Weather & Climate-Related Risk Perception

October 2020

Kilty McMahon - Watching the Storm on Inishbofin Island, Co. Galway

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Introduction

This report presents the output from a survey focused on risk perception and household emergency preparedness in Ireland. It focuses on:

1. The public's perception of the risk posed by various weather-related events;
2. The level of experience of, and worry about, these within Ireland;
3. The extent to which respondents perceived themselves to be prepared for emergencies, and the extent to which they were actually prepared (e.g. had access to recommended equipment and had plans in place should an emergency occur);
4. In case of an emergency, the extent to which the public would follow the advice of various agents based on trust. Met Éireann was one of the organisations on which individuals reported;
5. Public awareness of the national "Be Winter Ready" Campaign, and the impact it had on individuals making plans and taking actions to protect themselves or their households;
6. Respondents' socio-demographic characteristics.

The outline of the report is as follows:

Section 1 describes the sample of respondents in terms of their socio-demographic characteristics.

Sections 2 and 3 deal with the public's perceptions of impact, likelihood, risk and worry, and their experience of weather-related emergencies. The weather-related emergencies considered are drawn from the National Risk Register: Flooding, Snow, Low Temperatures, High Temperatures, Storm, and Drought.

Section 4 details the level of perceived and actual household preparedness and individuals' attitudes towards preparedness.

In Section 5, public awareness of, and response to, the "Be Winter Ready" Campaign are examined. This includes subsets of the population for whom tailored guidance was provided in the campaign: farmers, business owners, teachers and motorists.

Section 6 documents trust in Met Éireann relative to other agencies, in terms of the likelihood of respondents acting on its advice. The relationship between trust in Met Éireann and socio-demographic characteristics are examined.

Section 7 presents the results of regression analysis to investigate areas of interest more fully. Ordered logit analysis is used to advise on:

- who is likely to be more familiar with the "Be Winter Ready" Campaign and, therefore, who is not getting or taking up the message?
- who has taken action to prepare for weather-related emergencies, and how do risk perception and awareness impact on preparedness action?
- who is more likely to access which information source in an emergency?
- who shows greater likelihood of acting on Met Éireann's advice?

Section 1: Participant Demographics

The data on which this report is based was gathered using a questionnaire which was administered during an eight-week period in late 2017 and early 2018. The questionnaire was made available in an online format, and collected responses from 6497 households across Ireland. Respondents could voluntarily opt-in once they had read the plain language statement explaining the research, and confirming anonymity for respondents.

The online data collection software Qualtrics was used to gather the data. Twitter and Facebook were used to promote the questionnaire, with a combination of paid advertisements and participants being encouraged to re-share the survey link. The questionnaire was also promoted on social media by government and public bodies, such as the Office of Emergency Planning, Met Éireann, County Councils, and Dublin Fire Brigade. Each questionnaire took approximately 25 minutes to complete.

This cross-sectional questionnaire was developed for an Irish context and was informed by both government and academic surveys (FEMA 2014; Grothmann and Reusswig 2006; Martin et al. 2007; Terpstra and Lindell 2013) and by an academic literature review. The questionnaire was pilot tested on specialists in emergency management and members of the general public to help ensure the accuracy and validity of the data collected. All feedback from the pilot study was actioned before a final version of the questionnaire was prepared and launched on Qualtrics.

The questionnaire measured respondent's attitudes towards, and exposure to, risks drawn from the National Risk Assessment (McMullan et al. 2018). For each risk, it examined perceived likelihood, perceived impact, and the overall risk rating. Familiarity with the national "Be Winter Ready" Campaign, and a measure for worry were also included.

The research examined household preparedness using three constructs. The first, Household Preparedness Score, drew from a list of emergency items and actions which were promoted by FEMA (2014) and the "Be Winter Ready" Campaign to increase household preparedness. The second preparedness construct, Non-Protective Responses, was included within our analysis to control for denial, wishful thinking or fatalism among respondents (Grothmann and Reusswig 2006). The third, Perceived Preparedness, is a self-reported assessment of preparedness, which was measured early within the questionnaire (before respondents were shown a list of preparedness items) and asked if respondents consider themselves prepared for a disaster (ordered scale: 0% to 100%). Closely linked to preparedness, respondents were asked if they would act on the emergency preparedness advice issued by a selection of agencies and government departments including: Met Éireann, the Office of Public Works (OPW) and the Office of Emergency Planning (OEP).

Finally, the questionnaire also measured a variety of demographic characteristics, such as gender, age, urban/rural living, income, number of adults and children in the home, and the type of housing unit (house, apartment). Respondents also indicated whether they were a farmer, business owner, or a member of the broader emergency services.

Age and Gender Profile.

As reported in Table 1 below, just over 70% of respondents who completed the survey were female.

Table 1: Gender Distribution

Gender	Freq.	%	Cum.
Male	1,319	29.38	29.38
Female	3,171	70.62	100.00
Total	4,490	100.00	

Respondents ranged from 18 to 92 in age, with an average age of 45.56 years and a standard deviation of 11.80. The age distribution for the full sample is given in Table 2.

Table 2: Age Distribution

Age (yrs)	Freq.	%	Cum.
18-25	310	7.07	7.07
26-35	610	13.92	20.99
36-45	1,191	27.17	48.16
46-55	1,358	30.98	79.15
56-65	822	18.75	97.90
66-75	85	1.94	99.84
76+	7	0.16	100.00

For each gender, the age distribution is illustrated in the boxplot, Figure 1, where the vertical divisions represent interquartile ranges, and outliers are marked as single dots.

Male respondents' age range is 18 to 84 years old. Females' age ranged from 18 to 75 years, apart from two outliers with ages 85 and 92 years. On average male respondents are older than female respondents, with the average age for males 46.34 years compared to 44.64 for females.

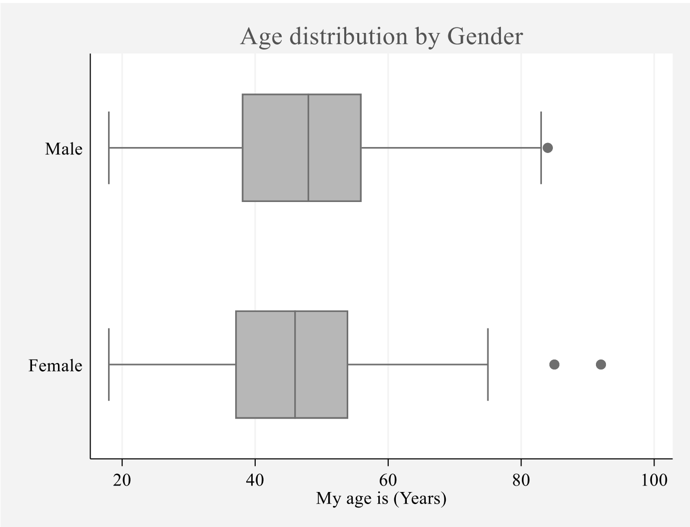

Figure 1: Age Distribution by Gender

Household Size and Composition

Respondents' households range from 1 to 11 occupants, with the average household size for the sample at 3.19 persons. The number of adults within respondents' households is tabulated in Table 3. This ranges from 1 to 9, with an average of 2.34. The majority of respondents (55.03%) live in two-adult households.

Table 3: Number of Adults in the Household

Adults	Freq.	%	Cum.
1	637	14.33	14.33
2	2,446	55.03	69.36
3	757	17.03	86.39
4	449	10.10	96.49
5	123	2.77	99.26
6+	33	0.74	100.00
Total	4,445	100.00	

The number of children under 18 years is tabulated in Table 4. Respondents report between 0 and 7 children, with a majority of respondents (56.42%) reporting no children within the household. The average number of children is 0.85.

Table 4: Number of Children in the Household

Children	Freq	%	Cum
0	2,487	56.42	56.42
1	710	16.11	72.53
2	726	16.47	89.00
3	374	8.48	97.48
4	94	2.13	99.61
5-7	17	0.39	100.00
Total	4,408	100.00	

Marital Status

59% of respondents are married, and, in addition, approximately 8% are cohabiting. 25% are single, with the remaining approximately 7% either separated, divorced or widowed.

Table 5: Marital Status

Marital Status	Freq.	%	Cum.
Single	1,122	25.20	25.20
Married	2,630	59.07	84.28
Separated	129	2.90	87.17
Divorced	131	2.94	90.12
Widowed	68	1.53	91.64
Cohabiting	372	8.36	100

Education

Only 0.5% of respondents report having no recognised qualification. 35% hold qualifications below Bachelor-degree level, 32.5% are Bachelor-degree holders, with the remaining 32% holding Masters degrees and above.

Income Distribution

The income distribution for households is presented in Table 6. Most households fall into the mid-income bracket, €30,000 - €70,000 per annum.

Table 6: Household Income Distribution

Income	Freq.	%	Cum.
Up to 30000	532	12.23	12.23
€30,000 - €70000	2,328	53.50	65.73
Above €70000	1,491	34.27	100
Total	4,351	100	

Over 90% of respondents were either working full time (almost three-quarters), working part-time or currently in education. Only 3% were unemployed, and 3.37% were retired.

Table 7: Employment Status

Employment Status	Freq	%	Cum.
Working full time	3,272	73.91	73.91
Working part-time	548	12.38	86.29
Unemployed/Homemaker / Home Carer	133	3.00	89.29
In education (Student)	321	7.25	96.54
Retired	149	3.37	99.91
Other	4	0.09	100
Total	4,427	100	

Home Ownership and Length of Residency

94% of respondents live in houses, with the remainder in apartments. Over three-quarters of the respondents are homeowners, almost 13% rent and the rest live with relatives.

Table 8: Home Ownership Status

Home Ownership Status	Freq	%	Cum
Own	3,479	77.71	77.71
Rent	580	12.96	90.66
Live with relatives	418	9.34	100
Total	4,477	100	

Respondents' residence in their current home ranged in duration from less than one year up to 69 years, with around 2% stating their residency as over 40 years. The average length of residency is 15 years. Figure 2 depicts the length of residency in a boxplot.

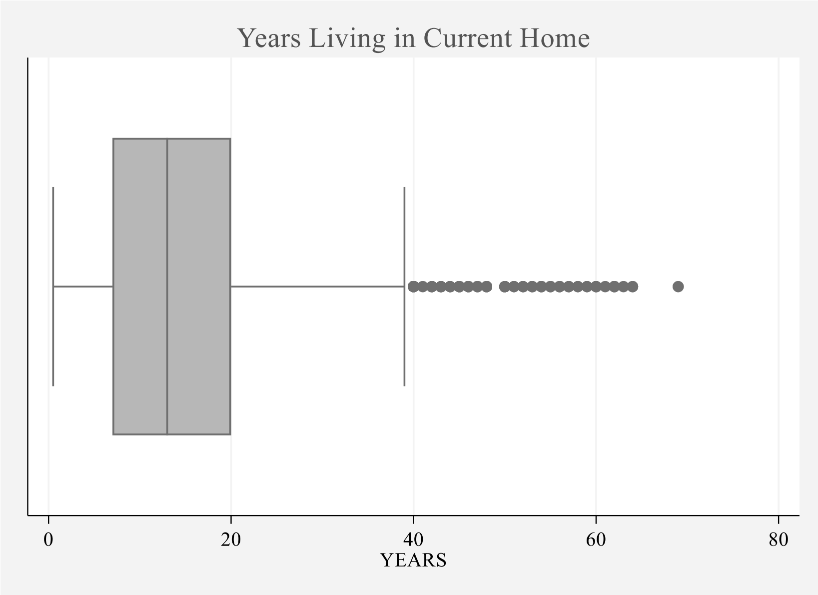

Figure 2: Length of Residency

Occupations

Respondents whose occupations fell into selected categories were identified to allow for separate analysis. The identified categories are Farmers, Business Owners, Teachers, and those with additional expertise in emergencies: members of the Principal Response Agencies, the Voluntary Emergency Services, Defence Forces, Nurses, Doctors, or those employed in an emergency or business continuity role. Just over 3% of respondents registered more than one occupation.

Farmers, teachers and business owners were targeted with questions relevant to the “Be Winter Ready” Campaign, specific to their situations. Information on these subgroups is reported in Section 5.

Table 9: Occupations

Occupation	Freq	%
Farmer	126	2.83
Business Owner	143	3.21
Teacher	100	2.25
PRA	141	3.17
Voluntary Emergency Services	86	1.93
Defence Forces	14	0.31
Nurse	547	12.28
Doctor	84	1.89
Emergency/Business Continuity	48	1.08
None of the above	3,342	74.61

Household Location

Each of the 32 counties on the island of Ireland was represented in the sample, though the overall proportion of respondents based in the North was less than 1%. County Dublin accounted for almost 30% of respondents, with Cork next in line with 10%. The sample size drawn from each province (excluding the six counties in the North) is quite well in line with the 2016 distribution of population within Ireland produced by CSO.

Table 10: Location - Distribution by County

Province	County	Freq	%
Ulster (5.75%)	Donegal	109	2.43
	Cavan	56	1.25
	Monaghan	51	1.14
	Down	11	0.24
	Fermanagh	9	0.2
	Derry	8	0.18
	Antrim	7	0.16
	Tyrone	5	0.11
	Armagh	2	0.04
Munster (26.35%)	Cork	427	9.51
	Clare	219	4.88
	Limerick	192	4.28
	Tipperary	167	3.72
	Waterford	94	2.09
	Kerry	84	1.87

Province	County	Freq	%
Leinster (57.26%)	Longford	18	0.4
	Carlow	40	0.89
	Laois	65	1.45
	Westmeath	76	1.69
	Offaly	83	1.85
	Kilkenny	85	1.89
	Wexford	94	2.09
	Wicklow	100	2.23
	Louth	147	3.27
	Kildare	183	4.08
	Meath	348	7.75
	Dublin	1,332	29.67
Connacht (10.66%)	Galway	214	4.77
	Mayo	100	2.23
	Roscommon	74	1.65
	Sligo	61	1.36
	Leitrim	29	0.65

The distribution of respondents by settlement type/urbanicity shows 38.65% of respondents from a city or suburbs, 31.36% from a town or village with the remainder identifying as rural dwellers.

Table 11: Location - Distribution by Settlement type

Settlement Type	Freq	%
City	745	16.76
Suburbs	973	21.89
Town	969	21.80
Village	425	9.56
Rural Area	1,333	29.99
Total	4,445	100

Section 2: Assessment of Likelihood, Impact and Risk of Weather-Related Events

The survey gathered information relevant to six weather-related events: flooding, snow, low temperatures, high temperatures, storm, and drought. Respondents assessed the likelihood of each affecting them or their home on a five-point scale, where 1= extremely unlikely, 2 = very unlikely, 3 = unlikely, 4 = likely, and 5 = very likely. They identified the level of impact they believed each event would have on them or their home, should it occur, on a five-point scale, with 1 = very low, 2 = low, 3 = moderate, 4 = high and 5 = very high.

Figure 3 sets out the percentage of respondents who state each possible likelihood-impact combination for each of the weather-related events. In each panel, impact is measured on the horizontal axis (i.e. perceived impact is higher moving rightwards in the table) and likelihood is on the vertical axis (perceived likelihood is higher moving upwards in the table). The values are colour-coded to identify readily the region of the matrices in which respondents' responses are concentrated.

FLOOD

Likelihood \ Impact	1	2	3	4	5	Total
5	0.2	0.2	0.4	0.4	0.8	2.1
4	0.2	1.3	2.5	2.5	1.4	7.7
3	1.7	7.1	8.2	5.3	3.1	25.3
2	3.2	8.2	5.3	4.0	1.9	22.6
1	20.1	8.6	4.9	5.1	3.6	42.3
Total	25.4	25.4	21.3	17.2	10.8	

SNOW

Likelihood \ Impact	1	2	3	4	5	Total
5	0.2	1.1	2.7	3.6	2.9	10.5
4	1.5	10.1	19.0	7.3	1.3	39.2
3	3.2	12.3	11.6	2.4	0.6	30.1
2	2.1	6.2	3.9	1.0	0.2	13.4
1	3.2	1.7	1.2	0.4	0.2	6.8
Total	10.2	31.3	38.5	14.8	5.3	

LOW TEMPERATURES

Likelihood \ Impact	1	2	3	4	5	Total
5	0.6	3.2	6.7	5.4	3.5	19.4
4	2.1	14.0	21.1	7.4	1.2	45.7
3	2.7	9.6	7.3	1.1	0.4	21.0
2	1.6	4.9	2.2	0.6	0.1	9.4
1	2.4	1.3	0.6	0.1	0.2	4.5
Total	9.4	32.9	37.8	14.6	5.3	

HIGH TEMPERATURES

Likelihood \ Impact	1	2	3	4	5	Total
5	0.3	0.6	0.8	0.4	0.5	2.7
4	0.4	3.2	4.6	1.0	0.3	9.5
3	5.7	17.1	10.8	1.5	0.5	35.5
2	5.9	11.8	5.3	1.2	0.3	24.4
1	13.6	8.7	4.4	0.8	0.4	27.9
Total	25.8	41.4	25.9	4.9	2.0	

STORM

Likelihood \ Impact	1	2	3	4	5	Total
5	0.1	0.7	3.8	7.0	5.6	17.2
4	0.9	7.1	25.7	16.5	2.4	52.6
3	1.3	7.5	10.3	2.6	0.5	22.2
2	0.6	2.8	1.8	0.8	0.1	6.0
1	0.9	0.5	0.3	0.2	0.2	2.1
Total	3.7	18.7	41.8	27.0	8.7	

DROUGHT

Likelihood \ Impact	1	2	3	4	5	Total
5	0.3	0.2	0.3	0.7	0.8	2.3
4	0.2	1.3	2.2	1.7	0.4	5.8
3	3.5	9.2	6.7	3.4	1.1	23.9
2	3.9	6.8	4.1	2.3	0.8	18.0
1	23.8	10.5	6.7	5.3	3.7	50.0
Total	31.7	28.0	20.0	13.4	6.9	

Figure 3: Reported Likelihood and Impact for Weather-Related Events

Individuals' risk ratings for each event are calculated as likelihood * impact, resulting in 14 possible risk values bounded by 1 (extremely unlikely and very low impact) and 25 (very likely and very high impact).

Figures 4, 5, and 6 illustrate the average likelihood, impact and risk ratings of respondents for each weather-related event. The risk associated with storms is rated highest of the events considered, driven by higher ratings for both likelihood and impact.

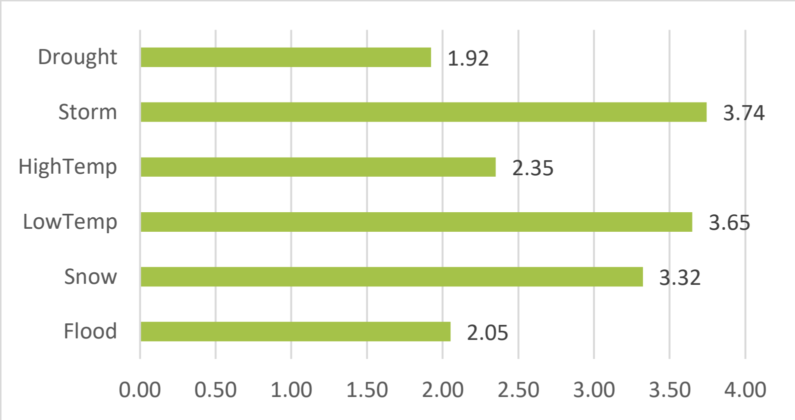

Figure 4: Mean Likelihood Ratings

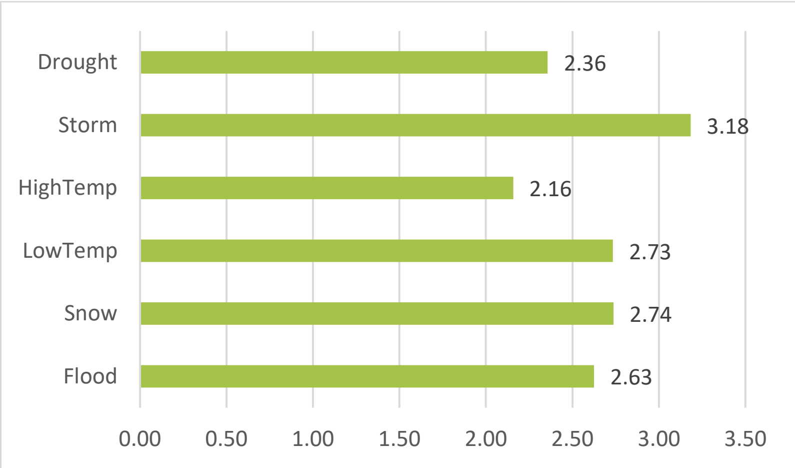

Figure 5: Mean Impact Rating

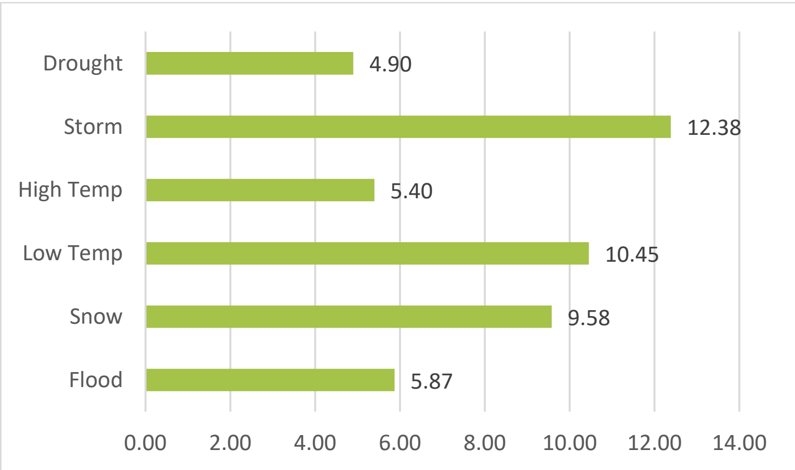

Figure 6: Mean Risk Rating

The distribution of risk ratings for each event is illustrated in Figure 7.

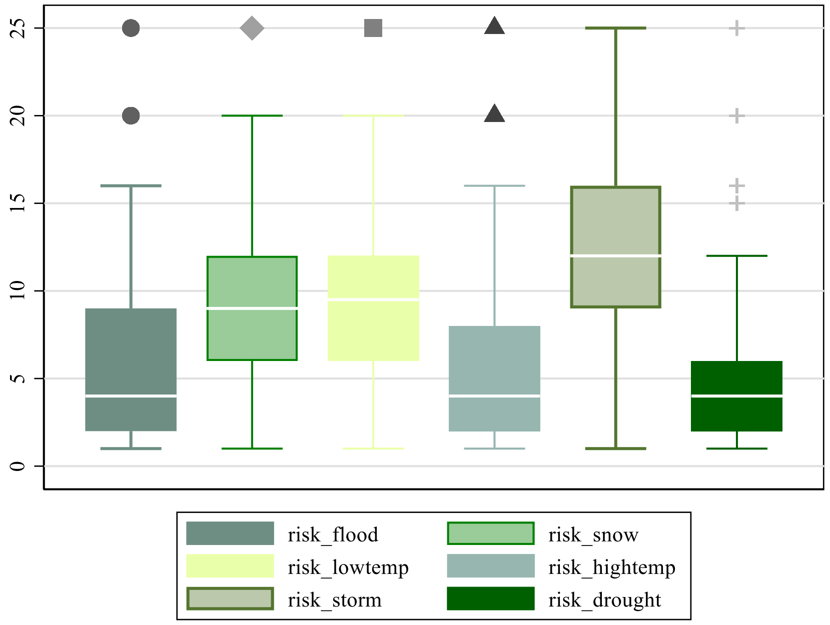

Figure 7: Risk Rating Boxplot

Risk by Gender

Comparing risk rating by gender, females on average consistently rate risk associated with weather-related events higher than males. The difference is not large in magnitude, but it is statistically significant in all cases except for high temperatures.

