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YOUTH KNOWLEDGE AND PERCEPTIONS OF CLIMATE MITIGATION

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EXECUTIVE SUMMARY

Five hundred young people (aged 16 to 24 years) took part in a short, online study about the environment. The study focused on knowledge and beliefs about climate change mitigation. We recorded the climate-friendly behaviours young people in Ireland report engaging in, as well as their knowledge of the relative mitigative potential of different actions (e.g. eating a plant-based diet, avoiding flying). The study included a controlled experiment where we tested the effects of information about the correct impact of said actions on motivation to act in climate-friendly ways. We also measured how much they believe different groups (young people in general, older people, the government) can mitigate the worst effects of climate change and how much responsibility they attribute to each group. The study also assessed engagement with local outdoor amenities and any barriers to engagement, which allowed us to explore relationships between engagement with nature and broader climate change beliefs. The study was conducted in March 2022 and is the first of its kind in Ireland.[1]

The study produced the following findings:

- Over 90 per cent of youth in Ireland judge protecting the environment to be very important. Most believe there are things they can do in their everyday lives to help combat climate change and feel responsible to do so.
- The government is judged as more capable of and more responsible for taking action to combat climate change than individuals, whether older people or other young people.
- Most young people (92 per cent) recycle. While beneficial for the environment, recycling is erroneously judged as one of the highest-impact pro-environmental behaviours an individual can engage in.
- Almost two-thirds (63 per cent) judge using public transport instead of travelling by car as one of the most impactful pro-environmental behaviours. Around half (51 per cent) of young people report that they primarily travel by public transport or active travel modes, but there is large variation by gender and region. Males are 75 per cent more likely to primarily cycle or walk than females. Those living in urban areas are twice as likely to use public transport or cycle/walk as those in rural areas, as are those living in Dublin versus the rest of the country. These regional differences point towards differences in availability and infrastructure rather than motivation. Over one-in-four (26 per cent) intend to live car-free in the future.

[1] While there have been other surveys of environmental attitudes of youth in Ireland, these have relied on snowball sampling via social media rather than recruitment by market research agencies.

- Just one-in-three (34 per cent) recognise eating a plant-based diet as a high-impact behaviour and less than 10 per cent do not eat meat. Females are 2.5 times more likely to not eat meat than males. Almost half (48 per cent) of those who currently eat meat intend to eat less in the short-term future, with almost 30 per cent planning to eat a plant-based diet in the long-term.
- Less than half (43 per cent) are aware that avoiding long-haul flights is a high-impact behaviour, although more than half (55 per cent) intend to limit the number of flights they take in the future. One-in-three (30 per cent) intend to avoid flying where possible.
- Broadly speaking, understanding of the relative impact of different pro-environmental behaviours is poor. The proportion of young people who can correctly identify the environmental impact of different pro-environment behaviours is no better than what could be expected from chance. Responses indicate biases towards underestimating high-impact behaviours (especially eating a plant-based diet) and overestimating low-impact behaviours (in particular, recycling and not littering). Comparisons with other research show that young people's ability to estimate the environmental impact of behaviours is not statistically different from older adults.
- Informing young people about the relative mitigative impact of the various actions through a short infographic had no influence on their climate related attitudes nor their intentions to engage in high-impact actions.
- Most young people report high levels of support for pro-climate policies, with the majority in favour of banning domestic flights (57 per cent), implementing car-free zones in town- and city-centres (57 per cent), mandating renewable energy even if it is more expensive (65 per cent) and fining businesses that exceed emission targets (78 per cent). A large proportion are in favour of green taxes on meat (43 per cent) and energy inefficient homes (47 per cent), although there is less support for annual flight limits (29 per cent) and higher fuel taxes (33 per cent).
- Most young people (75 per cent) report visiting local outdoor amenities (such as parks, wood and forest walkways, etc) at least a few times per month and report high levels of satisfaction and enjoyment doing so, with few differences between urban and rural youth. The primary barrier to engagement is time availability, particularly among 20-24-year-olds.
- Engaging with local outdoor amenities may boost pro-environmental sentiment, as frequency of engagement is linked to stronger pro-environmental intentions, even when current pro-environmental behaviour and knowledge is factored in.

CHAPTER 1

Introduction

Mitigating the worst effects of climate change requires a coordinated response from governments and individuals, particularly in high-income countries. To motivate support for policy and individual behaviour change, it is hence important to measure how different socio-demographic groups perceive and understand climate change as well as the actions they currently undertake. Young people are particularly exposed to the consequences of the crisis, despite contributing less to it than older generations (Thiery et al., 2021). It is often assumed that young people are more engaged in climate change issues and more strongly support mitigation. However recent studies, including data from Ireland, show that older people report stronger pro-environmental intentions and are more likely to have engaged in high-impact action (Spandagos et al., 2022; Timmons and Lunn, 2022). Our overall aim was to provide a detailed understanding of climate change perceptions among youth (aged 16 to 24 years) in Ireland. To do so, we assessed multiple factors relevant for climate change mitigation: current behaviour, knowledge of mitigation actions, perceptions of self-efficacy and responsibility, future intentions and support for policy. The study was commissioned and funded by the Environmental Protection Agency.

1.1 BEHAVIOUR AND KNOWLEDGE

To identify where behaviour change is needed, it is first necessary to know what people currently do. Hence, our first aim was to record the day-to-day behaviours, such as dietary and transport mode choices, of youth in Ireland. It is also helpful to understand the degree to which young people associate these behaviours with climate change: if young people engage in multiple harmful behaviours that they do not recognise as having high environmental impact, one sensible recommendation would be to design interventions to improve knowledge of this impact.

The evidence for a causal link between knowledge about climate change and day-to-day behaviour, however, is mixed. The international literature on young people's climate knowledge has tended to focus on knowledge of specific facts, such as the degree of warming experienced to date, rather than the kind of comprehension important for behaviour, such as the relationship between individual behaviours and carbon emissions (Corner et al., 2015). That said, some studies suggest that better knowledge is associated with lower levels of climate scepticism and stronger pro-environmental attitudes (Hornsey et al., 2016; Izadpanahi et al., 2017). Experiments show that receiving factual informational about climate change can increase climate concern (Joslyn and Demnitz, 2021;

Ranney and Clark, 2016), but longitudinal studies show that it has limited effects on behaviour (Castiglione et al., 2022).

The type of knowledge provided may make a difference (e.g. Onel and Mukherjee, 2016). Some studies show that knowledge about the causes of climate change is associated with greater climate concern, whereas knowledge of its consequences is not (Shi et al., 2016). Another distinction can be made between broad knowledge about climate change and knowledge about specific actions. Cologna et al. (2022) show that objective knowledge of the pro-environmental impact of specific behaviours correlates with willingness to engage in high-impact ones. Recent research in Ireland shows that providing general information on climate change – including the mitigative potential of different actions – can lead to small boosts in motivation to engage in high-impact behaviours in the future (Timmons and Lunn, 2022). We therefore experimentally tested whether providing young people with information about the mitigative impact of various pro-environmental behaviour can influence their willingness to engage in high-impact behaviours.

1.2 PERCEPTIONS OF EFFICACY AND SUPPORT FOR POLICY

In addition to knowledge, pro-environmental behaviour is influenced by the extent to which people believe their actions have a meaningful impact on the environment (Hamann and Reese, 2020; Hanss and Böhm, 2010). For example, in a study of Canadian young people, many were motivated to engage in pro-environmental behaviour but reported that a lack of opportunities and resources to make a difference to environmental degradation was a barrier to action (Anderson and Krettenauer, 2021). Hence, we also set out to measure how capable youth in Ireland feel of making a difference and the degree to which they feel responsible for doing so. For comparison purposes, we also recorded their views of older people and the government. The experimental test of information provision, mentioned above, allowed us to test whether learning about the mitigative potential of various pro-environmental behaviours alters young people's belief that they can make a difference, resulting in higher levels of climate-related self-efficacy. The logic here is that if young people learn that there are some actions they can take that have large environmental benefits (e.g. switching to a plant-based diet), they may feel more efficacious to contribute to tackling climate change. Alternatively, learning that some common behaviours (e.g. recycling) have low climate-benefits may have the reverse effect.

Individual behaviour change alone, however, will not be sufficient to mitigate climate change. Broader-scale initiatives implemented on a societal level will also be necessary (Romero-Canyas and Hiltner, 2020) and public discourse now focuses on which policies should be enacted. For example, recent research from the US

suggests that people prefer policies that employ disincentives for businesses rather than individuals (Swim and Geiger, 2021) but there has been little analysis of such preferences in Ireland, particularly for younger people. Such changes are especially relevant for younger generations, since any policies enacted to mitigate climate change will affect more of their lives. Moreover, young people often have less control over their current behaviour than older people (e.g. with their transport modes or ability to adopt energy efficient innovations) due to living conditions or resource constraints but can still encourage and support pro-climate policies. We therefore assessed the level of support among young people for a range of such policies.

1.3 ENGAGEMENT WITH NATURE

Spending time in nature has well-established links with pro-environmental attitudes and behaviour (Barragan-Jason et al., 2022; Gkargkavouzi et al., 2019; Hartig et al., 2007; Martin et al., 2020; Rosa et al., 2018; Whitburn et al., 2019; for a review see DeVille et al., 2021). In recent years, however, youth engagement with nature has declined across multiple countries, with the shift attributed to increased urbanisation and the domination of technology for entertainment (e.g. Hughes et al., 2018; Larson et al., 2019). This decline raises concern, not just because of the link between nature engagement and pro-environmental behaviour, but also because of the multiple physical and mental health benefits of engaging with nature (Alcock et al., 2014; Carlin et al., 2016; McCurdy et al., 2010).

On the other hand, there is some indication that the COVID-19 pandemic has resulted in increased engagement with nature for both adults and adolescents, and this increase is linked to improved wellbeing (Guzman et al., 2022; Jackson et al., 2021).

Hence, we also assessed how often youth in Ireland engage with local outdoor amenities and whether there are large barriers to engagement they report. Although not a direct climate mitigation behaviour, engaging with nature may motivate the kind of behaviour change required to help tackle climate change.

1.4 SOCIO-DEMOGRAPHIC DIFFERENCES

Our approach also allowed us to compare differences between young people in different socio-demographic groups. Climate change is often depicted as an issue of concern only among the urban middle-classes (and particularly among urban, middle-class women). Hence, we focused on differences by gender, educational attainment, socio-economic status and living area.

Women generally hold stronger pro-environmental attitudes and engage in more pro-environmental behaviours than men (Gifford and Nilsson, 2014; Hornsey et al., 2016; McCright et al., 2016; Mertens et al., 2021; Poortinga et al., 2019; Smith et al., 2017; Xiao and McCright, 2015; Zelezny et al., 2000). However, there can be country-specific differences: a recent UK study found that women view climate change to be less serious than men, are less likely to be 'highly-engaged' with the issue, and feel less informed (Crawley et al., 2020). In Ireland, Timmons and Lunn (2022) showed that while men perform better on assessments of knowledge about climate change, women are more worried about it, have stronger pro-environmental intentions and are more likely to offset their carbon emissions.

The relationship between socio-economic status and environmentalism is less clear. Much evidence suggests that greater educational attainment is a strong predictor of climate change awareness and concern (Arıkan and Günay, 2021; Crawley et al., 2020; Knight, 2016; Kvaløy et al., 2012; Lee et al., 2015; Poortinga et al., 2019; Smith et al., 2017). However, others show no relationship between education and concern (Milfont, 2012) and some find it to vary by country (Lewis et al., 2019). Similarly, some research shows that higher income predicts finding climate change important and adoption of sustainable energy innovations (Smith et al., 2017; Spandagos et al., 2022). However, other studies show that lower income groups are more concerned with climate change and view that it should be a government priority (Crawley et al., 2020). A cross-cultural comparison found no clear associations between family income and climate change concern (Lewis et al., 2019). In Ireland, recent evidence suggests socio-economic status is associated with greater climate change concern, even when controlling for educational attainment (Timmons and Lunn, 2022).

There are further mixed results on the relationship between living area and pro-environmental behaviour. Some studies show that a rural upbringing is associated with a stronger connection to nature, which in turn is positively associated with pro-environmental behaviour (Hinds and Sparks, 2008). Others find those living in rural areas to report fewer pro-environmental behaviours (Anderson and Krettenauer, 2021). A cross-country comparison shows that individuals living in rural areas rate climate change as a less important issue than individuals living in urban areas (Smith et al., 2017). Other researchers have only found differences in environmental concern and actual behaviour between rural and urban citizens to be minimal or non-existent (Arıkan and Günay, 2021; Huddart-Kennedy et al., 2009).

1.5 SUMMARY

Drawing on the above international literature of known factors that relate to environmental attitudes and behaviours (Sections 1.1 to 1.4), we set out to provide

a comprehensive report on the views and behaviours of young people in Ireland with regard to climate change. In assessing how these factors translate to an Irish context, we provide the first overview of young people's current behaviour, as well as their climate change knowledge, environmental values and efficacy beliefs. We also explore socio-demographic differences among a sample of young people. Although our sampling method (described in detail below) is imperfect, it sought to avoid strong selection biases associated with opting into environmental surveys. Recruitment was broader than could be achieved via schools and colleges, or through social media advertisements, as undertaken in other recent surveys in Ireland (e.g. Young Social Innovators, 2022).

Our approach to measuring climate knowledge among young people is novel, in that we focus on understanding of the relative mitigative potential of behaviours young people can undertake, rather than their knowledge of specific facts (e.g. Corner et al., 2015). Moreover, we test experimentally the influence of a short, scalable infographic intervention, to determine the motivational potential of providing digestible information to young people on climate change.

Climate change mitigation requires not only individual behaviour change but also targeted climate policies. Such policy changes are especially relevant for younger generations, since any policies enacted to mitigate climate change will affect more of their lives. We provide the first assessment of the level of support among young people in Ireland for a range of such policies. Lastly, given recent concern about the decline of young people engaging with nature, we assess how young people in Ireland engage with and value their local environment.

CHAPTER 2

Method

The study was run online and was programmed in Gorilla Experiment Builder (Anwyl-Irvine et al., 2020). It proceeded over multiple stages. Here we report findings from stages that measured knowledge of and engagement with climate mitigation actions, views on the future, and engagement with local outdoor amenities. Results from other stages, which contained experimental tests of how climate information is framed and measured belief in collective action, are reported in Timmons et al. (2022). The study received approval from the ESRI's Research Ethics Committee on 15 March 2020. Data were collected between 31 March and 4 April 2022.

2.1 PARTICIPANTS

Five hundred participants aged 16-24 were recruited from online panels held by two leading market research and polling companies.[2] Unlike most research on youth perceptions of environmental issues, there was no reliance on the young person's (or their teacher or school's) engagement in pro-environment activities to provide a convenience sample (see Lee et al., 2020). Our sample frame was the existing participants in two online survey panels designed to be representative of Ireland's general population. Timmons et al. (2020) provide details on how recruitment from these panels compares to probability sampling. Where possible, we compare our measures to data recorded as part of the *Growing Up in Ireland* (GUI) 20-year cohort (reported in the Appendix). Comparisons show minimal differences.

Email invitation links to the survey were sent by the market research companies to 18–24-year-olds. When entering the study, the participants were presented with an information sheet describing the study topic and procedure before deciding if they consented to participate. To recruit the younger age group, email links were sent to parents/guardians of 16–17-year-olds, asking if they were willing to have their child partake in the survey. The parent/guardian was presented with the information sheet describing the study topic and procedure and were asked if they consented to have their child partake. After receiving consent from the parent, the 16-17-year-old read the same information sheet before being asked if they assented to partake in the study.

Socio-demographic characteristics of the sample are summarised in Table A.1 in the Appendix. The sample characteristics are generally close to the latest available

[2] RED-C Research and Marketing (www.redcresearch.ie), Behaviour & Attitudes (https://banda.ie/).

CSO numbers, except for gender where we have an overrepresentation of women. As noted above, women tend to have greater concern for the environment and more frequently engage in pro-environmental behaviours. Hence, all descriptive results we report are weighted by gender. Statistical models include controls for socio-demographic characteristics, implying that any findings are not sensitive to this difference.[3]

The attrition rate directly after reading the information sheet (which mentioned the study topic) was low (*n* = 12), indicating that selection effects based on the topic are unlikely, and that any differential participation by socio-demographic group was unrelated to the specific focus of the study.

Participants were paid €3 for undertaking the study, which took 13 minutes to complete on average.

2.2 MATERIALS AND DESIGN

All materials are available in the Appendix and on the study's Open Science Framework[4] page. The study began with measures on which pro-environmental behaviours the participants currently engage in. These related to diet, modes of transport, household waste management and general consumption. Responses allowed us to personalise intention questions asked later in the study. Participants were also asked how important they thought it was to protect the environment.

Next, we asked participants to estimate the mitigative impact of 12 different pro-environmental behaviours on a person's carbon footprint (Table 2.1). The behaviours concerned food consumption, transport, energy, and general consumption and varied by their impact on the average person's carbon footprint (low, moderate or high; as estimated by Wynes and Nicholas, 2017; Wynes et al., 2020). Participants were told to give their best guess and were incentivised to answer correctly. They were able to opt-in to a raffle for one of two €100 virtual Mastercards, knowing that each correct answer would earn them an additional raffle entry. This stage featured the experimental component: half the participants (*n* = 247) were randomised to see the answers in the form of an infographic after providing their guess (see Figure A.1 in the Appendix). This approach allowed us both to assess comprehension in the full sample while also experimentally testing the influence of seeing the answers on measures recorded later in the study.

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3 In line with the preregistration, we also run models controlling for responses to an attention-check question (n = 405) as a robustness check, and report where results differ.

4 https://osf.io/kmeh3/.

TABLE 2.1 LIST OF PRO-ENVIRONMENTAL ACTIONS TO MITIGATE A PERSON'S CARBON FOOTPRINT WITH CORRECT LEVEL OF IMPACT.

Action	Level of impact
Avoiding one long-distance flight	High
Eating a plant-based diet	High
Walk, cycle, or use public transport	Moderate
Minimise food waste	Moderate
Recycle as much as possible	Moderate
Buy fewer things and reuse old things	Moderate
Hang dry clothes	Moderate
Buying local food	Low
Buying organic food	Low
Buy unpackaged food	Low
Not litter	Low
Use reusable shopping bags	Low

Source: Wynes et al. (2020).

After answering the impact questions the participants were asked how much they agreed with statements about environmental efficacy: their own self-efficacy, older peoples' efficacy and government efficacy ('There are things I can do in my daily routine/older people can do in their daily routine/the government can do to help combat climate change'). All responses were elicited on a rating scale from 1 (Completely disagree) to 7 (Completely agree). They were also asked how responsible they judged young people, older people and the government to be for combatting climate change, from 1 (Not at all) to 7 (Extremely). The randomisation of participants to see the infographic allowed us to test whether having seen the mitigative impact of the different individual behaviours affected participants' perceptions of efficacy and responsibility.

The impact questions were then reformulated into behavioural intention questions and participants were asked about the likelihood that they would do each in the future. These questions were personalised to the participant based on their current behaviour (e.g. only those who eat meat were asked whether they would eat less meat in future). Our aim was to test whether seeing simple information about the impact of the different behaviours affected participants' own intentions.

