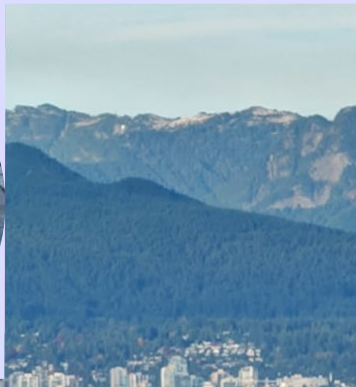
THE UNIVERSITY OF BRITISH COLUMBIA
Disaster Resilience Research Network
School of Public Policy & Global Affairs
Department of Civil Engineering

CITY OF VANCOUVER

UNDERSTANDING DISASTER PREPAREDNESS IN VANCOUVER:

Community Perspectives

Summary Report & Annexes



Understanding Disaster Preparedness in Vancouver: Community Perspectives

A collaboration between the University of British Columbia (UBC) Disaster Resilience Research Network (DRRN) and the City of Vancouver Emergency Management Agency (VEMA)

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Executive Summary

This report presents findings from a mixed-methods study led by the University of British Columbia's Disaster Resilience Research Network (DRRN), in collaboration with the City of Vancouver Emergency Management Agency (VEMA). The study was funded in part by the BC Ministry of Emergency Management and Climate Readiness through a contribution agreement with DRRN focused on disaster resilience research, with additional support from UBC's School of Public Policy and Global Affairs. Our research explored disaster preparedness and resilience across Vancouver through surveys and focus group discussions, aiming to better understand how individuals and communities perceive, plan for, and act upon disaster risks in an increasingly complex hazard landscape. The research findings will support work being done by City of Vancouver staff to address barriers to emergency preparedness.

Two primary research tools were used: (1) a joint survey consisting of a City of Vancouver-administered module focused on emergency preparedness (2,905 responses) along with a follow-up UBC-administered module focused on risk perception and the impact of prior disaster experience on preparedness (1,743 responses), and (2) six focus group discussions with a total of 50 participants. These tools gathered insights into risk perception, preparedness behaviours, trust in institutions, and perceived barriers to preparedness.

Key findings indicate that earthquakes and wildfire smoke were the hazards of greatest concern, but many participants expressed concern about a broad range of risks. Risk perception and preparedness behaviours were highly localized, shaped by neighbourhood experiences, infrastructure, housing type, and previous experience with disaster.

78.8% of respondents had house, condo or tenant insurance for their home and more than **68%** of respondents said they had at least some

KEY HIGHLIGHTS[1]

The most commonly perceived hazards were earthquakes and wildfire smoke, followed by other risks such as extreme heat and coastal flooding.

The main barrier to preparedness was lack of accessible information.

Awareness of risk and level of preparedness varied based on respondents' gender, where they live, the type of housing they live in, whether they rent or own, and whether they have experienced a previous disaster.

Participants expressed a strong desire for more community-based approaches to preparedness; clearer communication from institutions; and integrated strategies that link individual action with collective support to address multiple hazards.

[1] Please note: These findings reflect only the views of individuals who voluntarily participated in the survey and should not be interpreted as representative of the broader population of the city of Vancouver. For more details, see the *Limitations* section.

emergency supplies at home or money set aside for emergencies. A lack of information emerged as the most significant barrier to preparedness, cited by **29.9%** of survey respondents. Participants also highlighted challenges in locating resources, understanding emergency protocols, and navigating complex messaging.

Survey results revealed differences along many demographic indicators (language, ethnicity, income, gender, tenancy, and others). A detailed analysis of each of these is beyond the scope of this preliminary report. However, differences by gender identity and residential tenancy were especially notable in both the survey results and focus groups. While all respondents identified the need for more information and cited financial constraints as key barriers, those who identified as women were more likely to report feeling overwhelmed or uncertain when thinking about disasters. Tenants, in comparison to homeowners, expressed in focus group discussions greater vulnerability and limited agency in preparing their homes. They also emphasized the importance of strong community networks to compensate for a perceived lack of structural safety. These findings support the need for preparedness policies focused on gender and tenancy differences and improved clarity around landlord responsibilities.

Despite individual efforts, many participants expressed continued uncertainty and skepticism regarding their ability to respond effectively in a disaster. Social discouragement, isolation, and lack of collective action further hampered preparedness. A strong desire emerged for consistently implemented community-based models for disaster preparedness, better communication from government actors, and leadership that validates individual efforts while facilitating collective readiness.

Finally, preliminary reflections on trust during the focus group discussions revealed a nuanced distinction between belief in government's technical knowledge versus confidence in its actual emergency preparedness and response capacity. A perceived failure to address persistent issues such as affordability and housing eroded public trust in government-led preparedness efforts. This research reinforces the need for a more equitable, community-based, and multi-hazard approach to disaster preparedness, one that emphasizes diverse lived experiences, enables collective action, and addresses the structural conditions that shape both risk and resilience.

Figures 1 & 2: People gather at a ShakeOut BC event at the Vancouver Convention Centre Plaza, October 17, 2024. (Photos: Sara Shneiderman)

Introduction

This report presents findings from a study conducted in 2024-2025 as a collaboration between the UBC Disaster Resilience Research Network (DRRN) and the City of Vancouver Emergency Management Agency (VEMA). Previous surveys have indicated some of the barriers to emergency preparedness faced across the province,[2] highlighting the need for localized, community-based data to inform action at the municipal level. Motivated to understand contemporary emergency preparedness in Vancouver, City staff reached out to researchers at the UBC DRRN to co-design and conduct a set of surveys and focus groups with Vancouver residents. We hope that the results of this study of emergency preparedness in one jurisdiction may serve as a meaningful reference point for future research and action across British Columbia. The report provides an overview of the methods used and summarizes its key findings, before presenting a detailed summary of the overall results in a series of detailed appendices.

The city of Vancouver is a coastal municipality in British Columbia, home to more than 744,800 residents and one of the most densely populated urban centres in Canada.[3] It sits on the unceded, ancestral territories of the xʷməθkʷəy̓əm (Musqueam), Sḵwx̱wú7mesh (Squamish), and səlilwətaɬ (Tsleil-Waututh) Nations, and occupies a unique geographic and sociopolitical position that places it at the intersection of numerous natural and human-made hazards. Vancouver's distinctive geography, bordered by the Pacific Ocean and Coast Mountains, and its layered social and physical infrastructure shape a complex and evolving risk landscape.

Recent municipal hazard assessments have identified earthquakes and extreme heat events as the highest-priority hazards facing Vancouver.[4] Located along the Cascadia Subduction Zone, the region faces significant seismic risk, with the potential for large-scale earthquakes posing a serious threat to infrastructure, services, and public safety. Extreme heat events are becoming more frequent and severe, exacerbated by climate change, and pose serious health risks, particularly to vulnerable populations. Other notable hazards include coastal flooding, extreme rainfall, wildfire smoke and poor air quality, drought, snowstorms, and windstorms. While wildfire and tsunamis are often cited in public discourse, current assessments indicate that these are not among the highest-priority risks within Vancouver's municipal boundaries.

The intersection of aging infrastructure, rising housing precarity, and evolving climate risks creates compounding vulnerabilities, making it difficult to address these with siloed, single-hazard solutions. Understanding Vancouver as a nexus of intersecting hazards reinforces the

[2] See: https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/reports/preparedness_survey_report-2018.pdf

[3] This population figure was provided by CoV's Planning Urban Design and Sustainability Department (January 2025).

[4] 2024 Hazard Risk and Vulnerability Analysis (HRVA): https://council.vancouver.ca/20240313/documents/cfsc1.pdf

urgency of coordinated, multi-step strategies that integrate local knowledge, institutional leadership, and forward-looking policy to ensure the city and its residents are equipped to face an increasingly complex risk environment.

This report presents findings from a mixed methods study conducted in the city of Vancouver and represents one component of a broader UBC-led research project titled "Mapping BC's Disaster Governance for Communities: Crafting Social Policy for Resilience from a Multi-Hazard Perspective". The findings presented here are the result of a collaboration between the University of British Columbia's Disaster Resilience Research Network (DRRN) and the City of Vancouver Emergency Management Agency (VEMA). Additional financial support for the UBC graduate research assistants working on the project was provided by the BC Ministry of Emergency Management and Climate Readiness through a collaboration agreement with the DRRN, as well as by the UBC School of Public Policy & Global Affairs. The study as a whole explores the current landscape of disaster resilience and emergency preparedness in British Columbia, with a particular focus on how communities and individuals understand, interpret, and mobilize resources to prepare for multiple types of hazards. By examining residents' perceptions, behaviours, and levels of confidence related to personal and household emergency preparedness, the research component that we report upon here aims to contribute to more informed, community-centred approaches to disaster governance within the city of Vancouver.

Methodology

This section provides a summary of the research process. The methods for this study included surveys and focus group discussions with residents of Vancouver,[5] and a subsequent analysis of the resulting data. All participants were 18 years of age or older and chose to participate in the process voluntarily.[6]

Surveys

Two online survey modules were launched simultaneously: one developed by CoV staff with input from the UBC DRRN team (Module 1), and a second developed by the UBC DRRN research team (Module 2). Module 2 was appended to the end of Module 1, allowing respondents to access it via a link after completing the initial questionnaire. Both surveys ran for several weeks between mid-October and late November 2024.