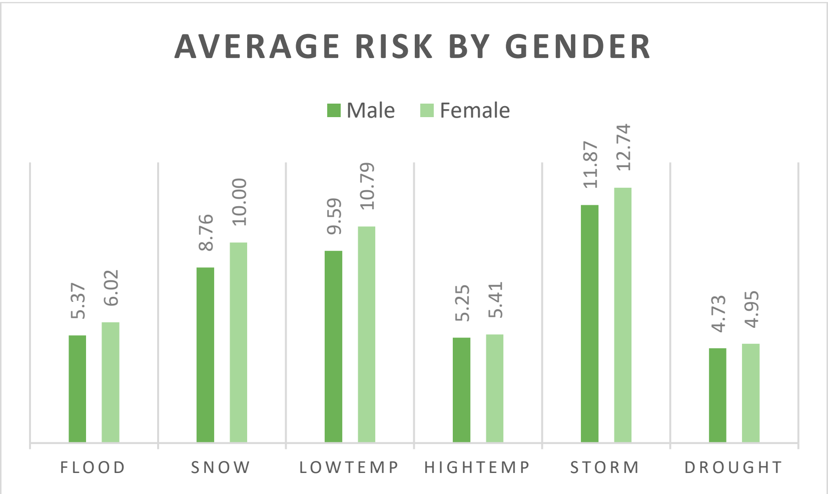

Figure 8: Average Risk Rating by Gender

Risk by Age

Figure 9 plots the average risk rating for each weather-related event by age-group. Visually we can see an indication of increased perceived risk in mid-life for snow, low temperatures and storm. This quadratic pattern between risk and age is borne out and is statistically significant in ordered logit regressions of risk rating on age and age[2]. In the case of flood, there is a significant negative relationship between perceived risk and age. There is no significant relationship with age for either high temperatures or drought.

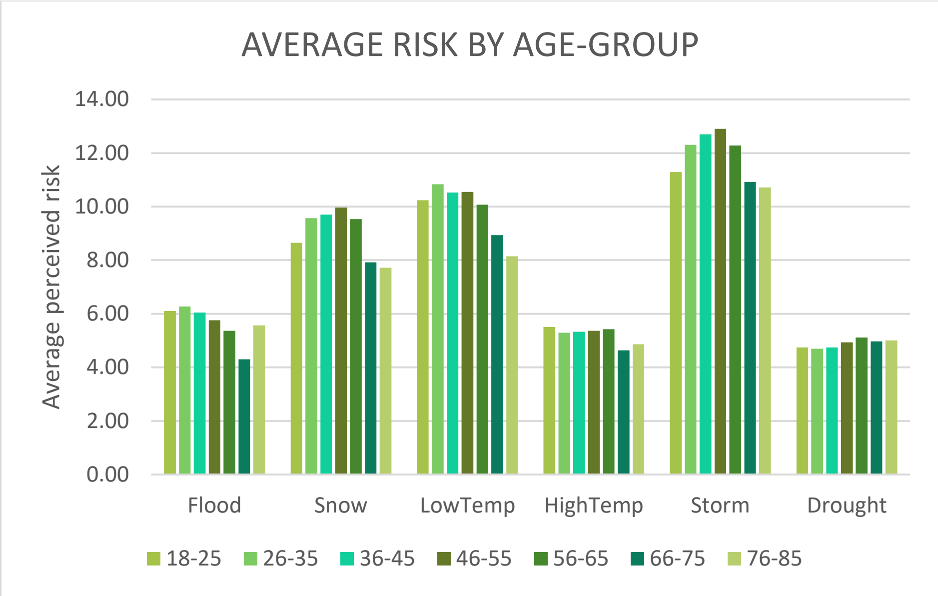

Figure 9: Average Risk Rating by Age-Group

Risk by Settlement Type/Urbanicity

Figure 10 depicts average risk perception by settlement type. It shows the perceived risk associated with snow, low temperatures and storm is higher the more rural the respondent's dwelling, and this pattern is significant in ordered logit regressions. The variation in risk perception is not so marked for flood, high temperatures or drought, but ordered logit analysis shows that the difference is significant between City and Rural in the case of flood and drought, i.e. city dwellers attribute significantly higher risk to floods and significantly lower risk to drought compared to rural dwellers.

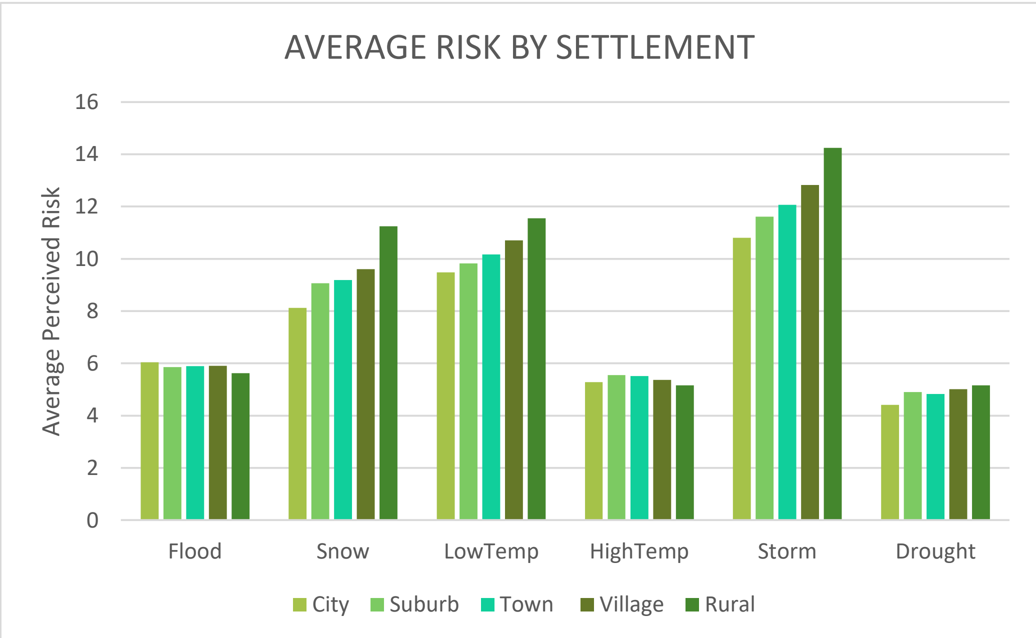

Figure 10: Average Risk Rating by Settlement Type

Risk By County

Table 12 sets out the average perceived risk associated with weather events by county. For counties in the South, the highest 10 in terms of risk perception are shaded red for each weather event; for counties in the North, the highest two in terms of risk perception are shaded blue.

Table 12: Average Risk Rating by County

County	Flood	Snow	Low Temp	High Temp	Storm	Drought
Northern Counties						
Antrim	5.14	7.57	9.29	3.29	12.57	3.43
Armagh	5.00	10.00	7.00	3.50	9.00	5.00
Derry	7.00	11.50	12.00	4.13	13.00	2.25
Down	4.91	8.91	7.73	4.27	8.55	4.91
Fermanagh	7.00	11.00	13.11	3.67	12.33	4.22
Tyrone	4.20	14.00	11.60	3.20	14.60	2.60
Southern Counties						
Carlow	4.78	11.88	12.40	5.95	13.83	4.48
Cavan	4.68	12.34	11.86	5.11	13.13	4.30
Clare	6.61	8.69	10.54	5.20	13.40	4.82
Cork	6.18	10.51	11.80	5.44	14.37	5.00
Donegal	5.38	13.15	12.97	4.39	14.36	4.41
Dublin	5.80	8.58	9.31	5.47	10.74	4.74
Galway	6.96	9.30	11.05	5.10	13.76	5.01
Kerry	6.20	9.30	10.70	4.43	15.73	4.36
Kildare	6.99	10.68	10.75	5.89	12.09	5.58
Kilkenny	4.29	9.98	10.58	5.51	13.16	5.32
Laois	6.52	11.58	12.91	6.40	13.63	6.48
Leitrim	5.52	11.66	11.52	4.03	13.93	4.28
Limerick	6.35	9.58	11.30	5.66	14.20	5.18
Longford	6.50	12.56	12.56	6.56	14.44	4.44
Louth	5.22	9.33	10.08	5.36	11.66	4.80
Mayo	5.26	10.22	10.79	5.12	14.18	4.81
Meath	5.55	9.09	9.78	5.30	11.52	4.85
Monaghan	5.10	11.47	11.86	5.02	11.80	3.90
Offaly	6.53	9.69	10.66	4.86	12.63	4.76
Roscommon	6.01	10.01	10.99	5.66	12.59	5.88
Sligo	4.87	11.38	11.74	4.89	13.56	4.52
Tipperary	5.82	9.65	10.59	5.69	13.33	5.21
Waterford	5.41	8.84	9.59	5.45	12.99	5.40
Westmeath	4.53	9.37	10.03	4.76	11.21	4.72
Wexford	4.72	10.87	10.24	5.51	13.69	4.98
Wicklow	4.83	11.18	10.36	5.63	13.12	4.69

Section 3: Experience and Worry about Weather-Related Events

Experience

Respondents were asked whether they had experienced weather-related events, and selected one option from three: no, indirectly (someone close to me has experienced this emergency) or yes. The results are presented in Figure 11, with the percentages stating no, indirectly or yes labelled on (or beside) the bars for clarity.

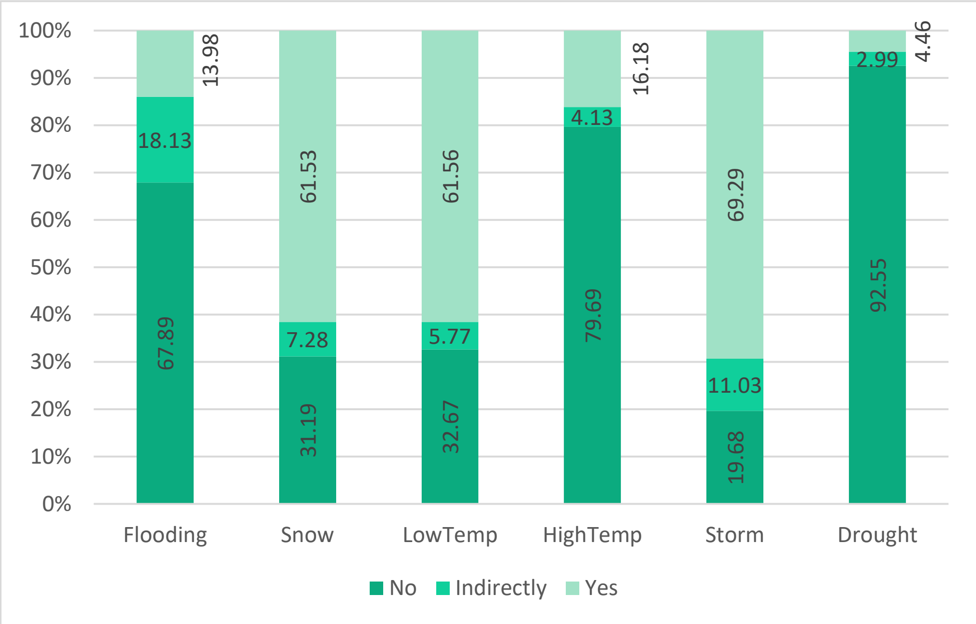

Figure 11: Reported Experience of Events

The event experienced by the largest number of individuals is storm, with almost 70% of respondents reporting having direct experience and 11% indirect experience. Less than 20% of respondents report having no experience of a storm. The experience distribution for snow and low temperatures are very similar to each other, with around 62% reporting direct experience of the events and roughly 6% to 7% reporting indirect experience.

The event experienced by the lowest number of respondents is drought, with less than 5% reporting direct experience of this and only 3% reporting indirect experience. While a relatively low proportion of respondents (13.98%) report having direct experience of flooding, a more substantial proportion (18.13%) have had an indirect experience of this event.

Experience by Gender

Examining experience by gender, Figure 12 shows that for each event, a higher proportion of males than females report having had direct experience. The magnitude of difference is small in each case, and the difference is only statistically significant for three cases: flood, high temperatures and drought.

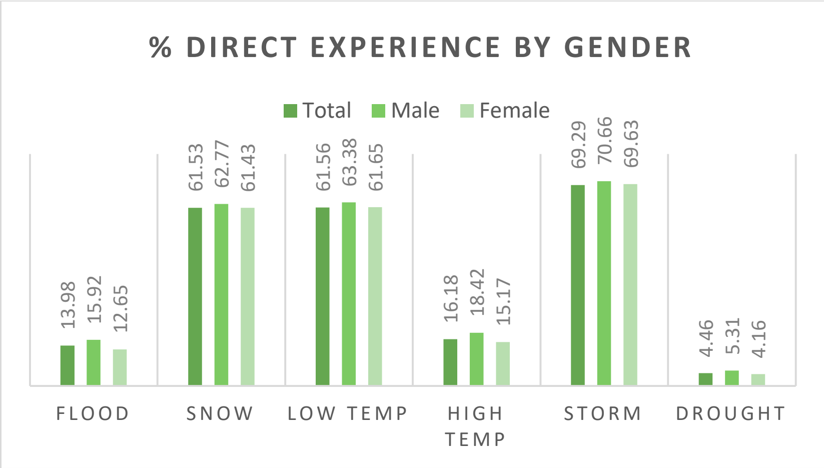

Figure 12: Percentage Direct Experience By Gender

Experience by Settlement Type/Urbanicity

Table 13: Percentage Reporting Direct Experience of Events by Urban/Rural Location

Location	Flood	Snow	Low Temp	High Temp	Storm	Drought
Non-Rural	13.03	59.28	57.99	18.48	66.16	4.34
Rural	14.63	68.13	70.75	12.46	77.24	5.07

A larger proportion of rural dwellers report direct experience of flooding, snow, low temperatures, storm, and drought. Tests of the null hypotheses that the proportions are equal for urban and non-rural areas produced highly statistically significant results in the cases of snow, low temperatures and storm, i.e., there is enough evidence to reject strongly the assumption of equality in these cases. There is weak evidence of a difference in proportions for flooding. In the case of drought, we cannot reject the hypothesis of equality – the difference is not statistically significant.

A larger proportion of urban dwellers reported direct experience of high temperatures, and the difference in proportions between urban and rural is highly significant.

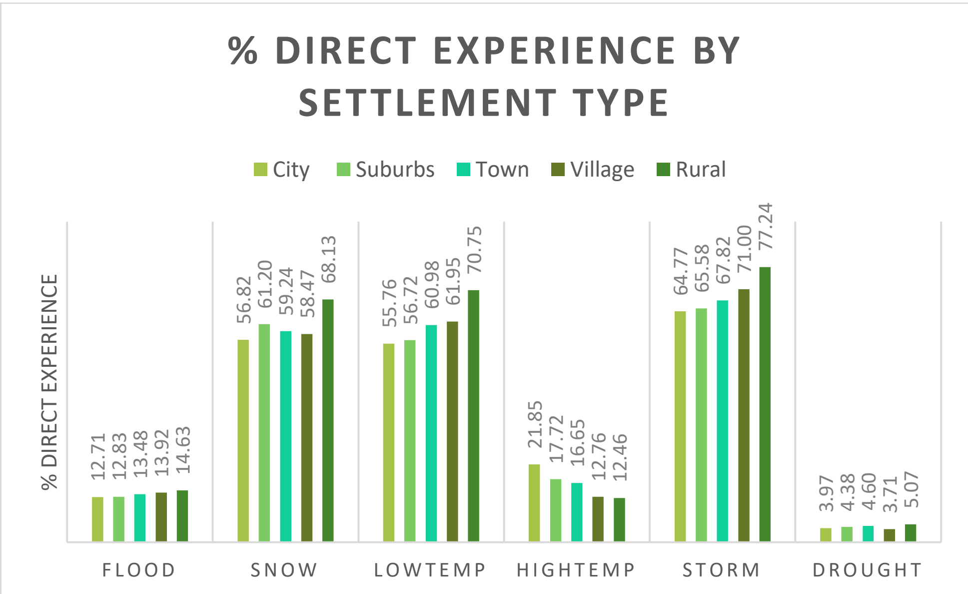

Figure 13: Percentage Direct Experience by Settlement Type

Experience by County

Table 14 sets out the percentage stating they had direct experience of weather-related events by county. The ten Southern counties and the two Northern counties with highest values are highlighted for each event.

Table 14: Percentage Stating Direct Experience by County

County	Flood	Snow	Low Temp	High Temp	Storm	Drought
Northern Counties						
Antrim	14.29	42.86	57.14	14.29	57.14	0.00
Armagh	0.00	50.00	50.00	50.00	100.00	0.00
Derry	12.50	62.50	62.50	12.50	75.00	0.00
Down	18.18	54.55	45.45	18.18	54.55	9.09
Fermanagh	11.11	77.78	66.67	0.00	66.67	0.00
Tyrone	20.00	60.00	80.00	0.00	60.00	0.00
Southern Counties						
Carlow	17.50	72.50	67.50	17.50	77.50	5.00
Cavan	12.50	66.07	75.00	16.07	66.07	3.57
Clare	13.70	46.58	58.90	10.05	73.52	3.65
Cork	21.08	67.68	71.90	14.52	83.14	7.26
Donegal	16.51	74.31	70.64	11.01	76.15	1.83
Dublin	12.69	60.51	54.65	19.89	61.64	4.05
Galway	19.16	52.34	64.02	14.49	72.90	5.61
Kerry	20.24	63.10	66.67	13.10	84.52	5.95
Kildare	13.66	71.04	71.04	17.49	73.77	4.92
Kilkenny	16.47	74.12	69.41	24.71	81.18	5.88
Laois	10.77	64.62	67.69	20.00	76.92	9.23
Leitrim	10.34	75.86	75.86	10.34	75.86	6.90
Limerick	7.29	54.17	60.42	19.27	78.13	3.65
Longford	11.11	77.78	88.89	11.11	88.89	0.00
Louth	8.84	57.14	54.42	10.88	62.59	4.08
Mayo	7.00	56.00	59.00	13.00	62.00	2.00
Meath	11.78	67.24	63.51	14.94	64.37	4.02
Monaghan	13.73	60.78	64.71	5.88	62.75	1.96
Offaly	12.05	54.22	60.24	12.05	65.06	3.61
Roscommon	6.76	62.16	74.32	8.11	60.81	4.05
Sligo	13.11	65.57	67.21	18.03	72.13	4.92
Tipperary	13.17	50.30	60.48	12.57	68.86	5.39
Waterford	12.77	57.45	57.45	15.96	88.30	3.19
Westmeath	10.53	59.21	59.21	13.16	61.84	5.26
Wexford	13.83	78.72	73.40	15.96	87.23	3.19
Wicklow	15.00	74.00	68.00	20.00	76.00	5.00

Worry

Respondents rated their worry levels about each of the six weather-related events on a scale from 1 = not at all worried, up to 5 = worry a great deal. The distribution of responses for each event is given in Figure 14, and the averages are reported in Figure 15. It is evident that the highest level of worry is about storms, followed by low temperatures, snow, and then flooding. Over 80% do not worry at all about drought, and almost 80% do not worry at all about high temperatures.

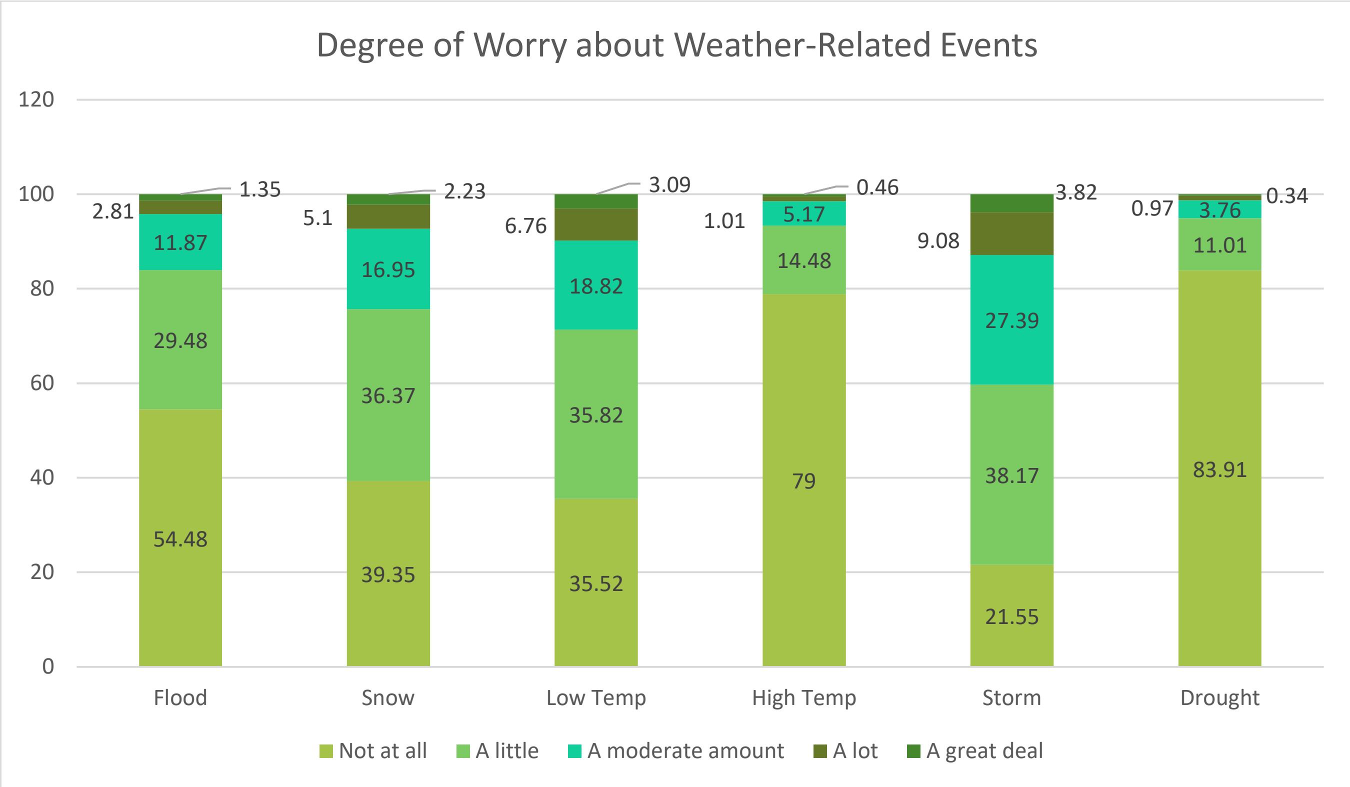

Figure 14: Degree of Worry about Weather-Related Events

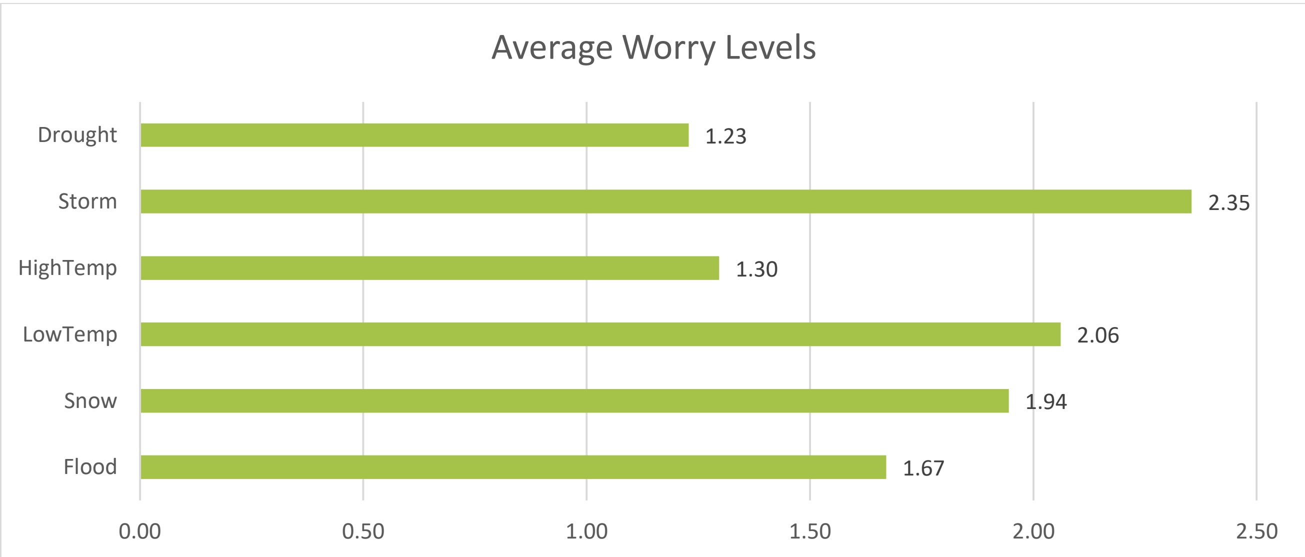

Figure 15: Average Worry about Weather-Related Events

Worry by Gender

Average worry levels between males and females are similar in all cases, see Figure 16. They are significantly different only in the cases of low temperatures and snow, with females exhibiting slightly higher worry levels.

