

# Sense of Belonging and Response to Climate Change: How the Relation with Local Territories Influences Climate Resilience



Cristina Casareale, Noemi Marchetti, and Alessandra Colocci

**Abstract** Earth's climate has changed throughout history and regional changes in climate have already affected a diverse set of physical and biological systems in many parts of the world. The impacts depend on community's vulnerability and exposure conditions, and mitigation and adaptation actions have been recognized as essential to meet the goals of global agendas (e.g., New Urban Agenda, Sustainable Development Goals and Sendai Framework). Adaptation measures seem to be less common compared to mitigation ones, probably for the limits on ecological, physical, economic, and technological dimensions. The objective of this study, conducted as part of the Interreg RESPONSE Project, is to analyze the resilience of local population in the Veneto Region in relation to the integration in the territory. Hence, the investigation focused on analyzing the locals' perception of climate impacts on their daily life, their sense of place, and how perception and sense of place influence the willingness to take personal and collective actions to counteract climate change. Social and physical characteristics, local climate change scenarios, and the targeted adaptation approach of different communities have been examined. Results suggest that age and proximity to the coast are influencing factors in the response to climate change. For instance, younger people appear to acknowledge the shared personal responsibility of tackling such a challenge, while wishing for a broader community involvement. At the same time, the sense of belonging appears to support long-term, adaptation actions. Overall, the outcomes give hints about the key elements to consider when planning for improving local climate resilience.

**Keywords** SDG13 Climate action · Climate resilience · Mitigation · Adaptation · Scale · Italy

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© The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd. 2023  
B. Dahiya et al. (eds.), *Disaster Resilience and Human Settlements*,  
Advances in 21st Century Human Settlements,  
[https://doi.org/10.1007/978-981-99-2248-2\\_13](https://doi.org/10.1007/978-981-99-2248-2_13)

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# 1 Introduction

Understanding how the geographic scale affects the willingness of people to act to fight climate change and, consequently, the way governments can use the sense of belonging to manage environmental problems is not a new topic for researchers (see Feitelson 1991). Research on people–place relationships, in particular attachment to place and place identity, is beginning to make an important contribution to understand human responses to climate change (Devine-Wright et al. 2015). Nowadays, in fact, it is well known that although climate change is a global phenomenon, the impacts are most acutely experienced at a local scale (Cunsolo Willox et al. 2012). Many parts of the world will need to adapt to an increasingly unstable climate (Bowden et al. 2019), considering that according to the recent reports from the Intergovernmental Panel on Climate Change (IPCC 2021, 2022a, b) the window to avoid dangerous climate change is rapidly closing. Consequently, mitigation seems to be less and less feasible, although still essential in order not to worsen the already very serious condition of the earth system (<https://sdgs.un.org/goals/goal13>). Despite the growing concern about the ability to adapt both globally and locally (Biesbroek et al. 2013; Porter et al. 2015), much of the adaptation literature remains under-theorized in relation to the social mechanisms involved (Eriksen et al. 2015). Barriers to climate adaptation are often described as unrelated to each other, with a limited explanation of how these barriers are socially constructed and why they persist (Biesbroek et al. 2013; Brulle and Norgaard 2019). Since adaptation often occurs in a more localized context than mitigation, understanding the connections between the place and the people who inhabit it has the potential to break down these barriers (Bowden et al. 2019). Climate and environmental changes are also causing various place-related impacts: alterations in biophysical, geographic and climatic processes (Adger et al. 2007); changes in the level of significant link between people and their environments; disruptions to place-specific socio-cultural activities, such as hunting or fishing, which contribute to health and well-being; transformations in the mental conceptions of place, or rather of the socio-cultural and psycho-social meanings attributed to particular places; alterations to place-based identities held individually and collectively (Cunsolo Willox et al. 2012; Scannell and Gifford 2010). Climate change could affect the sense of belonging in such a way that it can prevail over the attachment of an individual to his/her “place”, contributing to the phenomenon of environmental migration as possible adaptation strategy (Tacoli 2009; Warner et al. 2010) instead of encouraging people to adapt locally and increase local climate resilience.

From this perspective, understanding the elements that shape individual and collective sense of place, the relative levels of attachment to or bond with a particular area, and the ways in which individuals create identities connected to and within the place, becomes an essential component of qualitative and quantitative (Devine-Wright 2013) climate resilience research (Denton et al. 2014) and can help reduce climate-related disaster risks (UNDRR 2015).

This study has the following objectives: (a) to analyze the perceived impact that climate change will have on the citizens of Veneto Region (Italy); (b) to identify

possible factors that influence their sense of place; (c) to analyze the influence that these factors have on the willingness to counteract climate change and its effects. This work ultimately aims at helping decision-makers to consider the elements that influence the sense of belonging when planning mitigation and adaptation strategies. Such local strategies would be intended to be part of the local development agenda (United Nations 2017), thus improving local climate resilience.

