for citizens to access high-quality and reliable information on the topic. Our findings suggest that the information provided during CAUK avoided some of these pitfalls and supported members in their learning about climate change. As reported in the commissioned evaluation report (Elstub, Farrell, et al. 2021), most assembly members trusted the information they had received very much or quite a lot.

The information provided to members and the deliberation process was not sufficient to change opinions on climate change in all cases. Science communication research has shown the limitations of information provision in adjusting recipient behaviour (Simis et al. 2016). A 'deficit-model-based approach' assumes that a lack of concern about climate change results mainly from a lack of knowledge about the issue (Whitmarsh and Capstick 2018). However, the availability of high quality and balanced information alone is not sufficient to encourage attitude and behaviour change writ large. Research has shown that the provision of additional information on climate change is a 'suboptimal intervention' in encouraging behaviour change (Whitmarsh et al. 2021) and effective communication about climate change risk specifically should be 'aligned to the cognitive and emotional needs of both policy makers and the public' (Pidgeon 2012) while outlining co-benefits of climate mitigation strategies at the individual level (Van De Ven et al. 2018). Note that, as demonstrated above, a small portion of the CAUK membership remained unconcerned about climate change and unconvinced of the urgency of the crisis across all time points, a finding echoed by Andrews et al. (2022). This suggests that the information provided during CAUK and the deliberation engaged in did not encourage all members to be concerned about the issue and that other factors may have structured how members processed the information.

As previous research has shown, partisanship is an important predictor of the impacts of additional information about climate change (Hart and Nisbet 2012; Poortinga et al. 2011). In some cases, providing additional information about climate change has no effect on support for climate mitigation policies, and impacts of new information are 'contingent on political partisanship' (Hart and Nisbet 2012). This work shows that additional information about climate change does not change perceptions of the issue because this information is filtered through existing conceptual frameworks and belief systems. Our findings suggest that for some assembly members, the provision of information is insufficient to change their perspectives on climate change. Future research should consider the role of partisanship on opinion updating in a mini-public. However, as noted above, for the majority of members, the CA experience (which included both information provision and discussion opportunities) contributed to changes in opinion on climate change. This may be because in a climate assembly, they know they will have to deliberate on this information (Thompson et al. 2021). This suggests that the CA model has the potential to overcome the limitations of solely providing information alone.

The orientation of the assembly's remit toward finding solutions for the climate crisis, rather than debating its veracity or engaging with alternative perspectives, may have been a barrier to engagement for climate sceptics in the group. Previous research has shown that allowing participants, including climate deniers, to engage in 'self-affirmation' or the practise of 'encouraging

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people to voice their values and beliefs explicitly' prior to discussion of climate change can contribute to greater openness to receive new information that conflicts with their beliefs (Wong-Parodi and Feygina 2020, 62). Employing this strategy may produce attitude change among climate sceptics.

CAUK was not intended to serve as an intervention for behaviour change. However, because of the importance of individual behaviour changes for addressing the climate crisis, we probe how assembly member behaviour evolved following CAUK. Individual context is crucial in structuring behaviour change around climate; previous research has shown that location, income and cultural meanings associated with decarbonisation influence individual choices (Newell et al. 2021; Thomas et al. 2024; Whitmarsh et al. 2021).

Our findings on which members changed their behaviour show that concern about climate change is not correlated with behaviour change (except for signing a petition). Our findings echo previous research that shows a stronger relationship between concern about climate change and the *intention* to engage in climate-friendly behaviour than the relationship between concern about climate change and *engaging* in climate-friendly behaviour. The COM-B model of behaviour outlines this tension between intention and action, noting that motivation is insufficient in creating behaviour change. The COM-B model suggests that capability and opportunity are both required alongside motivation to elicit new behaviours (See West and Michie 2020 for a detailed account of this model). As Hornsey et al. (2016) note, this discrepancy between intention and action 'is not surprising given that intentions are less compromised by practical reality constraints than are behaviours and so the relationship between beliefs and intentions is more "pure"' (p. 624). The 'practical reality' constraints of limited opportunity or limited capability thus impede the influence of motivation in changing behaviour.