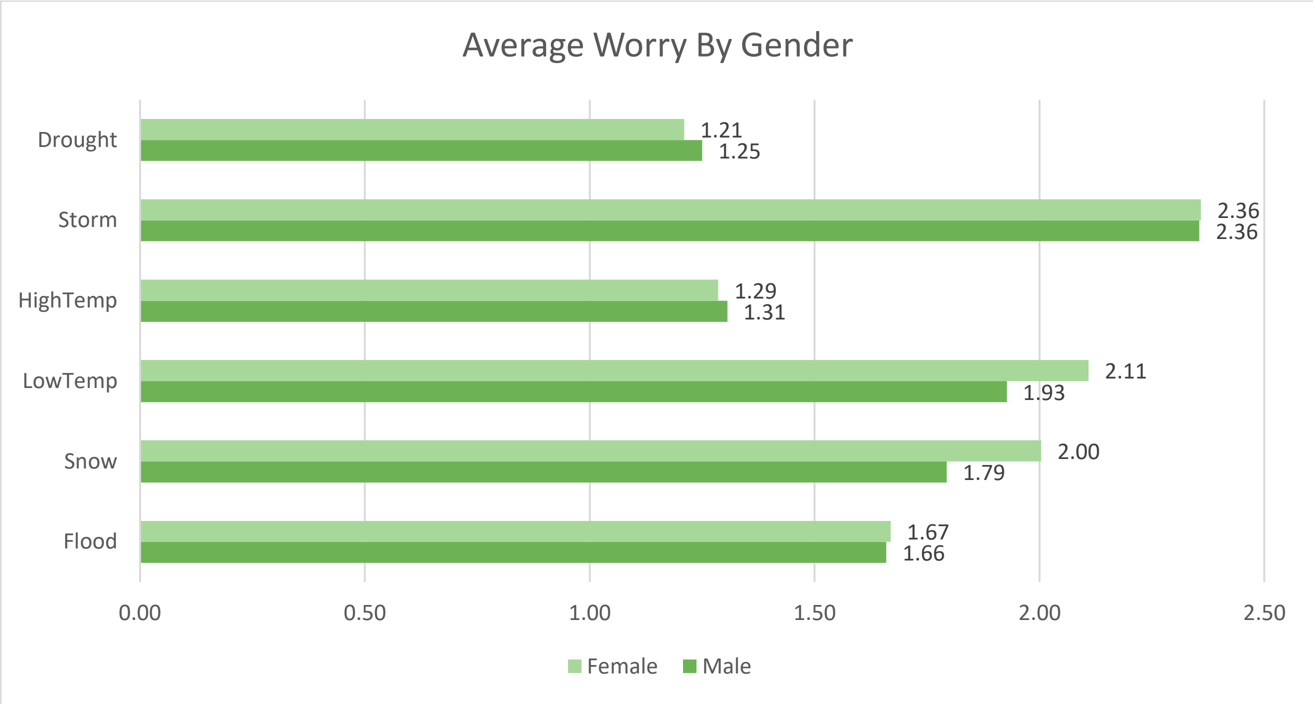

Figure 16: Average Worry about Weather-Related Events by Gender

Worry by Settlement/Urbanicity

Figure 17 shows the average worry levels for each weather-related event over different settlement types. Mapping the findings in relation to experience of weather-related events, worry levels about snow, low temperatures and storms are higher in more rural locations.

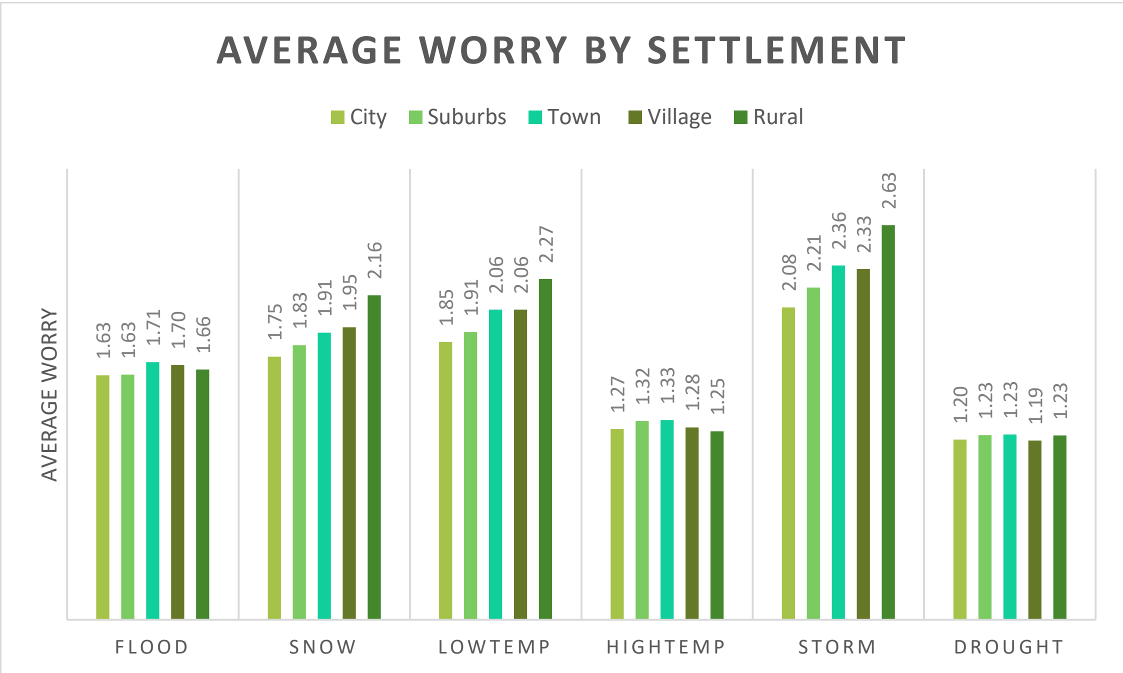

Figure 17: Average Worry about Weather-Related Events by Settlement Type

Worry by County

Average worry levels by county are given in Table 15. For each weather-related event, the ten counties in the South and the two counties in the North with the highest average worry levels are highlighted.

Table 15: Average Worry Level by County

County	Flood	Snow	Low Temp	High Temp	Storm	Drought
Northern Counties						
Antrim	1.29	1.57	2.00	1.29	2.57	1.29
Armagh	1.50	2.00	2.00	1.00	2.00	1.00
Derry	1.25	2.13	1.75	1.13	2.25	1.00
Down	1.55	1.82	1.82	1.18	1.82	1.00
Fermanagh	1.56	2.44	2.22	1.00	2.44	1.00
Tyrone	1.80	2.80	2.80	1.00	1.80	1.00
Southern Counties						
Carlow	1.68	2.33	2.40	1.40	2.50	1.20
Cavan	1.57	2.43	2.39	1.30	2.43	1.23
Clare	1.87	1.84	2.17	1.29	2.67	1.22
Cork	1.76	2.11	2.25	1.28	2.56	1.27
Donegal	1.63	2.34	2.34	1.23	2.54	1.11
Dublin	1.60	1.76	1.82	1.29	2.09	1.22
Galway	1.80	1.84	2.08	1.24	2.46	1.18
Kerry	1.99	2.07	2.29	1.24	2.94	1.19
Kildare	1.84	2.16	2.18	1.45	2.35	1.32
Kilkenny	1.52	1.95	2.16	1.29	2.38	1.24
Laois	1.71	2.26	2.40	1.20	2.52	1.20
Leitrim	1.72	2.31	2.48	1.14	2.72	1.10
Limerick	1.69	1.97	2.14	1.40	2.56	1.19
Longford	2.06	2.39	2.39	1.67	2.78	1.39
Louth	1.59	1.93	1.99	1.32	2.29	1.22
Mayo	1.66	2.16	2.24	1.28	2.73	1.23
Meath	1.61	1.84	1.98	1.27	2.22	1.23
Monaghan	1.41	2.16	2.14	1.20	2.25	1.14
Offaly	1.82	1.98	2.20	1.33	2.42	1.20
Roscommon	1.82	2.16	2.28	1.38	2.41	1.26
Sligo	1.62	2.28	2.34	1.20	2.54	1.13
Tipperary	1.59	1.86	2.12	1.28	2.50	1.23
Waterford	1.70	1.88	1.93	1.28	2.46	1.27
Westmeath	1.53	1.86	2.01	1.18	2.18	1.17
Wexford	1.47	2.14	2.11	1.29	2.54	1.20
Wicklow	1.48	2.04	2.03	1.27	2.39	1.27

Experience and Risk Assessment

Figure 18 demonstrates that there is a direct relationship between the risk perception attached to a weather-related event and the degree of experience of the respondent. For each event, as the degree of experience increases from none to indirect experience to personal experience, the average level of risk associated with the event increases.

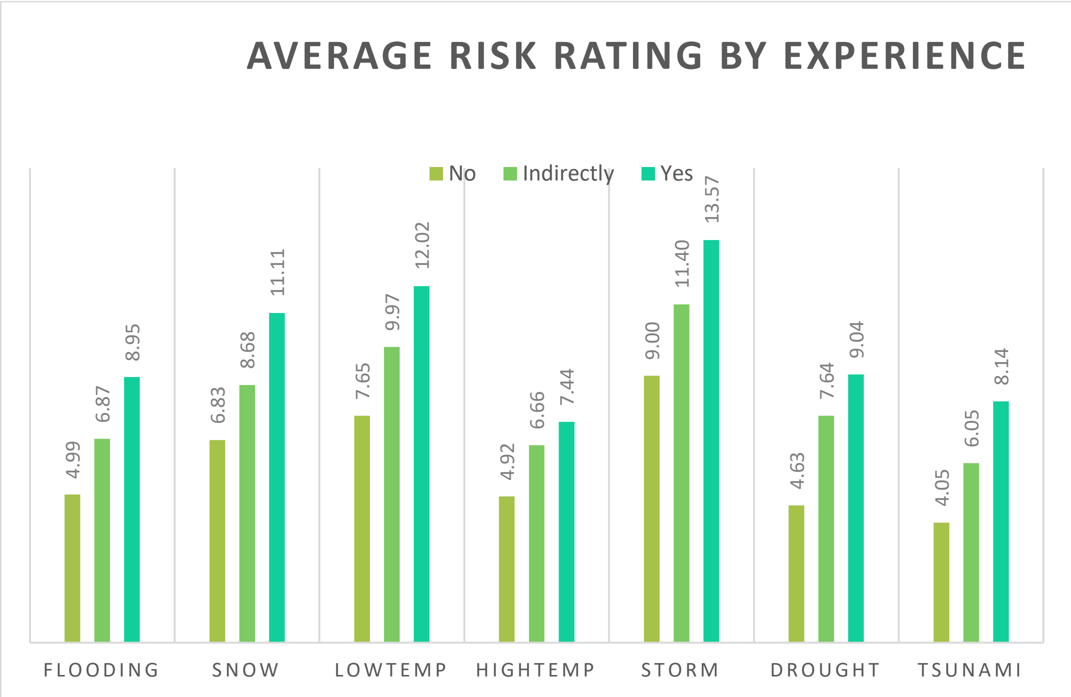

Figure 18: Relationship between Experience of Weather Events and Risk Rating

Section 4: Emergency Preparedness

Preparedness for emergencies is measured in two forms: individuals' perceptions about their level of preparedness, and their responses to questions that elicit information about factual evidence of their level of preparation.

Perceived Preparedness

Overall perceived preparedness for emergencies was addressed through the question: How prepared for an emergency do you think you are? Respondents chose a rating from 0 = not at all prepared up to 10 = completely prepared. This question was asked in relation to any emergency and was not explicitly focused on weather-related events. The overall average perceived preparedness score was 4.33. The average response for males was higher than that for females, 4.82 versus 4.13. The distribution of responses is shown in Figure 19.

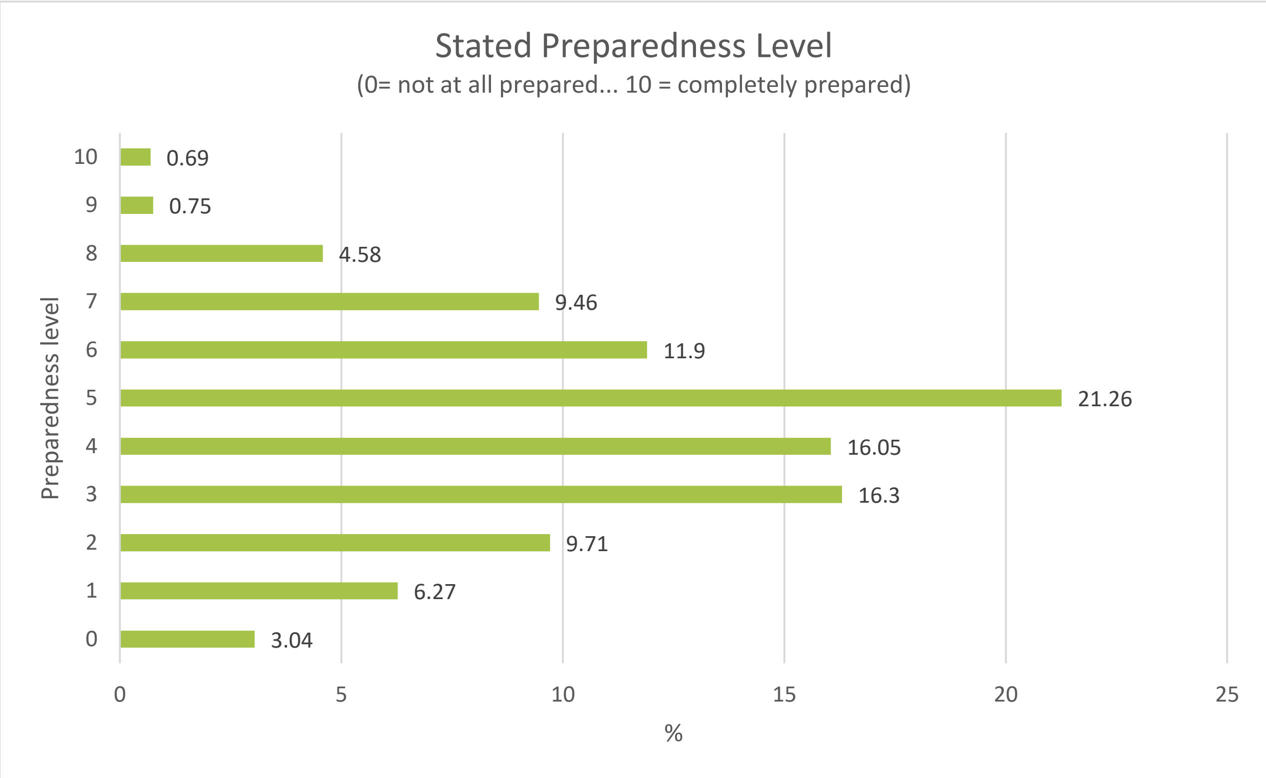

Figure 19: Stated Preparedness Level

Attitudes towards preparation specifically for weather-related events were captured in response to the question, "For each of the following emergencies, which statement best represents your view?" Respondents chose one of the following: "Nothing I do to prepare will help should this emergency occur"; "I do not need to prepare for this emergency"; "I am not prepared to deal with this emergency, but I do see a benefit in preparing"; or "I am prepared for this emergency". The responses are illustrated in Figure 20.

The relatively low percentages of individuals stating "I do not need to prepare for this emergency" in the case of storm (8.07%), snow (16.73%) and low temperatures (17.16%) are in contrast to the relatively high risk assessments for these events. Though the need for preparation appears to be recognised, the results show a majority of respondents consider they are not prepared for these emergencies. The highest reported preparedness is for low temperatures, with approximately 43% reporting they are prepared. The figures drop to 35.21% and 28.04% for storm and snow, respectively.

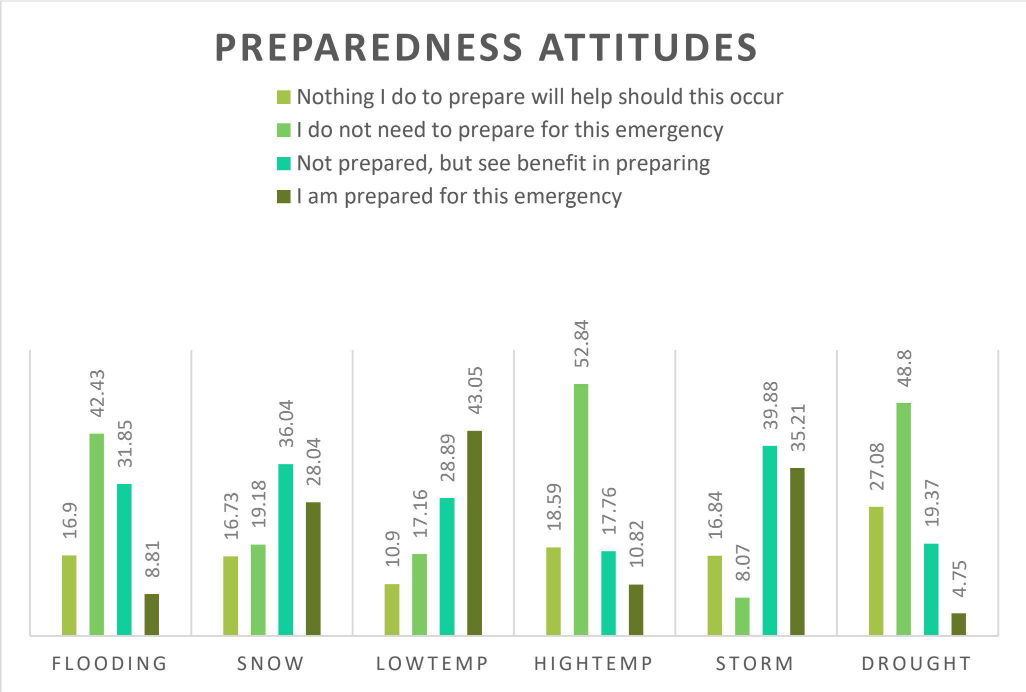

Figure 20: Preparedness Attitudes to Weather-Related Events

There is very little difference in the distribution of attitudes between males and females. There is less than a 1% difference in the proportions who state they are prepared for storm and low temperatures and a 2% difference for snow.

The distributions over other responses show that a greater proportion of females state that they are unprepared but see a benefit in preparing. In contrast, a larger proportion of males state that they either do not need to prepare, or nothing they do would help in case of the emergencies. However, the differences in the distribution of responses are not statistically significant.

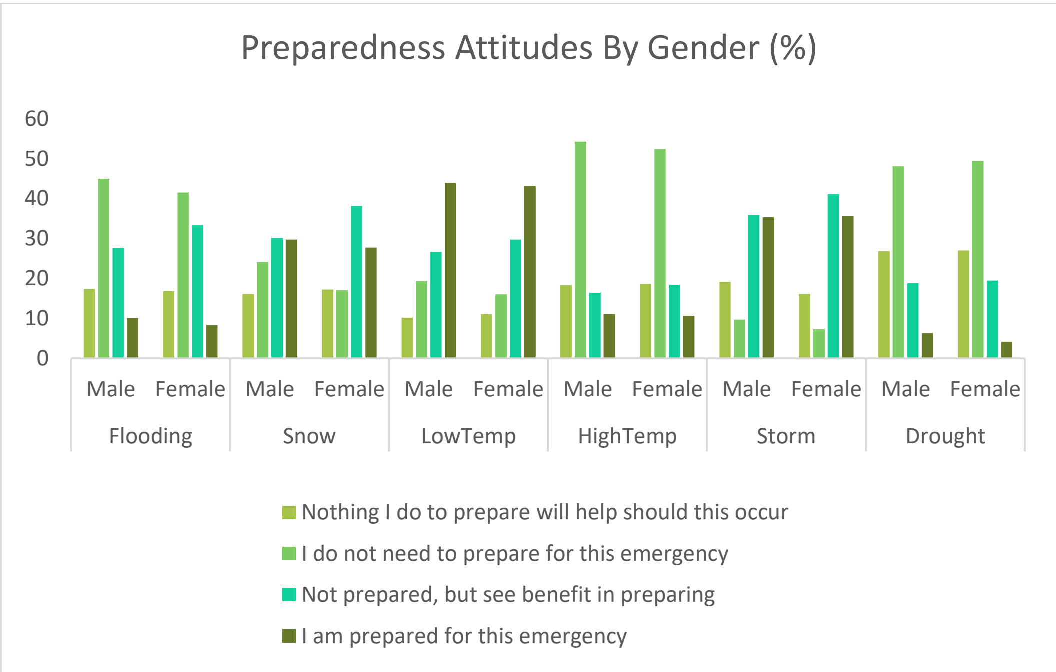

Figure 21: Preparedness Attitude by Gender

Comparing preparedness levels for weather-related emergencies across settlement types, a larger proportion of rural dwellers than others are prepared for all emergencies except high temperatures. In contrast, city dwellers appear least prepared for all emergencies except in the case of high temperatures.