[5] For the purposes of this study, the terms "Vancouver" or "city of Vancouver" refer specifically to the municipal boundaries of the jurisdiction governed by the City of Vancouver. Lowercase "city" refers to the geographical area, while uppercase "City" refers to the municipal government. This definition of the city of Vancouver does not include the University of British Columbia (UBC) campus, Musqueam, or surrounding municipalities within Metro Vancouver.

[6] The methodology for the surveys and focus groups was reviewed and approved by the UBC Behavioural Research Ethics Board (BREB, certificate no. H24-01514).

Module 1: City of Vancouver Personal Preparedness Survey Module

The City of Vancouver Personal Preparedness Survey Module was designed to collect information about residents' perceptions of hazard risks and their current levels of emergency preparedness. The survey aimed to inform the City's public education strategy on emergency preparedness by identifying both existing preparedness behaviours and areas where residents desired additional support. Lasting approximately 10 minutes and hosted on the Shape Your City / Talk Vancouver platform, this survey included questions across a range of topics, such as concerns about specific hazards, preparedness activities already undertaken or planned, and motivations and barriers to preparedness. The survey also collected key demographic information to ensure that diverse perspectives were represented and to better target future outreach efforts. The survey was offered and promoted in Vancouver's 12 most common languages: English, French, Traditional Chinese, Simplified Chinese, Tagalog, Punjabi, Vietnamese, Farsi, Spanish, Korean, Portuguese, and Japanese. The survey was promoted in person, on social media, in City newsletters, and through community organizations and meetings. This module received **2,905** responses.[7]

At the end of Module 1, respondents were given the option to participate in a follow-up module

Figure 3: City of Vancouver Personal Preparedness Survey Promotional Material

administered by UBC researchers through Qualtrics, an online survey platform.

Module 2: UBC Survey Module

The UBC Survey Module contained questions aimed at understanding survey respondents' experiences of previous disasters, as well as other factors that may have shaped their preparedness behaviours, to understand more about Vancouver residents' awareness of hazard risks and emergency preparedness in the event of a disaster. Respondents were informed that

[7] Survey respondents had the opportunity to indicate if they were not residents of the city of Vancouver. Module 1 collected 358 responses from individuals living in Metro Vancouver (outside the city of Vancouver) and 60 from those outside Metro Vancouver.

their responses to this module would remain confidential and only be shared with the City of Vancouver in aggregate form after being analysed. Lasting approximately 10 – 15 minutes, this survey module had different thematic question groupings, including previous experiences with disasters and levels of preparedness, perceptions about and planning for future disasters, and general information about the survey respondents. This module received **1,743** responses. After completing the survey, respondents had the option to provide their contact information to participate in future in-person and online research through focus group discussions and/or interviews. A total of **565** survey respondents volunteered to participate in that next phase of research.

Focus Group Discussions

Six focus group discussions were facilitated by members of the research team, with each focus group lasting approximately 60–90 minutes and involving 6-10 participants; there were a total of 50 participants across all sessions. Participants were categorized by their residential neighbourhood and type of tenure, including people who rent their homes, those who own their homes, and those who live in a housing co-op. To capture a diverse range of perspectives and experiences, most sessions included residents from a variety of Vancouver neighbourhoods and tenure types. For comparative purposes, one focus group was composed exclusively of tenants and another of homeowners.

Three focus groups took place online through Zoom, and three were conducted in person (see: Figure 4), with each facilitated by two members of the UBC research team. Participants engaged in guided discussions structured around three overarching themes: (1) risk perception in relation to preparedness, (2) the influence of disaster experiences elsewhere on risk perception and preparedness in Vancouver, and (3) trust in government and civil society actors. As part of the third theme, participants took part in an interactive exercise where they were asked to indicate their level of trust – categorized as high, moderate, or low – in a range of entities, including municipal, provincial, and federal governments, as well as community organizations and neighbours.

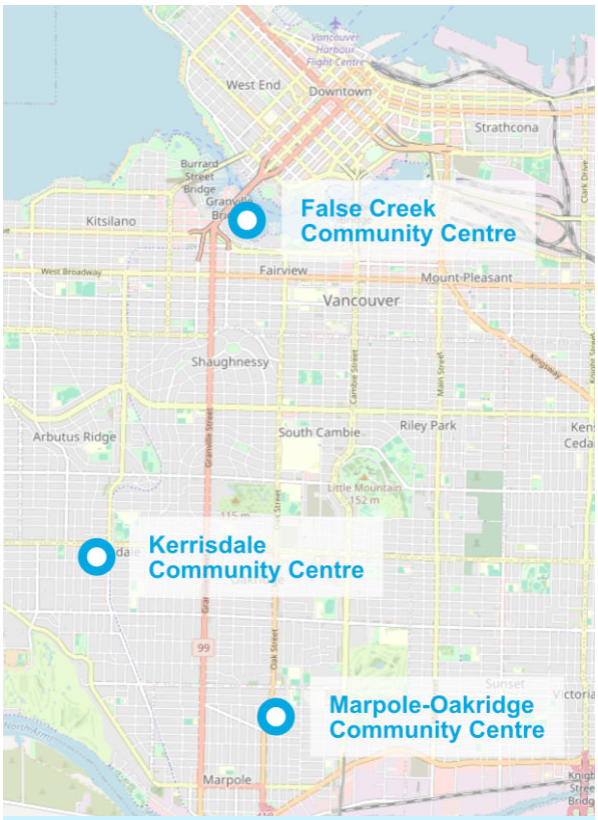


Figure 4: Focus Group Discussion locations Highlighted in blue with a dot, one focus group each (three focus groups total) took place at Kerrisdale Community Centre, Marpole-Oakridge Community Centre, and False Creek Community Centre.

Limitations

Self-Selection and Representation Bias

Multiple methods were used to attract diverse respondents, however, some caution is advised when extrapolating the results from the sample to the population of Vancouver. Both survey modules were administered exclusively online. Each was accessible via various digital devices, including computers and mobile phones, and submitted online. Module 1, which served as the entry point for both surveys, was hosted on the Shape Your City / Talk Vancouver platform, which engages users who subscribe to receive survey invitations.

The project team employed several methods to promote Module 1 to a broad audience, with the exception of the final method, which was used to support outreach for both modules:

- Posters and postcards to all Vancouver community centres and libraries
- In-person engagement at events, including a free event for the general public and separate forums for urban Indigenous people and older adults

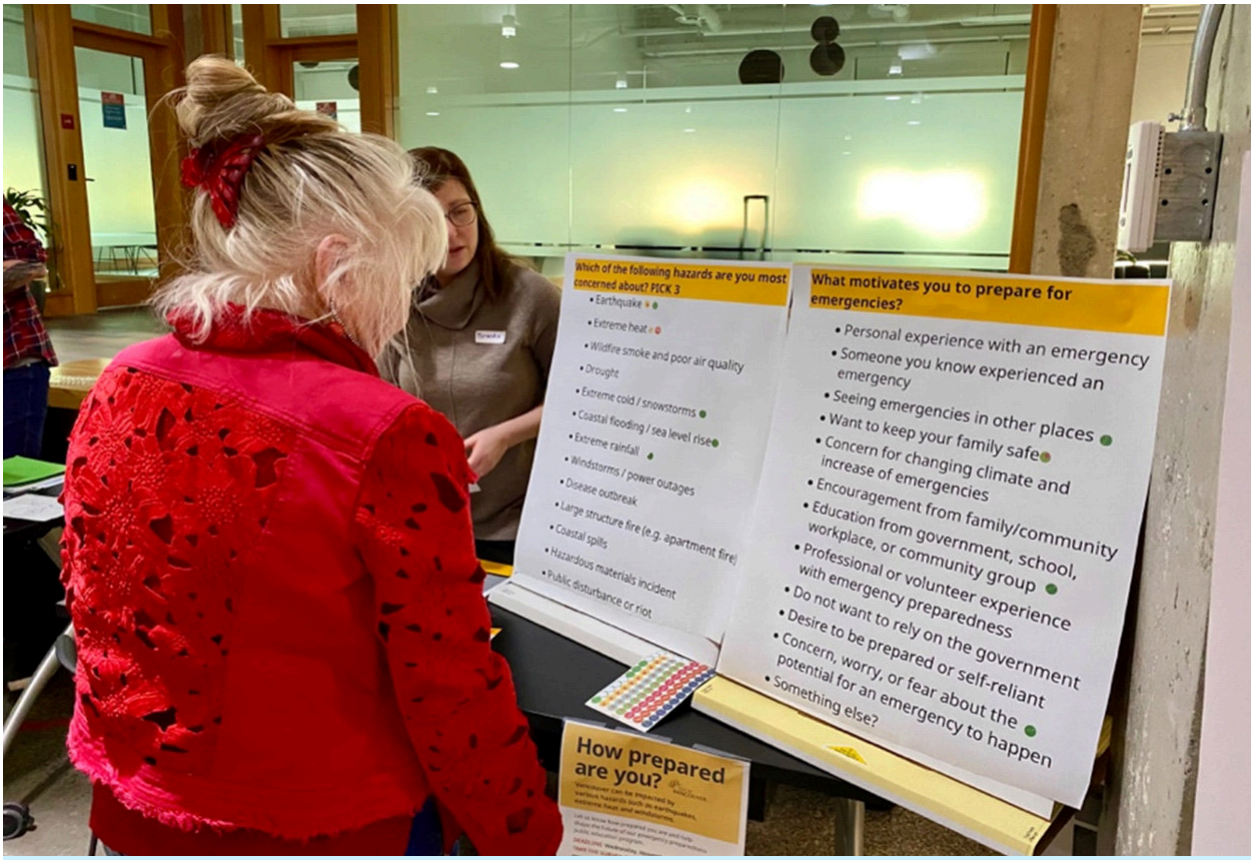


Figure 5: City Engagement
A City of Vancouver employee speaks with a community member at the Urban Indigenous Engagement event, October 26, 2024, in support the development of the City's UNDRIP Action Plan and a new Urban Indigenous Engagement Framework. (Photo: City of Vancouver, 2024)