We then asked about the participants' longer-term views on life with regards to climate change. This included questions on how likely they were to do three high-impact behaviours (eat a plant-based diet, avoid flying, live car-free) in the future, rated from 1 (Not likely at all) to 7 (Very likely) and the extent to which they were in favour of different future climate policies (e.g. raising taxes on fuel, introducing car-free zones, fining businesses that exceed a CO_2 limit), which they rated from 1 (Would not want in place at all) to 7 (Would want in place to a great extent)

(Table 2.2).

TABLE 2.2 LIST OF CLIMATE POLICIES THE PARTICIPANTS WERE ASKED TO INDICATE SUPPORT FOR

Higher taxes on petrol and diesel to fund more public transport
Ban on domestic flights (e.g. Dublin to Shannon) unless to provide an essential service
Ban on cars in certain parts of towns and city centres (e.g. implement car-free zones)
A limit on the number of flights any person can take in a year
Ban use of environmentally harmful subsidies in production and import of goods even if it leads to everyday products becoming more expensive
Lower taxes for imported goods that are carbon neutral (with higher taxes for ones that are not)
Higher taxes on meat, with money collected going to invest in ways to make farming more environmentally friendly
Making renewable energy sources, such as wind or solar, mandatory even if they cost more
Higher taxes on homes that are not energy efficient, with money collected going towards grants for retrofitting homes (i.e. to pay some of the cost of making homes more energy efficient)
Fines for businesses that have emissions above a certain level

Source: Authors.

Finally, the participants responded to questions on their engagement with and perceptions of their local outdoor amenities: how important their local outdoor amenities were to them, what amenities were available to them, how much time they spend there, if they enjoy spending time there, and how satisfied they were with them. The study concluded with socio-demographic questions.

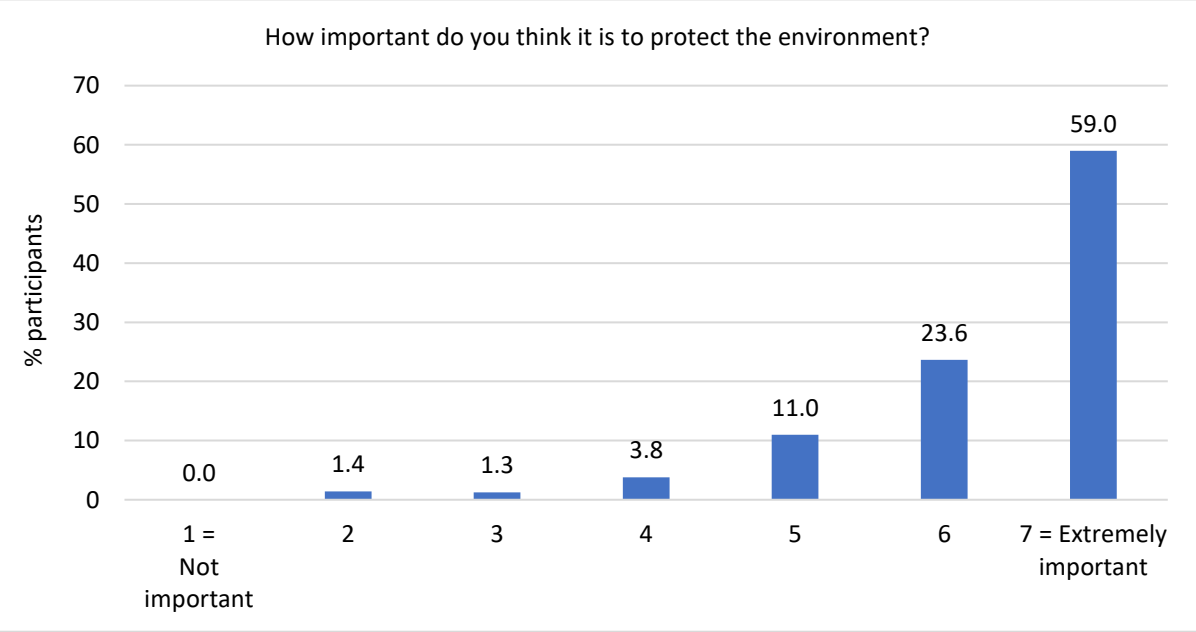
CHAPTER 3

Results

The first section in this chapter reports descriptive statistics on the pro-environmental behaviours that young people engage in and their knowledge of the relative impact of individual actions. Where possible, we make comparisons between the youth sample and data on over 24s from Timmons and Lunn (2022). The second section reports on the experimental effects of reading correct information on the relative mitigation potential of individual actions on perceptions of efficacy and responsibility and on future intentions. Third, we present descriptive results of views on climate policies. The chapter concludes with a description of youth engagement with their local area and how it correlates with other measures. Descriptive results are weighted by gender and results from any statistical models include socio-demographic controls for gender, age, working status, mother's educational attainment (as a proxy for socio-economic status), region and living area (urban/rural). Where socio-demographic differences are noted, they are statistically significant.

3.1 CURRENT PRO-ENVIRONMENTAL BEHAVIOURS

FIGURE 3.1 DISTRIBUTION OF PARTICIPANTS RESPONSES TO HOW IMPORTANT THEY FIND PROTECTING THE ENVIRONMENT



Source: Authors' analysis.

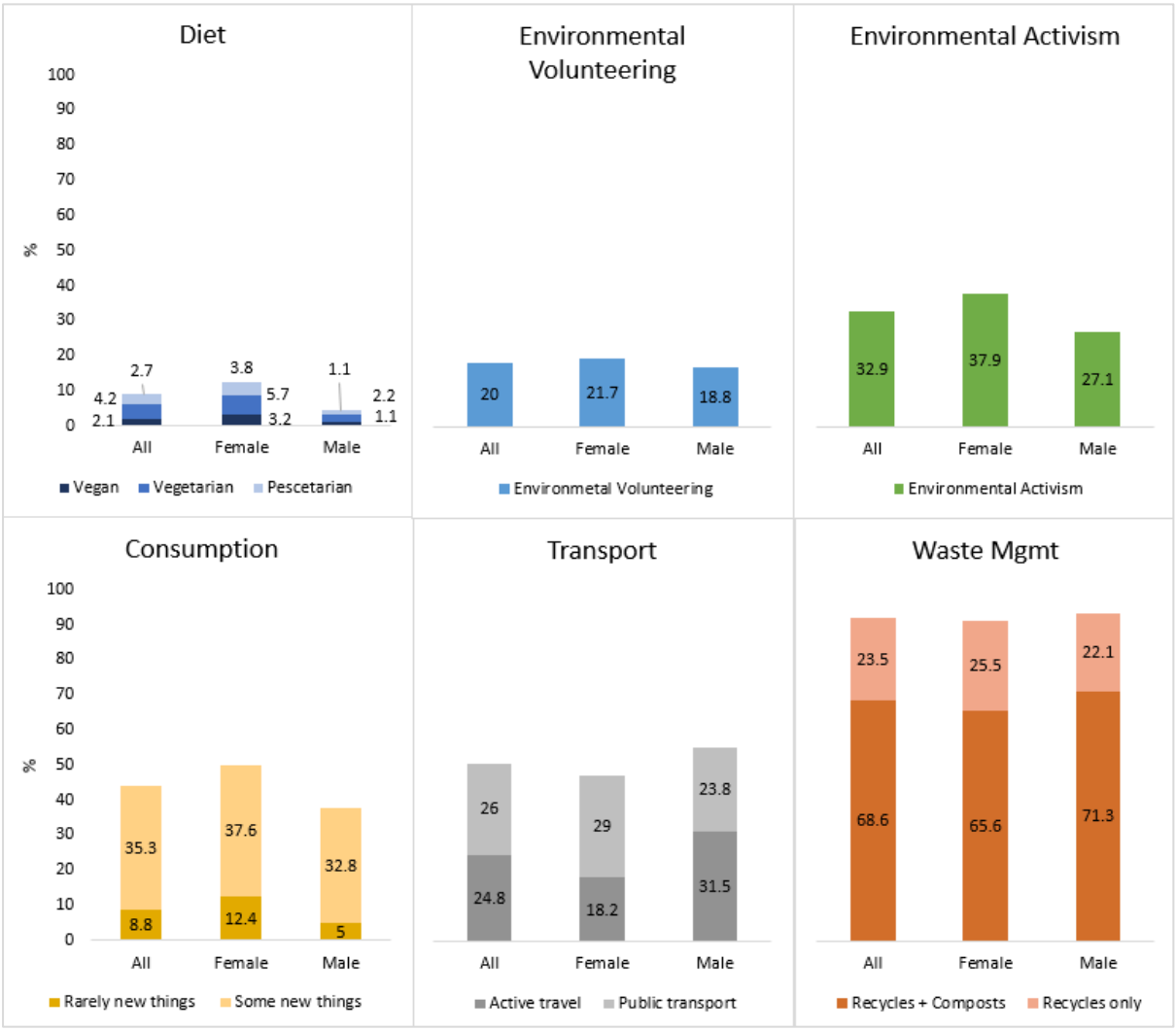
The majority (59 per cent) of participants reported that protecting the environment is extremely important (i.e. gave a response of 7 out of 7). Less than 6 per cent gave a response of 4 or lower, and none gave a 1 as response (Figure 3.1). Despite these high levels of concern, few young people reported

engaging in most of the pro-environmental behaviours recorded (related to dietary choices, volunteering with an environmental organisation, activism – e.g. Fridays for the Future, refusing to buy specific products, participating in protests – and general consumption; Figure 3.2). The exceptions were transport, where half of young people reported that they primarily use public transport or engage in active travel, and household waste management behaviour, with most young people reporting their household recycles and segregates food waste.

Most participants reported that they eat meat and other animal products (e.g. dairy and eggs), with only 6 per cent indicating that they do not eat meat or fish. This percentage is not statistically different from the percentage of over 24s who do not eat meat (5.8 per cent according to data from Timmons and Lunn, 2022).[5] The household waste management figures are also in line with data on over 24s from Timmons and Lunn (2022).

[5] Our estimates for dietary choices and travel are closely similar to data on 20-year-olds collected as part of *Growing Up in Ireland* (see Appendix).

FIGURE 3.2 PERCENTAGES OF PARTICIPANTS ENGAGING IN PRO-ENVIRONMENTAL BEHAVIOURS. NOTE THAT THE 'ALL' FIGURES ARE WEIGHTED BY GENDER



Source: Authors' analysis.
Note. 'Composts' refers to both home composting and using a separate bin for food waste to be composted commercially.

Over half (56 per cent) reported that most or everything they buy (e.g. clothes) is bought new, rather than second-hand or re-used. A majority (80 per cent) had never volunteered with an environmental organisation and two-thirds reported they have never engaged in any other form of environmental activism (e.g. protests, boycotts).

There were few significant correlations between behaviours (Table A.3 in the Appendix), although engaging in activism was significantly correlated with not eating meat (r = .11, p = .03) and volunteering (r = .35, p < .001). Segregating food waste at home was correlated with volunteering (r = .11, p = .01) and was negatively associated with travelling mostly by public transport (r = -.12, p = .01), but was not related to active travel (r = .03, p = .65).

Table 3.1 presents statistical models predicting pro-environmental behaviours from socio-demographic characteristics. The models show differences in several behaviours based on gender, controlling for other characteristics. More females than males reported that they are vegetarian or vegan. More females also reported rarely buying things new (and, for example, buying clothes second-hand instead) and having engaged in activism. However, the largest gender difference is observed in active travel, which was reported as the most common mode of transport more often among males (32 per cent) than females (18 per cent; $\beta = 0.67$, $p = .007$).

The models also show differences based on living area, with those living in rural areas being less likely to use public transport instead of driving (descriptive percentages 23 per cent vs. 43 per cent) or engage in active travel instead of driving (22 per cent vs. 42 per cent). Unsurprisingly, there were also regional differences in public transport use (Dublin: 55 per cent, Rest of Leinster: 23 per cent, Munster: 24 per cent, Connacht Ulster: 34 per cent). Rural youth were more likely to report they rarely buy things new (13 per cent vs. 6 per cent of urban youth). Youth in Dublin (10 per cent) and Connacht/Ulster (10 per cent) reported rarely buying new things more than those in the Rest of Leinster (6 per cent) and Munster (8 per cent). Those who are working rather than in education reported being less likely to use active travel instead of driving (29 per cent vs. 37 per cent) and less likely to rarely buy new things (4 per cent vs. 12 per cent).

Notably, there are few differences by age or maternal education. The only differences are observed for volunteering, where older youth and those whose mothers have higher educational attainment are more likely to have volunteered.

TABLE 3.1 LOGISTIC REGRESSION MODELS PREDICTING PRO-ENVIRONMENTAL BEHAVIOURS BY SOCIO-DEMOGRAPHIC VARIABLES

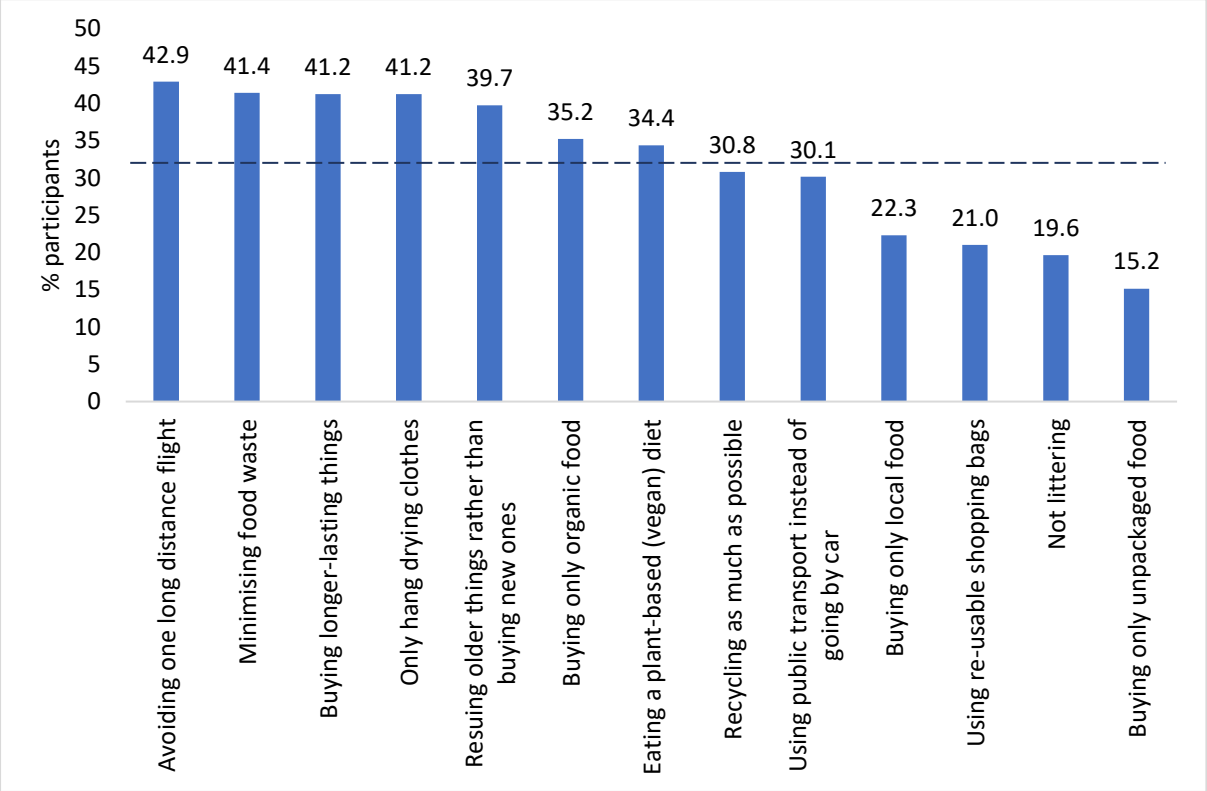
	Vegetarian / Vegan	Segregates Food Waste	Public Transport	Active Travel	Rarely Buys Things New	Volunteers	Activism
Male (Ref: Female)	-1.06* (0.46)	0.23 (0.21)	-0.11 (0.25)	0.67** (0.25)	-1.13** (0.39)	-0.16 (0.24)	-0.51* (0.21)
20-24 years (Ref: 16-19 years)	0.55 (0.43)	0.28 (0.23)	-0.28 (0.28)	0.08 (0.27)	0.34 (0.35)	0.53* (0.27)	0.36 (0.22)
Working Status (Ref: In Education)							
Working	-0.05 (0.42)	0.04 (0.24)	-0.34 (0.28)	-0.75* (0.29)	-1.14** (0.41)	-0.42 (0.27)	-0.39† (0.23)
NEET	0.36 (0.69)	-0.29 (0.43)	-0.37 (0.56)	-0.09 (0.52)	-0.55 (0.67)	-0.30 (0.53)	0.44 (0.41)
Maternal Education – Lower than Degree (Ref: Degree or above)	-0.42 (0.36)	-0.18 (0.20)	0.15 (0.23)	-0.51*[a] (0.25)	0.34 (0.32)	-0.46* (0.23)	-0.05 (0.19)
Region (Ref: Dublin)							
Leinster	-0.66 (0.65)	0.14 (0.31)	-1.28*** (0.34)	-0.84*[a] (0.37)	-1.30* (0.51)	-0.70† (0.36)	-0.13 (0.29)
Munster	0.33 (0.49)	-0.06 (0.28)	-0.29*** (0.32)	-1.07** (0.35)	-1.07* (0.45)	-0.31 (0.31)	-0.19 (0.27)
Connacht-Ulster	0.14 (0.54)	-0.31 (0.30)	-0.76*[a] (0.33)	-0.58 (0.36)	-0.71 (0.45)	-0.48 (0.34)	-0.34 (0.29)
Urban (Ref: Rural)	-0.34 (0.40)	0.07 (0.22)	0.76** (0.26)	0.57* (0.27)	-1.06** (0.37)	-0.52* (0.26)	-0.15 (0.22)
N	500	500	385	366	500	500	500

Source: Authors' analysis.
Note: †p < .10, *p < .05, **p < .01, ***p < .001. [a] Coefficient is in the same direction but non-significant in reduced-sample models that remove participants who failed attention checks. Log odds ratios reported with standard errors in brackets.

3.2 KNOWLEDGE OF MITIGATIVE BEHAVIOURS

On average, participants correctly estimated the impact of 4.15 (*SD* = 2.40) of the 13 mitigative behaviours, which is marginally lower than what would be expected by chance (4.33; as shown by a single-sample t-test; t (499) = 1.86, p = .063). Figure 3.3 shows the percentage of participants who correctly estimated the impact of each action.