Interview data show that resource constraints experienced by members are important in structuring behaviour after the assembly. Financial resources' role in behaviour change is emphasised in other literatures (Thomas et al. 2024; Semenza et al. 2008). Our finding above noting that the largest changes in both political engagement and consumption behaviour are seen in behaviours that require the fewest resources in terms of both time and money shows the importance of opportunity in behaviour change. For example, the reduction in consumption of meat and dairy noted above and also found in data from the Scottish Climate Assembly (Andrews et al. 2022) can be a cost-saving measure, rather than introducing an additional expense. This pattern suggests that personal behaviour changes made after participating in a climate assembly will be constrained by the broader contexts of members' lives, particularly affordability concerns. As a benefit of our mixed method approach, we have additional data about members' future intentions and some of the barriers to changing consumption habits. Multiple interviewees noted the desire to purchase an electric vehicle but indicated that the expense associated was prohibitive. This suggests that concern for climate change alone is unable to change members' behaviour. Previous research has shown that effective interventions deal with the financial aspects of behaviour and consumption choices (Whitmarsh et al. 2021). Things like financial penalties or incentives are effective drivers of behaviour change, and financial barriers can influence an individual's 'capacity to modify behaviour' (Newell et al. 2021, 2).

6.2 | Climate Assemblies and Lessons for Governing the Climate Crisis

Our findings have implications for climate governance and highlight how the experience of participating in a climate assembly may lead to changes in attitudes and behaviours for some climate assembly members. The longer time horizon studied in this paper allowed us to probe attitude and behaviour evolution after members left the assembly setting and returned to their normal routines. Here, we consider what our findings tell us about the role of climate assemblies in addressing the climate crisis.

Our results show evidence of climate-friendly changes in behaviour among members and the development of greater concern about climate change, suggesting that participation in a climate assembly may have enduring effects on members. As noted above, in lieu of a control group and to better understand the impacts of assembly participation, we also analysed public survey data to allow for a comparison in knowledge gains and increases in concern about climate change between assembly members and the public. The public survey data collected in 4 waves between January 2020 and September 2021 (the same time frame as our study and surveys with the assembly members) show no statistically significant increase in self-reported knowledge about climate change or in concern about climate change between waves among the UK public.[13] This suggests that it may indeed be the participation in the climate assembly, rather than other general factors, that caused the changes we found in the assembly members.

In a context of growing concern about the climate crisis (Croasdale et al. 2023), finding methods to engage the public in a manner that encourages positive behaviour change is crucial. Previous research shows that concern about climate change can contribute to higher levels of efficacy and increased belief in one's 'ability to tackle the issue' (Ojala et al. 2021). The emotional experience of climate assembly members is therefore likely an important predictor of their post-assembly behaviour. Our data, showing increases in pro-environment behaviours and increases in concern about climate change, may suggest that participants' emotional responses were more akin to 'constructive worry' than to the 'pathological' anxiety that other scholars identify as potential barriers to pro-environmental climate action (Verplanken and Roy 2013).

The assembly model has the potential to offer a unique contribution and to encourage some low-effort climate-friendly behaviours and attitudes that reflect concern about the climate crisis among some participants. By introducing high-quality information, providing opportunities to shape policy outcomes, and educating members about the various methods for members to reduce carbon consumption, it appears that the Assembly struck a balance that encouraged additional concern about climate change and behaviour modification among members.

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7 | Conclusion

We find that in aggregate, members became more knowledgeable and more concerned about climate change after participating in Climate Assembly UK. In addition, assembly members engaged in some lower carbon consumption behaviours, specifically lowering their consumption of meat and dairy products following the assembly, and were more likely to participate politically in climate-related activities. Participation increased most dramatically in relation to the least expensive and least time-consuming habits. It is remarkable that climate assembly participation can have such transformative, profound and enduring effects on the assembly members and indicates that the deliberation and learning that occurs in a climate assembly can counter misinformation around this issue even after the assembly members return from the assembly to the messy and turbulent public sphere.

Our study also has important implications for the design of climate assemblies. Spaces for social learning are crucial to the evolution of assembly members' knowledge, views and behaviour on climate, and not just the more formal, planned and facilitated learning and deliberation sessions. The presence of social spaces should therefore be factored into assembly design.

However, this is just one case study. Future research should provide a comparative assessment of this wave of climate assemblies and explore in more detail the conditions in which the attitudes and behaviours evolve including both assembly design features and the broader context of assembly members' lives. This work should compare the impacts of different features of climate assembly design on member attitudes and behaviour. For example, research could probe if different lengths of the learning and deliberation phases are associated with the extent and duration of attitude or behaviour change. In addition, future work should probe the effects of assembly participation and its interactions with conditions outside of the assembly such as the declaration of a climate emergency or the presence of extreme weather, both of which have the potential to influence changes in individual behaviour.