- Paid social media promotion in 12 languages
- Email notifications to various interest groups and community partners

As a result, the sample did not include individuals who either do not or cannot engage with surveys in this format or lack the means to do so, such as those without consistent internet access or digital literacy. Moreover, the survey likely reached a self-selected sample and may not fully capture the perspectives of all communities across Vancouver. Individuals with a heightened existing interest in or strong opinions about disaster preparedness may have been more likely to complete the surveys, potentially leading to the systematic omission of perspectives from those less engaged or less informed on the topic.

The kind of selection bias described above is a well-documented limitation in voluntary survey research. Since the characteristics of those who did not participate are unknown, the extent of underrepresentation cannot be measured or corrected using statistical methods. Accordingly, the findings should be interpreted as reflective of the views of those who opted in, rather than the broader population.

Underrepresentation and Overrepresentation

In addition to the limitation of self-selection, a comparison between the characteristics of survey participants and 2016 Census data[8] allows for an assessment of the extent to which various identifiable demographic groups are represented within the survey sample. The comparison suggests that the following groups were underrepresented in the Module 1 survey *(see Annex D for complete test results)*:

- Respondents living in Renfrew-Collingwood, Sunset, Kensington-Cedar Cottage, Victoria-Fraserview, or Killarney (see neighbourhood map on the following page)
- Respondents with an income of "under $20,000", "$20,000 to under $40,000", or "$40,000 to under $60,000"
- Respondents with East and Southeast Asian, Other North American[9] or South Asian origins
- Respondents who speak Cantonese, Mandarin, Tagalog, Punjabi, Vietnamese or French most often
- Respondents who rent their homes

By contrast, the following groups were overrepresented *(see Annex D for complete test results)*:

- Respondents living in West End, Kitsilano, Fairview, Mount Pleasant, West Point Grey, or South Cambie (see neighbourhood map on the following page)
- Respondents with an income of "$60,000 to under $80,000", "$80,000 to under $100,000", "$100,000 to under $150,000" or "$150,000 and above"

[8] This analysis utilized 2016 Census data, rather than 2021 Census data, because the latter had not been aggregated to match the neighbourhood boundaries used in Module 1.

[9] This category refers to North American origins other than First Nations, Inuit and Métis. It includes Acadian, American, Canadian, Newfoundlander, Nova Scotian, Ontarian and Québecois.

Figure 6: Local Area Boundaries of the City of Vancouver. Source: City of Vancouver Open Data Portal (2025)

- Respondents with European, Latin, Central and South American, or West Central Asian and Middle Eastern origins
- Respondents who speak multiple languages, or languages other than the 12 most commonly spoken languages in Vancouver
- Respondents who own their homes

The surveys were designed to collect responses at the household level. Therefore we are not able to make a determination about the representativeness of the results by age.

Preliminary Results

This initial report draws primarily on the results of survey module 1, with supporting evidence from survey module 2 and the focus group discussions. These findings are preliminary and will be expanded following further analysis of the data collected.

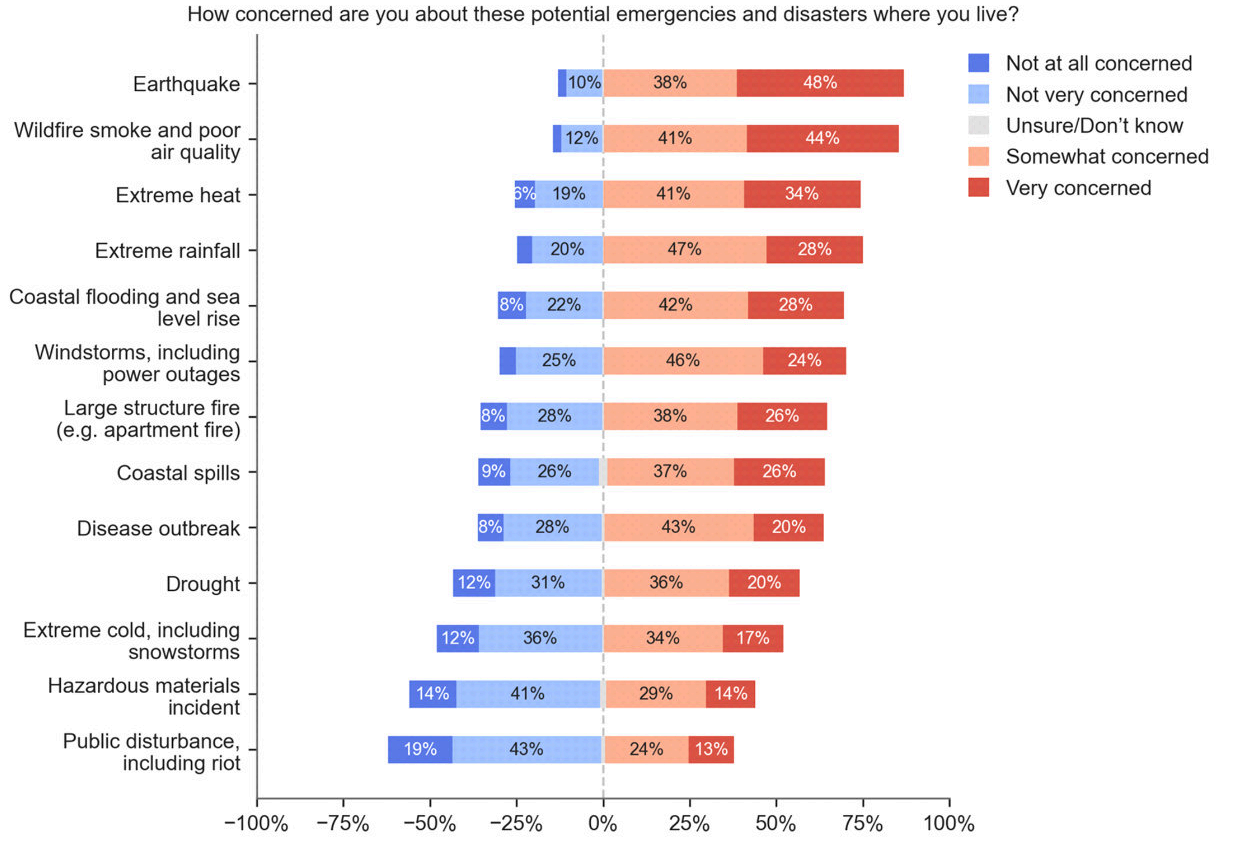
Key Findings

This section presents an overview of key findings drawn from the survey modules and focus group discussions. Figures in this section reflect survey respondents' perceptions of risk, not necessarily Vancouver's scientifically-assessed risk levels.

Hazards of Greatest Concern

Earthquakes and wildfire smoke were identified as the hazards of greatest concern among Module 1 survey respondents. Notably, more than **50%** of respondents expressed at least some concern about nearly all hazard options offered in the survey, including coastal flooding, extreme heat, hazardous materials incidents, power outages, disease outbreaks, and drought (see Figure 7). Module 2 asked respondents about their personal experience with these hazards and more, including landslides, tsunamis, and avalanches. The top four hazard-related events that respondents had directly experienced (whether in Vancouver or elsewhere) were power outages, extreme heat, disease outbreaks, and earthquakes. Focus group participants talked about how their past experiences of hazards and disasters affected how they prepare for emergencies. In the next phase of analysis, the research team will explore relationships between participants' past disaster experiences and current concerns in more depth.