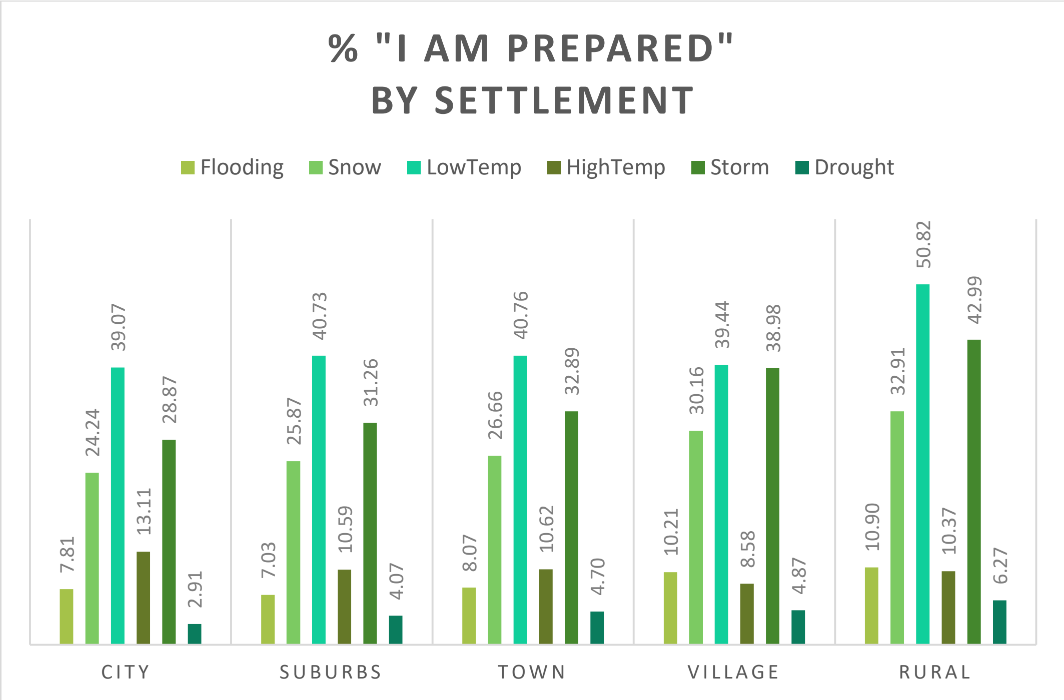

Figure 22: Preparedness by Settlement Type

Preparedness by County

Table 16 shows the percentage of individuals within each county who state they are prepared for the weather-related events. For counties in the South, the highest 10 in terms of preparedness are shaded red for each weather event; the top two are shaded blue for the Northern counties.

Table 16: Stated Preparedness by County

County	Flooding	Snow	Low Temp	High Temp	Storm	Drought
Northern Counties						
Antrim	0.00	28.57	28.57	0.00	28.57	0.00
Armagh	0.00	50.00	50.00	0.00	0.00	0.00
Derry	25.00	50.00	50.00	12.50	50.00	0.00
Down	9.09	27.27	27.27	9.09	18.18	9.09
Fermanagh	0.00	44.44	33.33	0.00	33.33	0.00
Tyrone	20.00	40.00	60.00	0.00	60.00	0.00
Southern Counties						
Carlow	7.50	35.00	50.00	12.50	40.00	5.00
Cavan	10.71	44.64	57.14	5.36	37.50	3.57
Clare	7.76	21.00	38.81	9.59	36.53	5.02
Cork	12.41	31.85	44.73	9.13	44.26	6.32
Donegal	9.17	43.12	50.46	7.34	45.87	2.75
Dublin	6.91	25.38	38.44	12.16	28.75	3.98
Galway	10.28	23.36	45.79	11.68	40.65	5.61
Kerry	11.90	26.19	46.43	10.71	45.24	7.14
Kildare	7.10	32.24	44.26	8.20	25.68	3.83
Kilkenny	7.06	23.53	48.24	5.88	36.47	3.53
Laois	10.77	30.77	50.77	10.77	47.69	4.62
Leitrim	10.34	34.48	48.28	17.24	48.28	3.45
Limerick	14.06	22.92	46.35	14.06	39.58	5.73
Longford	11.11	50.00	66.67	16.67	61.11	5.56
Louth	6.80	34.01	43.54	12.24	36.73	4.76
Mayo	17.00	32.00	46.00	11.00	41.00	7.00
Meath	8.62	28.45	40.80	8.91	33.91	5.75
Monaghan	3.92	33.33	45.10	5.88	33.33	1.96
Offaly	9.64	20.48	40.96	12.05	37.35	6.02
Roscommon	10.81	25.68	48.65	6.76	40.54	5.41
Sligo	8.20	34.43	50.82	13.11	32.79	3.28
Tipperary	9.58	23.95	46.71	13.17	36.53	7.78
Waterford	8.51	26.60	50.00	10.64	40.43	6.38
Westmeath	6.58	23.68	44.74	3.95	25.00	0.00
Wexford	2.13	43.62	56.38	12.77	41.49	2.13
Wicklow	11.00	35.00	41.00	14.00	37.00	4.00

Actual Preparedness

Levels of actual, as opposed to perceived, preparedness within households are measured by whether respondents have plans in place to deal with emergencies; whether they have taken actions to prepare, including having sufficient stocks of water, food and medication for emergency use; and whether they have items in their homes deemed helpful in dealing with an emergency such as salt for gritting or a shovel for clearing snow.

Item Checklist Preparedness

Respondents reported whether or not they had, or believed they should obtain, each of the following nine items: generator, alternative means of heating, shovel, salt (for clearing paths), a large water container, battery-powered radio, emergency contact details, emergency cash and a secure container for documents. The responses are summarised in Table 17, with items ordered from the highest to the lowest percentage who report having them.

Table 17 Item Checklist Preparedness

Item	Do Not Have This (%)	Should get This (%)	Yes, Have This (%)
Shovel	8.91	3.49	87.60
Alternative Means of Heating	21.89	6.61	71.50
Large Drinking Water Container	22.89	20.37	56.74
Battery-Powered or Hand Crank Radio	41.07	18.29	40.64
Bag of Salt (for clearing paths)	36.19	24.53	39.27
Emergency Contact Details	30.00	31.64	38.36
Emergency Cash	36.54	26.59	36.87
Protective Container for Documents	35.11	31.69	33.20
Generator	74.82	15.02	10.16

Table 18 presents the frequency distribution over the number of relevant items held within households. Almost a quarter of households (23.58%) have two or fewer items, and around 40% have up to three items.

Table 18: Preparedness Items - Frequency Distribution

Number of items	Frequency	Percentage	Cumulative
0	147	3.19	3.19
1	346	7.50	10.68
2	595	12.90	23.58
3	772	16.73	40.31
4	777	16.84	57.15
5	737	15.97	73.13
6	555	12.03	85.15
7	394	8.54	93.69
8	234	5.07	98.76
9	57	1.24	100
Total	4614	100	

The percentages who stated they had the recommended stores of food, water and medication for an emergency are given in Table 19. Only around a third of households have water for three or more days, and less than half have the recommended supply of medication (enough for at least eight days). 16% of households do not have a stock of food for the recommended period (3+ days) in case of an emergency.

Table 19: Percentage with Recommended Water, Food and Medication Supplies

Item	%
Water for 3+ days	32.98
Food for 3+ days	83.81
Medication for 8+ days	47.23

Preparedness Plans and Actions

Individuals were questioned as to whether they had household emergency plans for all situations and for specific events. 6.39% report having a plan for all situations and a further 70.62% for some specific situations. 58.97% state they have an evacuation plan. 13.48% report having a plan in case of flooding, 34.23% for the occurrence of snow, 43.38% for low temperatures and 39.82% for storms. For all the weather-related situations, the percentages stating they have a plan are slightly higher than the percentages who perceived themselves as being prepared for the emergency.

Other preparedness actions taken, or planned, were examined. Respondents were asked to respond: yes; may do/get this; no; or not applicable to statements on preparedness. Table 20 summarises the statements presented and the results.

Table 20: Actions Taken or Planned for Emergencies

	% of 'applicable' responses			
Statement	No	May do/get this	Yes	% Stating Not Applicable
I have access to an alternative cooking source	36.96	11.03	52.01	0.87
I have made changes to my home to protect it against flood and storm	61.57	11.54	26.89	14.32
I have loft insulation that is thick and in good condition	13.48	6.84	79.68	3.66
I know how to turn off the household water supply	21.42	6.68	71.90	0.96
I know how to turn off the household electrical supply	18.16	5.96	75.88	0.72
I know how to turn off the household gas supply	24.73	8.38	66.89	37.60
I have an emergency kit should I need to evacuate	55.34	24.13	20.54	7.98
I make an effort to check on elderly/vulnerable people during winter	20.83	20.39	58.78	8.03

The indicator of preparedness with the highest positive response tallies with the previous result that a relatively large proportion of respondents state they are prepared for low temperatures. Here nearly 80% of respondents for whom the statement is applicable confirm 'yes' to the statement "I have loft insulation that is thick and in good condition".

In case of an emergency, there may be a need for individuals to switch off water, electricity and gas supplies into their home. The ability of respondents to do so was checked. For each household utility considered - water, electricity and gas - the proportions of individuals who do not know how to switch off the household supplies in case of an emergency is high. Around three-quarters of respondents (76%) report knowing how to switch off the electrical supply to their household, 72% know how to switch off the water supply, and around two-thirds know how to switch off the gas supply.

While above we saw that almost 59% of respondents have an evacuation plan, only 20.54% of those who deemed the statement applicable to them say they have an emergency kit should they need to evacuate.

A little over half of respondents have access to an alternative cooking source, and a little over a quarter have made changes to their home to protect it against storm or flooding.

Almost 60% state they make an effort to check on elderly or vulnerable people during the winter.

Section 5: The “Be Winter Ready” Campaign

This section reports on the level of public awareness about the “Be Winter Ready” Campaign, which was launched on 8th November 2017, a week before the survey was opened. Evidence is presented related to the success of the campaign, measured as the degree to which it impacted on preparedness for weather-related emergencies. Included is an assessment of the impact of the campaign on various subsections of the population (farmers, teachers/schools, business owners and motorists) for whom the campaign provided specific guidance.

Awareness of the ‘Be Winter Ready’ campaign

Respondents were shown the logo of the “Be Winter Ready” Campaign, told what it was, and asked whether they recalled seeing it before. Overall, almost three-quarters (73.22%) responded ‘no’. The percentage who responded ‘yes’ was 20.90% with a further 5.88% stating ‘maybe’.

Given the possibility that a campaign may need time to gain momentum, the chart below sets out the proportion of individuals who report seeing the logo in each of the nine weeks for which the survey was open. It should be noted that 95% of responses were received before week 6.

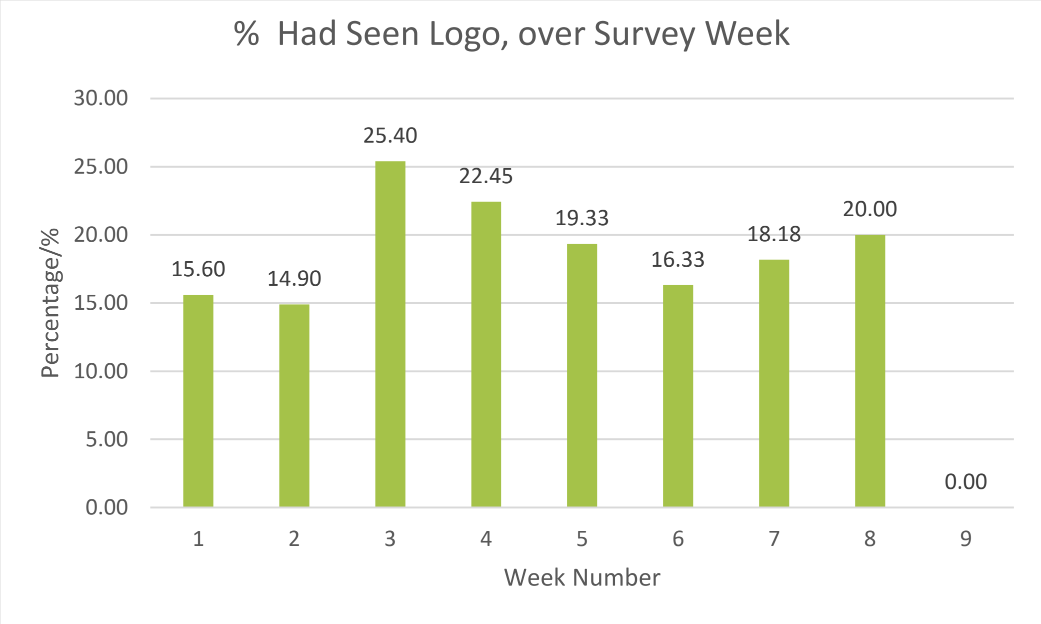

Figure 23: Percentage Recognition of "Be Winter Ready" Campaign Logo

Using recognition of the logo as an indication of awareness of the campaign, it appears there was an improvement by week 3, the fourth week after the launch of the campaign. However, it did not gather further momentum and was not sustained over time. The proportion who reported having seen the logo before completing the survey never increased above 25.4% in any week over the survey period.

Respondents also replied to the question 'How familiar are you with the "Be Winter Ready" Campaign?' choosing one of five options; 1= not at all familiar, 2 = slightly familiar, 3 = somewhat familiar, 4 = moderately familiar, and 5 = extremely familiar.

The results for the sample as a whole are given in Figure 24. There is a low level of awareness displayed, with over half not at all familiar with the campaign.

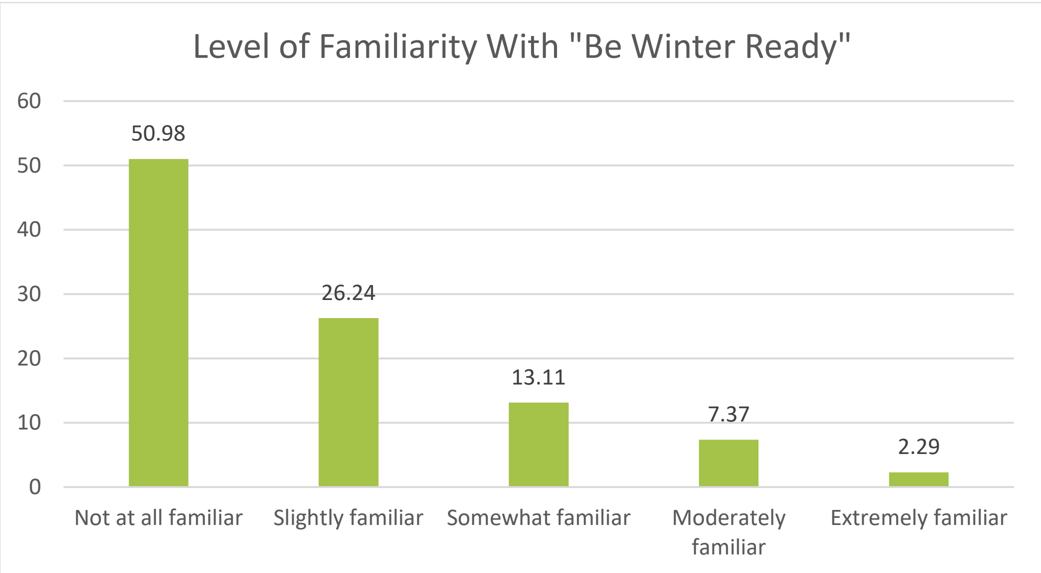

Figure 24: Familiarity with" Be Winter Ready" Campaign

Again, checking for changes in awareness over time, the chart below shows the percentages who state they are not at all familiar with the campaign for each week the survey ran. The inference is similar to that for discussion of knowledge of the logo, with Figure 25 illustrating somewhat of a reversal of the trend observed in Figure 24; awareness at first increased – the percentage who claim no familiarity decreases initially, but this downward trajectory was not sustained over time.

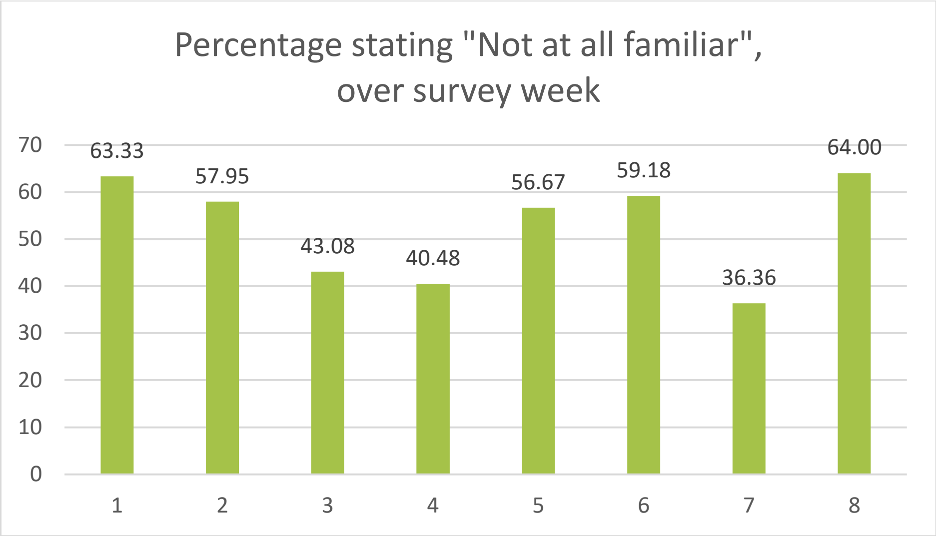

Figure 25: Percentages "Not at all familiar" Over the Course of the Survey

If there was a correlation between the timing of survey completion and demographic information on the respondents, then the fall-off in awareness could be attributed to 'different types' of individuals completing the survey at different points of time. To address this, included in the technical appendix are results of ordered logit regressions explaining the level of familiarity about the campaign in terms of socioeconomic characteristics. Timing of the survey (the day of completion) is also considered and shows a quadratic relationship in line with the pattern above, where at first awareness seems to increase but then decreases again. This holds even when controlling for respondents' socio-demographic characteristics.

Sources of Information about "Be Winter Ready"

Those individuals who were at least slightly familiar with the campaign (n=3043) were asked where they had heard about the campaign. More than one location/medium could be identified. The results are presented summarised in Table 21.

Table 21: Source of Information

Information Source	%
Online (Social Media or Website)	33.06
Radio	22.28
Television	20.70
Work	11.99
Received a 'Be Winter-Ready' Campaign Booklet	4.47
Community Noticeboard/ Community Group Centre.	3.15
Word of Mouth	2.33
Motorway	2.23
Library	1.22
At the National Ploughing Championships	0.85
At a School	0.62
Other	1.38
Don't Recall	14.89

General effectiveness of the "Be Winter Ready" Campaign

At various points in the survey, respondents were asked whether the actions they took to protect themselves and their homes in case of an emergency were as a result of the advice given in the "Be Winter Ready" Campaign.

In response to the question "Have you taken any action to protect yourself or your home in case of an emergency?", where the emergency type included non-weather-related situations, 58.88% responded that they had. Of those who had acted, 25% said their action was prompted by the "Be Winter Ready" Campaign to protect against severe winter weather. That is, almost 15% (14.7%) of all respondents had taken action to protect themselves or their home based on the "Be Winter Ready" Campaign, indicating that some messages of the campaign have been successful despite over 50% of respondents stating they are not at all aware of it

One potential reason why more people did not act on the advice of the "Be Winter Ready" Campaign is that they found the information unclear. Respondents were asked "Are the actions that should be taken to prepare for a winter emergency made clear in the "Be Winter Ready" campaign?" and responded on an 11 point scale with 0 = not at all clear up to 10 = totally clear. The mean response was 5.427, with mode and median at 5. Figure 26 shows the distribution of responses on clarity rating.

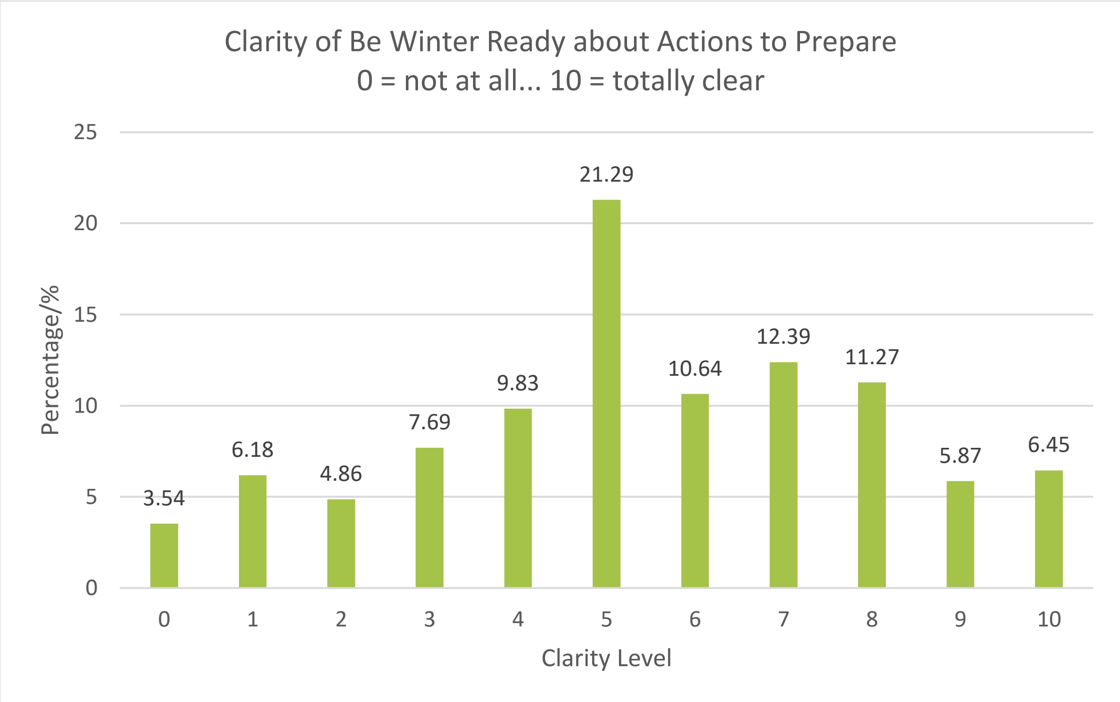

Figure 26: Clarity of "Be Winter Ready" Information

Figure 27 shows the relationship between the percentage of individuals stating they took action based on the "Be Winter Ready" Campaign and the clarity rating. Of those who gave the lowest rating on the clarity of the information, 8.5% still report acting on its advice. Overall, there is a positive relationship with 60% of those who gave the campaign the highest rating for clarity, stating that they took action based on its advice.