## 2 Methodology

### 2.1 Study Area

The research is part of the Interreg Italy-Croatia Project “RESPONSe” (Strategies to adapt to climate change) that aims at empowering local policy-makers to enable climate-smart governance approaches and promote sustainable living in Adriatic marine and coastal areas. Veneto Region (Fig. 1a) is one of the pilot areas involved in the project. The region is the fourth most densely populated region of Italy, with 4,852,453 residents and a density of about 264 people per km<sup>2</sup>. About 41% of the population lives in coastal provinces (Metropolitan City of Venice, Rovigo and Padua), where the population density is particularly high. The remaining 59% of the population lives in hilly and mountainous provinces (Verona, Treviso, Vicenza and Belluno) (Istituto Nazionale di Statistica 2021). In the coastal area, there are widespread farms of small size with intensive cultivation, intensive farming, inhabited areas and small-very small industries. Even outside the large, inhabited centers, there is an articulated mix of productive activities, residential settlements, road structures and services. Veneto also has a strong tourist flow linked to attractions such as the city of Venice and its lagoon (Fig. 1b), the Arena of Verona, the Colli Euganei Regional Park (Fig. 1c), the wine cellars spread throughout the region, just to name a few. Despite the strong weight that the region has on the national economy, the enormous potential for further development and the high sense of belonging, at least from an economic point of view (Regione Veneto 2007), Veneto has one of the highest rates of emigration of Italy. Emigrants from Veneto are mainly educated young people, moving to other European countries to find better job opportunities (Osservatorio Veneti nel Mondo 2021). According to data from the Veneto Region, in fact, in 2019 the registrations to AIRE (Registry of Italians Residing Abroad) of Venetian were just under 457 thousand (+5.7% compared to the previous year) with a weight on the total number of residents in the region equal to 9.4%, confirming itself as the fifth Italian region for outgoing migratory flows (Osservatorio Veneti nel Mondo 2021).



**Fig. 1** The Veneto Region with provincial borders (Source Authors) (a). Overview of Venice and its Lagoon (Source <https://www.interno.gov.it>) (b). Lago della Costa in the Colli Euganei Regional Park (Source <http://www.parcocollieuganei.com>) (c)

## 2.2 Data Analysis

In order to investigate the level of the sense of belonging of the Veneto population and its influence on the willingness to counteract climate change, the responses provided to a questionnaire distributed to the population as part of the RESPONSE project were analyzed.

Due to the ongoing COVID-19 pandemic, the questionnaire was administered to the population by publishing it on the website of the National Network System for Environmental Protection (SNPA). The questionnaires were collected during the period from March 2020 to April 2021.

The sampling method used for the sample sizing is the non-probabilistic per-quota method (Moser 1952), selecting as a variable in the residence in the Veneto Region.

The questionnaire was structured in two parts:

- Climate change-related questions, aimed at collecting information related to the knowledge, understanding and propensity to adapt of the population;
- General part, aimed at outlining the demographic profile of the participants.

The questions included in the questionnaire are of four types:

- Single-answer questions, for which the respondent can express only one choice;
- Multiple choice questions, for which the respondent can express more than one choice;
- Single-answer questions on a psychometric scale, for which the respondent must express an opinion more or less in agreement with a stated assumption on a “Likert” scale;
- Open questions.

The questionnaire administered to the population as part of the RESPONSE Project consists of 54 questions, 5 of which provide information related to the sense of belonging and were therefore selected for the realization of this study. The analyzes were carried out to verify whether the willingness to adapt to climate change is influenced by the (a) sense of belonging and by demographic characteristics, such as (b) age, (c) proximity to the coast, and (d) level of integration in the community.

To verify the above hypotheses, the sense of belonging-related questions and the demographic questions were selected from the original questionnaire. The analyzed questions are shown in Table 1.

To determine whether there is a correlation between the answers provided by the questionnaires (considered categorical variables, i.e. nominal or ordinal variables with less than 5 rankings), the non-parametric chi-square  $\chi^2$  test for independence (Mchugh 2013) was chosen. The chi-square test can be considered significant if the level of significance, the p-value, is lower than 0.05. For levels of p lower than 0.001 the significance of the test is extremely high. To carry out the analysis, the questions with answers on a “Likert” scale were combined into three answers: “Strongly disagree”/“Disagree”; “Undecided”; “Completely agree”/“Agree”, depending on the formulation of the question analyzed. Likewise, the multiple-choice questions were

**Table 1** Overview of the questions of the RESPONSe questionnaire selected for the analysis

Reference to the part of the questionnaire	Questions analyzed
Sense of belonging <sup>1</sup>	Q8: Climate change will impact your lifestyle
	Q9: What do you think will have to change in your lifestyle?
	Q25: The cost of mitigation of, and adaptation to climate change should be exclusively paid by the government
	Q28: What can you do, at the individual level, to prepare for climate-related hazards?
	Q29: Can you list concrete steps that you and your family have taken to face climate change?
General part	Q31: Age
	Q32: Where do you live?
	Q34: Do you feel integrated in your community?
	Q35: How far do you live from the coast?