FIGURE 3.3 PERCENTAGES OF PARTICIPANTS WHO CORRECTLY ESTIMATED THE IMPACT FOR EACH OF THE PRO-ENVIRONMENTAL BEHAVIOURS. THE DASHED LINE SHOWS THE LEVEL EXPECTED BY CHANCE

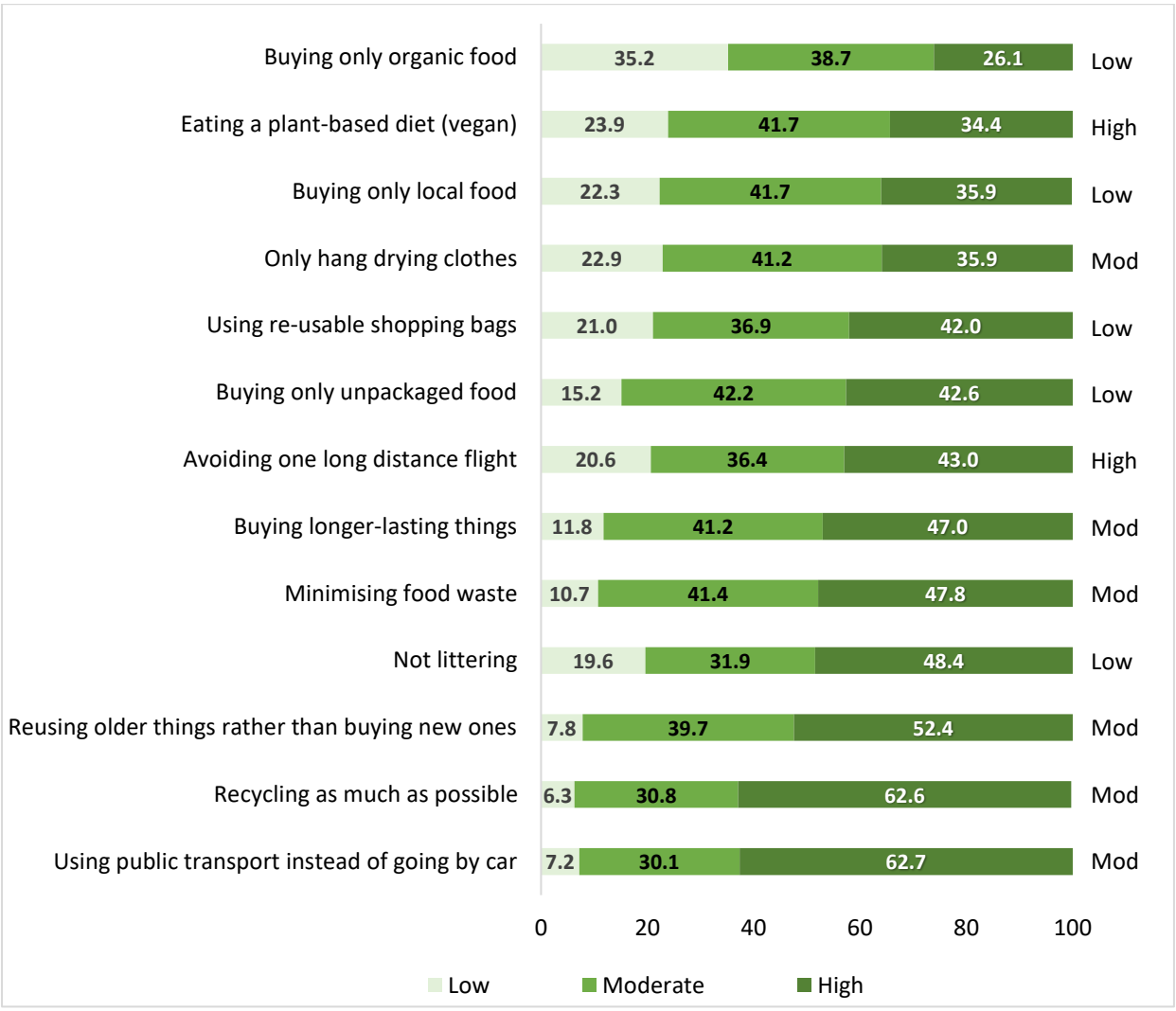


Source: Authors' analysis.

Figure 3.4 shows the distribution of responses to the questions about the mitigation potential of different behaviours. Recycling and using public transport were believed to have a high impact by most (63 per cent of participants) and by significantly more participants than the next highest rated action (as shown by tests of proportions; reusing older things, *p*s < .001). Despite being one of two high-impact behaviours, eating a plant-based diet had second-to-lowest percentage of participants believing it had a high impact and the proportion (34.1 per cent) was not statistically different from chance (p = .702). The majority (58 per cent) also failed to correctly classify the other high-impact behaviour – avoiding a long-haul flight – as high-impact.

Not littering helps the local environment and biodiversity but is generally considered a low-impact climate mitigation action, yet was rated by almost half of participants as high-impact. This proportion is significantly more than the proportion who judged avoiding a long-haul flight (p = .023) and eating a plant-based diet (p < .001) as high-impact.

FIGURE 3.4 PERCENTAGES OF PARTICIPANTS ESTIMATING A LOW, MODERATE, OR LARGE IMPACT FOR EACH OF THE PRO-ENVIRONMENTAL BEHAVIOURS. ORDERED BY SMALLEST TO LARGEST % OF PARTICIPANTS ESTIMATING A HIGH IMPACT



Source: Authors' analysis.

Participants' estimates of the impacts of different behaviours generally followed the same pattern as responses from an adult sample (aged 25 and over) collected by Timmons and Lunn (2022) (Figures A.2 and A.3 in the Appendix). Tests of proportions show that the youth sample showed a similar tendency towards believing behaviours to be high impact as the adult sample (41.9 per cent on average vs. 38.1 per cent on comparable actions, respectively, $Z = 1.42$, $p = .157$). However, the adult sample were better able to identify avoiding one long-distance flight as high impact (53 per cent) compared to the youth sample, $Z = 3.82$, $p < .001$, and were less likely to judge not littering as high-impact (28 per cent), $Z = 7.88$, $p < .001$. There was no difference in their judgements of eating a plant-based diet as high-impact, $Z = 0.12$, $p = .908$.

A regression model (Table A.4 in the Appendix) testing for socio-demographic predictors of knowledge showed that men did better than women (M = 4.4, SD = 2.4; M = 3.9, SD = 2.4, respectively) and participants aged 20 to 24 years did marginally better than those aged 16-19 (M = 4.3, SD = 2.3; M = 3.8, SD = 2.4, respectively). However, these groups did not differ in their ability to identify avoiding flights and eating a plant-based diet as high impact. Maternal education, own occupation status or region did not predict impact knowledge.

To conclude, we find evidence of bias in the judgement of the relative impact of various behaviours, with an over-estimation of the impact of behaviours with smaller impact. The fact that the overall estimates are not far from what could be expected from chance alone makes it evident that young people generally lack knowledge about what behaviours matter for climate mitigation.

3.3 INFORMATION INTERVENTION

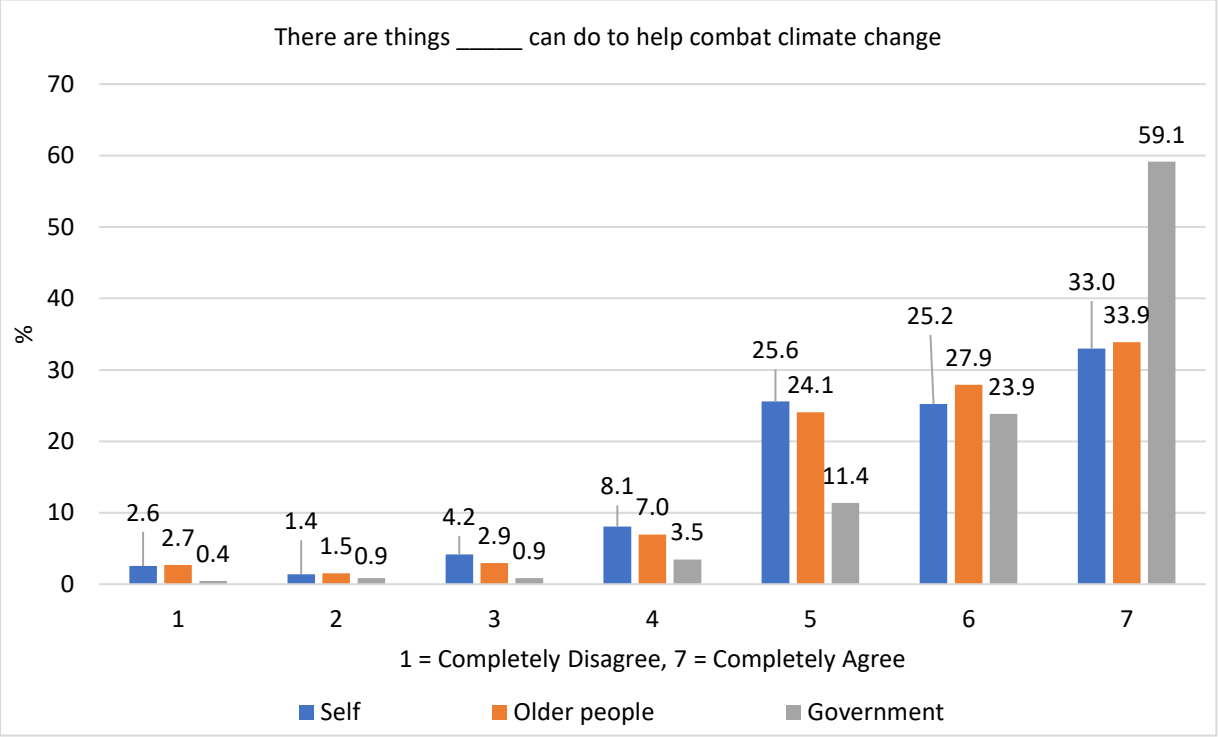
After estimating the impact of different behaviours, half the participants (n = 247) were randomised to see the correct answers on an infographic (see Figure A.1). This experimental component allowed us to estimate the effect of seeing this information on later responses, related to perceptions of efficacy, judgements of responsibility and future intentions.

3.3.1 Efficacy beliefs

Figure 3.5 shows the distribution of participants' responses to questions about their own, older people's and the government's efficacy with regards to climate change, i.e. to what extent they felt that each agent was able to do things to help combat climate change. The large majority (over 85 per cent) gave a response above the midpoint of the scale for themselves and older people, implying that most young people believe there are things they themselves and older people can do in their daily routines to help combat climate change. Almost all (95 per cent) did so for government efficacy. There was no difference in beliefs of self-efficacy (M = 5.60, SD = 1.41) versus older people's efficacy (M = 5.67, SD = 1.39), Z = 0.89, p = .373,[6] but governmental efficacy (M = 6.33, SD = 1.03) was rated higher than both, Z_{Self} = 11.88, p < .001; Z_{Old} = 11.53, p < .001, Wilcoxon Signed-Rank Tests.

[6] The comparison between judgements of self-efficacy and older people's efficacy did produce a small but significant difference when the analysis was confined to the reduced, attention-check sample (M = 5.69, SD = 1.42 vs. M = 5.79, SD =1.40, respectively; Z = -2.20, p = 0.03).

FIGURE 3.5 DISTRIBUTIONS OF RESPONSES FOR EFFICACY BELIEFS



Source: Authors' analysis.

Table 3.2 presents ordinal regression models predicting efficacy beliefs and shows no effects of having seen the information on the mitigative impact of various behaviours on self-efficacy ($M = 5.57$, $SD = 1.49$ vs. $M = 5.64$, $SD = 1.34$ among those who did not see the information). Socio-demographic controls show that male respondents generally had lower self-efficacy than females ($M = 5.4$, $SD = 1.60$ vs. $M = 5.9$, $SD = 1.13$, respectively, $p = .007$) but there was no gender difference in belief in older people's or governmental efficacy. Having better knowledge of the mitigative potential of individual actions was associated with lower self-efficacy. Compared to students, those not in education or training had lower self-efficacy beliefs and lower belief in older people's efficacy, although the sample for this group is small ($n = 27$).

TABLE 3.2 LOGISTIC REGRESSION MODELS PREDICTING HAVING HIGH (5-7) EFFICACY BELIEFS OF ONESELF, OLDER PEOPLE AND THE GOVERNMENT TO COMBAT CLIMATE CHANGE

	Self-efficacy	Older people's efficacy	Government efficacy
Constant	2.72 (0.61)	2.45 (0.61)	5.69 (1.05)
Climate info shown	-0.21 (0.27)	-0.18 (0.27)	-0.56 (0.43)
Knowledge of Behaviour Impact	-0.11* (0.05)	-0.09 (0.06)	-0.16* (0.08)
Number of Own PEBs [b]	0.06 (0.12)	0.04 (0.11)	-0.19 (0.18)
Male **(Ref: Female)**	-0.85** (0.28)	-0.17 (0.28)	-0.53 (0.43)
20–24-year-olds **(Ref: 16–19 year-olds)**	-0.53† (0.32)	-0.37 (0.32)	-1.07† (0.54)
Working status (Ref: in education) **Working**	-0.11 (0.32)	-0.24 (0.32)	-0.13 (0.48)
NEET	-1.31** (0.49)	-1.32** (0.50)	-0.77 (0.84)
Degree mother (Ref: Higher)	-0.05 (0.27)	-0.00 (0.27)	-0.48 (0.43)
Region (Ref: Dublin)			
Rest of Leinster	0.34 (0.43)	0.11 (0.39)	0.10 (0.62)
Munster	0.13 (0.37)	0.19 (0.37)	0.28 (0.58)
Connacht/ Ulster	0.12 (0.40)	0.82 (0.45)	0.23 (0.63)
Urban **(Ref: Rural)**	0.41 (0.31)	0.18 (0.32)	0.01 (0.50)
Participants	495[a]	498	499

Source: Authors' analysis.
Note: †p < .10, *p < .05, **p < .01, ***p < .001. [a] Participants could skip questions and where they did, they are excluded from specific models. Log odds ratios reported with standard errors in brackets. [b] Pro-environmental behaviours.

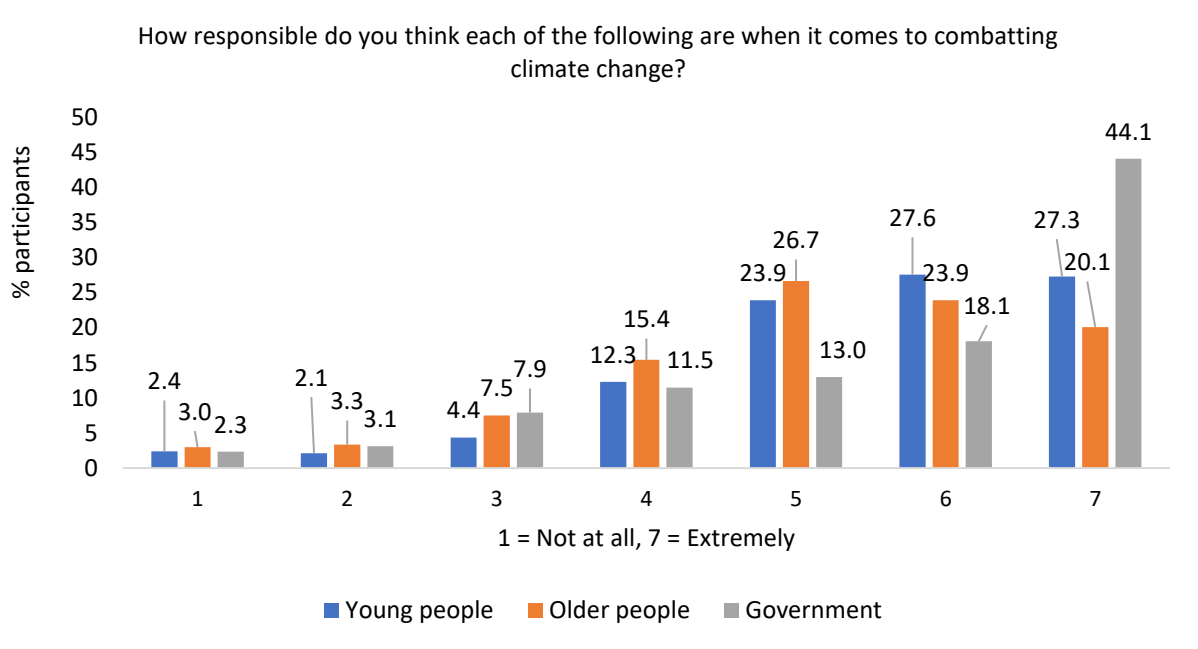
3.3.2 Judgements of responsibility

We also asked to what extent participants felt that young people, older people, and the government were responsible to act on climate change. Between 70 per cent and 80 per cent of participants gave a response above the midpoint on all questions of responsibility for tackling climate change, implying high levels of attribution of responsibility for young people, older people and the government (Figure 3.6). Participants judged the government to hold the highest level of responsibility (*M* = 5.6 out of 7, *SD* = 1.64), followed by young people (*M* = 5.5 out of 7, *SD* = 1.43). Older people were attributed the lowest level (*M* = 5.1 out of 7, *SD* = 1.51). All differences are statistically significant (*p*s < .05).[7] Chi-square tests show that the proportion of participants who gave a '7' for responsibility was

[7] Government vs. young people: Z = 2.41, *p* = .016; government vs. old people: Z = 7.30, p < .001; young vs. old people, Z = 5.05, p < .001.

significantly higher for government (44.1 per cent) than young people (27.3 per cent), $\chi^2 = 28.4$, $p < .001$, and older people (20.1 per cent), $\chi^2 = 62.9$, $p < .001$.

FIGURE 3.6 DISTRIBUTIONS OF RESPONSES TO RESPONSIBILITY ATTRIBUTION



Source: Authors' analysis.

Table 3.3 shows logistic regression models predicting high responsibility judgements. Seeing the mitigative potential of actions did not affect responsibility judgements (Figure 3.7). Compared to females, male participants attributed lower responsibility to younger people (M = 5.6, SD = 1.23 vs. M = 5.3, SD = 1.59, respectively). Responsibility attributions for the government were higher for participants in their 20s compared to those still in their teens (M = 5.68, SD = 1.59 vs. M = 5.49, SD = 1.69) and for the NEET sample compared to those in education (M = 6.36, SD = 1.54 vs. M = 5.57, SD = 1.67).