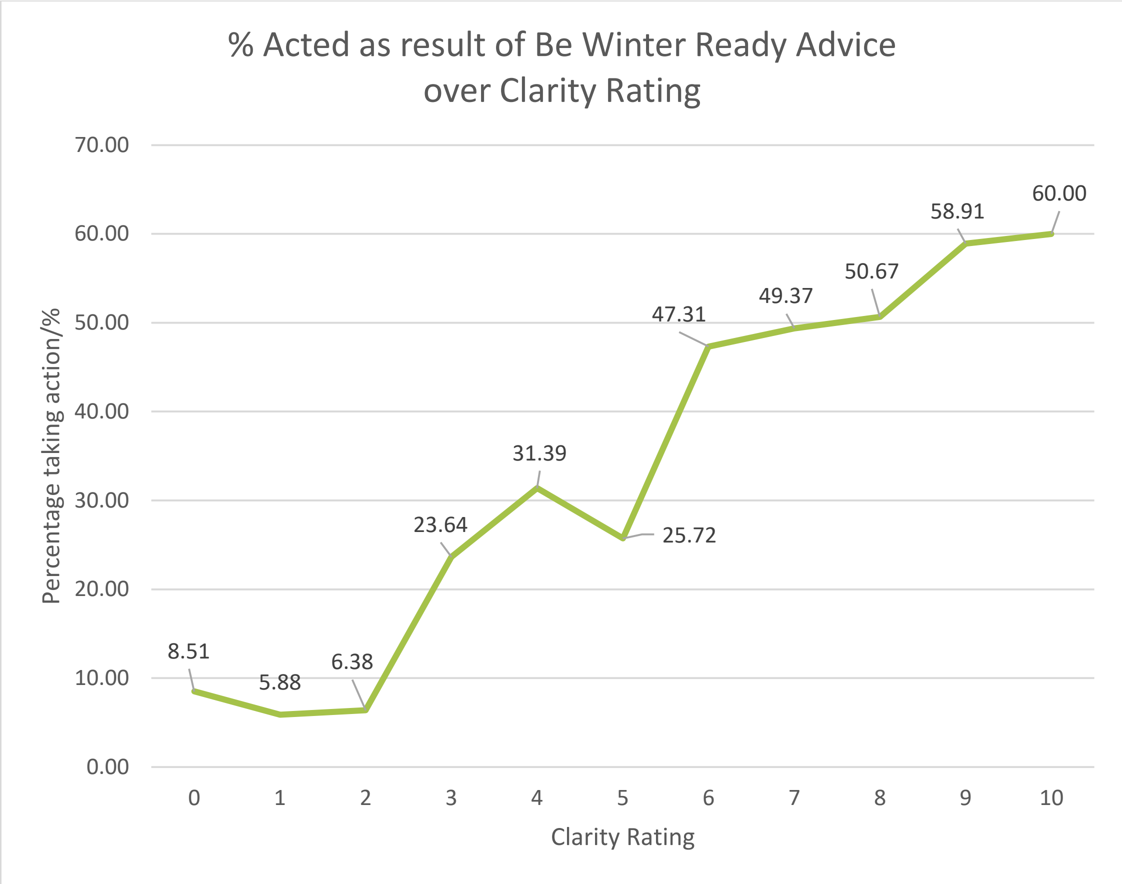

Figure 27: Relationship between Action to Protect and Clarity of Information

"Be Winter Ready" – Occupation Focus

The "Be Winter Ready" Campaign provided specific advice to farmers, business owners and schools on the action they should take to prepare. The survey allows us to assess to what degree this information reached these targeted groups, and whether the groups had undertaken the advised preparatory measures.

General Awareness in Targeted Sectors

Responses from employment sectors that were targeted in the "Be Winter Ready" Campaign reveal no significantly different recognition of the campaign logo compared to the sample as a whole, and no significantly different proportion who are at all familiar with the campaign.

Table 22: Awareness of Logo by Targeted Occupation

Response	Farmer	Business	Teacher	Overall
% Yes, saw logo	24.00	20.14	18.56	20.90
% Maybe saw logo	5.60	7.19	5.15	5.88
% Not at all familiar with campaign	53.6	50.35	53.60	50.98
N	125	139	97	6455

Farmers

Those individuals who identified themselves as farmers and who had signalled no familiarity at all with the "Be Winter Ready" Campaign, were asked about their knowledge of the advice directed specifically to them. In response to the question “Are you aware of the "Severe Weather Conditions – Advice for Farmers" by 'Be Winter Ready'?”, 26 of the 57 meeting the conditions, i.e. 45%, answered positively.

All farmers were asked to report on whether they had undertaken the advised actions and sourced resources recommended to prepare for severe weather. The measures specified were: having an alternative water supply, insulated pipes, maintained tractors for cold weather use, maintained sprayers for cold weather use, gritted yards and lanes, and carry a mobile phone when going out to work on the farm. The percentages who responded yes, no, but will do it, no, and not applicable are set out in Table 23. The percentages reported in the first three columns are of those who deemed the question applicable to themselves.

Table 23: Farmers' Winter-Ready Actions

	% of Applicable			
Have you:	**No**	**No, but will do**	**Yes**	**% Not Applicable**
Alternative Water Supply	13.21	9.08	77.69	1.63
Insulated Pipes	20.00	12.50	67.50	1.64
Maintained Tractors	6.42	7.33	86.23	11.38
Maintained Sprayers	33.33	13.33	53.33	35.34
Gritted Lanes and Yard	26.55	20.36	53.10	5.83
A Mobile Phone You Carry	0.83	0.83	98.35	0.82

Farmers were not asked whether actions undertaken were prompted by the “Be Winter Ready” Campaign. Based on chi-square tests of independence, there is no evidence of a statistically significant relationship between having taken action and reporting familiarity with the campaign.

Business Owners

Those who identified themselves as business owners and had reported no familiarity at all with the “Be Winter Ready” Campaign were asked whether they were aware of "Preparing Your Business for Severe Weather" by 'Be Winter Ready'. 10 out of the 70 respondents (14.29%) responded yes.

All business owners were asked whether they had considered the impact of severe weather on their place of business, their employees, their customers, and their suppliers. The responses are summarised in Table 24. Again, there is no evidence of a relationship between whether the business owner took consideration of these factors and their awareness of the “Be Winter Ready” Campaign.

Table 24: Business Owners's Winter-Ready Actions

Have you considered the impact of severe weather on	% of Applicable			**% Not Applicable**
	Have Considered this	Will Consider This	Have not Considered this	
Your place of business	82.61	7.83	9.57	16.06
Your employees	84.06	7.25	8.70	49.64
Your customers	77.57	8.41	14.02	22.46
Your suppliers	69.48	13.68	16.84	31.16

Schools/Teachers

All those who identified themselves as teachers were questioned on their school's preparation for severe weather, in line with "Be Winter Ready" guidance. They reported on whether their school: has planned for a "Status Red" weather warning on a school day; has planned for closing the school due to severe weather; has a battery-operated radio and battery-operated flashlights. Again, no evidence of a connection between the responses on preparedness and familiarity with the "Be Winter Ready" Campaign was observed.

Table 25: School/Teachers' Winter-Ready Actions

Has your school	Yes (%)	No (%)	Don't Know (%)
Planned for a "Status Red" weather warning on a school day	59.78	17.39	22.83
Planned for closing the school due to severe weather	75.53	7.45	17.02
A battery-operated radio	19.35	30.11	50.54
Battery operated flashlights	35.49	17.20	47.31

Driver & Vehicle Preparedness

As part of the "Be Winter Ready" campaign, advice was issued to motorists. The campaign issued a list of items recommended to have in vehicles in case of emergency. These included a high visibility vest, a hazard warning triangle, a torch with batteries, de-icer, a shovel, jump leads/jump pack, an empty fuel canister, a tow-rope, a first aid kit, a map or GPS system, clothing appropriate for cold weather, food and bottled water. 95.3% of respondents had a vehicle at their household. 8.3% of respondents carry none of the thirteen listed items within their vehicle. The percentage who had each item is given in Figure 28. Less than half of respondents carry most items. Only a map/GPS (which many cars have fitted as standard or would be available on a mobile phone), high-vis vest, and tow rope are carried by more than half of respondents.

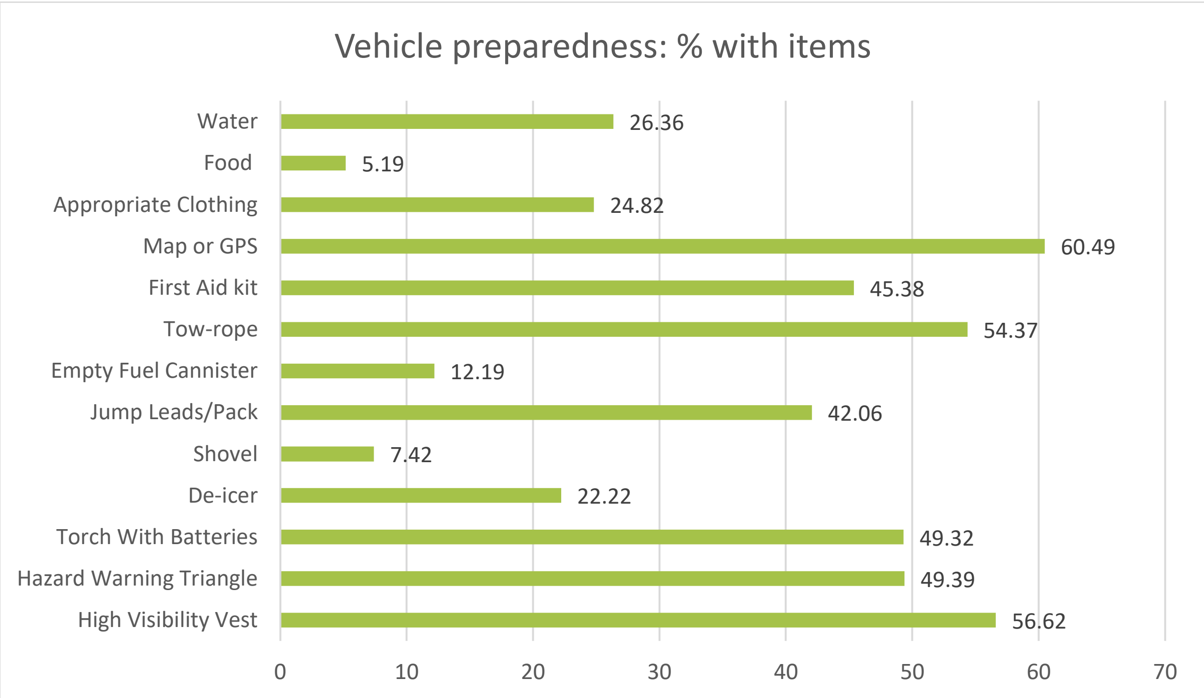

Figure 28: Vehicle and Driver Preparedness - % Carrying Recommended Items

The frequency chart for the number of items carried in the vehicle is given in Figure 29. The average number of items carried is 4.56. More than half the respondents carry four or less of the thirteen recommended items in their vehicles. These results suggest motorists are poorly prepared for emergency conditions in severe weather.

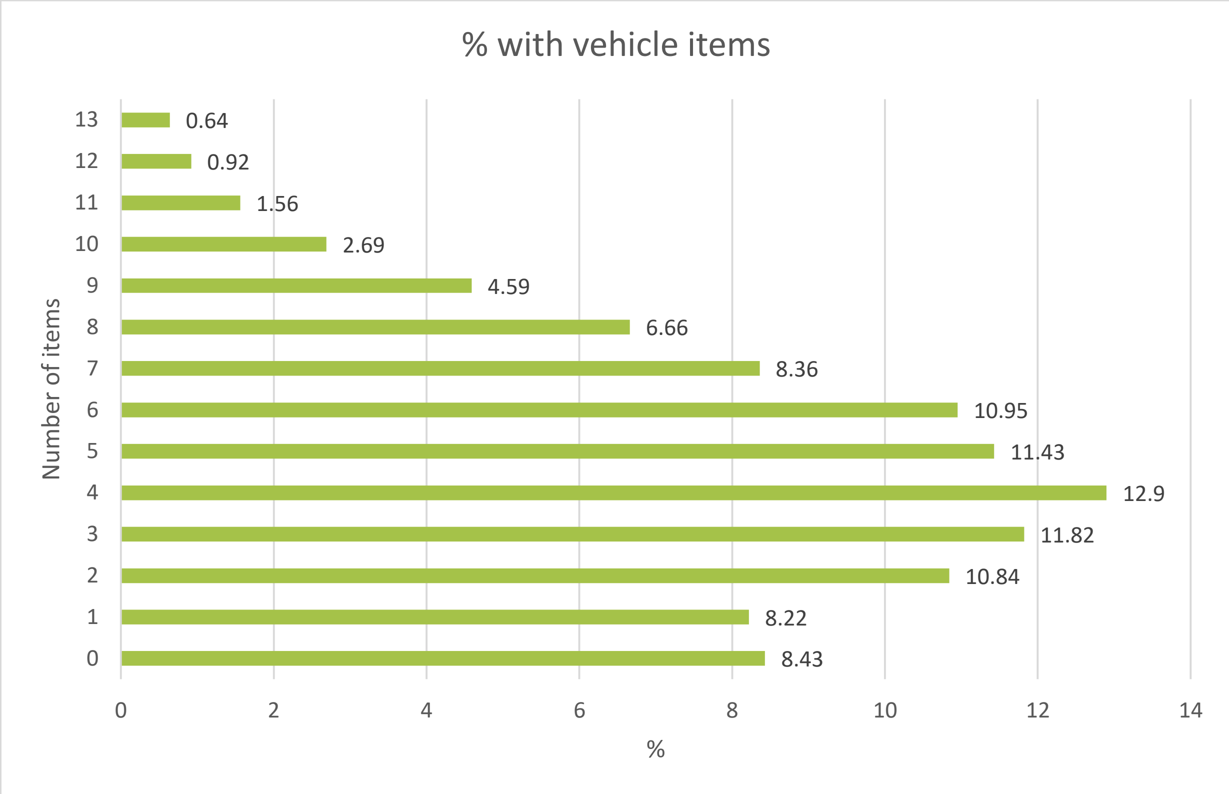

Figure 29: Frequency Chart -Number of Recommended Items in Vehicle

Analysis of the number of items carried and familiarity with the “Be Winter Ready” campaign reveals a positive and significant relationship. Whether this relationship is causal, with the campaign leading to more preparedness is not confirmed.

Section 6: Information Sources and the Influence of Met Éireann in an Emergency

Information Sources

Respondents identified the sources of information they used during major emergencies in Ireland. The results show an overwhelming majority, over 90% of individuals, use news media as a source, suggesting this is an efficient way to reach the majority of the population. Around half of respondents source information from Government Authorities and around 40% use more informal sources such as social media or websites and word of mouth from family and friends.

Source	Yes	% Yes
News Media	4,201	92.76
Family and Friends	1,814	40.05
The Government Authorities	2,385	52.66
Social Media or Websites	1,871	41.31

Trust in the Advice of Met Éireann

The survey also assessed trust in advice from various sources, including official agencies, and the likelihood of individuals acting on this advice in an emergency. Survey participants were asked, "Based on the level of trust which you place in the following, how likely are you to act on the emergency preparedness advice which they issue?". Participants answered on a five-point scale from 1= very unlikely up to 5 = very likely. The agencies presented were: the Road Safety Authority (RSA), Met Éireann, Government Departments (Govt), Local Councils, Office of Public Works (OPW), Teagasc, Office of Emergency Planning (OEP), Emergency Services, Bus Éireann, Irish Rail, Family and Friends, News Media (News), and Private Websites and Social Media (Web).

The results in Figure 30 show the agency with most influence based on trust level is the Emergency Services, with three-quarters of respondents stating they are very likely to act on their advice. The second most trusted is Met Éireann, with around 65% 'very likely' to act on their advice and a further 25% 'somewhat likely'.

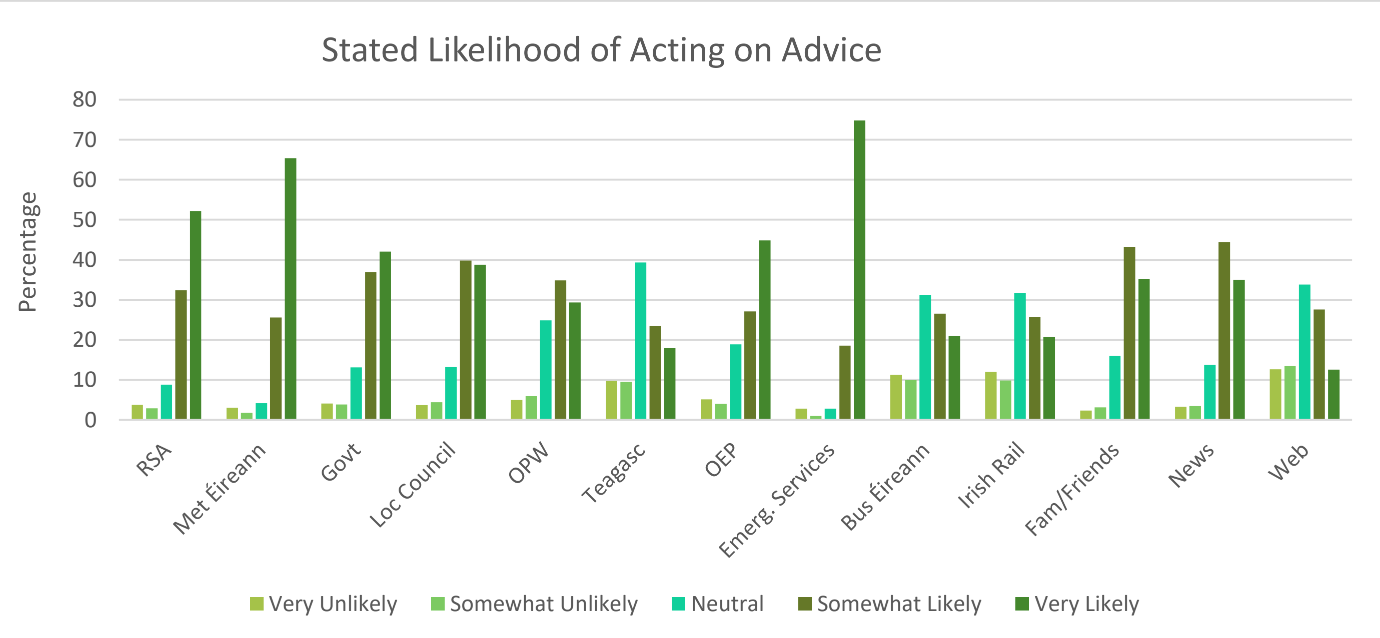

Figure 30: Likelihood of Acting on Advice

Mean likelihood to act on advice given by agencies is set out in Table 26 below, (where the mean is bounded between 1 and 5, with higher values implying greater likelihood) and the rank order from highest to lowest is noted for each. The results suggest that only the Emergency Services, Met Éireann, the Road Safety Authority and Government Departments are more likely to be trusted and their advice acted on than Family and Friends. Of the sources listed, the lowest reported trust is placed in Private Websites and Social Media Accounts.

Table 26: Mean Likelihood to Act on Advice

Source/Agency	Mean	Rank
Road Safety Authority	4.27	3
Met Éireann	**4.49**	**2**
Government Departments	4.09	4
Local Council	4.06	6
Office of Public Works	3.78	9
Teagasc	3.31	12
Office of Emergency Planning	4.03	8
Emergency Services	**4.62**	**1**
Bus Éireann	3.36	10
Irish Rail	3.33	11
Family and Friends	4.06	5
News Media	4.04	7
Private Websites and Social Media Accounts	**3.14**	**13**

The high level of trust reported in Met Éireann, and the prevalence of emergency information being sourced through the news, gives Met Éireann a powerful platform. In the case of weather-related emergencies, by providing reports/interviews incorporated within news broadcasts and through their forecast slot following the news, Met Éireann has the opportunity to be a major influence on emergency preparedness in Ireland.

Trust in Met Éireann over respondent characteristics

To determine what type of individual is more likely to express trust in Met Éireann and act on their advice, variation in levels of trust across respondent characteristics are examined. To indicate whether the pattern regarding trust in Met Éireann may simply be a pattern of trust in general, comparable figures are shown for selected other entities: RSA, Emergency Services, Government and Friends and Family. A fuller examination using regression analysis is given in Section 7.

Table 27: Likelihood to Act Based on Trust, by Gender

Gender	Met Éireann	Road Safety Authority	Emergency Services	Government Departments	Friend/ Family
Female	**4.52**	**4.36**	**4.64**	**4.16**	**4.12**
Male	4.42	4.03	4.56	3.92	3.92

Mean likelihood of action based on trust is higher for females than for males for all the agencies considered.

Table 28: Likelihood to Act Based on Trust, by Settlement Type

	Mean Likelihood to Act Based on Trust In				
Settlement Type	Met Éireann	Road Safety Authority	Emergency Services	Government Department	Friend/ Family
City	4.42	4.16	4.59	4.01	3.99
Suburbs	4.54	4.32	4.67	4.15	4.02
A town	4.44	4.24	4.60	4.08	4.09
A village	4.46	4.27	4.61	4.08	4.10
A rural area	4.54	4.31	4.61	4.10	4.09

City residents rank lowest on average likelihood to act on advice based on trust across the board, both for the more formal sources (Met Éireann, RSA, Emergency Services and Government) and the informal source (Friends and Family). Suburban residents report the highest likelihood to act based on trust for each of the formal advice sources considered. For Met Éireann and the RSA, the mean responses of suburban residents are roughly matched by those of rural residents. In the case of the informal advice source, Friends and Family, there is evidence of a city/suburb vs small-town/rural split, with the latter group more likely than the former to act on the advice of friends and family.

Table 29: Likelihood to Act Based on Trust, by Employment Status

	Mean Likelihood to Act based on Trust In				
Employment Status	Met Éireann	Road Safety Authority	Emergency Services	Government Departments	Friend/ Family
Working full time	4.51	4.29	4.62	4.11	4.04
Working part time	4.55	4.34	4.62	4.20	4.17
Unemp/Homemaker / Home Carer	4.47	4.22	4.75	3.98	4.12
In education (Student)	4.19	3.96	4.54	3.86	4.04
Retired	4.53	4.18	4.55	3.79	4.11

Comparing trust in agencies with employment status, we can see a similar ordering in trust between Met Éireann and the Road Safety Authority, with workers (possibly commuting to work and relying more on information from these sources) reporting higher levels of trust.

Table 30: Likelihood to Act Based on Trust, by Age Range

	Mean Likelihood to Act Based on Trust				
Age Range	Met Éireann	Road Safety Authority	Emergency Services	Government Department	Friend/ Family
18-25	4.19	4.04	4.55	3.92	4.03
26-35	4.38	4.07	4.59	3.97	3.96
36-45	4.49	4.29	4.65	4.14	4.01
46-55	4.54	4.35	4.61	4.13	4.08
56-65	4.59	4.35	4.62	4.13	4.16
66-75	4.57	4.07	4.67	3.88	4.10
75+	4.29	4.57	4.71	4.14	4.43

For Met Éireann, there is evidence of trust increasing in age up to the 56 – 65-year age bracket, and declining thereafter. The eldest age group shows a relatively low level of trust in Met Éireann. This result stands out from the norm, given that the trust level of this age group is highest for all other agencies considered.

Section 7: Logit/Ordered Logit Analysis of Variables of Interest: Summary of Results

This section presents a summary of results from the analysis of variables of interest using discrete choice multivariate regression models: logit and ordered logit models. The technical appendix to the report gives an overview of the theory behind these models and sets out the full results of the analysis produced using the Econometrics package STATA. Here we give an intuitive overview of the methods used, and in most cases, the results are based on the production of odds ratios from the econometric models estimated.