Source Authors

grouped into smaller categories, depending on the answer options available in the question analyzed.

Once verified the presence of a dependence between the two variables (nominal or nominal and ordinal), the degree of associations between the variables was evaluated using the Cramer's V index, useful for making this evaluation for variables that each have more than two values (i.e., contingency tables bigger than  $2 \times 2$ ). The value of Cramer's V is defined based on the degrees of freedom (df).

Finally, for the ordinal variables the direction of the association, positive or negative, was evaluated through the gamma index ( $\gamma$ ) of Goodman and Kruskal. The  $\gamma$  index varies from  $-1$  to  $1$ . Values close to an absolute value of  $1$  indicate a strong relationship between the two variables, negative or positive. Values close to zero indicate scarcity or absence of relationship (Hryniewicz 2006).

Test processing was done with the use of IBM SPSS Statistic 19 software.

As a final analysis, contingency tables were constructed to verify the degree of association between two of the variables under consideration. This methodology made it possible to evaluate the number of respondents observed for all combinations of the categories of the two variables and to determine whether the variables considered are dependent or independent of each other.

<sup>1</sup> The questions are contained in different sections of the questionnaire (Q8 and Q9 – Risk perception; Q25 – Risk acceptance; Q28 and Q29 – Attitude towards risks and, for the scope of the chapter, are collected under the appellation “sense of belonging”.



### 3 Results and Discussion

A total of 1231 random individuals among the adult citizens of the Veneto region participated in the survey, allowing to consider the responses as representative of the overall regional adult population ( $95\% \pm 2.8\%$  confidence level).

The general information concerning the respondents (Table 2) reports a majority of adults (Q31, 66.7%), which corresponds to the data registered for 2020 by the Italian Institute of Statistics (Istituto Nazionale di Statistica, n.d.). Most of the respondents appear to reside in the hinterland (Q32, 62.9%) and are mainly far from the coast (Q35, 87.2%). Overall, the sense of belonging was predominant (Q34, 81.6%) over the other options. On the other hand, the information concerning the approach towards issues related to climate change (Table 3) describes a majority of respondents that agrees, even strongly (Q8, 37.5% and 37.1%, respectively), on the impacts of climate change on personal life, as well as that most of the changes will need to happen at the community (Q9, 45.3%) and individual (Q9, 43.6%) levels. Nevertheless, there is a wide uncertainty (Q25, 37.9%) whether governments should be the only ones to bear the costs of such adaptation and mitigation efforts, although a significant disagreement, even strong, emerges (Q25, 20.7% and 19.1%, respectively). At the same time, at an individual level, there is a wide consensus on the need to lower the personal consumption of resources (Q28, 79.2%) and engaging in informative events (Q28, 51.0%), while most of the respondents have already taken action against climate change, mainly working on the residential domain (Q29, 98.1%).

In order to further explore these findings, comparisons were performed among the questions presented above. As mentioned, where possible, cross-correlation and chi-square  $\chi^2$  test for independence were carried out. In the following paragraphs, the most significant results will be discussed.

#### 3.1 *The Influence of Age in Shaping the Sense of Place and Perception of Climate Change*

For the purpose of analyzing the perceived impact that climate change will have on Veneto's inhabitants, question number Q31 was related to questions Q8 (Table 4) and Q9 (Fig. 2). Basically, age details were associated with the perception of climate change.

Table 4 shows that the population agrees about the problem of climate change impacting daily activities, though age still induces some differences among the responses. Overall, there is a consciousness of what is happening in the world and even in the specific area of Veneto region. Particularly, looking through the results, it is possible to recognize that young people disagree the least about the impact of climate change on lifestyle (0.4%), compared to older people, among whom the uncertainty is greater (4.1%). Probably, young people are growing up receiving information about climate change and suggestions about how to behave. Older people understand the

**Table 2** Answers of the general part of the questionnaires (sample size = 1231 individuals)

Question	Answers	Frequencies (N)	Percentages (%)
Q31: Age	Young (18–34 years)	240	19.5
	Adults (35–64 years)	821	66.7
	Elderly (> 64 years)	169	13.7
	Total	1231	100.0
Q32: Where do you live?	Coastal area	457	37.1
	Hinterland	774	62.9
	Total	1231	100.0
Q34: Do you feel integrated in your community?	Yes	1005	81.6
	No	83	6.7
	I don't know	70	5.7
	I prefer not to answer	73	5.9
	Total	1231	100.0
Q35: How far do you live from the coast?	<1000 m	67	5.4
	>1000 m	1073	87.2
	I don't know	62	5.0
	I prefer not to answer	29	2.4
	Total	1231	100.0

Source Authors

current problem, but they may not completely understand what to change in their lifestyle, or they may not grasp well the use of new technologies, so they are not sure of what needs to be changed.

Table 5 summarizes the related measures of association (p-value and gamma). The statistical correlation between Q31 and Q8 is very significant ( $P$  value = 0.000), with a moderate association and a negative (gamma =  $-0.251$ ).