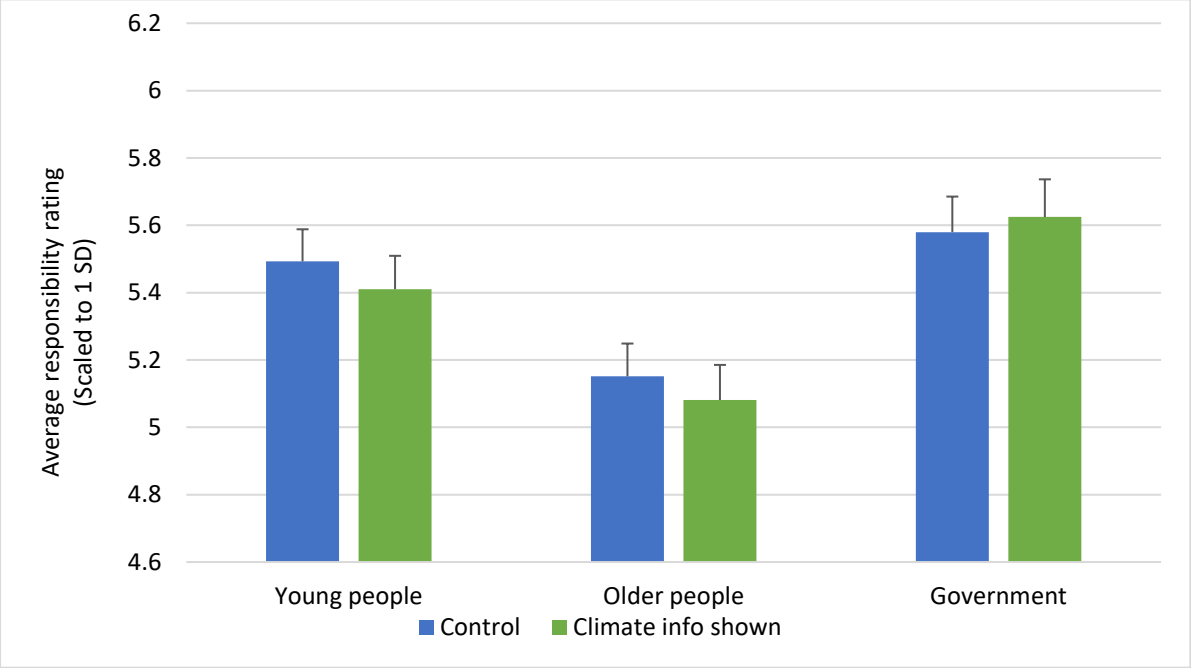
TABLE 3.3 LOGISTIC REGRESSION MODELS PREDICTING HIGH RESPONSIBILITY BELIEFS OF YOUNGER PEOPLE, OLDER PEOPLE (5-7) AND THE GOVERNMENT (7) TO ACT TO COMBAT CLIMATE CHANGE

	Young responsibility	Old responsibility	Government responsibility
Constant	2.00 (0.52)	1.79 (0.46)	-0.56 (0.42)
Climate info shown	-0.22 (0.23)	-0.36† (0.20)	0.29 (0.19)
Knowledge of Behaviour Impact	-0.06 (0.05)	-0.07† (0.04)	-0.02 (0.04)
Number of Own PEBs[a]	-0.03 (0.09)	0.01 (0.09)	0.15† (0.08)
Male (Ref: Female)	-0.63** (0.24)	-0.05 (0.21)	-0.06 (0.20)
20–24 year-olds (Ref: 16–19 year-olds)	-0.10 (0.28)	-0.23 (0.24)	0.54* (0.22)
Working status (Ref: in education)			
Working	-0.19 (0.28)	0.09 (0.24)	-0.42† (0.23)
NEET	-0.47 (0.49)	0.04 (0.46)	1.72** (0.53)
Degree mother (Ref: Higher)	0.09 (0.24)	-0.20 (0.21)	-0.04 (0.19)
Region (Ref: Dublin)			
Rest of Leinster	0.10 (0.35)	-0.24 (0.31)	-0.32 (0.29)
Munster	0.54 (0.34)	-0.39 (0.29)	-0.35 (0.26)
Connacht/ Ulster	-0.03 (0.34)	-0.34 (0.31)	-0.20 (0.28)
Urban (Ref: Rural)	0.16 (0.27)	0.08 (0.23)	-0.13 (0.22)
Participants	500	499	495

Source: Authors' analysis.

Note: †p < .10, *p < .05, **p < .01, ***p < .001. Log odds ratios reported with standard errors in brackets. [a] Pro-environmental behaviours.

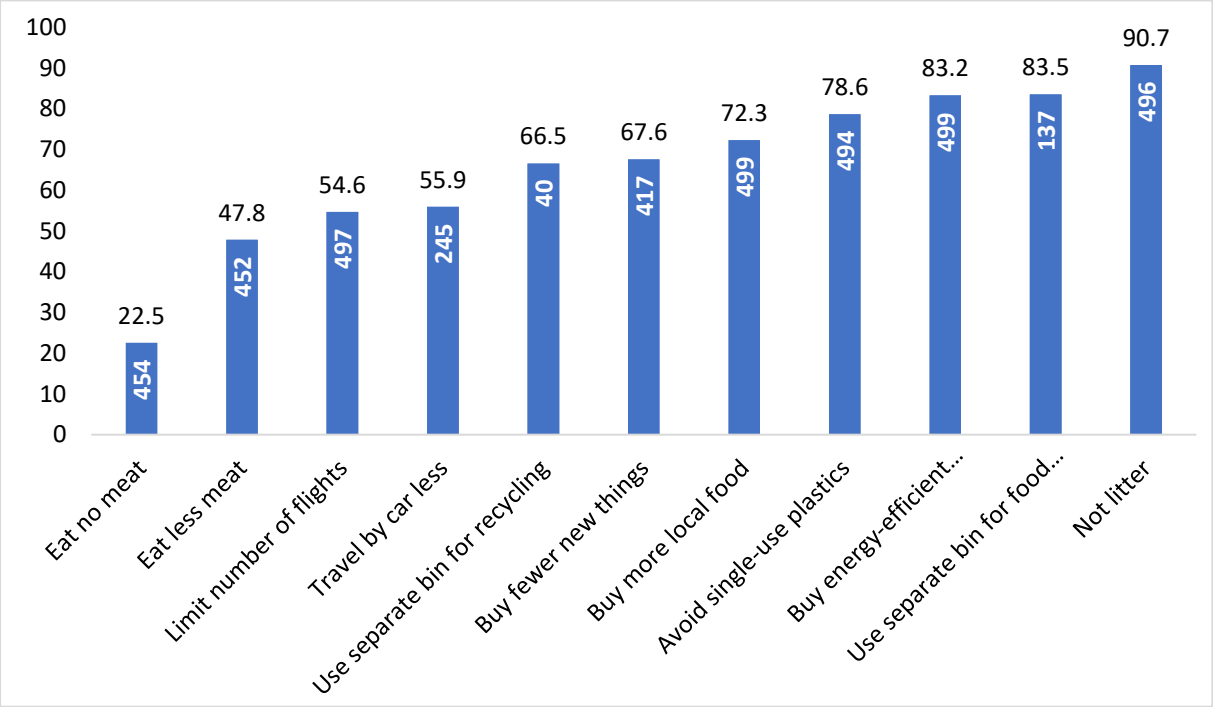
FIGURE 3.7 MEAN RESPONSIBILITY JUDGEMENTS BETWEEN THE CLIMATE INFO AND CONTROL CONDITION FOR YOUNGER PEOPLE, OLDER PEOPLE, AND THE GOVERNMENT



Source: Authors' analysis.

3.3.3 Future intentions

FIGURE 3.8 PERCENTAGES OF PARTICIPANTS BEING HIGHLY LIKELY (GIVING A SCORE OF 5 OR HIGHER) TO ENGAGE IN PRO-ENVIRONMENTAL BEHAVIOURS. NUMBER INSIDE BARS IS (WEIGHTED) NUMBER OF PARTICIPANTS WHO WERE GIVEN THIS QUESTION



Source: Authors' analysis.
Note: The following questions: eat no meat, eat less meat, travel by car less, use separate bin for recycling and compost were only asked to participants not currently engaging in these behaviours.

The majority of young people who were not already doing so reported being highly willing to engage in most pro-environmental behaviours in the near future (Figure 3.8). The majority was small, however, for higher-impact behaviours such as driving less and taking fewer flights, with a minority willing to eat less meat. Less than one-in-four reported high willingness to eat no meat in the near future.

To test for effects of seeing the infographic on willingness to engage in the highest-impact behaviours, we created an index by averaging scores across the three high-impact behaviours (eating no meat, eating less meat and avoiding long-distance flights; Cronbach's $\alpha = .69$). Table 3.4 shows a linear regression model predicting scores on this index and shows no effect of seeing the infographic with emissions benefit of the different climate actions. Socio-demographic controls show that males ($M = 3.69$, $SD = 1.62$) were less willing to engage in high-impact behaviours than females ($M = 4.13$, $SD = 1.44$). There was also an effect of region, with participants from Connacht/Ulster ($M = 3.69$, $SD = 1.48$) being less willing than participants from Dublin ($M = 4.04$, $SD = 1.58$).

TABLE 3.4 LINEAR REGRESSION MODEL PREDICTING HIGH-IMPACT PRO-ENVIRONMENTAL INTENTIONS

	High-Impact Intentions
Constant	4.58***
	(0.23)
Climate info shown	-0.09
	(0.14)
Male (Ref: Female)	-0.46**
	(0.14)
20-24 (Ref: 16-19)	-0.26
	(0.16)
Working status (Ref: in education)	
Working	0.03
	(0.16)
NEET	-0.12
	(0.31)
Degree mother (Ref: Higher)	0.01
	(0.14)
Region (Ref: Dublin)	
Rest of Leinster	-0.18
	(0.31)
Munster	-0.25
	(0.19)
Connacht/ Ulster	-0.46*[a]
	(0.21)
Urban (Ref: Rural)	-0.06
	(0.16)
Participants	500

Source: Authors' analysis.

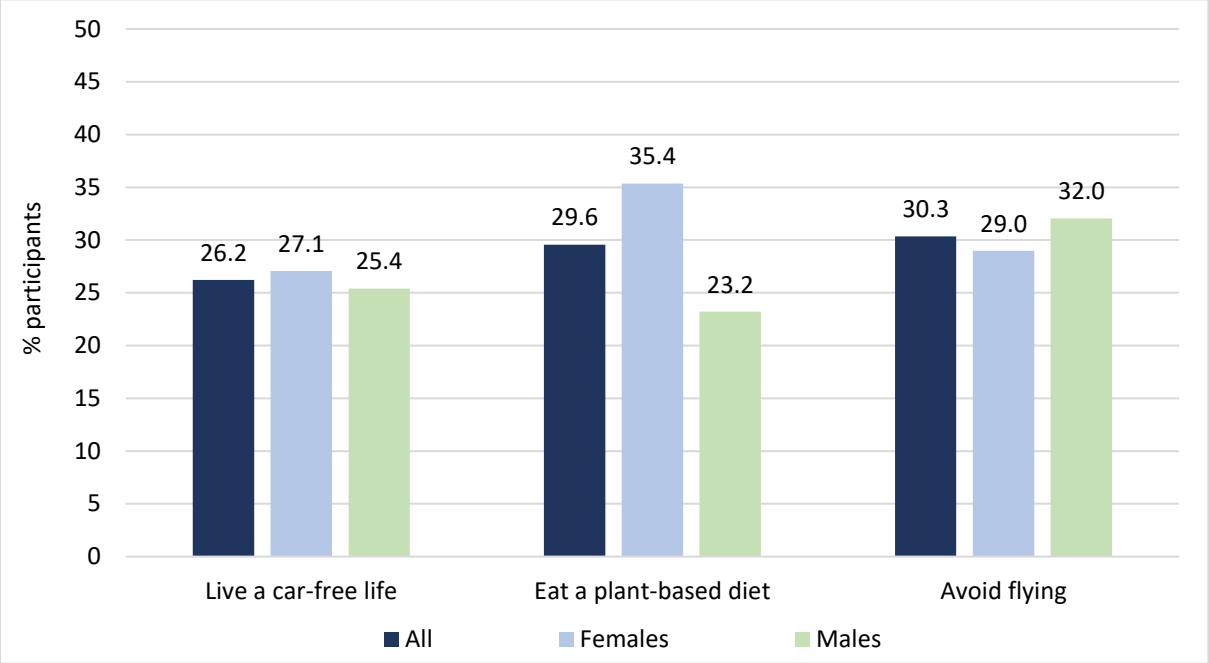
Note: †p < .10, *p < .05, **p < .01, ***p < .001. [a] Coefficient is in the same direction but non-significant in reduced-sample models that remove participants who failed attention checks. Unstandardised beta coefficients reported with standard errors in brackets.

Turning to longer-term behaviours, 30 per cent of participants reported being highly likely to eat a plant-based diet or avoid flying completely in the future. One-in-four (26 per cent) reported being highly likely to live car-free (Figure 3.9), whereas data from Timmons and Lunn (2022) show that just 17 per cent of over-24s do not drive a car, van or motorcycle. The largest gender difference was in ratings of likelihood of eating a plant-based diet in the future, where 35 per cent of the women versus 23 per cent of the men gave high ratings (5-7).[8] Again, logistic regression models[9] predicting high scores for each behaviour showed no benefit of seeing the impact mitigation on any of the three (Table 3.7).

8 The difference remained when only looking at intentions for those who currently are not plant-based with 33 per cent of the women and 22 per cent of the men, $\chi^2 = 5.93$, $p = 0.01$.

9 We use logistic regression because proportional odds assumptions were not met for ordinal regression.

FIGURE 3.9 PERCENTAGES OF PARTICIPANTS WHO GAVE HIGH RATINGS (5,6, OR 7) TO HOW LIKELY THEY WERE TO ENGAGE IN HIGH-IMPACT BEHAVIOURS IN THE FUTURE



Source: Authors' analysis.

TABLE 3.5 LOGISTIC REGRESSION MODELS PREDICTING HIGH SCORES (5-7) FOR THE THREE LONG TERM PRO-ENVIRONMENTAL INTENTIONS

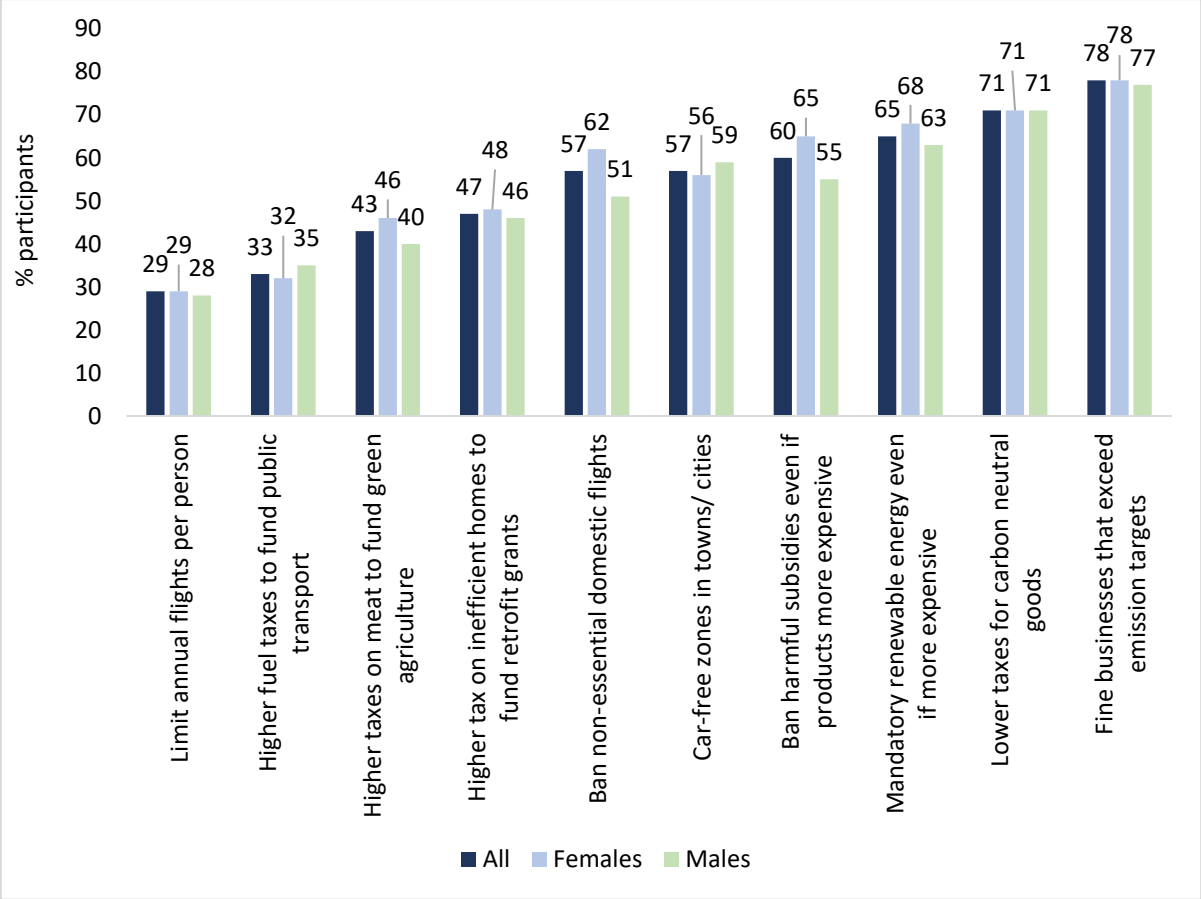
	Car-free life	Plant-based diet	Avoid flying
Constant	-1.20* (-0.36)	-0.59† (-0.34)	-0.70* (-0.34)
Climate info shown	-0.12 (-0.21)	0.34† (-0.2)	-0.11 (-0.2)
Male (Ref: Female	-0.14 (-0.22)	-0.63** (-0.22)	0.15 (-0.21)
20–24 year-olds (Ref: 16–19 year-olds)	-0.21 (-0.25)	0.40† (-0.23)	-0.2 (-0.23)
Working status (Ref: in education)			
Working	0.66** (-0.25)	-0.16 (-0.24)	-0.09 (-0.24)
NEET	1.33** (-0.44)	0.13 (-0.44)	0.69 (-0.42)
Degree mother (Ref: Higher)	0.17 (-0.21)	-0.15 (-0.2)	0.12 (-0.2)
Region (Ref: Dublin)			
Rest of Leinster	-0.38 (-0.31)	-0.61* (-0.31)	-0.07 (-0.3)
Munster	-0.13 (-0.28)	-0.12 (-0.27)	-0.07 (-0.28)
Connacht/ Ulster	-0.69* (-0.33)	-0.27 (-0.3)	-0.19 (-0.3)
Urban (Ref: Rural)	0.31 (-0.24)	-0.11 (-0.23)	-0.02 (-0.22)
Participants	499	497	498

Source: Authors' analysis.
Note: †p < .10, *p < .05, **p < .01, ***p < .001. Log odds ratios reported with standard errors in brackets.

3.4 FUTURE VIEW OF SOCIETY

The majority of young people supported most of the ten suggested climate policies (Figure 3.10). Generally, the majority were in favour of broad policies, such as banning harmful subsidies in production, fining businesses for CO_2 emissions, and making renewable energy sources mandatory even if they are more expensive. The majority in favour was smaller for implementing car-free zones in town and city centres and banning non-essential domestic flights. Relatively fewer participants were in strong favour of policies directly targeting individuals, such as increasing taxes on meat and fuel or limiting the number of flights each person can take annually.

FIGURE 3.10 PERCENTAGES OF PARTICIPANTS WHO WERE IN STRONG SUPPORT OF HAVING DIFFERENT POLICIES IN PLACE IN SOCIETY IN THE FUTURE (GAVE A RATING OF 5,6, OR 7)



Source: Authors' analysis.

Table 3.6 presents logistic regression models predicting high levels of support for each policy. There were few socio-demographic differences. Males were less likely to be in high support of bans on non-essential domestic flights and harmful subsidies than females (Table 3.6).