Figure 7: Level of concern for potential emergencies and disasters (Module 1: Question 1)



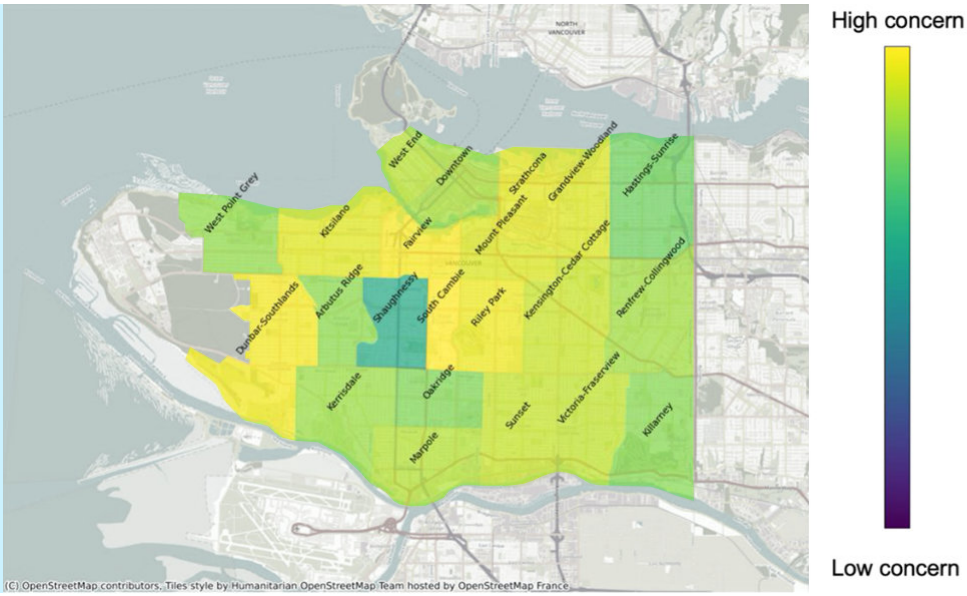
Locally Oriented Preparedness & Risk Awareness

Both preparedness and risk awareness were found to be strongly shaped by local context. Factors such as neighbourhood networks, past experiences, and surrounding infrastructure played a central role in how participants understood and responded to disaster risks. Figure 8 shows one example of how perceptions of risk varied by neighbourhood, in this case with respect to concern about the risk of earthquakes. *(See Figures B6 to B20 in Annex B for additional maps illustrating neighbourhood-specific levels of concern for other hazards surveyed.)*

When asked to identify the hazards of greatest concern, most focus group participants referred to past incidents that had occurred near their place of residence, including highly localized events such as power outages. This emphasis on nearby experiences reflects the influence of immediate surroundings on risk perception.

Similarly, when focus group participants were asked whether they perceived their home as a source of safety or risk, responses frequently referenced location-specific features. These included the proximity of high-rise buildings and, where relevant, the elevation of the home, such as whether it was situated in an elevated area or a low-lying zone. The type of building materials, ranging from wooden frames to reinforced concrete, was also seen as a key determinant of perceived safety.

Figure 8: Level of concern for earthquakes by neighbourhood. Note: The neighbourhood maps illustrate the responses by the survey respondents living in each neighbourhood. (Module 1: Question 1)



These findings highlight the importance of designing preparedness initiatives that are rooted in residents' lived experience, neighbourhood-specific vulnerabilities, and community networks.

Information Gaps, Barriers, and Intended Preparedness Actions

Participants identified several barriers to disaster preparedness, with an emphasis on the lack of accessible and trustworthy information. Question 6 from Module 1 revealed that nearly **30%** of respondents viewed a lack of information as the primary barrier to disaster preparedness. This was found to be especially relevant to non-English speakers; at least **38.5%** of non-English speaking respondents identified a lack of information as a barrier to preparedness, while only **22.5%** of English speakers identified this as a barrier. *(See Figure B28 from Annex B for further information.)*

Residents' perceptions of risks sometimes differed from technical risk assessments of hazards. Focus group participants shared examples of difficulties locating information about risks they wanted to know about.

→ One participant, for example, wanted to locate a map of Vancouver's tsunami risk – a tool they felt should be more accessible. In contrast, the City of Vancouver has identified and prioritized 13 other hazards to address based on likelihood and consequences.[10]

[10] Risk maps and additional information for four priority hazards facing the city of Vancouver (including earthquakes, extreme heat, wildfire smoke, and coastal flooding) are available at vancouver.ca/hazards.

Practical knowledge gaps were also a common concern.

→ Several participants mentioned not knowing how to perform basic emergency tasks, such as shutting off the gas supply.

This lack of hands-on knowledge contributed to feelings of anxiety and inaction. Others highlighted how information is not always tailored to their specific living situations.

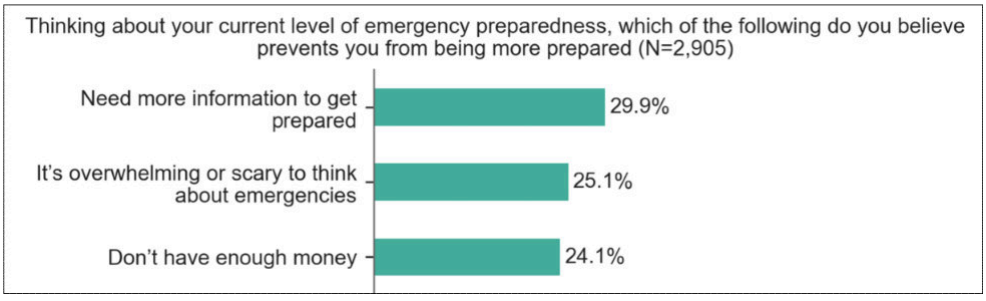
→ Some participants found it hard to understand the role of disaster support hubs or were unaware of where to access in-person preparedness courses. These challenges made it difficult for them to engage meaningfully in readiness efforts.

Other stories pointed to broader misconceptions around the risks Vancouver residents may face.

→ Some focus group participants described how their efforts to prepare for emergencies were dismissed by friends, neighbours, or family members as excessive or unnecessary.

These insights point to the need for targeted educational interventions that are locally relevant, practically oriented, and designed to engage a wide range of residents regardless of their housing type, digital access, or prior preparedness knowledge.

Figure 9: Barriers to being prepared for emergencies (Module 1: Question 6)



Overall, participants expressed a strong desire for both hazard-specific guidance and general principles for building household or community preparedness plans. They emphasized that this information should be clear, practical, and easy to access in order to support widespread understanding and action.

Notwithstanding the barriers identified, many respondents intended to take specific actions in the coming year to be better prepared. The top three actions that people intended to take included: having essential items packed for quick evacuation (**46.1%**), creating a household plan with contact information and meet-up location (**42.1%**), and downloading the Alertable app for emergency alerts (**37.7%**). Many respondents intend to take multiple preparedness actions, with nearly two-thirds (**65.8%**) selecting two or more responses to this question.

Variations in Responses by Gender Identity

Notable differences also emerged between male and female identifying respondents regarding perceived barriers to disaster preparedness. For respondents who identified as men, the top three barriers were:

1. A need for more information (**27.6%**)
2. Lack of financial resources (**23.4%**)
3. Lack of time (**20%**)

For respondents who identified as women, the top three barriers were:

1. Feeling overwhelmed or scared when thinking about disasters (**32%**)
2. A need for more information (**32%**)
3. Lack of financial resources (**23.6%**)

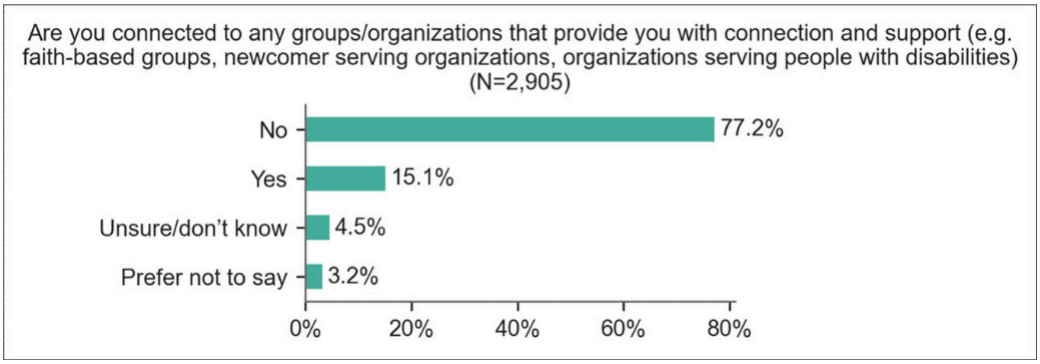
Although smaller in number (n = 56), responses from non-binary and gender diverse participants were also recorded. Among this group, financial constraints emerged as the most commonly cited barrier, with **50%** identifying lack of financial resources as a key challenge to disaster preparedness. *(See Figures B21 to B25 in Annex B for more survey visualizations disaggregated by gender.)*

> These differences suggest that while access to information and financial constraints are common challenges across groups, emotional and psychological barriers and responses may be experienced and expressed differently. This highlights the importance of tailoring communication and support strategies to diverse needs.