The analyses set out to examine four main questions:

1. What types of individuals are likely to be more familiar with the "Be Winter Ready" Campaign, and conversely which types have a lower level of familiarity?
2. What types of individuals have taken action to prepare for weather-related events, and how do risk perception and awareness impact on preparedness action?
3. Who is more likely to access which information source in the event of an emergency?
4. Who is more likely to follow the advice of Met Éireann, based on trust levels?

Intuitive Overview of Analysis

Each of the questions set out above is related to a particular measure or set of measures in the survey. Following the question order, these are:

1. respondents' stated degree of familiarity with the "Be Winter Ready" campaign;
2. respondents' answers as to whether or not they took action to prepare for weather-related events;
3. respondents' answers as to whether or not they accessed each source of information;
4. respondents' stated likelihood of taking action based on how much they trust Met Éireann.

These are the elements we want to be able to predict/explain, and each is referred to as the 'dependent variable' in the analysis.

For each dependent variable, we aim to explain the choice made by a respondent as a function of 'independent' or 'explanatory' variables. Here, the independent variables are typically measures of the characteristics of the respondents.

For example, for question 4, we might hypothesise a data generating process, such as:

$$Trust\_Met_i = f(SDC_i, Weather\_Risk_i) + \varepsilon_i \text{ for } i = 1...N$$

where

$Trust\_Met_i$ refers to the i'th individual's response as to the likelihood of acting based on the advice of Met Éireann, where each respondent chooses one of the values from not at all likely up to very likely.

SDC_i is a vector of socio-demographic characteristics of individual i (gender, age, education level etc.)

and

$Weather\_Risk_i$ is individual i's perception about the risk they and/or their property face from weather events.

ε_i represents some random term that we cannot explain.

We assume this relationship holds for all N individuals in the sample (i = 1…N)

That is, we hypothesise that an individual's answer about the likelihood of acting on the advice of Met Éireann depends on the individual's socioeconomic characteristics, the level of risk they believe they face from weather-related events, and a random element for which we cannot control.

Using the data for all respondents, we use regression analysis to estimate the functional relationship, which produces a predicted numerical value for the impact of each explanatory variable on the dependent variable. Given the nature of the dependent variables considered here (either dichotomous or ordered discrete measures, as opposed to continuous), commonly used Ordinary Least Squares regression is not appropriate. Instead, we use logit models for the binary dependent variables (in questions 2 and 3) and ordered logit for the ordinal discrete outcomes in questions 1 and 4.

One feature of logit models is that we can transform the estimated regression coefficients on explanatory variables to obtain estimated odds-ratios. See the boxed aside note below for a description of odds ratios and how they should be interpreted.

Since there is a random term in the underlying function, if we include as an explanatory variable one that in truth has no impact on the dependent variable, the estimation procedure would be very unlikely to produce its predicted impact (its coefficient) as exactly equal to zero. Thus, we use hypothesis tests to check whether the estimated impacts are 'large enough' for us to conclude with reasonable assurance that the effect is truly non-zero. That is, we look for evidence of a statistically significant relationship. In relation to odds-ratio terms, this is equivalent to saying the hypothesis tests check whether the estimated odds ratios are significantly different from 1.

The common levels of significance used are 10%, 5% and 1%. If the test result is significant at 1% we term it 'highly significant' (there's at most a 1% chance we are wrong in accepting the relationship exists); if significant at 5%, but not at 1%, we term it 'significant'; and if significant at 10%, but not at 5%, we term it 'weakly significant'.

Odds Ratios:

Binary Dependent Variable

Suppose a dependent variable can take only two values; y = 1 if 'yes', 0 otherwise.

The ***odds*** of a type A individual stating y = 1 is given by $Odds_A = P_A(y = 1)/P_A(y=0)$, where P_A indicates the probability for type A individuals.
Similarly the odds for type B is defined as $Odds_B = P_B(y = 1)/P_B(y=0)$.

The ***odds ratio*** for type A relative to type B is $(Odds_A)/(Odds_B)$ and indicates the relative likelihood of type A to type B.

If the odds ratio >1, type A is more likely to state y= 1 than type B. The larger the value, the greater the deviation in likelihoods.
If the odds ratio < 1, type A is less likely to state y=1 than type B. The smaller the value, again, the greater the deviation in likelihoods. If the odds ratio = 1, there is no difference in the likelihood of stating y = 1 between Type A and Type B.

For example, in the case of information sources (question 3), a source is either used (dependent variable = 1) or not (dependent variable = 0). The use odds for a type A individual is the ratio of the probability that type A uses the source to the probability type A does not use the source.
Similarly, for type B. The odds ratio measures the relative likelihood of type A to use the source compared to type B.

Ordered Categorical Variable

Suppose a dependent variable is measured on an ordinal scale that can take M values: y = 1, 2, … , M. There are M-1 dichotomous partitions of the dependent variable that we can consider: $y \geq 2$ vs y =1; $y \geq 3$ vs y < 3; … ; y = M vs y<M.

The odds for type A for each of these partitions is $Odds_A = P_A(y \geq k)/P_A(y<k)$, k = 2…M
Similarly, M-1 odds can be defined for type B. The odds ratio in each case is $(Odds_A)/(Odds_B)$.

The odds ratios presented in Table 31 and Table 34 are calculated from standard ordered logit analysis which assumes that the *proportional odds* assumption holds, i.e. the odds ratios do not vary over k = 2…M. The reported value of the odds ratio indicates the relative likelihood of type A to state a higher value on the dependent variable, compared to type B.

For example, if familiarity takes five ordered classifications: y = 1 if not at all familiar, …, y = 5 if extremely familiar, an odds ratio >1 [<1] indicates type A is more likely [less likely] than type B to state a higher level of familiarity. An odds ratio = 1 indicates no difference between Types A and B.

(See Appendix 3 for results when the proportional odds assumption is not maintained.)

Each table in this section takes the same format. The first column in each shows results based on separate regressions of the dependent variable, in relation to each class of characteristic in turn (i.e. the dependent variable only as a function of gender, then only as a function of marital status, then only income etc.). These reflect patterns shown in the tables and figures above, wherein relations to only one characteristic at a time are examined.

Other columns in the tables show results from regressions where all the variables for which results are reported are included simultaneously in the analysis. In these, the results for each characteristic can be interpreted as the impact of that characteristic, given we have controlled for all others included.

In each of the result tables, the strength of a result is indicated by the number of asterisks shown. * is used to indicate a 10% significance level, ** significance at 5%, and *** significance at 1%. No asterisk indicates insignificance.

Determinants of Familiarity with “Be Winter Ready”

Table 31 sets out the results of the analysis of familiarity with the “Be Winter Ready Campaign” to determine what types of individuals are more or less likely to state a higher level of familiarity. For all sets of characteristics, except age, odds ratios are reported relative to a base value. To interpret the numbers, we compare the value to 1.

If the odds ratio of characteristic A relative to base category B is greater than 1 and significant, then we conclude that individuals of type A are more likely than those of type B to state familiarity with the campaign, with the magnitude of the odds ratio indicating the differential between them.

An odds ratio significantly less than 1 indicates type B are more likely than type A to state a higher level of familiarity.

An odds ratio insignificantly different from 1 indicates no statistically significant difference between the types in relation to the likelihood of stating a higher familiarity.

Table 31: Analysis of "Familiarity with Be Winter Ready"

Dependent Variable: Familiarity with "Be Winter Ready" (1 = not at all familiar… 5 = extremely familiar)					
		Individual Models		Full Model	
Relative to	**Characteristic**	**Odds Ratio**	**Signif**	**Odds Ratio**	**Signif**
Male	**Female**	0.973		0.958	
Married	**Single**	0.637	***	0.909	
	Divorced	0.855		0.791	
	Widowed	1.116		1.28	
	Separated	0.946		0.911	
	Cohabiting	0.589	***	0.679	***
No Children	**Child**	0.851	***	0.78	***
Income < 30,000	**Inc €30 to 70**	1.537	***	1.061	
	Inc > €70	1.599	***	1.067	
Relative to Full-time employed	**Part-time Emp**	0.903		0.866	
	Home maker/ Unemployed	0.629	***	0.601	***
	Student	0.168	***	0.349	***
	Retired	0.632	***	0.492	***
No Formal Qualification	**School qual**	0.788	**	0.986	
	Bachelor Degree	0.904		0.977	
	Higher Degree	0.834	*	0.887	
City	**Suburbs**	1.149		1.094	
	Town	1.283	***	1.234	**
	Village	1.388	***	1.35	**
	Rural	1.295	***	1.125	*
Not interpreted as odds ratio	**Age**	0.1629	***	0.088	***
	Age²	-0.0015	***	-0.0007	***

Full Model:			
	No. Obs	4154	
	X^2 p-value	277.78 (0.000)	***

Individual Models

When the classes of socio-demographic characteristics are examined in separate regressions, i.e. looking at the first set of odds ratios presented, we see no significant difference is evident between males and females in terms of the level of familiarity.

The levels of familiarity of respondents who are single and those cohabiting are significantly lower than that of married people. That is, single and cohabiting are more likely to state a lower level of familiarity with the campaign.

Compared to those with no children, respondents with at least one child in the household are more significantly less likely to state higher levels of familiarity.

Examining income, there is evidence that higher income is associated with higher levels of familiarity. Non-employed (homemakers or unemployed, students and retired) are all less likely to report higher levels of familiarity with the campaign than those in full employment. The odds ratio for students to the fully employed is very small in magnitude – there is an odds ratio of 1/0.168, i.e. almost a value of 6, associated with a fully employed individual stating a higher level of familiarity than a student.

There is limited evidence that education level affects stated familiarity. There is weak evidence (significance at 10% level) that those with higher degrees (masters and above) are less likely than those with no formal education to state higher familiarity with the campaign.

Those located out of cities and suburbs, i.e. located in towns, villages, and rural locations, are more likely than city-dwellers to state higher levels of familiarity.

The figures reported for Age and Age^2 are the coefficients from the original logit model. Given both are significant, there is evidence of a quadratic impact of age on familiarity level. The relationship between familiarity and age is an inverted 'u' shape. Younger and older are less likely to be familiar with the campaign than those in mid-age. Familiarity is estimated to reach a peak at approximately 54 years old (computed by 0.1629/(2*0.0015))

Full Model

In the full model reported in the right-hand side of the table, all the individual's characteristics were included simultaneously within a regression. The figures given in the odds ratio column are interpreted in a similar way to those in the separate regressions, except that in this case the impact of each characteristic variable is measured having controlled for all the other characteristics.

Taking marital status as an example, we can now decipher whether there is evidence of an impact of marital status, given that the possible effects of gender, presence of children, income etc. have all been taken into consideration.

Examining the significance of the odds ratios, we can see, for instance, that the income variables are no longer significant having controlled for all the other variables. That is, there does not appear to be an additional impact of income changes on the likelihood of stating a high familiarity with the campaign, when all the other sets of individual characteristics are included. It may have been the case, for example, that when we ran the regression with only income variables included, the apparent significant income effect was proxying for the employment status impact which is significant in the full model.

Looking at the results of the full model, we see first that there is an overall significance – the χ^2 value stated at the bottom of the table indicates that the regression has significant explanatory power.

The full model indicates that respondents who were cohabiting, had children in the household, were not working outside the home (homemaker, unemployed, student and retired) were all less likely to be familiar with the "Be Winter Ready" campaign. For these people, it may be that they did not receive the message of the campaign, or it was not retained. Any similar type of campaign may wish to consider ways to enhance the chance that these types of individuals will absorb the message, such as targeting information/adverts in venues or at times these individuals may be more likely to attend.

Individuals living in towns and villages were likely to be more familiar with the campaign than those living in cities. In contrast, there was no significant difference between city dwellers and either rural or suburban dwellers.

Determinants of Action to Prepare for Weather-Related Events

Table 32 sets out results for several regression forms, where the dependent variable to be explained is whether or not an individual has taken any action to protect themselves or their households for a weather-related event. The variable is coded as 1 if they have taken action, 0 otherwise.

As before, the column titled 'Individual Models' sets out the odds ratios derived when we examine the impact of each class of socio-demographic characteristics separately on preparedness actions. The results in Column (i) are obtained by running the model with all socio-demographic characteristics included simultaneously. Finally, column (iii) adds in two extra dimensions as explanatory factors: respondents' stated familiarity with the "Be Winter Ready" campaign and a variable named Max_Risk. Max_Risk for each individual is defined as the individual's maximum risk rating over all the weather-related events.

When all socio-demographics are included, in column (i), the results suggest: females are less likely than males to have taken action to protect themselves or their households, respondents with children are less likely to have acted than those who have none, and homemakers and unemployed are less likely than those fully employed to have taken action. Respondents living in towns and rural areas are significantly more likely to have taken action than city-dwellers, and there is weak evidence that propensity to act increases with age. The quadratic term in relation to age is not significant.

Examining results in column (iii), it is clear that the degree of familiarity with the "Be Winter Ready" campaign has an association with a greater propensity to have taken protective measures. As the stated degree of familiarity decreases, the odds ratios relative to those who are extremely familiar decrease. This suggests that endeavouring to make people more familiar with the campaign will pay off in terms of increasing the population's resilience to weather-related events.

We also note that the higher the perceived risk associated with one of the weather events (the higher is Max_risk), the more likely an individual is to have acted to protect themselves or their households.

On inclusion of familiarity measures and maximum risk rating, very few of the socio-demographic characteristics remain significant. Females remain significantly less likely to have taken action compared to males. Students are estimated as more likely to have taken action compared to full-time workers, having controlled for the level of familiarity with the campaign and risk perception.

Table 32: Analysis of Action to Prepare for Weather-Related Events

Took Action to Protect against Weather-Related Events (= 1 if yes, 0 if no)							
		Individual Models		(i)		(ii)	
Relative to	Characteristic	Odds Ratio	Sig	Odds Ratio	Sig	Odds Ratio	Sig
Male	Female	0.780	***	0.768	***	0.772	***
Married	Single	0.781	**	0.985	**	1.031	
	Divorced	1.464	*	1.285		1.219	
	Widowed	1.284		1.272		1.243	
	Separated	1.141		1.142		1.158	
	Cohabiting	0.985		1.195		1.285	
No Children	Child	0.884		0.931	**	1.022	
Income < 30,000	Inc €30 to 70	1.189		1.073		1.075	
	Inc > €70	1.069		0.980		0.985	
Relative to Full-time employed	Part-time Emp	0.533		1.089		1.175	
	Homemaker/ Unemployed	0.632	**	0.639	*	0.794	
	Student	0.609	***	1.448		1.698	**
	Retired	1.145		0.742		0.981	
No Formal Qualification	School qual	0.786	*	0.896		0.907	
	Bachelor Degree	0.88		1.01		1.029	
	Higher Degree	0.815		0.926		0.93	
City	Suburbs	1.068		1		0.958	
	Town	1.404	**	1.303	*	1.179	
	Village	1.148		1.088		0.958	
	Rural	1.436	***	1.391	**	1.245	
Extremely Familiar with BWR	No_familiarity					0.092	***
	Slight familiarity					0.141	***
	Somewhat famil,					0.211	***
	Moderate famil.					0.452	***
	Max_Risk					0.038	***
	Age	0.163	***	0.0533	*	0.281	
	Age^2	-0.0015	***	-0.0003		-0.0002	

	(i)		(ii)	
No. obs	2498		2498	
X^2 (p-value)	72.68 (0.000)	***	261.88 (0.000)	***

Determinants of Accessing Various Information Sources

Respondents had indicated the sources of information they use in an emergency: news media (newspapers, radio, TV, news websites), friends and family, the government/authorities and Social media or Websites (sources other than news outlets, authorities and family, friends and acquaintances). Corresponding to each of these is a 0/1 indicator for use. Results from estimated logit regressions for each is given in Table 33. Only the full models, with all socio-demographic characteristics included simultaneously, are presented.

Table 33: Analysis of Source of Information Used in an Emergency

		Source of Information (1 = source used, 0 = not used)							
		News Media		Friends and Family		The Government		Social Media/ Websites	
Relative to	**Characteristic**	**Odds Ratio**	**Sig**	**Odds Ratio**	**Sig**	**Odds Ratio**	**Sig**	**Odds Ratio**	**Sig**
Male	**Female**	1.634	***	1.191	**	0.912		0.913	
Married	**Single**	1.086		1.562	***	0.896		1.133	
	Divorced	0.7		1.109		0.865		1.819	***
	Widowed	0.696		1.031		1.144		1.157	
	Separated	0.473	**	0.918		1.151		1.151	
	Cohabiting	1.105		1.053		0.958		1.173	
No Children	**Child**	1.07		1.085		1.077		1.142	*
Income < 30,000	**Inc €30 to 70**	1.721	***	1.215	*	1.234	*	1.081	
	Inc > €70	2.461	***	1.154		1.334	**	0.975	
Full-time employed	**Part-time Emp**	1.065		1.002		0.808	**	1.196	*
	Homemaker/ Unemployed	0.721		0.53	***	0.809		1.674	***
	Student	1.211		1.103		0.94		1.339	*
	Retired	0.328	***	0.829		0.648		2.263	***
No Formal Qualification	**School qual**	1.136		0.987		0.83		0.88	
	Bachelor Degree	1.094		1.227	*	1.284	**	0.975	
	Higher Degree	1.046		1.135		1.258	**	0.894	
City	**Suburbs**	1.391	**	0.984		1.181		1.036	
	Town	1.123		1.194	*	1.193	*	1.226	*
	Village	1.287		1.11		1.12		1.055	
	Rural	1.501	**	1.184	*	1.081		1.261	**
	Age	-0.153		-0.025		0.0177		-0.0306	***
	Age^2	0.0006		0.0002		-0.0002			

No. obs	4154		4154		4154		4154	
X^2 (p-value)	100.6 (0.00)	***	103.57 (000)	***	90.62 (000)	***	175.49 (000)	***

We saw in the descriptive statistics that over 90% of respondents turn to standard news media for information. Females, higher income brackets, and those living in suburbs and rural areas are more likely than their relevant base categories, to use this source. Those separated and retired are less likely than married and full-time employed respectively to turn to news media.

Being female and single increases the likelihood of sourcing information through family and friends in an emergency. There is weak evidence that the propensity to use this source is also higher for mid-income, those with bachelor degrees and those living in towns or rural areas.

Higher-income groups and those with higher levels of education are more likely to source information from Government and authorities.

Relatively few respondents overall reported using social media and non-standard news websites to access information in an emergency. There is a greater propensity for non-full-time employed, those divorced and younger individuals to use these sources. They are more likely also to be used by rural dwellers compared to city-dwellers, and there is weak evidence also of an increased propensity among those living in towns.

From Table 33, there is some evidence, therefore, that higher income groups tend to use more formal sources of information (traditional news media and government/authorities) compared to low-income groups. Homemakers and unemployed are significantly less likely than the full-time employed to gain information from family and friends. They are also more likely than full-time employed to access information online from social media or websites.

Determinants of Acting on Met Éireann's Advice, Based on Trust in Met Éireann

Respondents stated their likelihood to act on the advice of Met Éireann, based on their trust in the agency. Their responses form an ordinal dependent variable, ranging from 1 = very unlikely up to 5 = very likely. Their likelihood to act on this advice is analysed in Table 34.

The results from column (i) which includes all socioeconomic characteristics simultaneously, show individuals who are: female, higher income, have a higher education level and live either in suburbs or rural areas report a higher likelihood of acting on Met Éireann's advice. In relation to location, it is possible that rural and suburban dwellers have, on average, a longer commute to work than others, which possibly increases their reliance on Met Éireann's advice and data.

Column (ii) shows there is a positive correlation between familiarity with the "Be Winter Ready" campaign and the likelihood of acting on Met Éireann's advice. Those with a higher perception of risk associated with weather-related events also indicate greater likelihood to act on advice.

If Met Éireann were to consider increasing its influence, sectors to target could include lower-income and less educated groups, students, and those in denser settlements or urbanised areas – cities, towns and villages.

Table 34: Analysis of Likelihood to Act on Met Éireann's Advice

Act on Advice of Met Éireann, Based on Trust							
		Individual Models		(i)		(ii)	
Relative to	Characteristic	Odds Ratio	Sig	Odds Ratio	Sig	Odds Ratio	Sig
Male	Female	1.316	***	1.409	***	1.429	***
Married	Single	0.617	***	0.903		0.916	
	Divorced	0.786		0.748		0.744	
	Widowed	0.802		0.79		0.78	
	Separated	0.903		0.944		0.962	
	Cohabiting	0.685	***	0.854		0.882	
No Children	Child	0.934		0.924		0.954	
Income < 30,000	Inc €30 to 70	1.511	***	1.279	**	1.306	**
	Inc > €70	1.877	***	1.494	***	1.542	***
Full-time employed	Part-time Emp	1.131		1.027		1.058	
	Homemaker/ Unemployed	0.861		1.051		1.135	
	Student	0.431	***	0.911		0.955	
	Retired	0.996		0.822		0.885	
No Formal Qualification	School qual	0.892		1.059		1.087	
	Bachelor Degree	1.199	*	1.242	**	1.258	**
	Higher Degree	1.222	*	1.221	*	1.230	*
City	Suburbs	1.349	***	1.282	**	1.259	**
	Town	1.042		0.961		0.918	
	Village	1.089		0.984		0.942	
	Rural	1.437	***	1.246	**	1.162	
Extremely Familiar	No_familiarity					0.258	***
	Slight					0.291	***
	Somewhat					0.338	***
	Moderate					0.427	**
	Max_Risk					0.021	**
	Age	0.09	***	0.036		0.0286	
	Age^2	-0.00076	***	-0.00015		-0.0001	

	(i)		(ii)	
No. Obs	4151		4151	
X^2 (p-Value)	170.17 (0.000)	***	220.86 (0.000)	***

Appendices

Appendix 1: Logit and Ordered Logit

Appendix 1 sets out some of the more technical aspects of the Logit and Ordered Logit analysis underlying the results presented in Section 7 tables. It starts with a review of the basics of regression in the case of a continuous dependent variable. Why this commonly used approach is not applicable to the discrete measures analysed in Section 7, and the details of how we approach estimation in these cases instead, are explained.

Review of Regression with a Continuous Dependent Variable

In regression analysis, we attempt to explain the value of a dependent variable, Y, in terms of one or more independent variables, X.

The common hypothesised form for the data generating process underlying regression, when the dependent variable is continuous, is:

$$Y_i = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \cdots + \beta_k X_{ki} + \epsilon_i \quad for \quad i = 1 \ldots N$$

This is the hypothesised 'true' underlying relationship between Y and the explanatory variables. The values of β_j are unknown, and it is these we want to estimate.

Y_i represents the value of the dependent variable for individual i

X_{ji} is the value of variable j for individual i

β_j the coefficient on variable X_j, is the marginal impact of X_j on Y, i.e. the impact on Y of a one-unit change in X_j

ϵ_i is a random component.

The typical assumption for the random component is $\epsilon_i \sim N(0, \sigma^2)$, I,e, normally distributed with mean 0 and a constant variance.

To estimate the unknowns, β_j, j = 1…k., we use the information from our sample, the observed values of the dependent and independent variables, That is, given our sample information, we set out to determine estimates of the marginal impacts of each of our independent variables.