About the responsibility of changing the lifestyle, it is possible to observe (Fig. 2) that elderly people would shift at their individual level (10.9%), adults think that changes must come from the community involvement and responsibility (32.1%), and young people support both the options (6.0% for individual level and 5.9% for the community). The alternative of not changing anything seems to be more refused by elderly people (0.9%) compared to adults and young people (7.3% and 2.0% respectively). The aptitude of sharing problems and interventions supported by the adult and young population in contrast with a less collective perspective of elder people stresses the transition from an individualistic community to a more collectivist one. The cause of the differences among the age classes might be in a different attachment to the territory where they live, that is changing and transforming. Furthermore, people do not have the same updated information and adopt different attitudes. The age influence in shaping the sense of place and perception of climate change emerges also from the analysis of questions about age Q31 correlated with questions Q28 and



**Table 3** Answers to the sense of belonging part of the questionnaires (sample size = 1231 individuals)

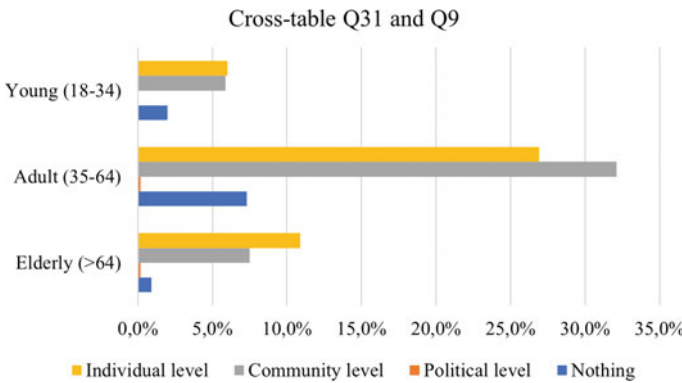
Question	Answer	Frequency (N)	Percentage (%)
Q8: Climate change will impact your lifestyle <sup>a</sup>	Strongly disagree	32	2.6
	Disagree	53	4.3
	Undecided	227	18.4
	Agree	462	37.5
	Strongly agree	457	37.1
	Total	1231	100.0
Q9: What do you think will have to change in your lifestyle? <sup>b</sup>	Nothing	125	10.2
	Political level	6	0.5
	Community level	558	45.3
	Individual level	537	43.6
	Total	1226	99.6
Q25: The cost of mitigation of, and adaptation to climate change should be exclusively paid by the government <sup>a</sup>	Strongly disagree	235	19.1
	Disagree	255	20.7
	Undecided	466	37.9
	Agree	177	14.4
	Strongly agree	98	8.0
	Total	1231	100.0
Q28: What can you do, at the individual level, to prepare for climate-related hazards? <sup>c</sup>	Nothing	50	4.1
	Insurance	236	19.2
	Consumption	975	79.2
	Events	628	51.0
	Exposure	122	9.9
	Habits	84	6.8
	Total	1227	99.7
Q29: Can you list concrete steps that you and your family have taken to face climate change? <sup>b</sup>	Nothing	96	7.8
	Impacts	729	59.2
	Residential	376	30.5
	Consumption	516	41.9
	Soft <sup>d</sup>	105	8.5
	Total	1208	98.1

<sup>a</sup>Likert scale, <sup>b</sup>Open question, <sup>c</sup>Multiple choice question, <sup>d</sup>Personal habits and actions  
Source Authors

**Table 4** Cross-table of Q31 and Q8 with frequencies (percentages) of the answers

		Q8. Climate change will impact your lifestyle			
		Strongly disagree/disagree	Undecided	Strongly agree/agree	Total
Q31. Age	Young (18–34)	5 (0.4%)	39 (3.2%)	196 (15.9%)	240 (19.5%)
	Adult (35–64)	67 (5.4%)	138 (11.2%)	616 (50.0%)	821 (66.7%)
	Elderly (>64)	13 (1.1%)	50 (4.1%)	106 (8.6%)	169 (13.7%)
	Total	85 (6.9%)	227 (18.4%)	919 (74.7%)	1230 (100.0%)