The Limits of Individual Preparedness & the Need for Collective Support

Findings from both survey modules and focus group discussions indicate that individual preparedness efforts, while important, are not sufficient to instill a sense of confidence or readiness among participants. Even those who had followed all recommended preparedness measures reported continued feelings of uncertainty and discomfort regarding their ability to respond effectively in a disaster. Respondents with a connection to groups and/or organizations, however, were more likely to report being motivated by "Education from government, school, workplace, or community group" (**43.1%**) compared to those without such

Figure 10: Respondents with group/ organization connection and support (Module 1: Question 10)



connections (**27%**) *(See Figures B36 and B37 from Annex B)*. These groups remain underutilized, as only **15.1%** of respondents reported being connected to groups or organizations that provide them with connection and support.

Focus group participants highlighted a lack of support from family, neighbours, and the broader community. Several noted that their individual preparedness efforts were dismissed or ridiculed by others, with some being labeled as "know-it-alls" or "busy bodies", which served as a deterrent to further engagement. This social discouragement contributed to feelings of isolation and frustration.

There was a strong call for greater leadership and clearer communication from authorities across all levels of government to reinforce the importance of disaster preparedness. Participants emphasized the need for institutional frameworks that not only validate individual efforts but also foster community-based approaches.

Concerns were also raised about the broader state of community readiness. Some focus group participants expressed pessimism about coordination and leadership, noting that both local governments and organizations were not doing enough to support preparedness at the community level. At the same time, participants acknowledged that communities themselves were often unprepared, and that taking action individually felt overwhelming or unfeasible. Attempts to initiate mutual aid or neighbourhood preparedness groups were often unsuccessful, with many finding it difficult to engage or connect with their neighbours.

> These insights underscore the need for integrated strategies that link individual action with collective support and community-level leadership to strengthen overall disaster preparedness.

Disparities in Perceptions of Safety & Preparedness between Tenants & Homeowners

Results from both survey modules and focus group discussions revealed considerable differences between residential tenants and owners in terms of disaster-related concerns,

perceived safety, and preparedness priorities. While both groups identified barriers to preparedness, tenants consistently expressed a greater sense of vulnerability and insecurity. *(See Figures B1 to B5 in Annex B for more survey visualizations disaggregated by housing tenure.)*

Among all housing statuses, including owners, co-op residents, and those unsheltered or temporarily sheltered, tenants notably stood out with the smallest proportion (**7.7%**) reporting no barriers to preparedness.

Figure 11: Level of confidence in arranging a different place to stay by housing tenure (Module 1: Question 7)

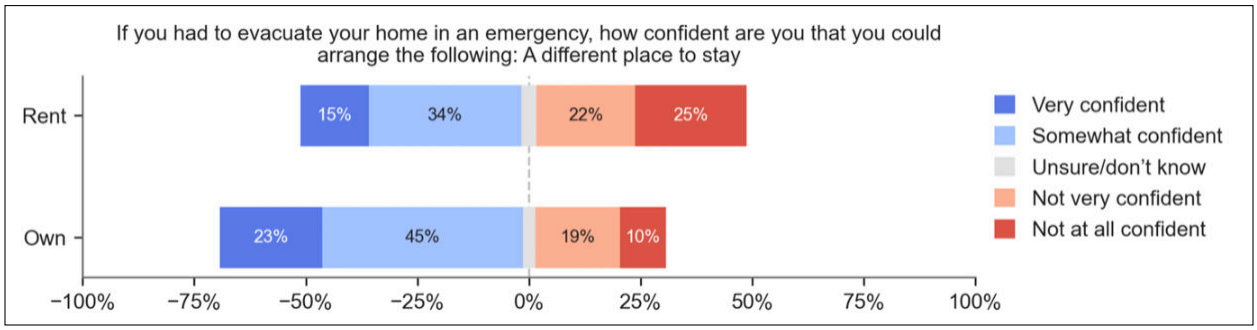
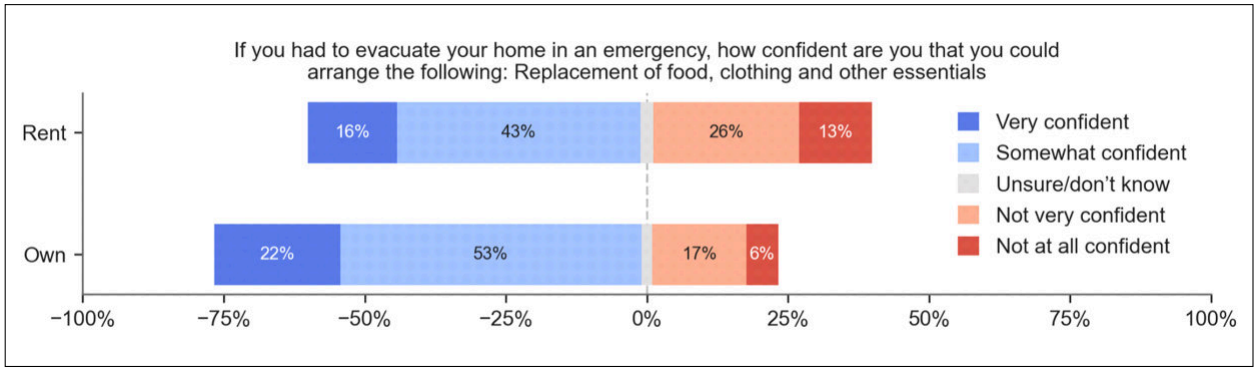


Figure 12: Level of confidence in replacement of food, clothing & other essentials by housing tenure (Module 1: Question 7)



These findings underscore a pressing need to integrate disaster risk reduction and preparedness measures into tenancy policies. Transparent communication, clearly defined responsibilities, and accessible, actionable guidance for both landlords and tenants are essential to ensure equitable safety outcomes.

In the focus groups, tenants often described their homes as potential sources of danger rather than safety, citing limited control over structural improvements and uncertainty about their ability to remain in or return to their residences following a disaster. Tenants highlighted challenges in making their living spaces safer and voiced apprehension about the adequacy of landlord responsibility and support. In contrast, owners generally expressed a stronger sense of control over their physical environments and preparedness measures. However, both groups shared common concerns around the need for clear information and community-level coordination. Notably, tenants frequently emphasized the importance of strong social connections within their communities, viewing these networks as critical sources of support in the absence of structural security.

Reflections on Trust

While trust was not a central focus of the survey modules, participants of the focus group discussions revealed nuanced perspectives on trust that warrant further analysis. Preliminary analysis suggests that participants may differentiate between trust in institutions' technical knowledge and trust in these institutions' capacity to respond effectively during a disaster in certain social contexts. Some participants expressed confidence in the expertise of government and emergency management agencies, yet simultaneously questioned their ability to implement timely and coordinated responses in crisis situations.

Additionally, several participants pointed to the persistent housing and affordability crisis as contributing to broader skepticism toward municipal and provincial governments. This perceived failure to address ongoing social vulnerabilities appeared to undermine trust in authorities' ability to manage large-scale emergencies.

These reflections on trust highlight a tension in emergency preparedness around the need to balance personal responsibility with public accountability. While governments are the main actors tasked with emergency planning and response, the reality of many disasters reveals that preparation and response involve all facets of a community, whether spontaneous or planned. Because varying levels of trust in authorities may affect personal preparedness and perceptions of risk, the complex role of trust in preparedness is an important avenue for further research.

> These early reflections, based on preliminary analysis of the focus group discussions conducted in this study, point to the importance of embedding trust-building measures within disaster preparedness strategies, particularly by addressing the social determinants that shape public confidence in emergency institutions.

Future Directions

Emergency preparedness education and risk communication practices commonly do not reach enough people across diverse populations. Further, while emergency preparedness education may increase awareness of hazards and the need to be prepared, it does not always result in concrete actions or behavioural change. At worst, these gaps are likely to exacerbate people's vulnerability to disasters and emergencies, disproportionately impacting vulnerable community members and groups more than the general population.

Research on barriers to emergency preparedness is most applicable and actionable when understood in a demographic context, particularly around gaps in how risk and preparedness communication is received, understood, and acted upon. This report contributes to an understanding of emergency preparedness perceptions in Vancouver, which can inform strategies to improve risk communication and outreach both within the city and beyond, including at the provincial level in British Columbia. As an initial pilot study of a single jurisdiction, we hope that the material presented here can inform and inspire similar studies in partnership with municipalities and First Nations. While grounded in a specific urban context, the approach and findings have broader relevance as a starting point for expanding place-based research on risk perception and resilience across diverse jurisdictions.

Policy Directions

The findings from the research-practice partnership that produced this report seek to improve risk communication, public education and community outreach in Vancouver and enhance outcomes around risk preparedness and response in the city. Beginning in 2024, the City of Vancouver Emergency Management Agency drafted a three-year public education strategy with a vision to establish the City as a reliable and practical source of information for preparedness, response, and recovery in Vancouver. Underpinning this vision are three priority areas of work:

1. produce practical and accessible materials
2. mobilize information to reach new audiences in new ways
3. measure impact and continuously improve the delivery and effectiveness of emergency preparedness information and resources

MISSION STATEMENT

City of Vancouver Emergency Management Public Education Strategy (2024-2027)

Our public information is practical, actionable and accessible, and as a result, is well-used by the community and public. We want our public information to bridge expert knowledge with local need and be mobilized by the public and community partners to maximize reach. We envision a state where the City of Vancouver is known as a trusted source for local emergency information for all communities before, during, and after an emergency.