An established and prominent critique of citizens' assemblies is that they are exclusive, involving a small number of participants, and a process for which most people will never be selected (Elstub and Khoban 2023). While we have found that participating in a climate assembly can be transformative for participants, addressing climate change one hundred or so people at a time is not a feasible solution. Therefore, the area of most importance for further research is how the effects of participating in a climate assembly can be transferred, at least to some degree, to non-assembly participants (Dryzek and Niemeyer 2019) and how some of the crucial assembly design features can be incorporated to other avenues for engagement in climate action that may involve larger numbers of people.

We take seriously the important critique of undue emphasis by policymakers on individual citizens' choices in responding to the climate crisis. The focus on small changes to individual behaviours as providing the answer to the climate crisis is what Willis (2020, 11) terms 'feelgood fallacies' that she argues serve as distractions from the bigger and more pressing issue of widespread reliance on fossil fuels. As Newell et al. (2021, 2) argue, there is a need to think critically about how to 'best to apportion *responsibility* for emissions when *agency* to address them is so uneven'. We do not intend to present our results in a manner that can absolve policymakers from ending widespread reliance on fossil fuels but instead as an exploration of the conditions in which citizens' attitudes and behaviours about climate change evolve. However, our study shows the importance of deliberation to this evolution. In the context of a climate emergency and the associated need for drastic action on climate, public involvement in guiding this action is crucial for legitimacy reasons and to encourage buy-in to climate change mitigation strategies. CAUK provides one example of including the public in deliberation on climate action. The challenge now is to scale deliberation on climate change up to include 'mass' rather than just 'mini' publics.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Endnotes

[1] The specific design of our case study is explored in some detail in Section 3.

[2] Much of this is from non-peer reviewed national climate assembly evaluations which remain scarce, with many of the evaluations not published yet. This is testament to climate assemblies being a recent phenomenon (KNOCA).

[3] Pincock (2012) refers to the group of arguments about the connection between deliberation and citizenship as 'better citizen' claims.

[4] Members were asked if they had engaged in the following activities in the 12 months prior to the beginning of the assembly: signing a petition about climate change, contacting a politician about climate change, joining a climate or nature related organisation, attending a demonstration about climate change or running for election. See Elstub, Farrell, et al. 2021 for a detailed account of the previous political activity of the AMs.

[5] Weekends 1–3 were held in-person at a hotel in Birmingham. Assembly members arrived on the Friday evening and attended formal assembly sessions throughout the Saturday and Sunday of each weekend. Due to Covid-19 restrictions, the fourth planned in-person weekend was conducted online, in shorter sessions (2–3 h) on the Saturdays and Sundays of 3 weekends (Weekends 4a, 4b and 4c).

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[6] There was a change in government between the commissioning of the Assembly and its first meeting. As such, select committee membership and staff changed. While this had a dampening effect on the overall policy impact of the Assembly, the fact that the Assembly was commissioned by Parliament helped to ensure that the Assembly still had meaningful impact on climate change debates in the UK. See Elstub and Carrick (2023) for a detailed assessment of CAUK's impact.

[7] This reflects public opinion data from the UK showing that men and those living in rural areas are less likely to be concerned about climate change (Department for Energy Security and Net Zero 2025).

[8] Assembly members asked about their knowledge about climate change and responded on a 5 point scale, from 1 'a great deal' to 5 'nothing at all'.

[9] Assembly members asked about how concerned they are about climate change could respond on a 4 point scale from 1 'very concerned' to 4 'not at all concerned'.

[10] Assembly members could respond on a 6 point scale from 1 'extremely' to 6 'not necessary'.

[11] In the follow up surveys, assembly members were asked: 'Climate Assembly UK wasn't about asking you to make changes in your own life. However, we would be interested to know whether or not you have done any of the following?' Respondents could choose multiple options: improving their home insulation, reducing their consumption of meat or dairy, switching to a renewable energy provider for their home, switching to an electric vehicle, and purchasing a carbon offset for a flight.

[12] Response options: Yes = 1, No = 2.

[13] Bivariate analysis performed—Pearsons Chi-square. More details from the results of the public survey are presented in (Elstub et al. 2025).