TABLE 3.6 LOGISTIC REGRESSION MODELS PREDICTING HIGH SCORES (5-7) ON POLICY SUPPORT FOR EACH OF THE TEN POLICIES BY SOCIO DEMOGRAPHIC VARIABLES

	Limit Flights	Tax fuel	Tax meat	Tax homes	Ban flights	Car-free zones	Ban subsidies	Renew energy	Tax goods	Fine business
Constant	-0.09 (-0.32)	-0.49 (-0.31)	0.07 (-0.30)	0.18 (-0.30)	0.67* (-0.30)	0.56† (-0.30)	0.57† (-0.31)	0.59† (-0.31)	0.73* (-0.33)	1.67** (-0.37)
Male (Ref: Female	-0.09 (-0.21)	0.13 (-0.20)	-0.31 (-0.19)	-0.08 (-0.19)	-0.45* (-0.19)	0.09 (-0.19)	-0.40* (-0.20)	-0.19 (-0.20)	-0.07 (-0.21)	-0.06 (-0.23)
20–24 year-olds (Ref: 16–19 year-olds)	-0.36 (-0.23)	-0.14 (-0.23)	-0.08 (-0.22)	-0.07 (-0.21)	-0.04 (-0.22)	-0.10 (-0.21)	-0.19 (-0.22)	-0.28 (-0.23)	-0.29 (-0.24)	-0.36 (-0.27)
Working status (Ref: in education)										
Working	-0.10 (-0.24)	-0.06 (-0.23)	0.04 (-0.22)	-0.11 (-0.22)	-0.07 (-0.22)	-0.27 (-0.22)	-0.28 (-0.22)	-0.14 (-0.23)	-0.22 (-0.24)	-0.34 (-0.26)
NEET	-0.00 (-0.46)	0.02 (-0.46)	0.85* (-0.43)	-0.11 (-0.43)	0.37 (-0.44)	-0.09 (-0.42)	0.39 (-0.46)	0.07 (-0.45)	-0.45 (-0.44)	-0.22 (-0.50)
Degree mother (Ref: Higher)	-0.24 (-0.20)	-0.08 (-0.20)	-0.04 (-0.19)	-0.13 (-0.18)	0.26 (-0.19)	-0.04 (-0.19)	-0.00 (-0.19)	-0.25 (-0.20)	0.31 (-0.20)	-0.25 (-0.23)
Region (Ref: Dublin)										
Rest of Leinster	-0.39 (-0.3)	-0.14 (-0.28)	-0.44 (-0.28)	-0.15 (-0.27)	-0.21 (-0.28)	-0.22 (-0.28)	-0.05 (-0.29)	0.36 (-0.29)	-0.14 (-0.3)	-0.01 (-0.34)
Munster	-0.58*[a] (-0.28)	-0.47† (-0.27)	-0.49† (-0.26)	-0.12 (-0.25)	-0.17 (-0.26)	-0.41 (-0.26)	0.16 (-0.27)	0.39 (-0.27)	0.27 (-0.28)	0.01 (-0.31)
Connacht/ Ulster	-0.44 (-0.30)	-0.42 (-0.29)	-0.36 (-0.28)	-0.46† (-0.27)	-0.25 (-0.28)	-0.17 (-0.28)	-0.24 (-0.28)	0.42 (-0.29)	0.30 (-0.31)	-0.12 (-0.33)
Urban (Ref: Rural)	-0.13 (-0.23)	0.21 (-0.22)	0.18 (-0.21)	0.12 (-0.21)	-0.20 (-0.21)	0.17 (-0.21)	0.48*[a] (-0.21)	0.41† (-0.22)	0.39† (-0.23)	0.30 (-0.25)
Participants	496	499	498	499	499	498	497	499	499	496

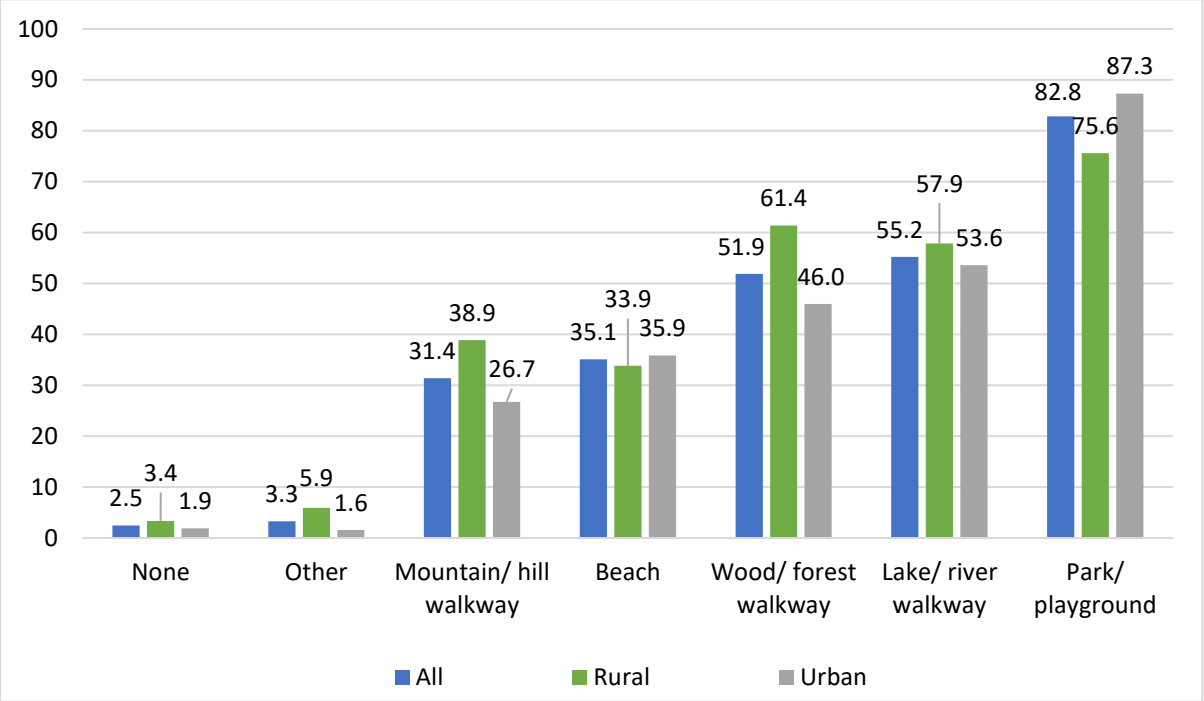
Source: Authors' analysis.

Note: †p < .10, *p < .05, **p < .01, ***p < .001. [a] Coefficient is in the same direction but non-significant in reduced-sample models that remove participants who failed attention checks. Log odds ratios reported with standard errors in brackets.

3.5 LOCAL ENVIRONMENT

Almost all participants (97 per cent) could think of at least one local outdoor amenity. It was most common (26 per cent) to have access to two outdoor amenities, and the most common amenity was a park or playground (Figure 3.11). Unsurprisingly, there was variation in the type of amenities available between rural and urban participants. Chi-square tests show that a larger proportion of participants from an urban environment had access to a park or playground, $\chi^2 = 6.40$, $p = .01$, whereas a larger proportion of rural youth had access to a mountain or hill walkway, $\chi^2 = 13.15$, $p < .001$, and wood or forest walkway, $\chi^2 = 19.83$, $p < .001$.

FIGURE 3.11 PERCENTAGES OF PARTICIPANTS WHO HAD DIFFERENT LOCAL OUTDOOR AMENITIES

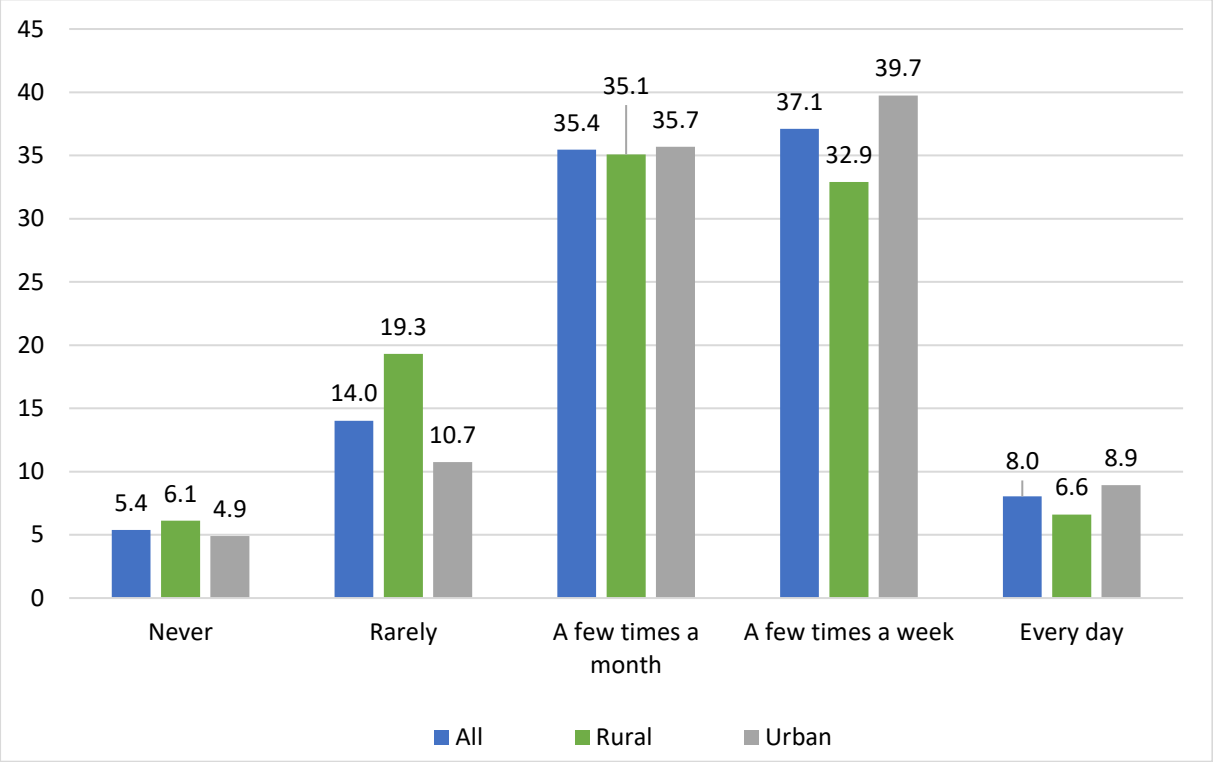


Source: Authors' analysis.

Almost half (45 per cent) of participants said they spend time in their local outdoor amenities a few times a week or more, although 19 per cent reported that they never or rarely spend time in them (Figure 3.12). Table 3.7 presents an ordinal logistic regression model predicting time spent in local outdoor amenities from available socio-demographic variables, as well as their knowledge about climate mitigation and their day-to-day pro-environmental behaviour (measured by how many of the six[10] behaviours assessed at the start of the survey they reported engaging in). The model shows that respondents who engaged in more pro-environmental behaviours spend more time in their local outdoor amenities.

[10] Related to diet, food waste, transport, consumption, volunteering and activism.

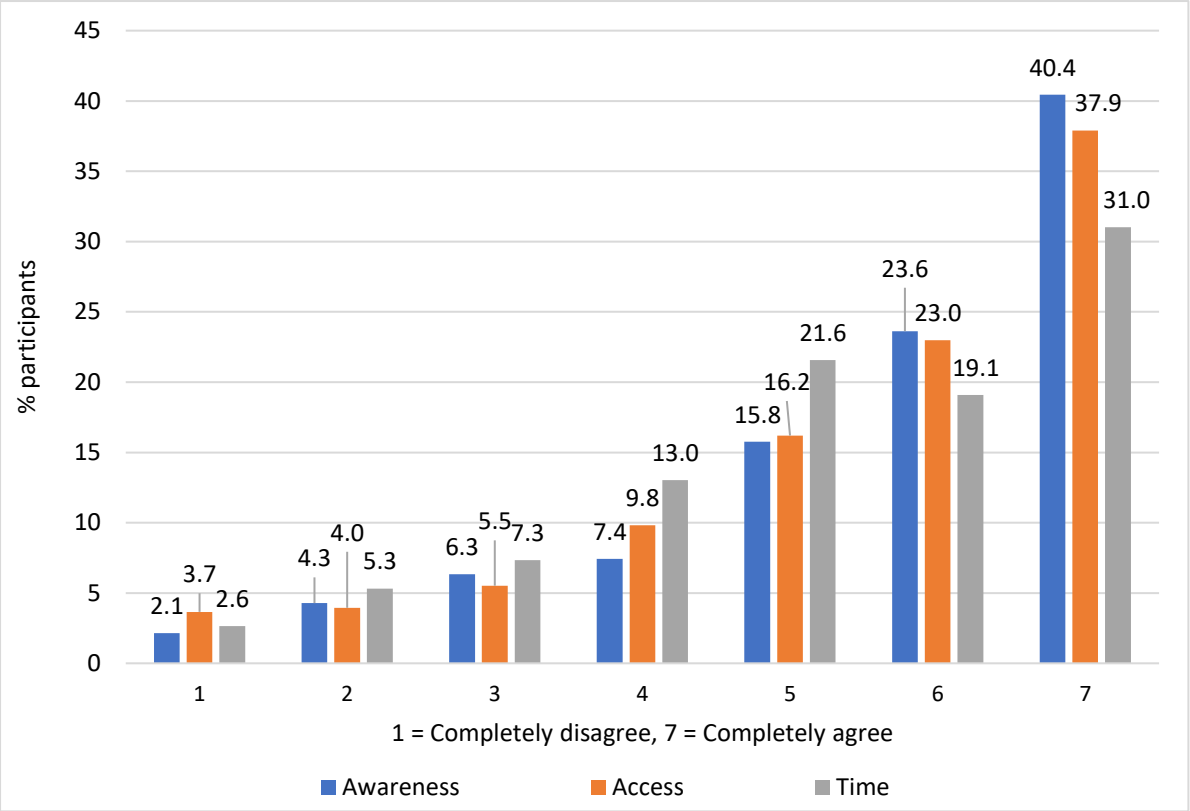
FIGURE 3.12 DISTRIBUTION OF RESPONSES TO HOW OFTEN THEY SPEND TIME IN THEIR LOCAL OUTDOOR AMENITIES



Source: Authors' analysis.

Figure 3.13 shows responses to questions about potential barriers to engaging with local amenities: awareness of them, ease of access to them, and time. The distributions suggest that most young people do not face any of these barriers, with over 70 per cent giving a response above the midpoint to each question. Ordinal logistic regression models in Table 3.7 show few socio-demographic predictors, although participants aged 20 or older reported having less time (M = 5.47, SD = 1.61 vs. M = 5.13, SD = 1.65 for 16- to 19-year-olds). An exploratory model predicting time spent in local amenities from responses on these barriers showed that having more time available was significantly associated (β = 0.21, SE = 0.07, p = .003) but awareness and access were not (β_{aw} = 0.07, SE = 0.09, p = .436; β_{ac} = 0.10, SE = 0.08, p = .221).

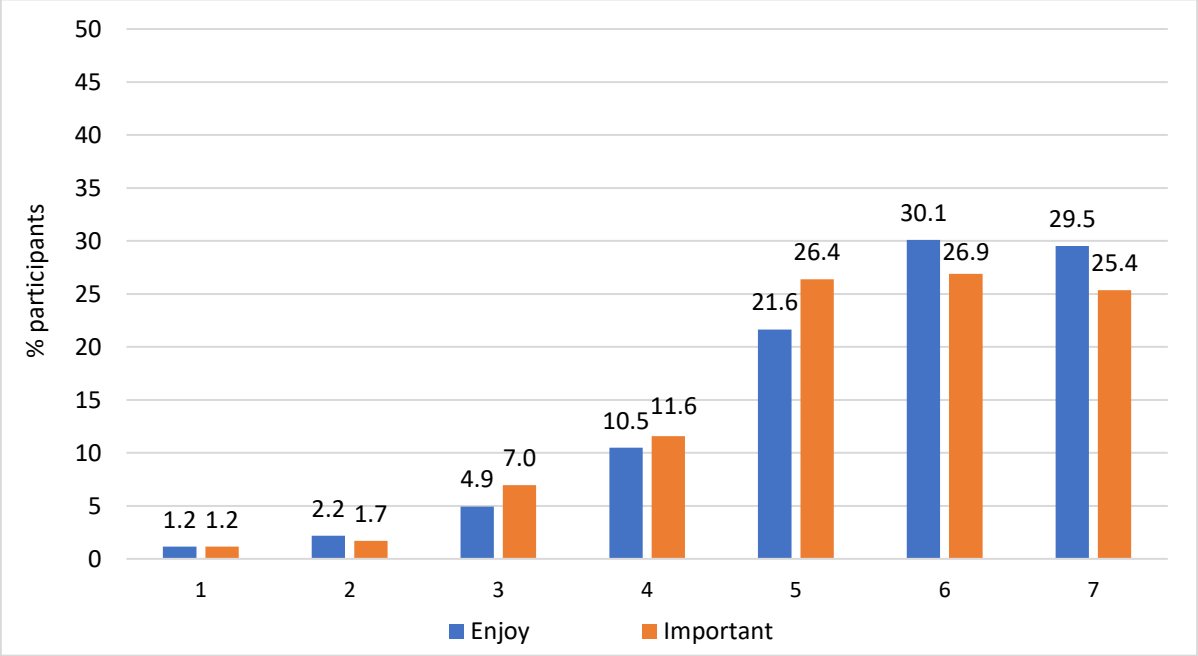
FIGURE 3.13 DISTRIBUTION OF RESPONSES TO POTENTIAL BARRIERS TO ENGAGING WITH LOCAL AMENITIES: WHETHER THEY COULD EASILY THINK OF SUCH AMENITIES, HAD ACCESS TO THEM, AND HAD TIME TO SPEND THERE. (1 = COMPLETELY DISAGREE, 7 = COMPLETELY AGREE)



Source: Authors' analysis.

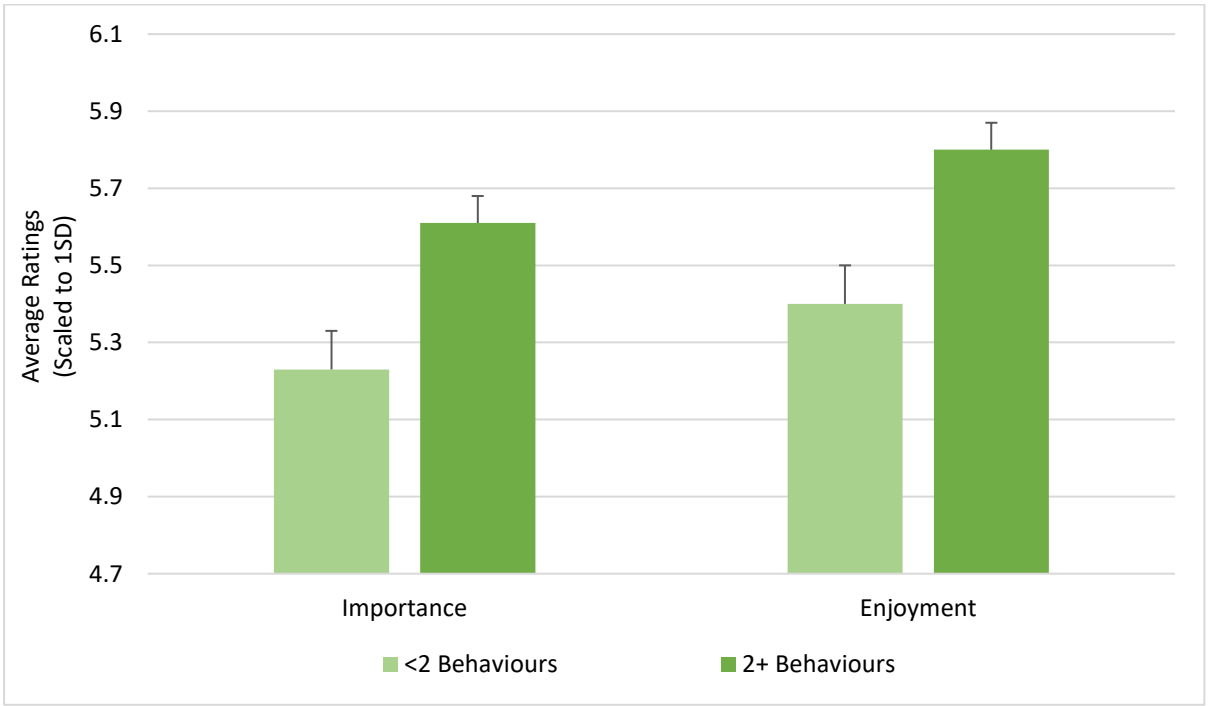
Motivation to visit outdoor amenities was also high. The majority (78 per cent) gave high ratings (5-7) to how important visiting outdoor amenities was to them, and 81 per cent gave high ratings to how much they enjoyed spending time in such places (Figure 3.14). Again, ordinal logistic regression models showed that engaging in more pro-environmental behaviours was positively associated with responses (Table 3.7). Figure 3.15 illustrates the size of the difference, comparing those who engage in at least two of the measured pro-environmental behaviours against those who engage in less than two.