When repeated in 2027, as is planned, the City's survey (Module 1) will serve as a benchmark for tracking progress on VEMA's public education strategy (priority 3). In the meantime, the findings from the overarching research project will immediately help to inform priorities 1 and 2.

City staff's work can be aided by the report's findings, which point to gaps and opportunities for public-facing risk communication, including how information is framed and delivered. Particularly, the City can use insights from this research to develop communication tactics and tools aimed at improving the quality of outreach and public understanding. For example, knowledge about the barriers facing Vancouver residents when it comes to emergency preparedness may inform the public education strategy around populations that have been missed by traditional methods of outreach. Similarly, the results concerning challenges facing different neighbourhood, gender, or residential tenure groups can inform objectives around capacity building, community building, and partnerships.

While acknowledging that there are limitations to survey-based research, it is important to note that the gaps in representation in the survey responses are helpful in identifying neighbourhoods and demographics in Vancouver who may benefit from greater attention and follow-up from City staff on their perceived level of preparedness.

Research Directions

The UBC research team will continue to analyze the results of the survey and focus group discussion to learn more about the ways that Vancouver residents perceive risk and are influenced by prior experiences of disaster when deciding whether and how to prepare for future emergencies. The team will develop these findings for publication in academic journals and continue to share relevant insights with VEMA and the broader public.

EMERGENCY PREPAREDNESS RESOURCES

- **Learn the 5 steps** of emergency preparedness:
  - Attend a workshop or watch a 20-minute video: vancouver.ca/eplearning
  - Self-study and read more: vancouver.ca/beprepared
- **Get alerts** and instructions on how to stay safe during significant local emergencies. Download the Alertable app: vancouver.ca/getalerts
- **For those seeking more background**, UBC's Disaster Resilience Research Network has published a systematic review of disaster resilience literature in British Columbia, available at: drrn.ubc.ca/bc-disaster-resilience-literature-review
- **For practical guides and resources** on emergency preparedness in British Columbia, visit the Province's PreparedBC portal: preparedbc.ca

Annexes

These annexes to the report "Understanding Disaster Preparedness in Vancouver: Community Perspectives" (Eaton et al. 2025) are available for further insights into the results of the research on disaster preparedness and resilience across Vancouver conducted jointly by the City of Vancouver Emergency Management Agency and the University of British Columbia Disaster Resilience Research Network in 2024-2025.

Citation for the summary report:
Eaton, Jonathan, Raahina Somani, Hang Cheng Ip, Michael Hooper, Theodore Lim, and Sara Shneiderman. 2025. "Understanding Disaster Preparedness in Vancouver: Community Perspectives". Vancouver: UBC Disaster Resilience Research Network (DRRN) and the City of Vancouver Emergency Management Agency (VEMA). doi: 10.14288/1.0450052

Annex A: Summary of Module 1 Survey Responses

Figure A1: Level of concern for potential emergencies and disasters (Q1)

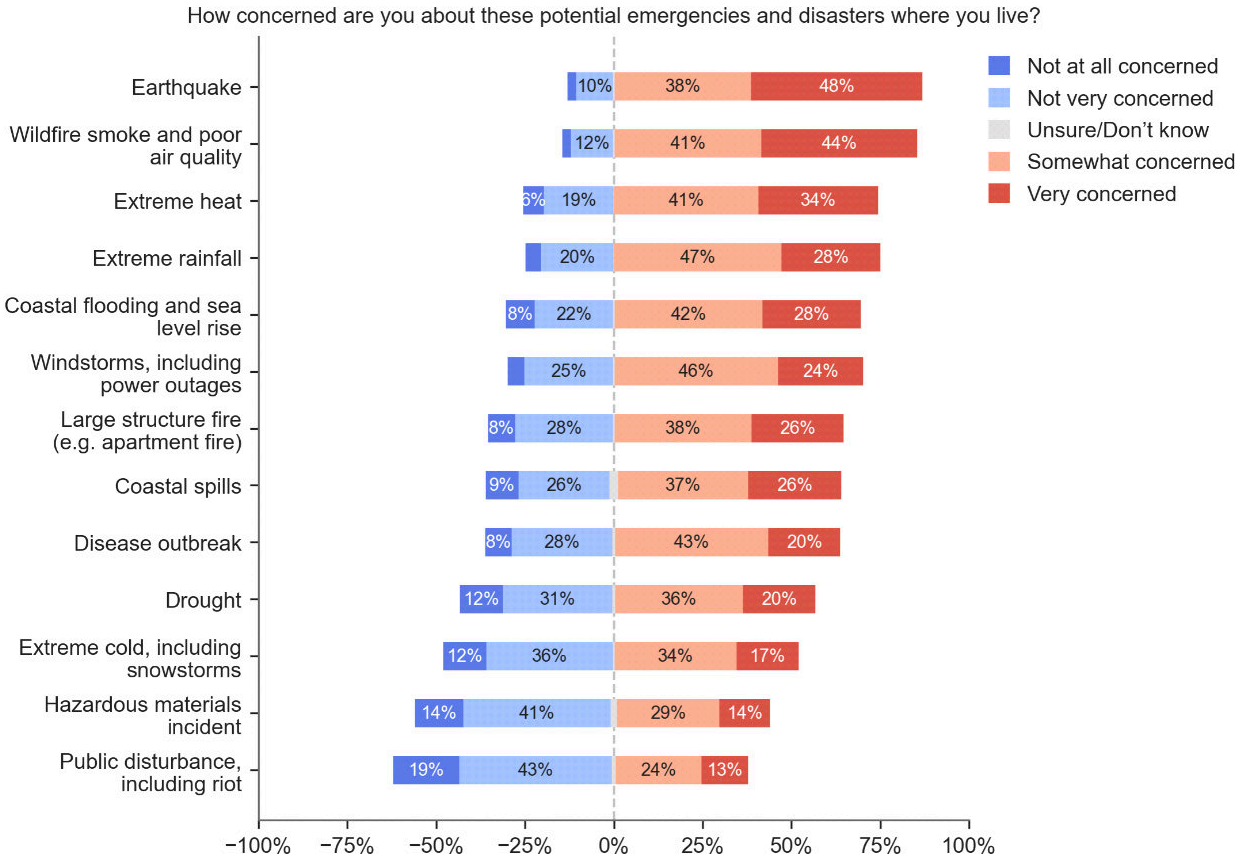
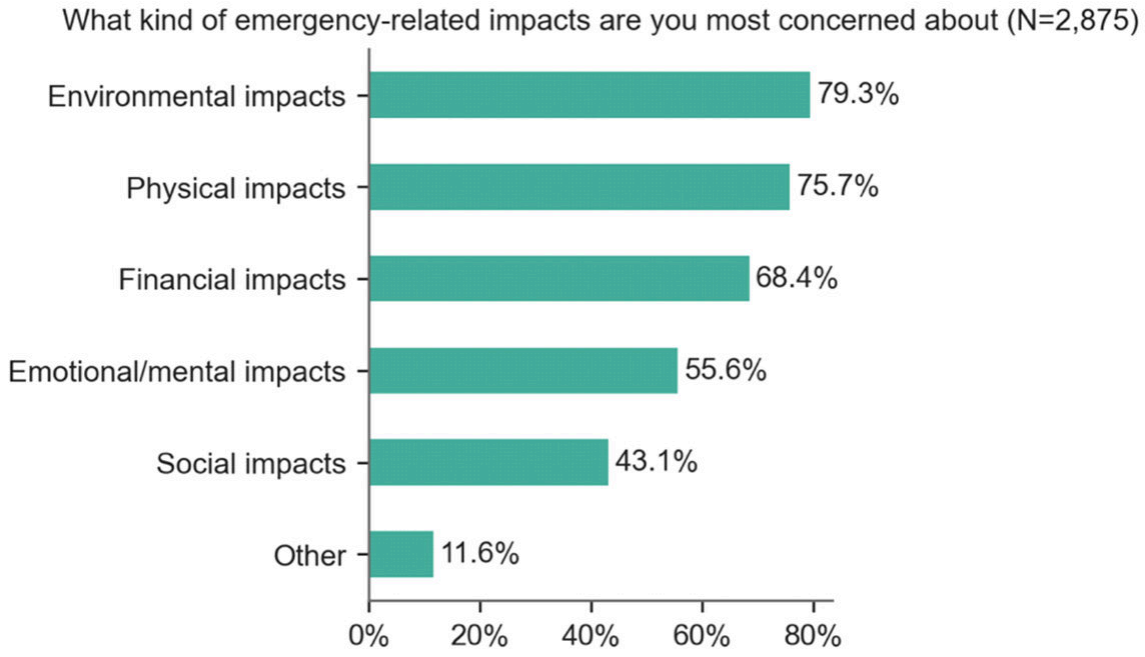
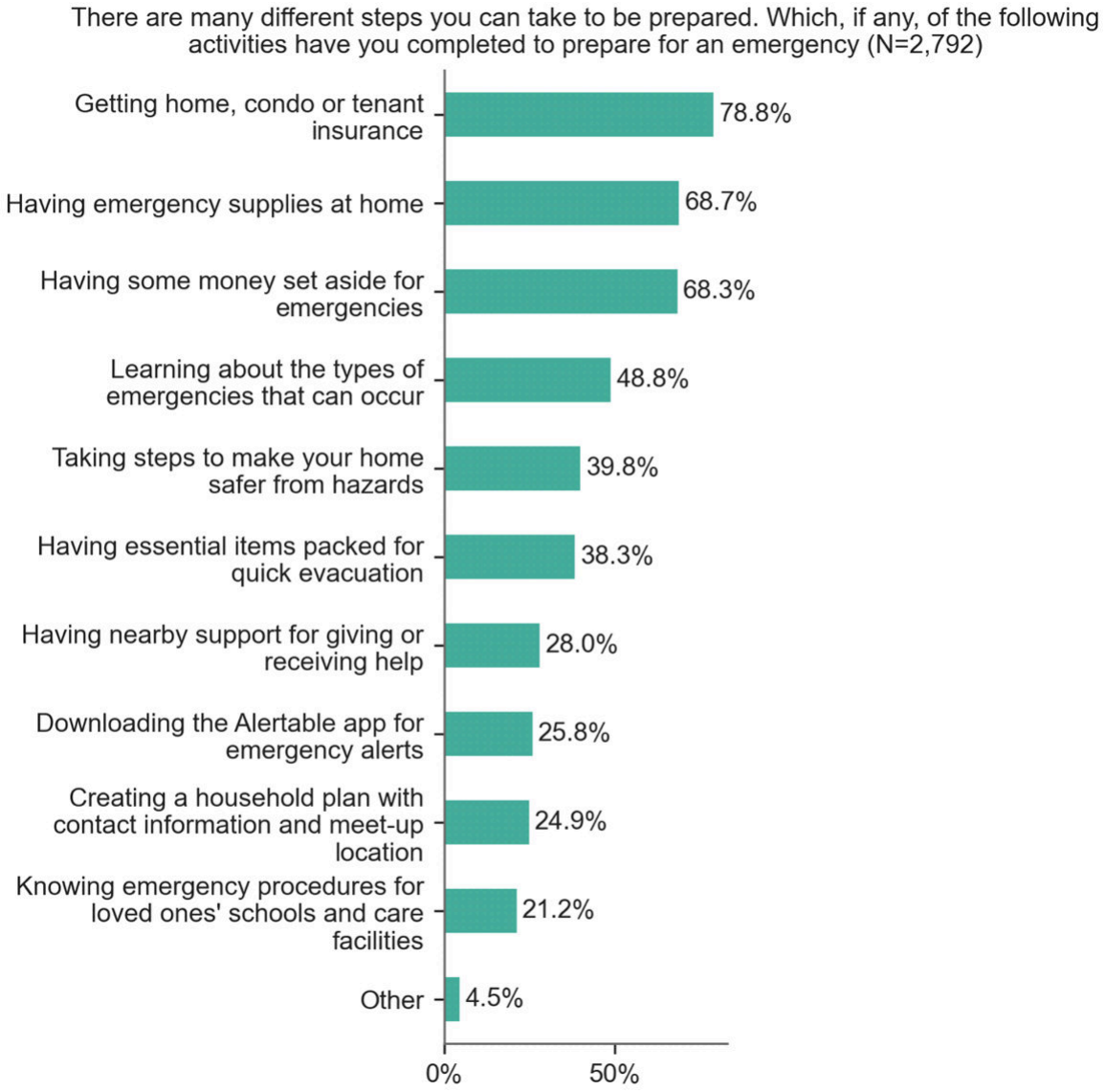