Source Authors



**Fig. 2** Graphical representation of the cross-table of Q31 and Q9. Source Authors

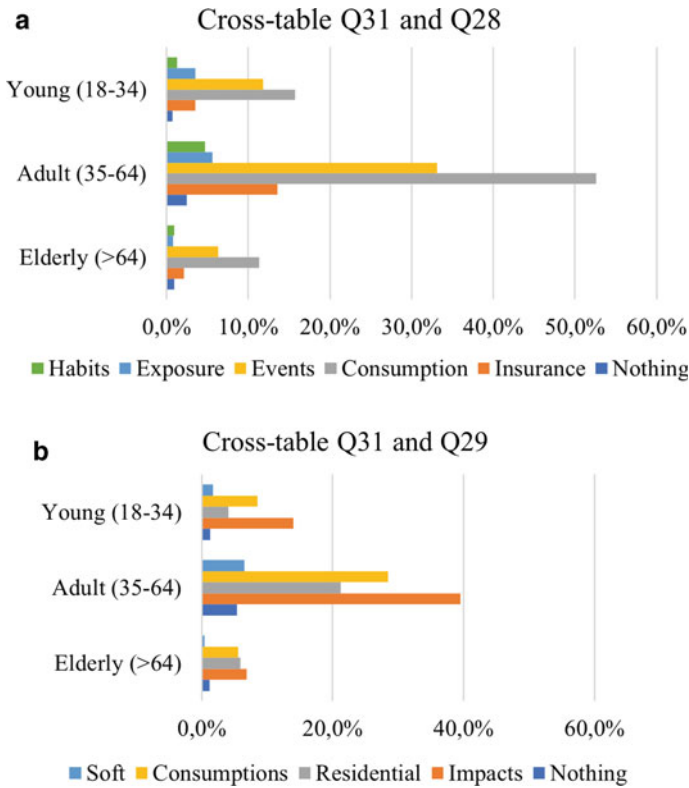
**Table 5** Summary of the measures of the chi-square  $\chi^2$  test and the Gamma for the cross-table presented in Table 4

	P value	Gamma
Q31 × Q8	0.000	−0.251

Source Authors

Q29, concerning actions and measures to prepare for climate change hazards, as shown in Fig. 3a and b respectively.

People were asked to choose among a list of actions to do to prepare for climate change hazards (Q28) such as changing habits, moving house to reduce self-exposure, participating in educational and informative events, reducing energy consumption at home, protecting assets with insurance, or doing nothing. All age classes express a common preference for consumption (that has the highest score in all classes), events and insurance (Fig. 3a). Only young people and adults choose exposure, but nobody



**Fig. 3** Graphical representation of the cross-table of Q31 and Q28 (a), and Q31 and Q29 (b). Source Authors

is willing to move house. The interest in increasing self-knowledge about climate change adaptation and mitigation actions is high and the exclusion of the moving home option hints at an integrated population attached to the territory.

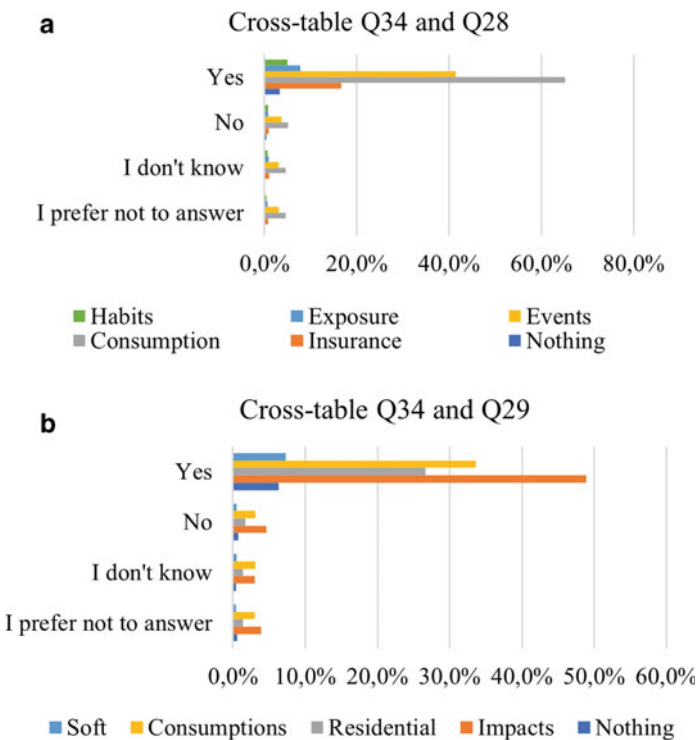
When citizens were asked what actions they undertake to cope with climate change, the whole community responded as operating principally on impacts and in reducing consumptions (Fig. 3b). Adults and elderly people added the importance of the residential sector. This option brings out the intention of older people for improving their adapting capacity and the availability of resources instead of totally changing habits and lifestyle. Hence, this implies that belonging to a specific age class actually influences the behavior and the actions to undertake.

### 3.2 *The Influence of the Integration in the Community in Shaping the Sense of Place and Perception of Climate Change*

One of the aims of the study was to identify the possible factors that influence the sense of belonging of local populations. In this case, question Q34 is crossed with questions Q28 and Q29 concerning personal action to face climate change, as shown in Fig. 4a and b.

All questionnaire respondents agree about the importance of reducing consumptions and participating in educational and informational events (Fig. 4a). The trust in insurance tools is fundamental for integrated people, while those who do not feel integrated accept insurances as much as the possibility of moving home. This suggests that a feeling of integration encourages to protect assets more than safeguard themselves.

Figure 4b shows how people prefer acting on impacts and reducing consumptions. Furthermore, integrated people add the residential option, while not integrated ones are more confident in managing impacts. As a consequence, it might be assumed that



**Fig. 4** Graphical representation of the cross-table of Q34 and Q28 (a), and Q34 and Q29 (b)

the belonging to the territory indeed influences climate hazard perception and thus the preference over actions to cope with climate change.