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Appendix A

TABLE A1 | Multivariate analysis: Influence of demographic variables on change in knowledge about climate change.

	Change in knowledge between Wkend1 Friday and Wkend4c final		Change in knowledge between Wkend1 Friday and April 21		Change in knowledge between Wkend1 Friday and Sept 22	
	Unstandardised coefficients	Standard error	Unstandardised coefficients	Standard error	Unstandardised coefficients	Standard error
Gender	0.114	0.224	0.184	0.268	0.208	0.324
Age: over 60 years	−0.176	0.252	0.161	0.29	−0.003	0.347
Education: Level 2 and above	−0.056	0.226	−0.193	0.267	−0.144	0.34
Ethnicity	−0.028	0.309	0.264	0.372	0.21	0.463
Climate attitude	0.297*	0.143	0.16	0.172	0.166	0.214
Adjusted *R* square	8.9%		5.2%		3.3%	

Note: $^{**}p < 0.01$; $^{*}p < 0.05$.

TABLE A2 | Multivariate analysis: Influence of demographic variables on change in concern about climate change.

	Change in concern between Wkend1 Friday and Wkend4c final		Change in concern between Wkend1 Friday and April 21		Change in concern between Wkend1 Friday and Sept 22	
	Unstandardised coefficients	Standard error	Unstandardised coefficients	Standard error	Unstandardised coefficients	Standard error
Gender	−0.187	0.129	0.054	0.188	−0.091	0.198
Age[a]: over 60 years	0.039	0.142	−0.057	0.203	0.001	0.212
Education[b]	−0.086	0.013	−0.08	0.187	−0.187	0.208
Ethnicity	0.048	0.175	−0.068	0.261	−0.147	0.282
Climate attitude	0.191*	0.083	0.131	0.122	0.225	0.132
Adjusted *R* square	7.4%		3.5%		7.6%	

Note: $^{**}p < 0.01$; $^{*}p < 0.05$.
[a]Dummy variable: 0 = ages 16 to 59, 1 = 60 years and over.
[b]Dummy variable: 0 = no qualifications or Level 1; 1: Levels 2, 3 or 4, and over.

TABLE A3 | Multivariate analysis: Influence of demographic variables on change in urgency of action on climate change.

	Change in urgency between Wkend1 Friday and Wkend4c final		Change in urgency between Wkend1 Friday and April 21		Change in urgency between Wkend1 Friday and Sept 22	
	Unstandardised coefficients	Standard error	Unstandardised coefficients	Standard error	Unstandardised coefficients	Standard error
Gender	−0.108	0.148	0.058	0.189	0.009	0.278
Age[a]: over 60 years	−0.035	0.066	−0.103	0.204	−0.077	0.299
Education[b]	−0.245	0.149	−0.369	0.187	−0.105	0.294
Ethnicity	0.177	0.204	0.101	0.262	0.005	0.397
Climate attitude	0.083	0.095	0.042	0.122	0.029	0.185
Adjusted *R* square	5.7%		6.9%		0.05%	

Note: $^{**}p < 0.01$; $^{*}p < 0.05$.
[a]Dummy variable: 0 = ages 16 to 59, 1 = 60 years and over.
[b]Dummy variable: 0 = no qualifications or Level 1; 1: Levels 2, 3 or 4, and over.

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TABLE A4 | Multivariate analysis: Influence of demographic variables on consumption habits between the end of CAUK and April 2021.

	Improved home insulation by April 21		Reduced meat and/or dairy consumption by April 21		Switched to renewable energy provider by April 21		Switched to an electric car by April 21	
	Unstandardised Coefficients	Standard error	Unstandardised coefficients	Standard error	Unstandardised coefficients	Standard error	Unstandardised coefficients	Standard error
Gender	−0.048	0.078	−0.031	0.122	0.016	0.107	0.056	0.08
Age[a]: over 60 years	−0.009	0.085	−0.005	0.133	0.11	0.116	0.077	0.087
Education[b]	0.2*	0.077	0.378*	0.119	0.045	0.105	0.026	0.079
Ethnicity	0.036	0.105	0.128	0.163	0.101	0.143	−0.019	0.108
Climate attitude	0.089	0.051	0.016	0.079	0.052	0.069	0	0.052
Adjusted *R* square	18.3%		14.8%		3.6%		2.5%	

Note: $^{**}p < 0.01$; $^{*}p < 0.05$.
[a]Dummy variable: 0 = ages 16 to 59, 1 = 60 years and over.
[b]Dummy variable: 0 = no qualifications or Level 1; 1: Levels 2, 3 or 4, and over.