Figure A2: Level of concern for emergency-related impacts (Q2)



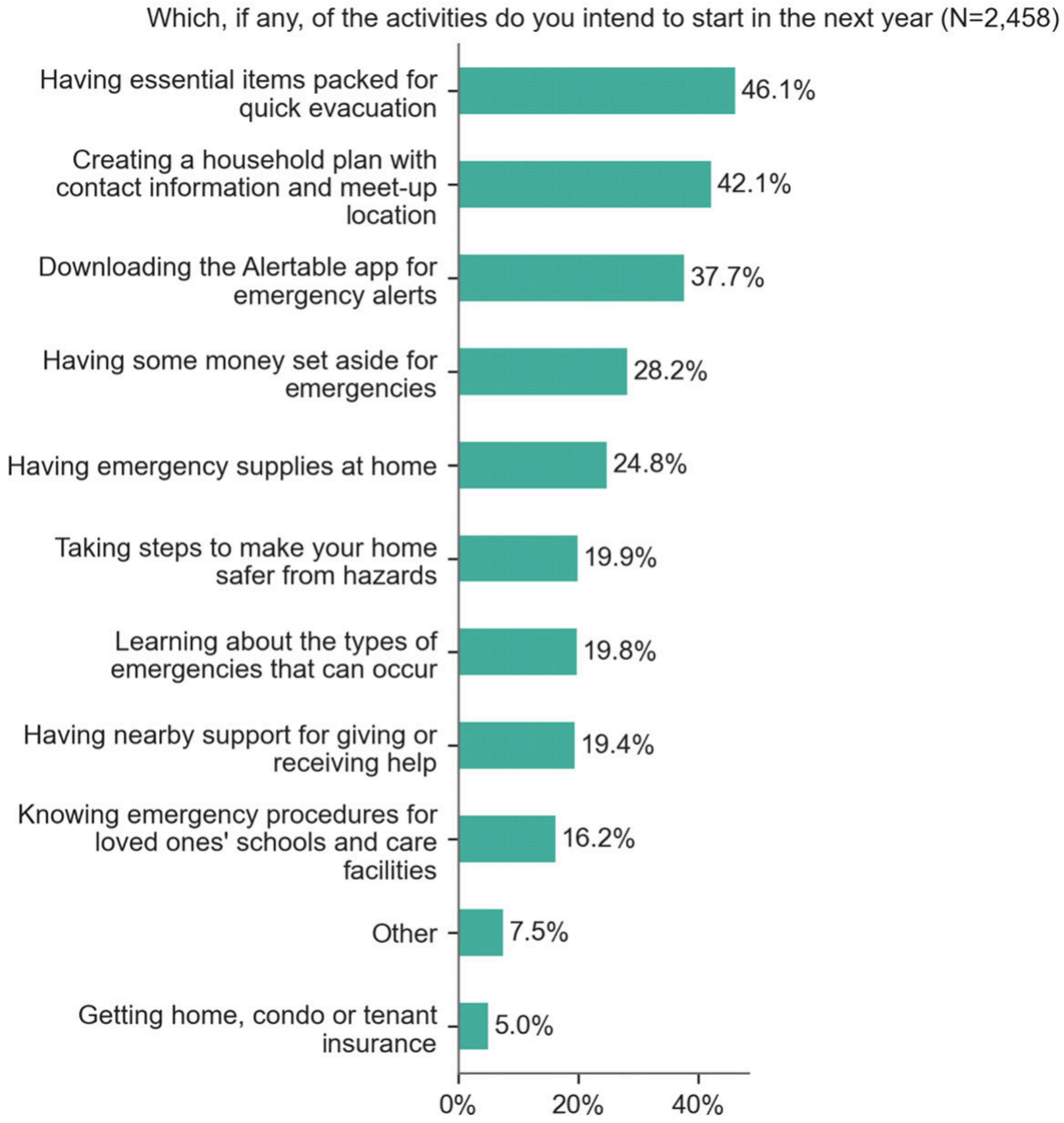
Note: "Other" includes responses indicating impacts on resources (e.g., food, water, medical care), impacts on housing (e.g., loss of property value, loss of home), impacts on infrastructure (e.g., transportation), impacts on public safety and community well-being (e.g., crimes, social isolation, substance use), impacts on vulnerable populations (e.g., seniors, homeless, racialized groups), etc.