FIGURE 3.14 DISTRIBUTION OF RESPONSES TO RATING SCALE QUESTION ABOUT HOW IMPORTANT AND ENJOYABLE THEIR LOCAL ENVIRONMENT IS TO THEM



Source: Authors' analysis.

FIGURE 3.15 DIFFERENCES IN AVERAGE IMPORTANCE AND ENJOYMENT OF LOCAL ENVIRONMENT BETWEEN THOSE ENGAGING IN LESS OR MORE PRO-ENVIRONMENTAL BEHAVIOURS



Source: Authors' analysis.

Overall, almost two-thirds (63 per cent) of participants reported high levels (a 5 or above) of satisfaction with their local amenities, while 21 per cent gave a

satisfaction score below the midpoint of the scale (Figure 3.16). Table 3.7 shows that there were no socio-demographic predictors of satisfaction, although the correlation matrix reported in the Appendix shows that satisfaction was also positively associated with the number of amenities the participants could think of, ease of access to them, how much time they had to spend in them and how often they visited them (Table A.5).

TABLE 3.7 ORDINAL REGRESSION MODELS PREDICTING LOCAL AMENITY ENGAGEMENT AND PERCEPTIONS

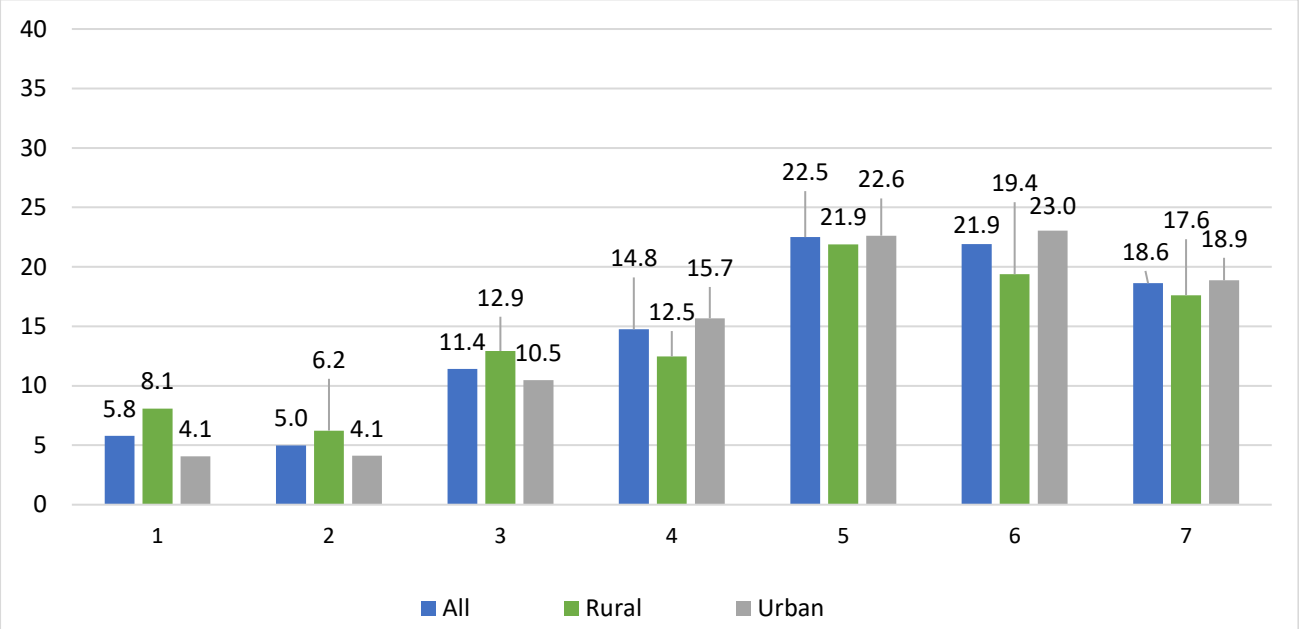
	Engagement	Barriers			Perceptions		
	Time Spent	Awareness	Access	Time Available	Importance	Enjoyment	Satisfaction
Knowledge of Behaviour Impact	-0.01 (0.03)	0.04 (0.03)	0.00 (0.03)	-0.06 (0.03)	0.02 (0.03)	-0.00 (0.03)	-0.01 (0.03)
Number of Own PEBs[a]	0.30*** (0.08)	0.08 (0.07)	0.20** (0.07)	0.09 (0.07)	0.25** (0.07)	0.28*** (0.07)	0.13† (0.07)
Male (Ref: Female)	0.08 (0.18)	0.06 (0.18)	0.26 (0.17)	0.31† (0.17)	-0.25 (0.17)	-0.33† (0.17)	0.26 (0.17)
20-24 years (Ref: 16-19 years)	0.03 (0.19)	-0.22 (0.19)	-0.07 (0.19)	-0.53** (0.19)	0.01 (0.19)	-0.25 (0.19)	-0.14 (0.18)
Working Status (Ref: In Education)							
Working	0.35† (0.20)	-0.08 (0.20)	0.04 (0.19)	0.33† (0.19)	-0.01 (0.19)	0.06 (0.19)	0.11 (0.19)
NEET	-0.11 (0.38)	-0.29 (0.37)	-0.22 (0.38)	0.23 (0.37)	0.25 (0.35)	0.08 (0.36)	-0.22 (0.36)
Maternal Education – Lower than Degree (Ref: Degree or above)	-0.19 (0.18)	-0.11 (0.17)	-0.13 (0.16)	-0.05 (0.16)	0.07 (0.16)	-0.01 (0.16)	-0.08 (0.16)
Region (Ref: Dublin)							
Leinster	0.13 (0.26)	-0.16 (0.25)	0.02 (0.24)	0.15 (0.24)	-0.08 (0.25)	0.11 (0.25)	0.09 (0.24)
Munster	-0.26 (0.23)	0.10 (0.23)	0.04 (0.22)	0.02 (0.23)	0.02 (0.23)	0.27 (0.23)	0.17 (0.22)
Connacht-Ulster	-0.45† (0.25)	-0.21 (0.24)	0.11 (0.24)	-0.29 (0.24)	0.08 (0.24)	0.22 (0.24)	-0.07 (0.25)
Urban (Ref: Rural)	0.13 (0.19)	0.09 (0.18)	0.21 (0.18)	0.27 (0.18)	0.28 (0.18)	0.10 (0.18)	0.27 (0.18)
N	500	498	498	497	498	498	494

Source: Authors' analysis.

Note: †p < .10, *p < .05, **p < .01, ***p < .001. Log odds ratios reported with standard errors in brackets.

[a] Pro-environmental behaviours.

FIGURE 3.16 DISTRIBUTION OF RESPONSES TO HOW SATISFIED PARTICIPANTS WERE WITH THEIR LOCAL OUTDOOR AMENITIES



Source: Authors' analysis.

We also examined the relationship between frequency of engagement with local outdoor amenities and future intentions and support for climate policy, controlling for socio-demographic predictors, knowledge and current behaviour (Table 3.8). Spending more time in the local amenities was significantly associated with higher willingness to engage in future high-impact pro-environmental behaviours in the immediate future and in the long term, but not with support for pro-climate policies.

TABLE 3.8 OLS REGRESSION MODELS PREDICTING INTENTIONS AND POLICY SUPPORT FROM LOCAL AMENITY ENGAGEMENT

	Short-Term Intentions	Long-Term Intentions	Support for Policy
Constant	3.25 (0.36)	1.83 (0.37)	3.89 (0.31)
Local Amenity Engagement	0.21** (0.07)	0.22**a (0.07)	0.06 (0.06)
Knowledge of Behaviour Impact	-0.04 (0.03)	-0.02 (0.03)	0.01 (0.02)
Number of Own PEBs [b]	0.23*** (0.06)	0.37*** (0.06)	0.19*** (0.05)
Socio-Demographic Controls	Yes	Yes	Yes
Participants	500	499	499

Source: Authors' analysis.
Note: †p < .10, *p < .05, **p < .01, ***p < .001. [a] Coefficient is in the same direction but non-significant in reduced-sample models that remove participants who failed attention checks. Unstandardised Beta coefficients reported with standard errors in brackets. [b] Pro-environmental behaviours.

CHAPTER 4

Discussion

This report provides the first overview of climate change perceptions and attitudes among a representative sample of young people in Ireland.[11] In this chapter, we highlight the level of concern and support for change young people report, their current behaviour and knowledge, experiences and perceptions of local outdoor amenities and differences (or lack thereof) between different socio-demographic groups.

4.1 HIGH LEVELS OF CONCERN AND SUPPORT FOR CHANGE

The results show that youth in Ireland are highly concerned about the environment and that they believe it is extremely important to protect it. They also feel capable to help mitigate the effects of climate change and view themselves as having high responsibility to do so. The majority report strong intentions to engage in most pro-environmental behaviours in the future, with half stating that they are likely to engage in high-effort, high-impact behaviours, such as reducing their meat consumption and the number of flights they take. In the long term, about one-in-three indicate a high likelihood of them eating a fully plant-based diet, avoiding flying and living car-free. In general, these figures are much higher than the proportion of those aged over 25 that currently engage in these behaviours, although there is of course no guarantee that the expectations and intentions of the present cohort of young will be matched by their subsequent behaviour.

The results also show that young people view the government as being the most capable agent (compared to themselves and older people) to act on climate change, as well as having the most responsibility to do so. They report high levels of support for potential future climate policies, particularly for those that target businesses and industry, as observed previously in studies elsewhere (Swim and Geiger, 2021). The majority (three-in-five) report high levels of support for policies often described as controversial, such as implementing car-free zones in towns and city centres.

Although we find strong pro-environmental attitudes and policy support, it is not evident how young people's attitudes to the environment compare to their attitudes towards other policy issues. For example, future research could assess the relative support young people give to different causes (e.g. housing, cost of living, public health) and how young people prioritise climate change policies

[11] Other recent surveys have relied on convenience snowball sampling, for example through social media posts (e.g. YSI, 2022).

compared to these other socially relevant areas. Further, it is important to bear in mind that some of the policies we presented to participants may be more relevant for young people now than others. For example, the level of support for taxes on energy inefficient homes (47 per cent in favour) may be influenced in part by low homeownership rates among young people. That said, support was similar for taxation measures that would likely affect greater proportions of young people (e.g. 43 per cent were in favour of taxes on meat).

4.2 CURRENT BEHAVIOUR AND KNOWLEDGE

Despite high levels of climate concern, intentions and support for policy, just a minority of young people report currently engaging in most of the pro-environmental behaviours we recorded. This gap between intention and current action is especially salient when considering the low proportion (6 per cent) who report not eating meat or other animal products, despite eating a plant-based diet being one of the most impactful actions a person can take to reduce their own carbon footprint (as estimated by Wynes and Nicholas, 2017; Wynes et al., 2020). One potential explanation for this discrepancy is that some high-impact behaviours are outside the control of young people. For example, over 90 per cent of 16- to 24-year-olds live with their parents (EU-SILC Survey, 2022) and hence they may have less control over the content of their meals than they have over other, lower-impact behaviours.

Another potential explanation for the disconnect between attitudes and behaviour is a lack of knowledge about which individual actions are most effective. Knowledge of the relative emissions benefit of different pro-environmental behaviours, as evidenced by our multiple-choice question, is poor. The average percentage of correct estimates is marginally lower than what would be expected by chance, implying that young people generally lack knowledge about what behaviours matter to mitigate climate change. The source of the error primarily comes from a bias towards overestimating the impact of low-impact behaviours, such as recycling and not littering. Previous research conducted among a nationally representative sample of adults shows this pattern is not unique to young people (Timmons and Lunn, 2022).

The link between knowledge and behaviour is supported by some correlational evidence. The minority who correctly estimate that eating a plant-based diet has a high impact are more likely to report not eating meat themselves. The international literature shows some evidence that providing information on the environmental impact of meat motivates reductions in consumption (Grundy et al., 2021). However, we found no evidence that an infographic showing the emissions benefit of different actions influences willingness to engage in pro-environmental behaviours, either in the near or long-term future.

One possibility is that such short information interventions, as done in the current study, have no effect on behaviour. Previous research in a nationally representative sample showed that a more detailed information intervention – a 10-minute quiz about climate change – can motivate pro-environmental behaviour (with significant but small effects; Timmons and Lunn, 2022). Hence there may be a relationship between the depth of information intervention and strength of effect on behaviour. It is also possible that more comprehensive educational attempts can successfully increase climate change awareness and environmental attitudes, such as school curriculums fostering science enjoyment (Oliver and Adkins, 2020), or through sustainable designs of schools (Izadpanahi et al., 2017). However, it is likely that short information interventions alone as done in the present study will be insufficient to motivate high-impact behaviour change, even among those who report high levels of concern about the environment.

4.3 IMPORTANCE OF THE LOCAL ENVIRONMENT

Most young people (over 80 per cent) visit local outdoor amenities at least a few times a month, and they report that they find it important to do so, enjoy spending time there and are satisfied with their amenities. However, this leaves one-in-five who rarely or never spend time in their local environment. The primary barrier is the time they have available, rather than awareness or access to local amenities, particularly for 20- to 24-year-olds.

Spending time in local outdoor amenities is one of the most consistent predictors we observe of pro-climate intentions. The association could simply indicate that those who spend time in outdoor areas do so because of their pro-environmental attitudes. However, the relationship between time spent in local amenities and future intentions remains even when controlling for other pro-environmental behaviours the young person currently engages in. Moreover, there is some literature showing a causal relationship between time spent in nature and future behaviour (DeVille et al., 2021; Holland et al., 2018). Hence, targeted interventions that expose youth to nature and increase their connection to it is a potential initiative to help young people move beyond intentions to behaviour change. These interventions could also incorporate educational elements as a way to increase climate knowledge about effective actions they can take (Boyd and Scott, 2022; Dabaja, 2022; Turtle et al., 2015). Considering the multiple benefits of spending time in nature (Alcock et al., 2014; Carlin et al., 2016; McCurdy et al., 2010), identifying ways to promote engagement among the minority who rarely visit local amenities is reasonable. Of course, any such interventions would benefit from controlled experimental testing to establish causal relationships.

4.4 SOCIO-DEMOGRAPHIC DIFFERENCES

Across the different climate-related behavioural and attitudinal measures covered in this report, we find few differences between socio-demographic groups. These (non-) findings are interesting considering the general framing of climate change as being of greater concern to the educated urban middle class, a narrative not supported by this report. For example, we find that support for green taxation policies – a topic that is perceived to be particularly polarised between groups – do not differ as a function of SES, education, or living area.[12]

An exception where we do observe differences in environmental attitudes and behaviour is for gender, a finding consistent with other literature (Desrochers et al., 2019; Gifford and Nilsson, 2014; Horgan et al., 2019; Mertens et al., 2021; Zelezny et al., 2000). Males report being less likely to use public transport, purchase clothes second-hand, or be vegetarian or vegan. They also report lower beliefs in climate self-efficacy and view young people to hold less responsibility to act on climate change.

One of the largest gender differences is observed for active travel, where 32 per cent of males cycle or walk as their main mode of transportation compared to just 18 per cent of females. This difference is consistent with data from other sources, including the 2019 Irish Sports Monitor (ISM, 2019), the CSO (Census, (https://data.cso.ie/table/E6016) and *Growing Up in Ireland* (the 20-year-old cohort GUI, see Appendix; see also Carboni et al., 2021). Despite strong pro-environmental attitudes among young women, differing social norms related to cycling for women and men may present a barrier to active travel (Egan and Hackett, 2022).

The data also show regional differences in transport modes.[13] Compared to those living in urban areas, rural youth are less likely to use public transport or active travel instead of driving. Specifically, those living in regions outside of Dublin are less likely to use public transport and those living in Leinster (outside of Dublin) and Munster are less likely to cycle or walk. Environmental attitudes and intentions, however, did not differ between urban and rural youth or between youth in different areas. Hence, the differences observed in transport modes between regions are likely attributable to variation in public transport availability and cycling infrastructure rather than environmental motivation.

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12 While absence of evidence does not constitute evidence of absence, the lack of significant differences imply that any differences that might exist are too small to be statistically detected even in a relatively large sample.

13 The findings also suggest a shift in transport mode when young people leave education and enter the workforce: compared to those in education, workers are less likely to use active travel instead of driving.

As mentioned, we found few differences in behaviours and attitudes depending on socio-economic status. The only behaviour predicted by socio-economic status was likelihood of engaging in active travel, where youth from higher socio-economic backgrounds were more likely to engage in active travel. Other pro-environmental behaviours, efficacy beliefs, future short and long-term intentions as well as policy support did not differ as a function of socio-economic status among young people.

The fact that few young people in our sample currently engage in active travel, while being motivated to do so and showing support of such policy initiatives, highlights a gap in intention and behaviour. It is not immediately evident whether this discrepancy is primarily due to individual or contextual factors. However, that regional differences we see in active travel engagement are not paralleled with differences in stated willingness to undertake active travel provides some indication that this is a problem of infrastructure and opportunity rather than attitude. A prioritisation of pedestrianisation and cycling lanes could be a useful step to promote a culture that depends less on cars for transportation in lieu of active travel alternatives, in order to provide youth with different backgrounds opportunities to make use of these. Reviewing current biking and walking opportunities to and from schools and colleges across the country could be useful to identify areas where extra effort is needed.

4.5 CONCLUSION

Overall, young people in Ireland are concerned about climate change and are highly motivated to take action to mitigate its effects. These attitudes differ little across socio-demographic groups, lending no support to the view of climate change as an issue reserved for the urban middle-class. Youth engagement in pro-environmental behaviour does not appear to be primarily driven by knowledge that their actions will have an impact, but rather from having the opportunities necessary to act.