### 3.3 *The Influence of the Proximity to the Coast in Shaping the Sense of Place and Perception of Climate Change*

The relation with strong geographical features, such as the proximity to the coast, was a further element assumed to potentially influence the perception of climate change issues. Hence, this facet was explored through the comparison of question Q35 with questions Q8 (Table 6) and Q25 (Table 7), as well as with the questions Q28 and Q29 (Fig. 5).

**Table 6** Cross-table of Q35 and Q8 with frequencies (percentages) of the answer

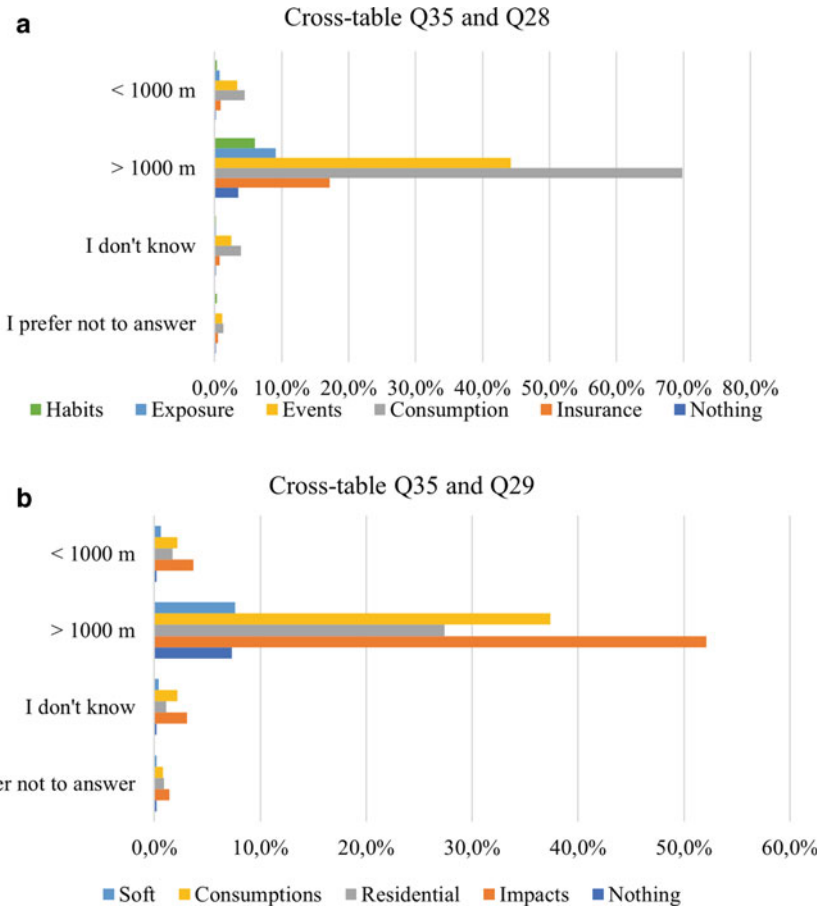
		Q8. Climate change will impact your lifestyle			
		Strongly disagree/disagree	Undecided	Strongly agree/agree	Total
35. How far do you live from the coast?	<1000 m	3 (0.2%)	5 (0.4%)	59 (4.8%)	67 (5.4%)
	>1000 m	69 (5.6%)	198 (16.1%)	806 (65.5%)	1073 (87.2%)
	I don't know	8 (0.6%)	18 (1.5%)	36 (2.9%)	62 (5.0%)
	I prefer not to answer	5 (0.4%)	6 (0.5%)	18 (1.5%)	29 (2.4%)
	Total	85 (6.9%)	227 (18.4%)	919 (74.7%)	1231 (100.0%)

Source Authors

**Table 7** Cross-table of Q35 and Q25 with frequencies (percentages) of the answer

		25. The cost of mitigation of, and adaptation to climate change should be exclusively paid by the government			
		Strongly disagree/disagree	Undecided	Strongly agree/agree	Total
35. How far do you live from the coast?	<1000 m	22 (1.8%)	24 (1.9%)	21 (1.7%)	67 (5.4%)
	>1000 m	440 (35.7%)	410 (33.3%)	223 (18.1%)	1073 (87.2%)
	I don't know	17 (1.4%)	23 (1.9%)	22 (1.8%)	62 (5.0%)
	I prefer not to answer	11 (0.9%)	9 (0.7%)	9 (0.7%)	29 (2.4%)
	Total	490 (39.8%)	466 (37.9%)	275 (22.3%)	1231 (100.0%)