TABLE A5 | Multivariate analysis: Influence of demographic variables on consumption habits between the end of CAUK and September 22.

	Improved home insulation by Sept 22		Reduced meat and/or dairy consumption by Sept 22		Switched to renewable energy provider by Sept 22		Switched to an electric car by Sept 22	
Gender	−0.124	0.126	0.091	0.14	0.137	0.13	−0.044	0.097
Age[a]: over 60 years	−0.13	0.136	0.077	0.151	−0.118	0.136	0.095	0.104
Education[b]	0.242	0.13	0.195	0.144	0.41**	0.136	0.008	0.101
Ethnicity	0.149	0.172	0.38	0.191	−0.052	0.194	−0.177	0.139
Climate attitude	0.091	0.084	0.026	0.093	−0.051	0.085	−0.067	0.064
Adjusted *R* square	15.1%		12.6%		21%		8.3%	

Note: $^{**}p < 0.01$; $^{*}p < 0.05$.
[a]Dummy variable: 0 = ages 16 to 59, 1 = 60 years and over.
[b]Dummy variable: 0 = no qualifications or Level 1; 1: Levels 2, 3 or 4, and over.

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TABLE A6 | Multivariate analysis: Influence of demographic variables on political engagement on climate change between the end of CAUK and April 2021.

	Signed a petition by April 21		Contacted a politician by April 21		Joined a climate or nature org by April 21		Attended a demonstration by April 21		Ran for election by April 21	
	Unstandardised coefficients	Standardised error	Unstandardised coefficients	Standardised error	Unstandardised coefficients	Standardised error	Unstandardised coefficients	Standardised error	Unstandardised coefficients	Standardised error
Gender	0.171	0.105	0.021	0.088	−0.017	0.061	−0.006	0.061	0.041	0.044
Age[a]: over 60 years	0.30**4	0.114	0.116	0.096	0.035	0.067	0.055	0.066	−0.009	0.047
Education[b]	−0.027	0.103	0.001	0.086	0.095	0.06	0.009	0.06	0.061	0.043
Ethnicity	−0.07	0.141	−0.178	0.118	−0.05	0.082	0.04	0.082	−0.025	0.058
Climate attitude	0.2**	0.068	0.068	0.057	−0.008	0.04	0.068	0.04	0.008	0.028
Adjusted *R* square	24.9%		6.4%		4.8%		6%		6.9%	

Note: $^{**}p < 0.01$; $^{*}p < 0.05$.
[a]Dummy variable: 0 = ages 16 to 59, 1 = 60 years and over.
[b]Dummy variable: 0 = no qualifications or Level 1; 1: Levels 2, 3 or 4, and over.

TABLE A7 | Multivariate analysis: Influence of demographic variables on political engagement on climate change between the end of CAUK and September 2022.

	Signed a petition by Sept 22		Contacted a politician by Sept 22		Joined a climate or nature org by Sept 22		Attended a demonstration by Sept 22		Ran for election by Sept 22***	
	Unstandardised coefficients	Standardised error	Unstandardised coefficients	Standardised error	Unstandardised coefficients	Standardised error	Unstandardised coefficients	Standardised error	Unstandardised coefficients	Standardised error
Gender	0.376**	0.12	0.058	0.123	0.173	0.109	0.005	0.074	N/A	N/A
Age[a]: over 60 years	0.123	0.123	−0.059	0.132	−0.138	0.117	0.072	0.08	N/A	N/A
Education[b]	0.157	0.135	0.132	0.126	0.087	0.113	0.01	0.076	N/A	N/A
Ethnicity	−0.006	0.155	−0.101	0.167	−0.007	0.147	−0.092	0.1	N/A	N/A
Climate attitude	0.229**	0.083	0.084	0.082	0.038	0.072	0.086	0.049	N/A	N/A
Adjusted R square	44.9%		9.2%		11.9%		8.7%		N/A	

Note: $^{**}p < 0.01$; ***No positive response; $^{*}p < 0.05$.
[a]Dummy variable: 0 = ages 16 to 59, 1 = 60 years and over.
[b]Dummy variable: 0 = no qualifications or Level 1; 1: Levels 2, 3 or 4, and over.

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