Further, young people attribute a high degree of responsibility to the government to act on climate change, and show strong support for large-scale climate policies, such as introducing carbon emission limits for businesses, having Ireland shift to renewable energy, and higher taxes for non-carbon-neutral goods. Rather than focusing on how to strengthen youth climate attitudes and promote individual behaviour, perhaps more critical is to create opportunities for youth to act on their current motivations. This could involve informing youth on already existing climate initiatives as well as about how to engage politically. Moreover, if the aim is to transition towards carbon-neutrality, society at large would benefit from efforts to safeguard and foster young people's engagement with climate issues. For example, policymakers could continuously engage with young communities to incorporate their views in the decisions that will affect more of their lives and, from the

opinions elicited in this study, could lead to more progressive policy enactment. This would allow young people to see that their concerns are being heard and that their efforts are important, which may to help maintain their pro-environmental motivations as they gain greater autonomy over climate-relevant behaviours (e.g. transport choices, home energy use).

Finally, this report highlights the usefulness of providing opportunities for youth to engage with their local nature. This is particularly important considering the benefits nature engagement has on health and wellbeing as well as its relation to environmental behaviour. Prioritising pedestrianisation and cycling infrastructure could be a useful measure to provide youth with an organic way to spend more time outdoors, which also offers them sustainable transportation alternatives. Targeted interventions exposing young people to nature, tested via randomised controlled trials, could be a promising way to increase nature appreciation, environmental knowledge and promote sustainable behaviour.

REFERENCES

Alcock, I., M.P. White, B.W. Wheeler, L.E. Fleming and M.H. Depledge (2014). 'Longitudinal Effects on Mental Health of Moving to Greener and Less Green Urban Areas', *Environmental Science & Technology*, *48*(2), 1247-1255. https://doi.org/10.1021/es403688w.

Anderson, D.J. and T. Krettenauer (2021). 'Connectedness to Nature and Pro-Environmental Behaviour from Early Adolescence to Adulthood: A Comparison of Urban and Rural Canada', *Sustainability*, *13*(7), Article 7. https://doi.org/10.3390/su13073655.

Anwyl-Irvine, A.L., J. Massonnié, A. Flitton, N. Kirkham and J.K. Evershed (2020). 'Gorilla in our midst: An online behavioral experiment builder', *Behavior research methods*, *52*(1), 388-407.

Arıkan, G. and D. Günay (2021). 'Public attitudes towards climate change: A cross-country analysis', *British Journal of Politics & International Relations*, *23*(1), 158-174. https://doi.org/10.1177/1369148120951013.

Barragan-Jason, G., C. de Mazancourt, C. Parmesan, M.C. Singer and M. Loreau (2022). 'Human-nature connectedness as a pathway to sustainability: A global meta-analysis', *Conservation Letters*, *15*(1), 1-7. https://doi.org/10.1111/conl.12852.

Boyd, M. and G.W. Scott (2022). 'An expert-led outdoor activity can have a lasting impact on the environmental knowledge of participating pupils and adults', *Education 3-13*, *50*(5), 696-706. https://doi.org/10.1080/03004279.2021.1899261.

Carboni, A., M. Costa, S. Kalakou and M. Pirra (2021). 'Gender, Smart Mobility and COVID-19', in *International Conference on Human-Computer Interaction* (pp. 469-486). Springer, Cham.

Carlin, C., M. Cormican and M. Gormally (2016). 'Health Benefits from Biodiversity and Green Infastructure', *Environmental Protection Agency, Johnstown Castle, Ireland*.

Castiglione, A., C. Brick, S. Holden, E. Miles-Urdan and A.R. Aron (2022). 'Discovering the psychological building blocks underlying climate action—A longitudinal study of real-world activism', *Royal Society Open Science*, *9*(6), 210006. https://doi.org/10.1098/rsos.210006.

Cologna, V., A. Berthold and M. Siegrist (2022). 'Knowledge, perceived potential and trust as determinants of low- and high-impact pro-environmental behaviours', *Journal of Environmental Psychology*, *79*, 101741. https://doi.org/10.1016/j.jenvp.2021.101741.

Corner, A., O. Roberts, S. Chiari, S. Völler, E.S. Mayrhuber, S. Mandl and K. Monson (2015). 'How do young people engage with climate change? The role of knowledge, values, message framing, and trusted communicators', *Wiley Interdisciplinary Reviews: Climate Change*, *6*(5), 523-534.

Crawley, S., H. Coffé and R. Chapman (2020). 'Public opinion on climate change: Belief and concern, issue salience and support for government action', *British Journal of Politics & International Relations*, *22*(1), 102-121. https://doi.org/10.1177/1369148119888827.

Dabaja, Z.F. (2022). 'The Forest School impact on children: Reviewing two decades of research', *Education 3-13*, *50*(5), 640-653. https://doi.org/10.1080/03004279.2021.1889013.

Desrochers, J.E., G. Albert, T.L. Milfont, B. Kelly and S. Arnocky (2019). 'Does personality mediate the relationship between sex and environmentalism?', *Personality and Individual Differences*, *147*, 204-213. https://doi.org/10.1016/j.paid.2019.04.026.

DeVille, N.V., L.P. Tomasso, O.P. Stoddard, G.E. Wilt, T.H. Horton, K.L. Wolf, E. Brymer, P.H. Kahn and P. James (2021). 'Time Spent in Nature Is Associated with Increased Pro-Environmental

Attitudes and Behaviors', *International Journal of Environmental Research and Public Health*, *18*(14), Article 14. https://doi.org/10.3390/ijerph18147498.

Egan, R. and J. Hackett (2022). 'The Social Practice and Regulation of Cycling as "A Boy's Thing" in Irish Secondary Schools', *Active Travel Studies*, *2*(1).

Gifford, R. and A. Nilsson (2014). 'Personal and social factors that influence pro-environmental concern and behaviour: A review', *International Journal of Psychology*, *49*(3), 141-157. https://doi.org/10.1002/ijop.12034.

Gkargkavouzi, A., G. Halkos and S. Matsiori (2019). 'A Multi-dimensional Measure of Environmental Behavior: Exploring the Predictive Power of Connectedness to Nature, Ecological Worldview and Environmental Concern', *Social Indicators Research*, *143*(2), 859-879. http://dx.doi.org/10.1007/s11205-018-1999-8.

Grundy, E.A., P. Slattery, A.K. Saeri, K. Watkins, T. Houlden, N. Farr, ... and M. Zorker (2021). 'Interventions that influence animal-product consumption: A meta-review', *Future Foods*, 100111.

Guzman, V., M. Garrido-Cumbrera, O. Braçe, D. Hewlett and R. Foley (2022). *Health and Wellbeing under COVID-19: The GreenCOVID Survey*. *53*(2), 7.

Hamann, K.R.S. and G. Reese (2020). 'My Influence on the World (of Others): Goal Efficacy Beliefs and Efficacy Affect Predict Private, Public, and Activist Pro-environmental Behavior', *Journal of Social Issues*, *76*(1), 35-53. https://doi.org/10.1111/josi.12369.

Hanss, D. and G. Böhm (2010). 'Can I make a difference? The role of general and domain-specific self-efficacy in sustainable consumption decisions', *Umweltpsychologie*, *14*, 46-74.

Hartig, T., F.G. Kaiser and E. Strumse (2007). 'Psychological restoration in nature as a source of motivation for ecological behaviour', *Environmental Conservation*, *34*(4), 291-299. https://doi.org/10.1017/S0376892907004250.

Hinds, J. and P. Sparks (2008). 'Engaging with the natural environment: The role of affective connection and identity', *Journal of Environmental Psychology*, *28*(2), 109-120. https://doi.org/10.1016/j.jenvp.2007.11.001.

Holland, W.H., R.B. Powell, J.M. Thomsen and C.A. Monz (2018). 'A Systematic Review of the Psychological, Social, and Educational Outcomes Associated With Participation in Wildland Recreational Activities', *Journal of Outdoor Recreation, Education, and Leadership*, *10*(3), 197-225. https://doi.org/10.18666/JOREL-2018-V10-I3-8382.

Horgan, G.W., A. Scalco, T. Craig, S. Whybrow and J.I. Macdiarmid (2019). 'Social, temporal and situational influences on meat consumption in the UK population', *Appetite*, *138*, 1-9. https://doi.org/10.1016/j.appet.2019.03.007.

Hornsey, M.J., E.A. Harris, P.G. Bain and K.S. Fielding (2016). 'Meta-analyses of the determinants and outcomes of belief in climate change', *Nature Climate Change*, *6*(6), 622-626. https://doi.org/10.1038/nclimate2943.

Huddart-Kennedy, E., T.M. Beckley, B.L. McFarlane and S. Nadeau (2009). 'Rural-Urban Differences in Environmental Concern in Canada', *Rural Sociology*, *74*(3), 309-329. https://doi.org/10.1526/003601109789037268.

Hughes, J., M. Richardson and R. Lumber (2018). 'Evaluating connection to nature and the relationship with conservation behaviour in children', *Journal for Nature Conservation*, *45*, 11-19. https://doi.org/10.1016/j.jnc.2018.07.004.

ISM (2019). *Irish sports monitor annual report.*

Izadpanahi, P., H. Elkadi and R. Tucker (2017). 'Greenhouse affect: The relationship between the sustainable design of schools and children's environmental attitudes', *Environmental Education Research*, *23*(7), 901-918. https://doi.org/10.1080/13504622.2015.1072137.

Jackson, S.B., K.T. Stevenson, L.R. Larson, M.N. Peterson and E. Seekamp (2021). 'Outdoor Activity Participation Improves Adolescents' Mental Health and Well-Being during the COVID-19 Pandemic', *International Journal of Environmental Research and Public Health*, *18*(5), 2506. https://doi.org/10.3390/ijerph18052506.

Joslyn, S. and R. Demnitz (2021). 'Explaining how long CO_2 stays in the atmosphere: Does it change attitudes toward climate change?', *Journal of Experimental Psychology: Applied*, *27*(3), 473-484. https://doi.org/10.1037/xap0000347.

Knight, K. (2016). 'Public awareness and perception of climate change: A quantitative cross-national study', *Environmental Sociology*, *2*, 1-13. https://doi.org/10.1080/23251042.2015.1128055.

Kvaløy, B., H. Finseraas and O. Listhaug (2012). 'The publics' concern for global warming: A cross-national study of 47 countries', *Journal of Peace Research*, *49*(1), 11-22.

Larson, L.R., R. Szczytko, E.P. Bowers, L.E. Stephens, K.T. Stevenson and M.F. Floyd (2019). 'Outdoor Time, Screen Time, and Connection to Nature: Troubling Trends Among Rural Youth?', *Environment and Behavior*, *51*(8), 966-991. https://doi.org/10.1177/0013916518806686.

Lee, K., N. Gjersoe, S. O'Neill and J. Barnett (2020). 'Youth perceptions of climate change: A narrative synthesis', *WIREs Climate Change*, *11*(3). https://doi.org/10.1002/wcc.641.

Lee, T. M., E.M. Markowitz, P.D. Howe, C.-Y. Ko and A.A. Leiserowitz (2015). 'Predictors of public climate change awareness and risk perception around the world', *Nature Climate Change*, *5*, 10.

Lewis, G.B., R. Palm and B. Feng (2019). 'Cross-national variation in determinants of climate change concern', *Environmental Politics*, *28*(5), 793-821. https://doi.org/10.1080/09644016.2018.1512261.

Martin, L., M.P. White, A. Hunt, M. Richardson, S. Pahl and J. Burt (2020). 'Nature contact, nature connectedness and associations with health, wellbeing and pro-environmental behaviours', *Journal of Environmental Psychology*, *68*, 101389. https://doi.org/10.1016/j.jenvp.2020.101389.

McCright, A.M., S.T. Marquart-Pyatt, R.L. Shwom, S.R. Brechin and S. Allen (2016). 'Ideology, capitalism, and climate: Explaining public views about climate change in the United States', *Energy Research & Social Science*, *21*, 180-189. https://doi.org/10.1016/j.erss.2016.08.003.

McCurdy, L.E., K.E. Winterbottom, S.S. Mehta and J.R. Roberts (2010). 'Using Nature and Outdoor Activity to Improve Children's Health', *Current Problems in Pediatric and Adolescent Health Care*, *40*(5), 102-117. https://doi.org/10.1016/j.cppeds.2010.02.003.

Mertens, A., M. von Krause, A. Denk and T. Heitz (2021). 'Gender differences in eating behavior and environmental attitudes – The mediating role of the Dark Triad', *Personality and Individual Differences*, *168*, 110359. https://doi.org/10.1016/j.paid.2020.110359.

Milfont, T.L. (2012). 'The Interplay Between Knowledge, Perceived Efficacy, and Concern About Global Warming and Climate Change: A One-Year Longitudinal Study', *Risk Analysis*, *32*(6), 1003-1020. https://doi.org/10.1111/j.1539-6924.2012.01800.x.

Oliver, M.C. and M.J. Adkins (2020). '"Hot-headed" students? Scientific literacy, perceptions and awareness of climate change in 15-year olds across 54 countries', *Energy Research & Social Science*, *70*, 101641. https://doi.org/10.1016/j.erss.2020.101641.

Onel, N. and A. Mukherjee (2016). 'Consumer knowledge in pro-environmental behavior: An exploration of its antecedents and consequences', *World Journal of Science, Technology and Sustainable Development*, *13*(4), 328-352. https://doi.org/10.1108/WJSTSD-01-2016-0004.

Poortinga, W., L. Whitmarsh, L. Steg, G. Böhm and S. Fisher (2019). 'Climate change perceptions and their individual-level determinants: A cross-European analysis', *Global Environmental Change*, *55*, 25-35. https://doi.org/10.1016/j.gloenvcha.2019.01.007.

Ranney, M.A. and D. Clark (2016). 'Climate Change Conceptual Change: Scientific Information Can Transform Attitudes', *Topics in Cognitive Science*, *8*(1), 49-75. https://doi.org/10.1111/tops.12187.

Romero-Canyas, R. and S. Hiltner (2020). 'Scaling Up and Out: Psychological Science in the Service of Promoting Sustainable Consumption', *Journal of Social Issues*, *76*(1), 164-171. https://doi.org/10.1111/josi.12375.

Rosa, C.D., C.C. Profice and S. Collado (2018). 'Nature Experiences and Adults' Self-Reported Pro-environmental Behaviors: The Role of Connectedness to Nature and Childhood Nature Experiences', *Frontiers in Psychology*, *9*. https://www.frontiersin.org/article/10.3389/fpsyg.2018.01055.

Shi, J., V.H.M. Visschers, M. Siegrist and J. Arvai (2016). 'Knowledge as a driver of public perceptions about climate change reassessed', *Nature Climate Change*, *6*(8), 759-762. https://doi.org/10.1038/nclimate2997.

Smith, T.W., J. Kim and J. Son (2017). 'Public Attitudes toward Climate Change and Other Environmental Issues across Countries', *International Journal of Sociology*, *47*(1), 62-80. https://doi.org/10.1080/00207659.2017.1264837.

Spandagos, C., M.A. Tovar Reaños and M.Á. Lynch (2022). 'Public acceptance of sustainable energy innovations in the European Union: A multidimensional comparative framework for national policy', *Journal of Cleaner Production*, *340*, 130721.

Swim, J.K. and N. Geiger (2021). 'Policy attributes, perceived impacts, and climate change policy preferences', *Journal of Environmental Psychology*, *77*, 101673. https://doi.org/10.1016/j.jenvp.2021.101673.

Thiery, W., S. Lange, J. Rogelj, C.F. Schleussner, L. Gudmundsson, S.I. Seneviratne, ... and Y. Wada (2021). 'Intergenerational inequities in exposure to climate extremes', *Science*, *374*(6564), 158-160.

Timmons, S., M. Barjaková, D. Robertson, C. Belton and P.D. Lunn (2020). 'Public understanding and perceptions of the COVID-19 test-and-trace system', *Econ Social Res Inst (ESRI) Res Ser*.

Timmons, S., Y. Andersson and P.D. Lunn (2022). 'Framing climate change as a generational issue: Experimental effects on youth worry, motivation and belief in collective action', *PsyArXiv*. https://doi.org/10.31234/osf.io/4kjmp

Timmons, S. and P.D. Lunn (2022). *Public understanding of climate change and support for mitigation. Economic and Social Research Institute (ESRI) Research Series*.

Turtle, C., I. Convery and K. Convery (2015). 'Forest Schools and environmental attitudes: A case study of children aged 8-11 years', *Cogent Education*, *2*(1), 1100103. https://doi.org/10.1080/2331186X.2015.1100103.

Whitburn, J., W.L. Linklater and T.L. Milfont (2019). 'Exposure to Urban Nature and Tree Planting Are Related to Pro-Environmental Behavior via Connection to Nature, the Use of Nature for Psychological Restoration, and Environmental Attitudes', *Environment and Behavior*, *51*(7), 787-810. https://doi.org/10.1177/0013916517751009.

Wynes, S. and K.A. Nicholas (2017). 'The climate mitigation gap: Education and government recommendations miss the most effective individual actions', *Environmental Research Letters*, *12*(7), 074024. https://doi.org/10.1088/1748-9326/aa7541.

Wynes, S., J. Zhao and S.D. Donner (2020). 'How well do people understand the climate impact of individual actions?', *Climatic change*, *162*(3), 1521-1534.

Xiao, C. and A.M. McCright (2015). 'Gender Differences in Environmental Concern: Revisiting the Institutional Trust Hypothesis in the USA', *Environment and Behavior*, *47*(1), 17-37. https://doi.org/10.1177/0013916513491571.

Young Social Innovators (2022). 'Gen Z Index: Part 2 Climate Change and the Environment'. https://www.youngsocialinnovators.ie/ysi-blog/ysi-gen-z-index-climate-and-environment-report-2022/.

Zelezny, L.C., P.-P. Chua and C. Aldrich (2000). 'New Ways of Thinking about Environmentalism: Elaborating on Gender Differences in Environmentalism', *Journal of Social Issues*, *56*(3), 443-457. https://doi.org/10.1111/0022-4537.00177.

APPENDICES

TABLE A.1 SAMPLE CHARACTERISTICS

		N	%	Population %[a]
Gender	Men	181	36.2	51.0
	Women	314	62.8	49.0
	Non-Binary/Other	5	1.0	--[b]
Age	16-19 years	234	46.8	46.8
	20-24 years	266	53.2	53.2
Working Status	In Education or Training	267	53.4	43.4
	Employed	206	41.2	47.9
	NEET[c]	27	5.4	8.7
Socio-Economic Status	Maternal Education: Degree or above	234	46.8	53.0[d]
	Maternal Education: Below Degree	266	53.2	47.0
Living Area	Urban	305	61.0	64.0
	Rural	195	39.0	36.0

Source: Authors' analysis.

Note: [a] Population estimates are based on 2021 Central Statistics Office (CSO) data where possible and 2016 Census data otherwise, except for Employment which is based on Q1 2022 data from the EU Labour Force Survey. Note that the Employment estimates are based on 15-24 year-olds whereas our sample includes only 16-24 years, which may explain our slightly higher percentage of working young people.

[b] There are currently no population estimates for non-binary individuals.

[c] Not-in-Employment,-Education-or-Training.

[d] There are no population estimates for maternal education. The figures above are estimated based on educational attainment of women in Ireland aged 45-54 years, because the average age of maternity in 1998-2006 (when the sample participants were born) was between 30.1 and 31.1 years.

RELEVANT SURVEY QUESTIONS

Thank you for agreeing to take part in this study. First we are going to ask you some questions about the kinds of things you do day-to-day. Remember, there are no right or wrong answers.