Source Authors



**Fig. 5** Graphical representation of the cross-table of Q35 and Q28 (a), and Q35 and Q29 (b). *Source* Authors

In particular, results show that there is a significant agreement (Table 6, 74.7%) over the impact of climate change on everyday routines independently of the proximity to the coastline, with a strong statistical correlation (Table 8,  $p$ -value = 0.002), though the association is not particularly defined (Table 8, Cramer’s  $V$  = 0.093). Nevertheless, it is noteworthy that respondents residing farther from the coast (<1000 m) appear to be more hesitant than those living nearer to the coasts (>1000 m) to acknowledge such a scenario (Table 6). Although slight, this difference suggests that people living closer to the coast are more aware of the impact that the climate can have on the lifestyle. This result could be related to the fact that people living closer to the coast are more exposed to direct effects of climate change such as sea level rise or coastal flooding and may therefore have a greater awareness of the effects these events could have on the territory. Such exposure increases local



**Table 8** Summary of the measures of the chi-square  $\chi^2$  test and the Cramer's V (degree of freedom) for the cross-tables presented in Table 7

	P value	Cramer's V
Q35 × Q8	0.002	0.093 (2)
Q35 × Q25	0.036	0.074 (2)

Source Authors

awareness on these issues, especially with respect to other types of phenomena that also involve internal areas but could be perceived as common.

When questioning whether the government should sustain the overall costs of mitigation and adaptation efforts, a more varied picture emerged (Table 7). Indeed, respondents residing near the coast assigned almost an equal number of preferences for agreement or disagreement concerning this theme (21 and 22, respectively), although uncertainty showed a modest predominance (24 preferences). On the other hand, respondents farther from the coast were more consistently uncertain and even more in disagreement with such statement, thus suggesting a higher acknowledgement of the need to contribute to the common economic endeavors to cope with climate change. Overall, also in this case the explored geographical factor appears relevant, as the analysis resulted once more statistically significant ( $p$ -value = 0.036), though the association was not particularly strong (Cramer's  $V = 0.074$ ).

When confronted with potential actions to tackle the effects of climate change, preferences exhibit a strong convergence towards the reduction of home consumptions and the attendance to informative events (Fig. 5a). The high share of agreement received by the reduction of consumptions, especially for answers coming farther from the coast, denotes a significant awareness on the relevance of personal choices in daily activities in the general efforts to cope with climate change. It might be noteworthy that the following emerging domains were insurances and reduction of exposed assets, where the respondents nearer the coast demanded more vividly the limitation of the susceptibility (that is, in terms of exposed assets) rather than the compensation for damages, as if previous events had left a higher sensibility towards this issue. It is also interesting to observe that a rather low share of respondents affirmed that nothing should be done to deal with the issues related to climate change, hence it might be assumed that there is a widespread consensus on a shared as well as personal responsibility towards this theme.

This perspective appears confirmed by the question on the actual actions undertaken, although respondents reported a higher tendency to reduce the impacts of everyday activities, rather than lowering overall consumptions, followed by additional interventions endowed to the residential sector (Fig. 5b). At the same time, there is also a significant share of admissions of having done nothing yet to tackle climate change, especially when considering the respondents farther from the coast. This might suggest that, in spite of the willingness to effectively act on the challenges presented by climate change, there might be some serious barriers to the actual capitalization and implementation of that commitment, which might demand further investigations. Indeed, it might also be possible that the hesitation in recognizing the impending effects of climate change on personal lifestyles (Q8, Table 7)

might also delay the engagement of residents living far from the coastline in actual countermeasures (Q29, Fig. 5b). On the contrary, the perception of climate impacts as an urgent issue might foster the prompt response of those residing nearer the coast.

### ***3.4 The Influence of the Geographic Position in Shaping the Sense of Place and Perception of Climate Change***

A further geographical factor was explored, here in terms of area of residence defined in the related province. Hence, the dichotomy between coastal area and hinterland was confronted with the preferences over potential (Q28) and implemented (Q29) actions relevant to cope with climate change.

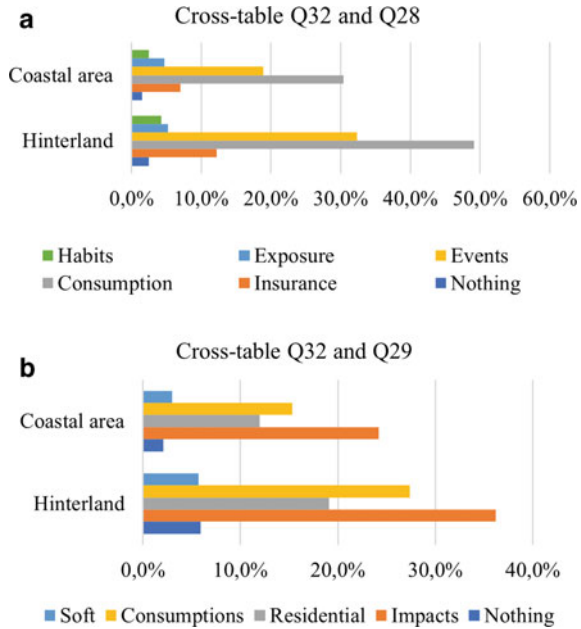
The results confirm the picture provided by the previous analysis based on the proximity to the coast (see Fig. 5). Indeed, the overall priority is assigned to actions devoted to the reduction of consumptions as well as to the involvement in informative events, followed from afar by the increase of insurance coverage (Fig. 6a). Nevertheless, the actually enacted actions only partially correspond to these preferences, as in this case most of the efforts have been devoted to limiting the personal impacts on the overall natural system, especially for coastal residents, though the reduction of consumptions follows closely (Fig. 6b). Once more, the share of respondents that have yet to take action against climate change significantly emerges, especially for the hinterland, thus suggesting the need of further investigations on the root causes of the divergence between expected actions (Fig. 6a) and implemented efforts (Fig. 6b).