The estimated regression is of the form $\widehat{Y_i} = \widehat{\alpha} + \hat{\beta}_1 X_{1i} + \hat{\beta}_2 X_{2i} + \cdots + \widehat{\beta_k} X_{ki}$, where a 'hat' on the symbol represents an estimated value.

We would like our predicted values of the dependent variable, to be as close as possible to the actual values under our estimated model. When the dependent variable is continuous, often 'Ordinary Least Squares' (OLS) is the method used for estimation, whereby the estimated parameters ($\hat{\beta}_j$) are chosen so as to minimise the sum of squared deviations between the actual and predicted values of Y.

i.e. we solve the problem: Minimise $\sum_{i=1}^{N}(Y_i - \widehat{Y_i})^2$ through our choice of coefficient estimates.

In the case of a discrete, rather than continuous, dependent variable, we need to adapt the model.

Logit Analysis – Used with Binary Dependent Variables

A. The model

Assume Y is an observed variable that takes one of two values: 1 if an event occurs, 0 otherwise. This is an example of a discrete variable. We wish to model the probability that the event will occur, as a function of a set of explanatory variables X_1, X_2 … X_k.

[For example, the dependent variable Y might indicate taking action to prepare for an emergency, where $Y_i = 1$ if individual i took action, and $Y_i = 0$ otherwise. We might believe gender, income, risk attitude etc. could all be factors that explain how likely it is that someone will take action or not. These are explanatory variables (the X- variables) in the model, and we want to estimate how much impact each one has on the probability that a person will take action.]

If we were to use OLS to estimate the probability as a linear function of independent values, treating the observed variable as if it were continuous, one problem that emerges is that the predicted probabilities can lie outside the [0,1] range. Instead, therefore, we use a technique that ensures the predicted probabilities lie within acceptable bounds.

We consider a model that satisfies:

P(Y=1 |X) = $G(\alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \cdots + \beta_k X_{ki})$, where $0 < G(Z) < 1$ for all real numbers Z.

That is, the conditional probability that Y = 1, given the values of explanatory variables X, is within the acceptable bounds (0.1)

In the Logit Model: G is taken to be the logistic function G(z) = exp(z) / 1+exp(z)

To intuitively understand the Logit model, we set out an alternative way to view the issue.

Instead of basing the regression model on the observed values $y = 0, 1$, we hypothesise a situation where we model an underlying latent variable $y*$ (for example 'the propensity to take action') as a linear function of relevant independent variables.

Further, assume that when $y^* > y_0$ the realisation observed is $y = 1$,
and when $y^* \leq y_0$ the realisation is $y = 0$

That is, there is some critical value of the latent variable where a switch in y occurs between 0 and 1.
For example, when the propensity/tendency to take action is above the underlying critical value, the individual will be observed to take action.

We assume the underlying regression model is given as

$$y_i^* = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \cdots + \beta_k X_{ki} + u_i \qquad i = 1, \ldots n \qquad (*)$$

And we observe the dummy variable

$$y_i = 1 \; if \; y_i^* > 0$$
$$= 0 \; otherwise$$

Within the logit model, the error term u_i assumes the logistic distribution (which is symmetrically distributed around 0).

Consider P(y=1 |X).

P(y=1 |x) = P(y*>0 |x) = P(u > - $\alpha - \sum_j \beta_j x_{ij}$ |x)

= 1 - G$(-\alpha - \sum_j \beta_j x_{ij})$ = G $(\alpha + \sum_j \beta_j x_{ij})$ (**)

which satisfies the constraint that the probability is bounded by 0 and 1.

B. Maximum Likelihood Estimation of Logit Models

The coefficients in a Logit model are calculated by Maximum Likelihood estimation. That is, the coefficients are chosen so as to maximise the joint probability associated with our observed outcomes.

The likelihood function (the joint probability of observed outcomes) is given as:

$$L = \prod_{Y=1} P_i \prod_{Y=0} 1 - P_i$$

Given concavity of the likelihood function, iterative estimation techniques converge to the optimum. The model is estimated routinely by computer programmes including STATA.

C. Interpretation of the coefficients

The STATA regression results in Appendix 2, corresponding to the results presented in Tables 32 and 33, are based on logit regression. They present estimates for β_j , $j = 1 \ldots k$ under the column 'coef'.

These values represent the estimated partial derivatives in the **latent** variable equation – that is, they give the impact on the underlying 'tendency' for the event to occur.

To understand the magnitude of the effect, it can be useful to calculate the impact on the probability of the event occurring.

Given (**):

P(y=1 |x) = G $(\beta_0 + \sum_j \beta_j x_{ij})$

We have: $\partial P / \partial x_j = \beta_j \left(\frac{\partial G}{\partial x_j}\right)$

Thus, marginal probability effects depend on both the estimated coefficients in the latent variable model, and at which values of the explanatory variables we compute $\left(\frac{\partial G}{\partial x_j}\right)$. It is routine to calculate marginal probability effects at the means for the explanatory variables.

D. Equivalence of Logit Coefficients and Log Odds Ratios

Recall, the logistic function is given as G(z) = exp(z) / 1+exp(z)

And under the logit model, P(Y = 1| X) = G $(\alpha + \sum_j \beta_j x_j)$ =

= exp($\alpha + \sum_j \beta_j x_j$) / (1+ exp $(\alpha + \sum_j \beta_j x_j$))

P(Y = 0 | X) = 1 - P(Y = 1| X) = 1 / (1+ exp $(\alpha + \sum_j \beta_j x_j$))

The odds are therefore given as $\frac{\mathrm{P(Y=1\,|X)}}{P(Y=0|X)}$ $=$ exp($\alpha + \sum_j \beta_j x_{ij}$) (***)

How does the odds change for a one-unit change in a particular variable x_p? What is the odds ratio between the cases where $x_p = x_p'$ and $x_p = x_p' + 1$)

From (***),

the odds when $x_p = x_p'$ is $e^{\alpha + \sum_j \beta_j x_{ij}}$ = $e^{\alpha} e^{\beta_1 x_1} e^{\beta_2 x_2} \ldots e^{\beta_p x_p'} \ldots e^{\beta_k x_k}$ (i)

and the odds when $x_p = x_p'$+1 is: $e^{\alpha + \sum_j \beta_j x_{ij}}$ = $e^{\alpha} e^{\beta_1 x_1} e^{\beta_2 x_2} \ldots e^{\beta_p (x_p'+1)} \ldots e^{\beta_k x_k}$ (ii)

The odds ratio is given by (ii)/(i), which simplifies to e^{β_p}

Or equivalently, we can say the coefficient β_p corresponds to the log-odds ratio between the case when $x_p = x_p'$+1 and when $x_p = x_p'$.

For example, suppose the explanatory variable x_p denotes gender: $x_p = 0$ if the respondent is male, 1 if female. Then the estimated coefficient on x_p within the logit regression is interpreted as an estimate of the log-odds ratio between females and males.

Ordered Logit

A. The Model

This model is a generalisation of the binomial logit. Here we are dealing with a discrete variable Y that can take one of M classifications, 1, 2,…,M where the order carries meaning. For example, the dependent variable Fam, an assessment by an individual of how familiar he/she is with material, could be coded into 5 classifications as:

Fam = 1 if not at all familiar
= 2 if a little familiar
= 3 if somewhat familiar
= 4 if quite familiar
= 5 if very familiar

Similar to modelling binary logit, we can assume there is a latent continuous variable that is a measure of degree of familiarity. Individuals classify themselves into one of the five categories depending on the point on which their familiarity lies along the continuous scale.

In the general M classification case: we have the hypothesised latent variable

$$y_i^* = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \cdots + \beta_k X_{ki} + u_i \qquad i = 1, \ldots n$$

And we observe

$$y_i = 1 \quad if\ y_i^* < \mu_1$$
$$y_i = 2 \quad if\ \mu_1 \le y_i^* < \mu_2$$
$$y_i = 3 \quad if\ \mu_2 \le y_i^* < \mu_3$$
$$\vdots$$
$$y_i = M \quad if\ \ y_i^* \ge \mu_{M-1}$$

where $\mu_1 < \mu_2 < \cdots < \mu_{M-1}$ are the cut-off points that define separate classifications.
(These are referred to as /cut_1 , /cut_2 etc. in STATA output.)

As with the binomial logit, Maximum Likelihood Estimation is used to estimate the parameters of the model, including the cut-off points between classifications. The optimised value of the log-likelihood is reported in STATA output.

B. Interpretation of Results

The STATA regression results in Appendix 2 corresponding to the results presented in tables 31 and 34 are based on ordered logit regression. They present estimates for β_j , $j = 1 \ldots k$ under the column 'coef'. These values represent the estimated partial derivatives in the **latent** variable equation, i.e., the impact on the underlying continuous measure y^* of a one-unit change in the associated explanatory variable. The sign and magnitude of the coefficient on an explanatory variable indicate the direction and magnitude of the impact. A negative coefficient on the variable implies an increase in the variable is associated with a decrease in the dependent variable (e.g. corresponding to the earlier example, it would mean a reduced level of familiarity). In contrast, a positive coefficient indicates an increase in the explanatory variable is associated with an increase in the dependent variable.

In the ordered logit model, the model coefficients are assumed constant across all ordered binary comparisons of dependent variable classes. That is, the same marginal effects apply to the series of binary logits expressed as:

$$\frac{P(y>1)}{P(y=1)} = exp(\alpha_1 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k) \qquad \text{(Eq 1)}$$

$$\frac{P(y>2)}{P(y\leq 2)} = exp(\alpha_2 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k) \qquad \text{(Eq 2)}$$

$$\vdots$$

$$\frac{P(y=M)}{P(y\leq M-1)} = exp(\alpha_{M-1} + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k) \quad \text{(Eq M-1)}$$

This is known as the parallel lines assumption as the slope coefficients, $\beta_1, \beta_2, \dots, \beta_k$, do not vary. In the ordered logit case, the estimate of the coefficient β_j is, therefore, the log of the proportional odds ratio with respect to variable X_j.

This assumption of unchanging coefficients across binary comparisons was maintained in the results of Tables 31-35.

Results in Appendix 3 allow for a relaxation of the parallel lines assumption, in the models explaining ordered categorical variables. Results from Generalised Ordered Logit models are produced, allowing the impact of explanatory variables to vary over the range of classifications of the dependent variable, when Brant tests provide evidence that generalisation is appropriate. That is, the β coefficient estimates from Eq 1 up to Eq M-1 are not constrained to be equal. The results in Appendix 3 show the parallel lines assumption is violated in only a limited number of instances, and the results of the standard ordered logit model do not vary much from the generalised one.

Appendix 2: STATA Regression Output Underlying Tables 31-34

Presented here are the STATA results for the full regression models presented in Tables 31 to 34.

1. Table 31: Dependent Variable: bwr_familiar_q4 = 1 if not at all familiar
   = 2 if slightly familiar
   = 3 if somewhat familiar
   = 4 if moderately familiar
   = 5 if extremely familiar

```
. ologit bwr_familiar_q4  female age age2  marital_single marital_divorced marital_widowed m
> arital_separated marital_cohabiting child inc_mid inc_high emp_part_time emp_home emp_stud
> ent emp_retired school_qual third_qual higher_qual i.settlement

Iteration 0:   log likelihood = -5246.4632
Iteration 1:   log likelihood = -5109.2381
Iteration 2:   log likelihood = -5107.5769
Iteration 3:   log likelihood = -5107.5744
Iteration 4:   log likelihood = -5107.5744

Ordered logistic regression                     Number of obs     =      4,154
                                                LR chi2(22)       =     277.78
                                                Prob > chi2       =     0.0000
Log likelihood = -5107.5744                     Pseudo R2         =     0.0265
```

bwr_familiar_q4	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
female	-.0432079	.0674572	-0.64	0.522	-.1754217	.0890058
age	.0879093	.0230989	3.81	0.000	.0426363	.1331823
age2	-.0007662	.0002554	-3.00	0.003	-.0012668	-.0002657
marital_single	-.09523	.0914187	-1.04	0.298	-.2744074	.0839474
marital_divorced	-.2339569	.1778904	-1.32	0.188	-.5826156	.1147018
marital_widowed	.2473066	.2474332	1.00	0.318	-.2376536	.7322669
marital_separated	-.0932068	.1740463	-0.54	0.592	-.4343313	.2479178
marital_cohabiting	-.3859125	.1199589	-3.22	0.001	-.6210276	-.1507974
child	-.2483815	.0713258	-3.48	0.000	-.3881774	-.1085856
inc_mid	.0596581	.1078883	0.55	0.580	-.151799	.2711153
inc_high	.06576	.120057	0.55	0.584	-.1695473	.3010674
emp_part_time	-.1432339	.0925205	-1.55	0.122	-.3245707	.0381029
emp_home	-.5086122	.1868182	-2.72	0.006	-.8747692	-.1424552
emp_student	-1.050785	.1983557	-5.30	0.000	-1.439555	-.6620152
emp_retired	-.7086922	.2047997	-3.46	0.001	-1.110092	-.3072922
school_qual	-.0141895	.1072444	-0.13	0.895	-.2243846	.1960056
third_qual	-.0228463	.0998797	-0.23	0.819	-.2186069	.1729144
higher_qual	-.1196351	.1025736	-1.17	0.243	-.3206756	.0814055
settlement						
The suburbs or outskir..	.0902413	.0991706	0.91	0.363	-.1041294	.2846121
A town	.2110252	.0991104	2.13	0.033	.0167723	.4052781
A village	.3003469	.1212834	2.48	0.013	.0626358	.5380581
A rural area	.1177523	.0950427	1.24	0.215	-.0685279	.3040324
/cut1	2.090881	.5312294			1.04969	3.132071
/cut2	3.320973	.5324595			2.277371	4.364574
/cut3	4.383015	.5340025			3.33639	5.429641
/cut4	5.980668	.541782			4.918795	7.042541

2. Results for Familiarity, controlling for day of survey in quadratic form (referred to on P. 35)

```
. ologit bwr_familiar_q4  female age age2  marital_single marital_divorced marital_widowed m
> arital_separated marital_cohabiting child inc_mid inc_high emp_part_time emp_home emp_stud
> ent emp_retired school_qual third_qual higher_qual i.settlement day1 day12

Iteration 0:   log likelihood = -5246.4632
Iteration 1:   log likelihood = -5097.3922
Iteration 2:   log likelihood = -5095.5714
Iteration 3:   log likelihood = -5095.5688
Iteration 4:   log likelihood = -5095.5688

Ordered logistic regression                     Number of obs     =      4,154
                                                LR chi2(24)       =     301.79
                                                Prob > chi2       =     0.0000
Log likelihood = -5095.5688                     Pseudo R2         =     0.0288
```

bwr_familiar_q4	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
female	-.0699088	.0677698	-1.03	0.302	-.2027352	.0629176
age	.0880364	.0231468	3.80	0.000	.0426695	.1334032
age2	-.0007907	.0002561	-3.09	0.002	-.0012926	-.0002888
marital_single	-.1097266	.0916133	-1.20	0.231	-.2892854	.0698323
marital_divorced	-.2297329	.1781081	-1.29	0.197	-.5788183	.1193525
marital_widowed	.2380882	.2475497	0.96	0.336	-.2471002	.7232766
marital_separated	-.0742672	.1742448	-0.43	0.670	-.4157808	.2672464
marital_cohabiting	-.3791483	.1200922	-3.16	0.002	-.6145247	-.1437719
child	-.2515604	.0714358	-3.52	0.000	-.3915721	-.1115488
inc_mid	.0304381	.1081993	0.28	0.778	-.1816285	.2425048
inc_high	.0386837	.1202717	0.32	0.748	-.1970444	.2744119
emp_part_time	-.1149411	.0929435	-1.24	0.216	-.2971071	.0672248
emp_home	-.3303608	.1906903	-1.73	0.083	-.704107	.0433854
emp_student	-.8330992	.2036238	-4.09	0.000	-1.232194	-.434004
emp_retired	-.5414023	.2083634	-2.60	0.009	-.949787	-.1330176
school_qual	-.0312344	.1074956	-0.29	0.771	-.2419219	.179453
third_qual	-.0266745	.1000651	-0.27	0.790	-.2227985	.1694495
higher_qual	-.1033478	.1028498	-1.00	0.315	-.3049298	.0982342
settlement						
The suburbs or outskir..	.086149	.0993124	0.87	0.386	-.1084996	.2807976
A town	.1879793	.0993696	1.89	0.059	-.0067816	.3827401
A village	.2818803	.1213559	2.32	0.020	.0440271	.5197335
A rural area	.0859658	.0954583	0.90	0.368	-.101129	.2730606
day1	.0447367	.0097019	4.61	0.000	.0257214	.063752
day12	-.0009865	.0002679	-3.68	0.000	-.0015115	-.0004615
/cut1	2.386432	.5358421			1.336201	3.436663
/cut2	3.622763	.5372479			2.569777	4.67575
/cut3	4.687274	.5388547			3.631138	5.743409
/cut4	6.285383	.546595			5.214076	7.356689

day1 = day of survey, day12 = $day1^2$

3. Table 32, column (i)

Dependent variable: anyact_weather = 1 if took action to prepare for weather-related event

= 0 otherwise

```
. logit anyact_weather  female age age2 marital_single marital_divorced marital_widowed mari
> tal_separated marital_cohabiting child inc_mid inc_high emp_part_time emp_home emp_student
>  emp_retired school_qual third_qual higher_qual i.settlement

Iteration 0:   log likelihood = -1724.0957
Iteration 1:   log likelihood = -1687.7825
Iteration 2:   log likelihood = -1687.7578
Iteration 3:   log likelihood = -1687.7578

Logistic regression                             Number of obs     =      2,498
                                                LR chi2(22)       =      72.68
                                                Prob > chi2       =     0.0000
Log likelihood = -1687.7578                     Pseudo R2         =     0.0211
```

anyact_weather	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
female	-.2634769	.092065	-2.86	0.004	-.4439211	-.0830328
age	.053352	.0313308	1.70	0.089	-.0080553	.1147593
age2	-.0003236	.0003422	-0.95	0.344	-.0009943	.0003471
marital_single	-.0151657	.1310085	-0.12	0.908	-.2719377	.2416063
marital_divorced	.251341	.241121	1.04	0.297	-.2212475	.7239294
marital_widowed	.2409774	.3379302	0.71	0.476	-.4213536	.9033084
marital_separated	.133328	.2400899	0.56	0.579	-.3372395	.6038956
marital_cohabiting	.1778092	.1671694	1.06	0.287	-.1498367	.5054552
child	-.0706697	.0975319	-0.72	0.469	-.2618288	.1204893
inc_mid	.0704628	.1515923	0.46	0.642	-.2266527	.3675783
inc_high	-.0197921	.1661132	-0.12	0.905	-.3453679	.3057838
emp_part_time	.0856057	.1304851	0.66	0.512	-.1701404	.3413517
emp_home	-.4479973	.2479311	-1.81	0.071	-.9339332	.0379387
emp_student	.3700808	.2695062	1.37	0.170	-.1581418	.8983033
emp_retired	-.2980314	.2534129	-1.18	0.240	-.7947116	.1986487
school_qual	-.1097334	.151906	-0.72	0.470	-.4074638	.1879969
third_qual	.0138537	.1367339	0.10	0.919	-.2541398	.2818473
higher_qual	-.0773503	.1386884	-0.56	0.577	-.3491747	.194474
settlement						
The suburbs or outskir..	.0001472	.1396299	0.00	0.999	-.2735224	.2738168
A town	.2652915	.1406154	1.89	0.059	-.0103095	.5408926
A village	.0847031	.1705042	0.50	0.619	-.249479	.4188852
A rural area	.3302594	.1327749	2.49	0.013	.0700254	.5904935
_cons	-1.56127	.7364312	-2.12	0.034	-3.004648	-.1178912

4. Table 32: Column (ii)

```
. logit anyact_weather female age age2 marital_single marital_divorced marital_widowed marit
> al_separated marital_cohabiting child inc_mid inc_high emp_part_time emp_home emp_student
> emp_retired school_qual third_qual higher_qual i.settlement no_fam slight_fam somewhat_fam
>  mod_fam max_risk

Iteration 0:   log likelihood = -1724.0957
Iteration 1:   log likelihood = -1594.4067
Iteration 2:   log likelihood = -1593.1651
Iteration 3:   log likelihood = -1593.1568
Iteration 4:   log likelihood = -1593.1568

Logistic regression                             Number of obs     =      2,498
                                                LR chi2(27)       =     261.88
                                                Prob > chi2       =     0.0000
Log likelihood = -1593.1568                     Pseudo R2         =     0.0759
```

anyact_weather	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
female	-.2593547	.0960605	-2.70	0.007	-.4476299	-.0710795
age	.0348103	.0322761	1.08	0.281	-.0284497	.0980703
age2	-.0001701	.0003521	-0.48	0.629	-.0008603	.00052
marital_single	.0313797	.1358658	0.23	0.817	-.2349124	.2976718
marital_divorced	.1987189	.250637	0.79	0.428	-.2925206	.6899584
marital_widowed	.21717	.3553309	0.61	0.541	-.4792657	.9136056
marital_separated	.1464137	.2483911	0.59	0.556	-.3404239	.6332512
marital_cohabiting	.2506483	.1728437	1.45	0.147	-.0881192	.5894158
child	.021407	.1013394	0.21	0.833	-.1772145	.2200285
inc_mid	.0723858	.1560738	0.46	0.643	-.2335132	.3782847
inc_high	-.0151517	.171689	-0.09	0.930	-.351656	.3213526
emp_part_time	.1619515	.1351584	1.20	0.231	-.102954	.4268571
emp_home	-.2295805	.2539512	-0.90	0.366	-.7273158	.2681547
emp_student	.5295394	.2790069	1.90	0.058	-.0173041	1.076383
emp_retired	-.0187648	.262515	-0.07	0.943	-.5332846	.4957551
school_qual	-.097284	.1586094	-0.61	0.540	-.4081528	.2135847
third_qual	.0281887	.1427168	0.20	0.843	-.2515311	.3079086
higher_qual	-.0736682	.1448361	-0.51	0.611	-.3575418	.2102054
settlement						
The suburbs or outskir..	-.0428265	.1453472	-0.29	0.768	-.3277017	.2420487
A town	.1644718	.1467449	1.12	0.262	-.123143	.4520865
A village	-.0428947	.1779708	-0.24	0.810	-.391711	.3059217
A rural area	.2193196	.1401545	1.56	0.118	-.0553781	.4940174
no_fam	-2.385526	.3811266	-6.26	0.000	-3.13252	-1.638531
slight_fam	-1.962038	.384105	-5.11	0.000	-2.71487	-1.209206
somewhat_fam	-1.554779	.3909066	-3.98	0.000	-2.320942	-.788616
mod_fam	-.794167	.4068029	-1.95	0.051	-1.591486	.003152
max_risk	.0376924	.0083505	4.51	0.000	.0213258	.054059
_cons	.3249734	.8447177	0.38	0.700	-1.330643	1.98059