- How do you get around day-to-day? (e.g. to get to school/college/work, go to the supermarket, visit friends)
    - Most of the time I get a lift or drive myself
    - Most of the time I walk or cycle
    - Most of the time I take public transport

– new page –

- Which of the following best describes how you buy new things (e.g. clothes)?
    - I buy (or someone else buys me) most or all of my things new
    - I buy (or someone else buys me) some of my things new but sometimes I buy second-hand or re-use older things
    - I buy (or someone else buys me) new things very rarely

– new page –

- Do you eat meat (i.e. beef, pork or chicken)?
    - Yes
    - No

- Do you eat fish?
    - Yes
    - No

- Do you eat eggs or dairy (e.g. milk, cheese, yogurt)?
    - Yes
    - No

– new page –

- Does your family/household use a separate bin for recycling? If you live in more than one household, please think about where you spend most of your time.
    - Yes
    - No
    - I don't know

- Does your family/household use a separate bin for food waste (e.g. leftovers, fruit peels, egg shells)? If you live in more than one household, please think about where you spend most of your time.
    - Yes, there is a separate bin for food waste or a compost bin
    - No, food waste is put in with general waste
    - I don't know

– new page –

The rest of this study is about the environment.

In this section, we are interested in your thoughts and opinions **as a young person** today.

- As a young person, how important do you think it is to protect the environment?
    - 1 (Not important) – 7 (Extremely important)

– new page –

The next section is about ways to tackle climate change (i.e. prevent further climate change as much as possible).

Tackling climate change will require:

- Governments to put in place new policies
- Businesses to change how they operate
- People to make changes to their everyday behaviour

These changes mean everyone will need to play their part.

– new page –

Some actions are more effective than others at combatting climate change.

In this section, we'd like to know:

- which actions you think could have a large effect on combatting climate change (i.e. reduce someone's carbon footprint a lot, 5 per cent or more)
- which ones you think could have a medium effect (i.e. reduce someone carbon footprint a bit, 1-5 per cent)
- which ones you think could have a small effect (i.e. reduce someone carbon footprint very little, less than 1 per cent).

The questions in this section are not easy but please give your best guess. For each one you get right, you can earn an extra entry into the raffle for a €100 virtual Mastercard.

– new page –

For each action, please choose whether you think it is large-effect, medium-effect or small-effect. For each one you get right, you can earn an extra entry into the raffle for a €100 virtual Mastercard.

Please think about the impact of each action over a one-year period, unless otherwise stated.

- Avoiding one long distance flight (i.e. 6hrs+)
- Buying longer-lasting things (e.g. clothes)
- Buying only local food
- Buying only organic food
- Buying only unpackaged food
- Eating a plant-based diet (vegan)
- Only hang drying clothes
- Minimising food waste
- Not littering
- Recycling as much as possible
- Reusing older things rather than buying new ones
- Using public transport, cycling or walking instead of going by car
- Using re-usable shopping bags

– new page –

[half shown answers – see infographic]

– new page –

Considering what you think about how effective some environmental actions are, to what extent do you disagree or agree with the following:

- If people in Ireland play their part, together they can help combat climate change.
    - 1 (Completely disagree) – 7 (Completely agree)

– new page –

- As a young person, there are things I can do in my daily routine to help combat climate change
    - 1 (Completely disagree) – 7 (Completely agree)

- There are things that older people can do in their daily routine to help combat climate change
    - 1 (Completely disagree) – 7 (Completely agree)

– new page –

- There are things the government can do to help combat climate change
    - 1 (Completely disagree) – 7 (Completely agree)

– new page –

As a young person, how responsible do you think each of the following are when it comes to combatting climate change?

- Young people
- Older people
- The government
    - 1 (Not at all) – 7 (Extremely)

– new page –

One way to help combat climate change is for people to change their behaviours compared to previous generations.

We'd like to know **how likely you, as a young person, would be to do each of the following, in order to reduce your own impact on the environment**, i.e. reduce your carbon footprint.

For some of the actions, you might be able to do them yourself. Other actions might involve trying to convince other people to do them (e.g. other people you live with). Remember, there are no right or wrong answers so please to answer honestly.

[As relevant:]

- [Use a separate bin for food waste (or try to convince those you live with to)]
- [Eat less meat]
- [Eat no meat (i.e. vegetarian or plant-based/vegan)]
- Buy more locally-produced food (or try to convince those you live with to)
- [Walk, cycle or use public transport most journeys instead of getting a lift/going by car]
- Take fewer flights (or try to convince those you live with to)
- Buy energy efficient lightbulbs (or try to convince those you live with to)
- Not litter
- Avoid single-use plastics
- Buy fewer new things (e.g. buy second-hand or re-use old things, such as clothes)
- [Use a separate bin for recycling (or try to convince those you live with to)]
    - 1 (Not at all likely) – 7 (Extremely likely)

– new page –

Some pro-environmental actions are ones you might not be able to do in the short term but may be relevant when you are older.

Below are a list of changes that very few older people today have made. Thinking about yourself as a young person and what life might be like, how likely are you to do each of the following for environmental reasons?

- Live car free
- Avoid flying
- Eat a plant-based diet (i.e. no meat or dairy)
    - 1 (Not at all likely) – 7 (Extremely likely)

– new page –

Some of the actions needed to combat climate change can only be taken on a large scale-level, such as policies or restrictions implemented by countries and governments.

Below are a list of changes that could be made for the benefit of young people and future generations. **Thinking about yourself as a young person and the type of society you would like to see in the future,** to what extent would you like the following to be put in place for environmental reasons in the future?

- Higher taxes on petrol and diesel to fund more public transport
- Ban on domestic flights (e.g. Dublin to Shannon) unless to provide an essential service
- Ban on cars in certain parts of towns and city centres (e.g. implement car-free zones)
- A limit on the number of flights any person can take in a year
- Ban use of environmentally harmful subsidies in production and import of goods even if it leads to everyday products becoming more expensive
- Lower taxes for imported goods that are carbon neutral (with higher taxes for ones that are not)
- Higher taxes on meat, with money collected going to invest in ways to make farming more environmentally friendly
- Making renewable energy sources, such as wind or solar, mandatory even if they cost more
- Higher taxes on homes that are not energy efficient, with money collected going towards grants for retrofitting homes (i.e. to pay some of the cost of making homes more energy efficient)

- Fines for businesses that have emissions above a certain level.
    - 1 (Would not want in place at all) – 7 (Would want in place to a great extent)

– new page –

In this last section, we'd like to know more about what you, as a young person, think about your local area. Specifically we're interested in the outdoor places that you can visit for activities (e.g. walking). These are called 'outdoor amenities' and examples are parks and beaches. To what extent do you agree with the following statements?

- I can easily think of outdoor amenities (e.g. parks, beaches, lakes) in my local area
- It is easy for me to get to at least some outdoor amenities in my local area if I want to
- I have the time to visit at least some outdoor amenities in my local area if I want to

We're aware there are quite a few questions in this section. To show that you are reading each question carefully, please select '1' on the scale below.

- As a young person, visiting outdoor amenities is important to me
- As a young person, visiting outdoor amenities is something I enjoy to do
- I am satisfied with the outdoor amenities in my local area
    - 1 (Completely disagree) – 7 (Completely agree)

– new page –

Which of the following outdoor amenities are there in your local area? Select all that apply;

- Park/playground or similar
- Beach
- Lake or river walkway/cycleway
- Mountain or hill walkway
- Wood/forest walkway
- Something else
- I can't think of any

In the past month, how often do you spend time in the outdoor amenities in your area?

- Every day
- A few times a week
- A few times a month
- Rarely
- Never

– new page –

Have you ever volunteered for an environmental organisation?

- Yes
- No

Have you engaged in environmental activism? (e.g. Fridays for the Future, refused to buy specific products, protests, etc.)

- Yes
- No

FIGURE A.1 MITIGATION INFOGRAPHIC

Source: Authors.

TABLE A.2 COMPARISONS ON PERCENTAGES ENGAGING IN DIFFERENT BEHAVIOURS BETWEEN THE CURRENT SAMPLE (16-24 YEARS) AND A SAMPLE OF 20-YEAR-OLDS FROM *GROWING UP IN IRELAND* DATA

	GUI			Current sample		
	All	Male	Female	All	Male	Female
Not eating meat (vegetarian/vegan/pescatarian)	4.8	2.1	7.5	8.9	4.4	12.7
Not eating meat or fish (vegetarian/ vegan)	4.4	2.1	6.9	6.3	3.3	7.9
Vegetarian	3.6	1.7	5.6	4.2	2.2	4.7
Vegan	0.8	0.4	1.3	2.1	1.1	3.2
Volunteered*	2.4	2.4	2.4	20	18.8	21.7
Travel on foot to school/work	34.0	31.6	36.5			
Travel by bike to school/work	5.6	8.6	3.1			
Bike/walk primary mode of transportation				24.8	31.5	18.2
N	5,190	2,498	2,692	500	181	314

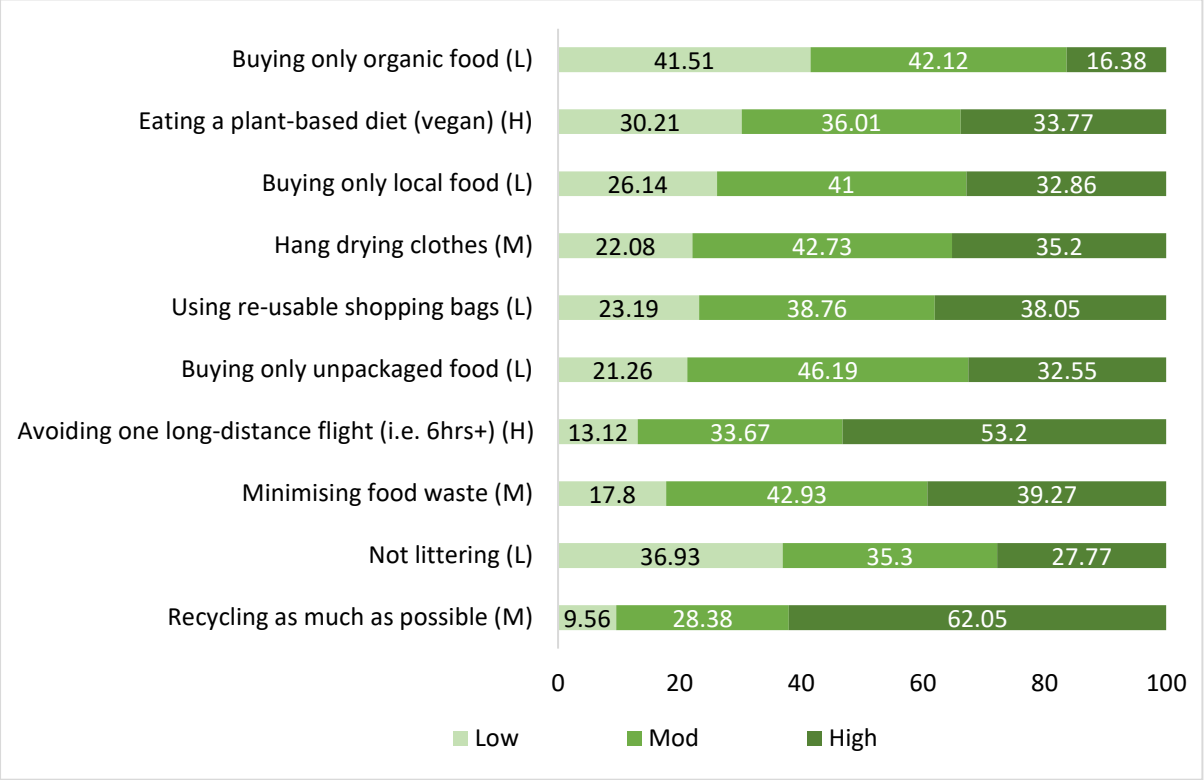
Source: Authors' analysis.
Note: * The GUI sample was asked if they had worked (on a voluntary basis or otherwise) with an environmental group in the previous 12 months. The current sample was asked if they have ever volunteered.

TABLE A.3 (WEIGHTED) CORRELATIONS BETWEEN PRO-ENVIRONMENTAL BEHAVIOURS

	Vegetarian / Vegan	Composts	Public Transport	Active Travel	Rarely Buys Things New	Volunteers
Vegetarian/Vegan	--					
Composts	-0.01	--				
Public Transport	0.03	-0.12*	--			
Active Travel	-0.05	0.02	--	--		
Rarely Buys Things New	0.03	-0.04	-0.01	0.07	--	
Volunteering	-0.02	0.11*	-0.02	0.06	0.03	--
Activism	0.11*	0.02	0.05	0.03	0.07	0.35***

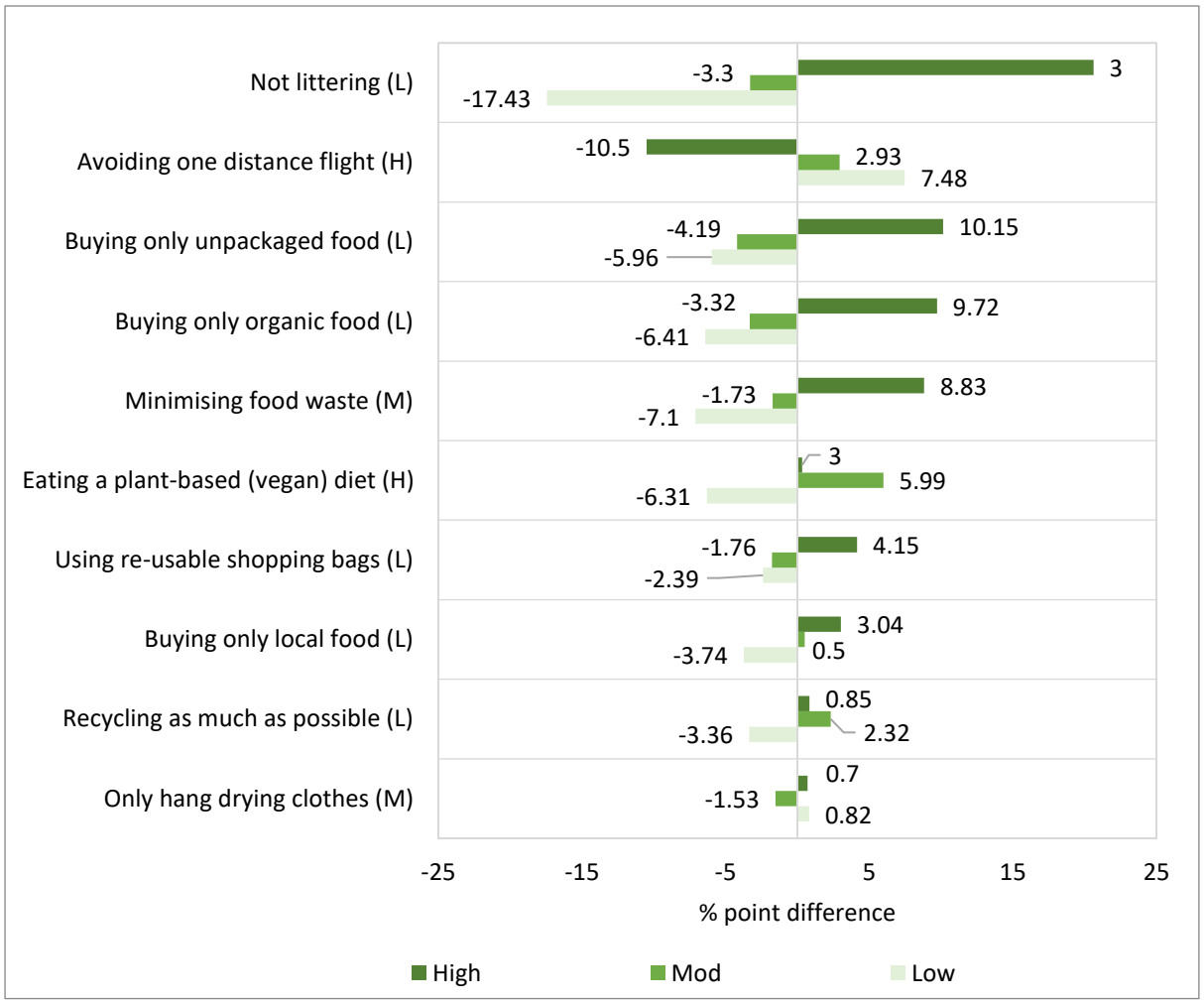
Source: Authors' analysis.
Note: ***$p < .001$; **$p < .01$; *$p < .05$. Note the correlation between public transport and active travel is omitted because participants could only be classified as one and hence these behaviours are necessarily negatively correlated.

FIGURE A.2 RESPONSES TO IMPACT QUESTIONS FROM 25+ YEAR OLD SAMPLE (DATA FROM TIMMONS AND LUNN)



Source: Authors' analysis.

FIGURE A.3 PERCENTAGE-POINT DIFFERENCES BETWEEN THE YOUTH SAMPLE AND 25+ YEAR SAMPLE OF PARTICIPANTS ESTIMATING A LOW, MODERATE, OR LARGE IMPACT FOR EACH OF THE PRO-ENVIRONMENTAL BEHAVIOURS. ORDERED BY SMALLEST TO LARGEST ABSOLUTE % POINT DIFFERENCE



Source: Authors' analysis.
Note: Positive scores reflect that the response was more common in the youth sample, negative scores reflect that the response was more common in the adult sample.

TABLE A.4 LINEAR REGRESSION MODEL PREDICTING CORRECT IMPACT ESTIMATES

	Number of Correct Answers
Male (Ref: Female)	0.64**
	(0.22)
20-24 years (Ref: 16-19 years)	0.44†
	(0.25)
Working Status (Ref: In Education)	
Working	-0.01
	(0.26)
NEET	-0.21
	(0.49)
Maternal Education – Lower than Degree (Ref: Degree or above)	-0.34
	(0.22)
Region (Ref: Dublin)	
Leinster	0.35
	(0.32)
Munster	0.28
	(0.30)
Connacht-Ulster	0.03
	(0.21)
Urban (Ref: Rural)	-0.02
	(0.24)
N	500

Source: Authors' analysis.
Note: ***$p < .001$; **$p < .01$; $p < .05$; †$p < .1$.

TABLE A.5 CORRELATIONS BETWEEN PERCEPTIONS AND EXPERIENCES WITH LOCAL ENVIRONMENT

	1.	2.	3.	4.	5.	6.	7.	M (SD)
1. Satisfaction								4.84 (1.71)
2. Importance	0.29***							5.42 (1.36)
3. Enjoyment	0.28***	0.75***						
4. Awareness	0.58***	0.20***	0.22***					5.63 (1.59)
5. Access	0.56***	0.19***	0.23***	0.73***				5.52 (1.65)
6. Time available	0.52***	0.31***	0.31***	0.59***	0.59***			5.27 (1.64)
7. Time spent	0.35***	0.34***	0.32***	0.26***	0.27***	0.32***		3.28[1] (0.98)
8. Total number of amenities	0.33***	0.16***	0.12**	0.36***	0.32***	0.33***	0.24***	2.59[1] (1.34)

Source: Authors' analysis.
Note: ***$p < .001$; **$p < .01$; $p < .05$; †$p < .1$. [1] Max value is 5. Items 1-6 are responded on a 7- rating scale.

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