Nevertheless, in light of the common trends in the analysis concerning the physical features, it appears reasonable to assume that indeed geographical attributes, in terms of either proximity to the coast or area of residence, significantly influence the perception of the effects of climate change on the local territory, as well as the willingness and the engagement in actual actions against climate change. In particular, it seems that people residing in the coastal area and especially nearer the sea tend to perceive a higher urgency and thus to act more consistently on personal choices to tackle climate impacts. On the contrary, residents of the inner areas appear more hesitant to engage in actual actions, possibly perceiving climate impacts as threats that will affect their territory in the distant rather than in the near future.

## **4 Conclusions**

This study, conducted as part of the Interreg Italy-Croatia Project “RESPONSE”, investigated the elements that shape individual and collective sense of place, the level of attachment to or bond with a particular area, and the ways in which individuals create identities connected to place. A total of 1231 adult citizens were reached by administering an online questionnaire, therefore it has been possible to consider

**Fig. 6** Graphical representation of the cross-table of Q32 and Q28 (a), and Q32 and Q29 (b).  
 Source Authors



the answers as representative for the overall regional adult population with a 95% ( $\pm 2.80\%$ ) confidence level.

Results showed that young people are more aware of the effects that climate change has on everyday life, show a sense of responsibility for coping with climate change based on personal efforts in the context of a broader community engagement and deny inaction. Adults and elderly people show more uncertainty and consider the support of authorities more significantly. Eventually, elderly people are the least trustful about the efficacy of collective actions. As a matter of fact, the importance of the involvement of the entire community in counteracting climate change is more desired by younger people. Young people feel the urgency of counteracting and express more initiative in dealing with climate change, possibly because they have a greater environmental culture.

Young people show that they prefer more structural actions that reduce the exposure of the physical elements of the community, while adults and elderly people pay greater attention to their homes. This suggests a greater openness of young people to change and to take personal action to shape the community in order to improve their own future. On the contrary, the older generations are less inclined to change and focus their attention more on the safety of their present conditions.

Coastal and inland areas do not seem to show great differences in terms of willingness to act against climate change. Nevertheless, those who live in the innermost areas seem to be a little more skeptical about the impacts of climate change but are a little more inclined to commit personal funds to counteract them, even if they are not convinced of the importance of community involvement. Those who live on the coast

have already, concretely acted on the impacts of climate change. This difference may be due to the fact that people living in the hinterland tend to perceive and suffer less the impacts of climate change, as well as to rely mainly on individual initiatives. A possible explanation may be a greater propensity for isolation typical of more closed communities commonly linked to more internal contexts (mountain communities).

The level of integration in the community is also an element to be taken into consideration. Those who feel they are not integrated expect to have to support the reduction of climate change on an individual level, are less sure of the importance of involving communities and prefer actions that are immediately effective. Those who feel less integrated, mainly young people and people living along the coast, also tend to prefer mitigation solutions to those of adaptation, meaning that they prefer limiting the activities that worsen climate change rather than adjusting to the changes that cannot be avoided. As shown in previous research (Simms 2017), those who feel that they are more integrated into the community prefer adaptation actions (mainly linked to insurance). Additionally, they have already put in place mitigation actions focused on their own home and in general prefer long-term solutions because they feel more stable where they live.

The impacts of climate change are more perceived along the coast, where people feel greater urgency and personal responsibility towards climate change as well as expect more actions to reduce adverse events, while they have already acted on the impacts. Those who live in the innermost areas perceive less the impacts of climate change, so much that they also consider that they do not have to do anything to counter the consequences of climate change. In addition, they expect community intervention, rather than individual action, even if they would accept to contribute financially.

These results suggest that the sense of belonging can be used as a means for local authorities to implement efficient adaptation strategies to enhance climate resilience. Local authorities should make use of the openness and progressive spirit of young people, as well as of the sense of “home” of more adult people to define tailored and appropriate adaptation strategies to climate change, while supporting mitigation activities. Authorities should focus on the feeling of belonging to the community to plan long-term adaptation and mitigation measures. At the same time, it would be pivotal to take advantage of the possible positive results to increase, in turn, the sense of belonging among those who feel less attached to the community to enhance the climate resilience of the local community as a whole.

**Acknowledgements** This research was funded by the EU Italy-Croatia Interreg program through the RESPONSe project (ID 10046849).

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