5. Table 33: News Media used as information source in emergency
Dependent Variable: info_mem_news = 1 if traditional news media is used
= 0 otherwise

```
. logit info_mem_news  female age age2 marital_single marital_divorced marital_widowed marit
> al_separated marital_cohabiting child inc_mid inc_high emp_part_time emp_home emp_student
> emp_retired school_qual third_qual higher_qual i.settlement

Iteration 0:   log likelihood = -1069.6343
Iteration 1:   log likelihood = -1025.2222
Iteration 2:   log likelihood =  -1019.342
Iteration 3:   log likelihood = -1019.3345
Iteration 4:   log likelihood = -1019.3345

Logistic regression                             Number of obs     =      4,154
                                                LR chi2(22)       =     100.60
                                                Prob > chi2       =     0.0000
Log likelihood = -1019.3345                     Pseudo R2         =     0.0470
```

info_mem_news	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
female	.4914565	.1302026	3.77	0.000	.2362642	.7466488
age	-.0153384	.0431942	-0.36	0.723	-.0999975	.0693207
age2	.0006235	.000498	1.25	0.211	-.0003525	.0015995
marital_single	.0829939	.1907319	0.44	0.663	-.2908337	.4568215
marital_divorced	-.3571698	.3570164	-1.00	0.317	-1.056909	.3425695
marital_widowed	-.3622802	.4971409	-0.73	0.466	-1.336658	.612098
marital_separated	-.7483646	.2927418	-2.56	0.011	-1.322128	-.1746011
marital_cohabiting	.1005376	.2319847	0.43	0.665	-.354144	.5552192
child	.0728048	.1451044	0.50	0.616	-.2115946	.3572043
inc_mid	.5433291	.1769868	3.07	0.002	.1964415	.8902168
inc_high	.900796	.2152646	4.18	0.000	.4788851	1.322707
emp_part_time	.0628367	.2198099	0.29	0.775	-.3679829	.4936563
emp_home	-.3274363	.3082858	-1.06	0.288	-.9316654	.2767927
emp_student	.1922493	.2963852	0.65	0.517	-.3886551	.7731537
emp_retired	-1.112174	.3694005	-3.01	0.003	-1.836186	-.3881624
school_qual	.1276348	.2218161	0.58	0.565	-.3071168	.5623865
third_qual	.0895921	.2048287	0.44	0.662	-.3118648	.491049
higher_qual	.0454063	.2110129	0.22	0.830	-.3681714	.4589841
settlement						
The suburbs or outskir..	.3298941	.1940757	1.70	0.089	-.0504873	.7102754
A town	.1157026	.1849928	0.63	0.532	-.2468766	.4782818
A village	.2527913	.2457613	1.03	0.304	-.228892	.7344746
A rural area	.4058314	.1905985	2.13	0.033	.0322652	.7793977
_cons	.7891555	.9682602	0.82	0.415	-1.1086	2.686911

6. Table 33: Friends and Family used as information source in emergency
   Dependent Variable: info_mem_ppl = 1 if traditional news media is used
   = 0 otherwise

```
. logit info_mem_ppl  female age age2 marital_single marital_divorced marital_widowed marita
> l_separated marital_cohabiting child inc_mid inc_high emp_part_time emp_home emp_student e
> mp_retired school_qual third_qual higher_qual i.settlement

Iteration 0:   log likelihood = -2797.4648
Iteration 1:   log likelihood = -2745.8195
Iteration 2:   log likelihood = -2745.6811
Iteration 3:   log likelihood =  -2745.681

Logistic regression                             Number of obs     =      4,154
                                                LR chi2(22)       =     103.57
                                                Prob > chi2       =     0.0000
Log likelihood =  -2745.681                     Pseudo R2         =     0.0185
```

info_mem_ppl	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
female	.1749758	.0732646	2.39	0.017	.0313797	.3185718
age	-.0254109	.023332	-1.09	0.276	-.0711407	.0203189
age2	.0001921	.000261	0.74	0.462	-.0003194	.0007036
marital_single	.4462134	.0990722	4.50	0.000	.2520355	.6403913
marital_divorced	.1035591	.1961132	0.53	0.597	-.2808157	.4879338
marital_widowed	.0306334	.2807727	0.11	0.913	-.519671	.5809378
marital_separated	-.0854493	.2000848	-0.43	0.669	-.4776082	.3067096
marital_cohabiting	.0514236	.1253709	0.41	0.682	-.1942989	.297146
child	.0817831	.0763466	1.07	0.284	-.0678536	.2314198
inc_mid	.1945973	.1131219	1.72	0.085	-.0271175	.4163121
inc_high	.1433729	.1262599	1.14	0.256	-.104092	.3908378
emp_part_time	.0022744	.1031659	0.02	0.982	-.199927	.2044759
emp_home	-.6354808	.2193953	-2.90	0.004	-1.065488	-.2054739
emp_student	.0982215	.1772918	0.55	0.580	-.2492641	.445707
emp_retired	-.1872523	.2271417	-0.82	0.410	-.6324419	.2579374
school_qual	-.0122315	.1188882	-0.10	0.918	-.2452481	.220785
third_qual	.2048859	.1100228	1.86	0.063	-.0107548	.4205266
higher_qual	.1265154	.1127615	1.12	0.262	-.094493	.3475238
settlement						
The suburbs or outskir..	-.0157026	.1062603	-0.15	0.883	-.223969	.1925638
A town	.1779933	.1057494	1.68	0.092	-.0292716	.3852583
A village	.1047931	.1331969	0.79	0.431	-.156268	.3658541
A rural area	.168642	.1021657	1.65	0.099	-.031599	.3688831
_cons	-.2945457	.539119	-0.55	0.585	-1.3512	.7621082

7. Table 33: Government Authorities used as information source in emergency
Dependent Variable: info_mem_gov = 1 if government authorities are used
= 0 otherwise

```
. logit info_mem_gov female age age2 marital_single marital_divorced marital_widowed marital
> _separated marital_cohabiting child inc_mid inc_high emp_part_time emp_home emp_student em
> p_retired school_qual third_qual higher_qual i.settlement

Iteration 0:   log likelihood = -2870.6822
Iteration 1:   log likelihood =  -2825.384
Iteration 2:   log likelihood = -2825.3727
Iteration 3:   log likelihood = -2825.3727

Logistic regression                             Number of obs     =      4,154
                                                LR chi2(22)       =      90.62
                                                Prob > chi2       =     0.0000
Log likelihood = -2825.3727                     Pseudo R2         =     0.0158
```

info_mem_gov	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
female	-.0916223	.0714589	-1.28	0.200	-.2316791	.0484345
age	.0177374	.0228623	0.78	0.438	-.0270718	.0625466
age2	-.0001964	.0002548	-0.77	0.441	-.0006957	.0003029
marital_single	-.1095104	.0979151	-1.12	0.263	-.3014206	.0823997
marital_divorced	-.1442418	.190551	-0.76	0.449	-.5177148	.2292313
marital_widowed	.1342219	.2702676	0.50	0.619	-.3954927	.6639366
marital_separated	.1403917	.1921115	0.73	0.465	-.2361399	.5169233
marital_cohabiting	-.0430264	.1230568	-0.35	0.727	-.2842133	.1981604
child	.0744637	.0748715	0.99	0.320	-.0722816	.2212091
inc_mid	.2106398	.1099594	1.92	0.055	-.0048766	.4261562
inc_high	.2884018	.1226837	2.35	0.019	.0479463	.5288574
emp_part_time	-.2134142	.1008731	-2.12	0.034	-.4111219	-.0157066
emp_home	-.2124966	.1946264	-1.09	0.275	-.5939574	.1689643
emp_student	-.0618047	.1760442	-0.35	0.726	-.406845	.2832355
emp_retired	-.4338808	.2138325	-2.03	0.042	-.8529848	-.0147767
school_qual	-.1861218	.1140036	-1.63	0.103	-.4095646	.0373211
third_qual	.2498287	.1063697	2.35	0.019	.0413479	.4583094
higher_qual	.2296325	.1089199	2.11	0.035	.0161534	.4431116
settlement						
The suburbs or outskir..	.1659426	.1036637	1.60	0.109	-.0372346	.3691198
A town	.177604	.1039073	1.71	0.087	-.0260505	.3812586
A village	.1129752	.1302135	0.87	0.386	-.1422384	.3681889
A rural area	.0776046	.0999998	0.78	0.438	-.1183913	.2736006
_cons	-.565013	.5304502	-1.07	0.287	-1.604676	.4746502

8. Table 33: Social Media and non-traditional News websites used as information source in emergency
Dependent Variable: info_mem_web = 1 if traditional news media is used
= 0 oherwise

```
. logit info_mem_web female age age2 marital_single marital_divorced marital_widowed marital
> _separated marital_cohabiting child inc_mid inc_high emp_part_time emp_home emp_student em
> p_retired school_qual third_qual higher_qual i.settlement

Iteration 0:   log likelihood = -2821.0881
Iteration 1:   log likelihood = -2733.3592
Iteration 2:   log likelihood = -2733.1771
Iteration 3:   log likelihood =  -2733.177

Logistic regression                             Number of obs     =      4,154
                                                LR chi2(22)       =     175.82
                                                Prob > chi2       =     0.0000
Log likelihood =  -2733.177                     Pseudo R2         =     0.0312
```

info_mem_web	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
female	-.0937937	.0729994	-1.28	0.199	-.23687	.0492826
age	-.0172326	.02357	-0.73	0.465	-.0634289	.0289638
age2	-.0001513	.0002644	-0.57	0.567	-.0006695	.0003669
marital_single	.131908	.1005003	1.31	0.189	-.0650689	.328885
marital_divorced	.5984784	.1921701	3.11	0.002	.2218319	.9751248
marital_widowed	.1563909	.2776982	0.56	0.573	-.3878876	.7006695
marital_separated	.1406069	.1948324	0.72	0.470	-.2412577	.5224714
marital_cohabiting	.1614182	.1242613	1.30	0.194	-.0821294	.4049658
child	.1237504	.076538	1.62	0.106	-.0262614	.2737621
inc_mid	.0774689	.1115444	0.69	0.487	-.1411541	.2960918
inc_high	-.0266618	.1249374	-0.21	0.831	-.2715346	.2182109
emp_part_time	.1813609	.10334	1.75	0.079	-.0211818	.3839036
emp_home	.5152974	.195667	2.63	0.008	.1317971	.8987978
emp_student	.2921811	.1780731	1.64	0.101	-.0568357	.6411979
emp_retired	.8717564	.2173593	4.01	0.000	.4457401	1.297773
school_qual	-.1228643	.1173398	-1.05	0.295	-.352846	.1071174
third_qual	-.0251303	.1086724	-0.23	0.817	-.2381244	.1878637
higher_qual	-.1136556	.1114822	-1.02	0.308	-.3321566	.1048454
settlement						
The suburbs or outskir..	.0380036	.1068688	0.36	0.722	-.1714554	.2474627
A town	.2035922	.1063714	1.91	0.056	-.0048919	.4120764
A village	.0539278	.1340908	0.40	0.688	-.2088854	.316741
A rural area	.2332737	.1029056	2.27	0.023	.0315824	.434965
_cons	.5238434	.5427432	0.97	0.334	-.5399137	1.5876

9. Table 34 Likelihood to act on Met Éireann Advice, based on Trust level: Col (i)
   Dependent Variable: trust_met = 1 if very unlikely
   =2 if unlikely
   =3 if neutral
   =4 if somewhat likely
   =5 if very likely

```
. ologit trust_met  female age age2  marital_single marital_divorced marital_widowed marital
> _separated marital_cohabiting child inc_mid inc_high emp_part_time emp_home emp_student em
> p_retired school_qual third_qual higher_qual i.settlement

Iteration 0:   log likelihood = -3839.2458
Iteration 1:   log likelihood = -3755.3109
Iteration 2:   log likelihood = -3754.1601
Iteration 3:   log likelihood = -3754.1599

Ordered logistic regression                     Number of obs     =      4,151
                                                LR chi2(22)       =     170.17
                                                Prob > chi2       =     0.0000
Log likelihood = -3754.1599                     Pseudo R2         =     0.0222
```

trust_met	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
female	.3428411	.0726657	4.72	0.000	.200419	.4852633
age	.035529	.023247	1.53	0.126	-.0100343	.0810923
age2	-.0001506	.0002623	-0.57	0.566	-.0006646	.0003635
marital_single	-.1020578	.1016163	-1.00	0.315	-.3012221	.0971065
marital_divorced	-.2897665	.1959329	-1.48	0.139	-.6737879	.0942549
marital_widowed	-.2347455	.2799166	-0.84	0.402	-.7833719	.3138809
marital_separated	-.0581188	.1992858	-0.29	0.771	-.4487117	.3324741
marital_cohabiting	-.1576911	.1235295	-1.28	0.202	-.3998046	.0844223
child	-.0789215	.077098	-1.02	0.306	-.2300309	.0721879
inc_mid	.2464238	.1081234	2.28	0.023	.0345058	.4583419
inc_high	.401562	.1226768	3.27	0.001	.1611199	.642004
emp_part_time	.0265277	.1083411	0.24	0.807	-.1858168	.2388723
emp_home	.0496293	.1985252	0.25	0.803	-.3394729	.4387314
emp_student	-.0930427	.1708431	-0.54	0.586	-.427889	.2418035
emp_retired	-.1955902	.2236145	-0.87	0.382	-.6338665	.2426862
school_qual	.0571473	.1171565	0.49	0.626	-.1724752	.2867697
third_qual	.2170398	.1096383	1.98	0.048	.0021526	.4319269
higher_qual	.2002064	.1125925	1.78	0.075	-.0204708	.4208836
settlement						
The suburbs or outskir..	.2483994	.1069714	2.32	0.020	.0387393	.4580595
A town	-.0398626	.1047942	-0.38	0.704	-.2452555	.1655302
A village	-.0155617	.1317044	-0.12	0.906	-.2736976	.2425741
A rural area	.2205667	.1035601	2.13	0.033	.0175926	.4235408
/cut1	-1.649623	.5382768			-2.704627	-.5946202
/cut2	-1.168945	.5354793			-2.218465	-.1194252
/cut3	-.4896842	.533525			-1.535374	.5560056
/cut4	1.266963	.5335053			.2213119	2.312614

10. Table 34 Likelihood to act on Met Éireann Advice, based on Trust level: Col (ii)

```
. ologit trust_met  female age age2  marital_single marital_divorced marital_widowed marital
> _separated marital_cohabiting child inc_mid inc_high emp_part_time emp_home emp_student em
> p_retired school_qual third_qual higher_qual i.settlement no_fam slight_fam somewhat_fam m
> od_fam max_risk

Iteration 0:   log likelihood = -3839.2458
Iteration 1:   log likelihood = -3730.9406
Iteration 2:   log likelihood = -3728.8261
Iteration 3:   log likelihood = -3728.8169
Iteration 4:   log likelihood = -3728.8169

Ordered logistic regression                     Number of obs     =      4,151
                                                LR chi2(27)       =     220.86
                                                Prob > chi2       =     0.0000
Log likelihood = -3728.8169                     Pseudo R2         =     0.0288
```

trust_met	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
female	.3573397	.0731808	4.88	0.000	.2139081	.5007714
age	.028615	.0233632	1.22	0.221	-.017176	.074406
age2	-.0000866	.0002634	-0.33	0.742	-.0006029	.0004297
marital_single	-.0878012	.1020866	-0.86	0.390	-.2878872	.1122848
marital_divorced	-.2952619	.197094	-1.50	0.134	-.6815591	.0910353
marital_widowed	-.2482889	.2821813	-0.88	0.379	-.8013541	.3047764
marital_separated	-.0388181	.2003202	-0.19	0.846	-.4314384	.3538023
marital_cohabiting	-.1254705	.1242495	-1.01	0.313	-.3689951	.118054
child	-.0467969	.0774812	-0.60	0.546	-.1986573	.1050636
inc_mid	.2672193	.108717	2.46	0.014	.0541378	.4803008
inc_high	.4331043	.1237403	3.50	0.000	.1905777	.675631
emp_part_time	.0559616	.1088992	0.51	0.607	-.157477	.2694002
emp_home	.1269479	.1995544	0.64	0.525	-.2641715	.5180672
emp_student	-.0463966	.1720329	-0.27	0.787	-.3835749	.2907816
emp_retired	-.122582	.2247174	-0.55	0.585	-.5630199	.317856
school_qual	.0838834	.1178809	0.71	0.477	-.147159	.3149258
third_qual	.2297933	.1102764	2.08	0.037	.0136556	.445931
higher_qual	.2073517	.1132705	1.83	0.067	-.0146545	.4293578
settlement						
The suburbs or outskir..	.2303313	.1076376	2.14	0.032	.0193655	.4412971
A town	-.0848956	.1056443	-0.80	0.422	-.2919546	.1221634
A village	-.0594268	.1329372	-0.45	0.655	-.3199789	.2011252
A rural area	.1509504	.1057658	1.43	0.154	-.0563468	.3582476
no_fam	-1.352888	.31652	-4.27	0.000	-1.973256	-.7325205
slight_fam	-1.234103	.3193476	-3.86	0.000	-1.860013	-.6081931
somewhat_fam	-1.085646	.3258652	-3.33	0.001	-1.72433	-.4469624
mod_fam	-.8502797	.3382782	-2.51	0.012	-1.513293	-.1872667
max_risk	.0214423	.0065028	3.30	0.001	.0086971	.0341876
/cut1	-2.726054	.6285228			-3.957936	-1.494172
/cut2	-2.244927	.6261081			-3.472076	-1.017778
/cut3	-1.563495	.6244116			-2.787319	-.3396703
/cut4	.2067016	.6241326			-1.016576	1.429979

Appendix 3: Generalised Ordered Logit Results

Brant tests were conducted to check whether the assumption of constant proportional odds, the parallel lines assumption, holds in each of the full ordered logit regressions in Tables 31 and 34. Generalised Ordered Logit models were run, allowing coefficients to vary on explanatory variables for which the assumption did not hold. The tests indicated a few instances of evidence that the parallel lines assumption did not hold. Using generalised logit did not change overall results greatly. The minor changes in results are summarised below.

(i) Familiarity with 'Be Winter Ready'.

The results of a Brant test on the full ordered logit model specified in Table 31 highlighted three explanatory variables for which the 'parallel lines' assumption did not hold: Female, Mid-Income bracket and degree-level education. In the results of Table 31, all three variables were insignificant in the full regression.

The more general model, with results given in Table 35 continues to attach no significance to mid-income and degree-level education, but the coefficient on the variable Female becomes significant when we consider binary comparisons for higher levels of familiarity. Given the sizes of the odds ratios, the message is that the impact of being female is to significantly reduce the likelihood of stating the highest levels of familiarity with the campaign compared to males.

The size of the estimated odds ratios on the other variables in the regression specification do not differ significantly from the results in Table 31. The coefficients on age and age^2 continue to suggest a quadratic impact of age, with familiarity increasing up to 57.59 years old.

Examining changes in significance of variables, the impact of living in a rural area compared to a city has become insignificant in this model, where it was weakly significant in Table 31.

(ii) Likelihood to Act Based on Trust in Met Éireann

Applying the same procedures to the full specifications underlying models (i) and (ii) in Table 34, we obtain the generalised ordered logit results Table 36

The Brant test on the specification used for column (i) in Table 34 indicated the parallel lines assumption did not hols for the variable Female, and that coefficient varies in column (i) of Table 36 below. For the specification underlying column (ii), the only variable for which a problem was detected and whose coefficients are allowed to vary is Max_Risk.

Comparing the results in Table 36 with those of Table 34, there is very little change in the estimated odds-ratios and intuition of the results. In column (i) the differential between female and male is seen to increase as the underlying binary logits are based around higher trust classification cut-offs.

When we allow the coefficient on Risk_Max to vary, the evidence in Column (ii) of Table 36, suggests that the impact of higher risk perception is to polarise the degree to which individuals state they are likely to act on Met Éireann's advice.

Table 35 Generalised Ordered Logit - Familiarity with 'Be Winter Ready'

Dependent Variable: Familiarity with Winter Ready Campaign					
Relative to:	Explanatory Variable		Odds-Ratio	p-Value	Signif
Male	Female	m=1	1.046	0.531	
		m=2	0.889	0.149	
		m=3	0.698	0.001	***
		m=4	0.434	0.000	***
Married	marital_single		0.911	0.312	
	marital_divorced		0.794	0.196	
	marital_widowed		1.294	0.301	
	marital_separated		0.911	0.593	
	marital_cohabiting		0.682	0.001	***
No Child	child		0.782	0.001	***
Low Income	inc_mid	m=1	1.088	0.445	
		m=2	0.998	0.987	
		m=3	1.085	0.556	
		m=4	0.779	0.279	
	inc_high		1.061	0.621	
Full Time Employed	emp_part_time		0.865	0.119	
	emp_home		0.595	0.005	***
	emp_student		0.353	0.000	***
	emp_retired		0.495	0.001	***
No Formal Qualification	school_qual		0.983	0.875	
	degree_qual	m=1	1.018	0.866	
		m=2	0.918	0.439	
		m=3	0.895	0.411	
		m=4	0.712	0.168	
	higher_qual		0.888	0.246	
City	Suburbs		1.092	0.372	
	A town		1.232	0.036	**
	A village		1.347	0.014	**
	A rural area		1.126	0.213	
	Age		0.088	0.000	***
	Age^2		-0.001	0.003	***

Overall Model Fit	chi-squared =	309.9	***
	p-value	0.000	

Table 36 Generalised Ordered Logit Results - Likelihood of Acting Based on Trust in Met Éireann

Dependent Variable: Likelihood to Act Based on Trust in Met Éireann									
		(i)				(ii)			
Relative to	Variable		Odds-Ratio	p-Value	Signif		Odds-Ratio	p-Value	Signif
Male	Female	m=1	1.092	0.663			1.433	0.000	***
		m=2	1.315	0.082	*				
		m=3	1.442	0.002	***				
		m=4	1.409	0.000	***				
Married	marital_single		0.903	0.316			0.916	0.390	
	marital_divorced		0.749	0.139			0.742	0.129	
	marital_widowed		0.791	0.403			0.778	0.374	
	marital_separated		0.944	0.771			0.963	0.849	
	marital_cohabiting		0.854	0.201			0.883	0.318	
No Child	child		0.925	0.309			0.954	0.541	
Low Income	inc_mid		1.279	0.023	**		1.305	0.014	**
	inc_high		1.494	0.001	***		1.542	0.000	***
Full Time Employed	emp_part_time		1.027	0.806			1.058	0.603	
	emp_home		1.051	0.803			1.138	0.516	
	emp_student		0.911	0.587			0.958	0.804	
	emp_retired		0.823	0.382			0.887	0.595	
No Formal Qualification	school_qual		1.059	0.624			1.088	0.475	
	degree_qual		1.243	0.047	**		1.259	0.037	**
	higher_qual		1.222	0.075	*		1.229	0.069	*
City	Suburbs		1.281	0.020	**		1.260	0.032	
	A town		0.960	0.700			0.918	0.420	
	A village		0.984	0.904			0.943	0.660	
	A rural area		1.246	0.034	**		1.161	0.159	
Extremely Familiar	No Familiarity						0.259	0.000	***
	Slightly Familiar						0.291	0.000	***
	Somewhat Familiar						0.337	0.001	***
	Moderately Familiar						0.427	0.012	**
	Age		0.035	0.000			0.023	0.214	
	Age^2		0.000	0.003			0.000	0.732	
	Max_Risk					m=1	0.957	0.005	***
						m=2	0.989	0.435	
						m=3	1.010	0.360	
						m=4	1.0244	0.000	***
	Overall Model Fit		X^2 =	309.9	***		X^2 =	243.77	***
			(p-value)	(0.00)			(p-value)	(0.00)	

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