Figure A3: Steps taken to be prepared (Q3)



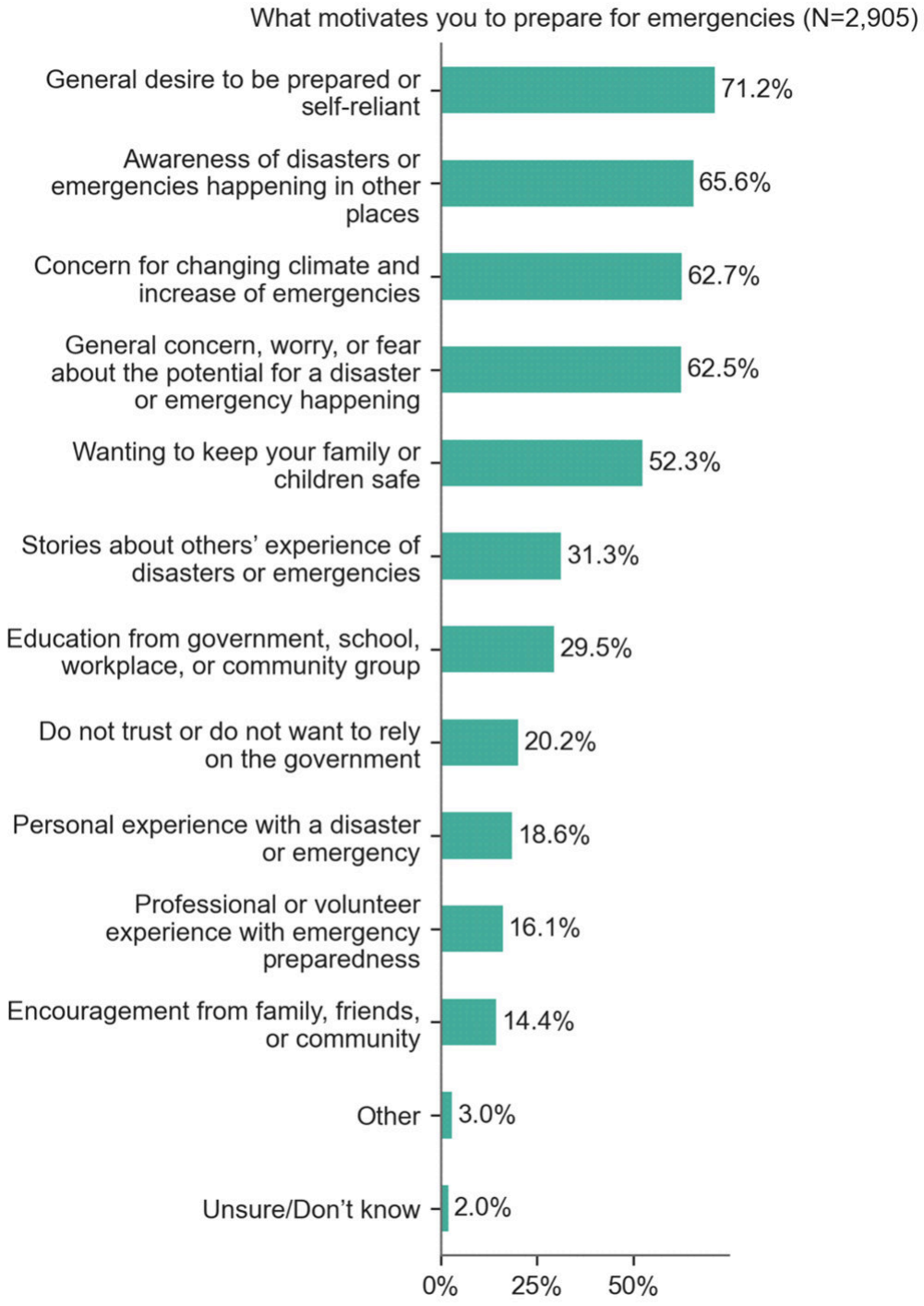
Note: "Other" includes responses indicating attempting to connect with neighbours (e.g., creating joint supplies), developing plans or routes for evacuation, participating in volunteering or training related to emergency responses, purchasing specific items (e.g., ladder, portable air conditioner, camping gear), etc.

Figure A4: Activities intended to start in the next year (Q4)



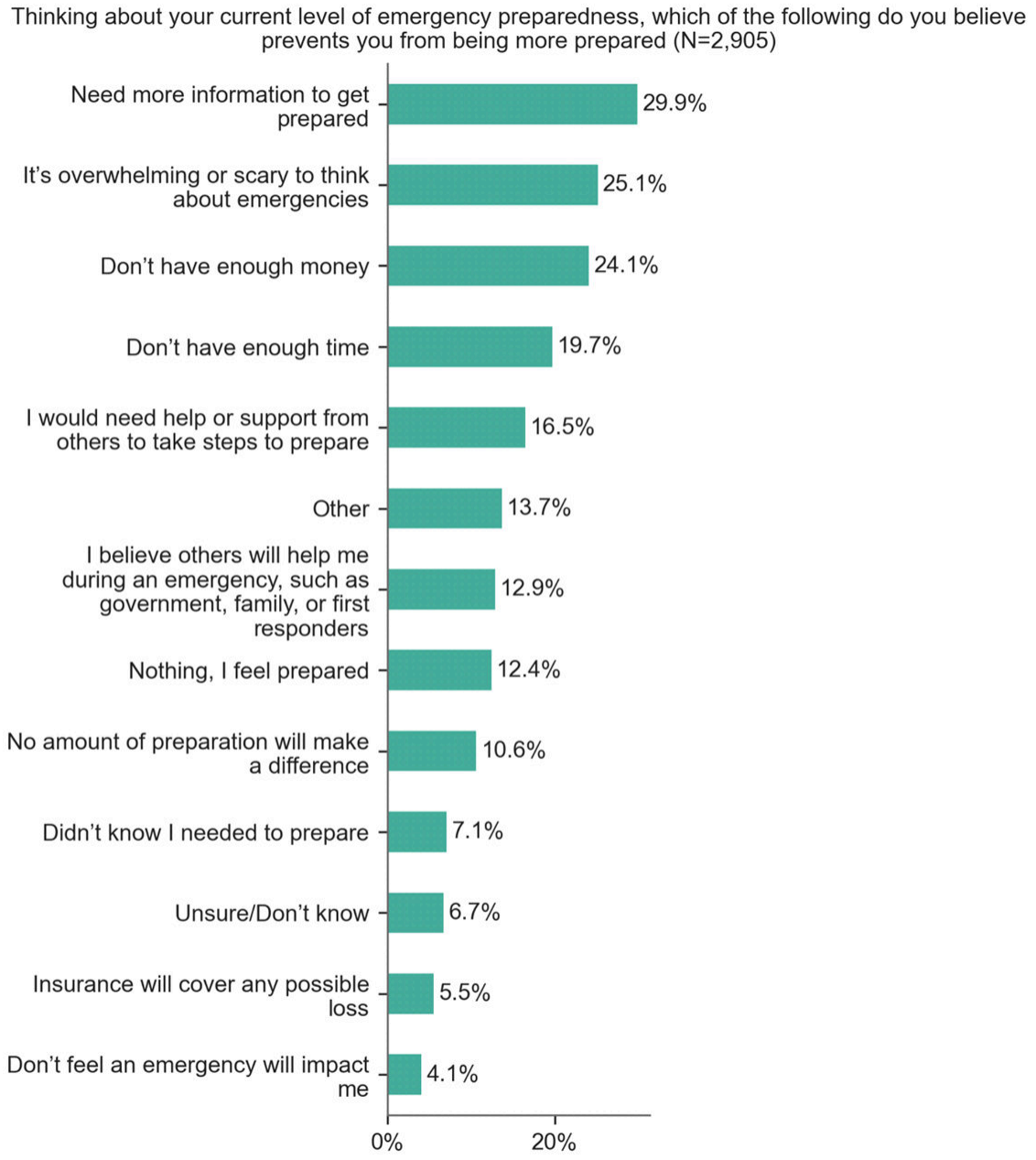
Note: "Other" includes responses such as expanding or improving the current emergency supplies or attending first aid courses. Some respondents indicated that they lacked the financial capacity to take any further steps.

Figure A5: Motivations to prepare for emergencies (Q5)



Note: "Other" includes responses indicating awareness of risks specific to BC or Vancouver, civic responsibility to be prepared and to allow resources to be directed to those most in need, desire to support others (e.g., neighbours, vulnerable communities), etc.

Figure A6: Barriers to being prepared for emergencies (Q6)



Note: "Other" includes responses indicating procrastination/inertia/laziness, lack of urgency/not feeling that preparedness is a priority, limited space for storing supplies, uncertainty about the likelihood/type of disaster happening, challenges in accessing or updating/refreshing emergency supplies, skepticism about individual efforts, perceived lack of commitment from others, lack of support from family/friends, time constraints, financial constraints, physical constraints, etc.

Figure A7: Level of confidence in evacuation (Q7)

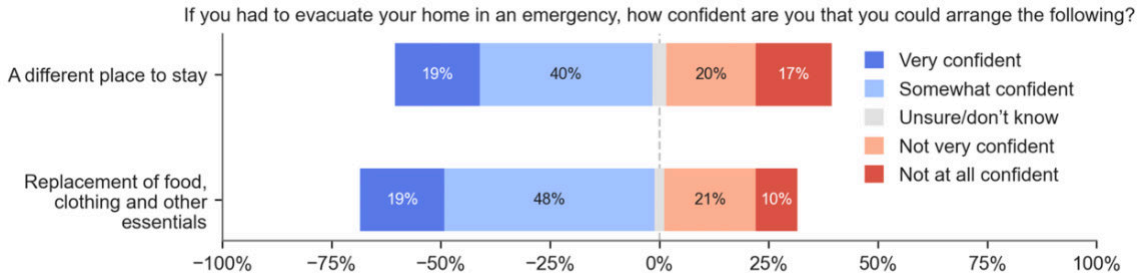
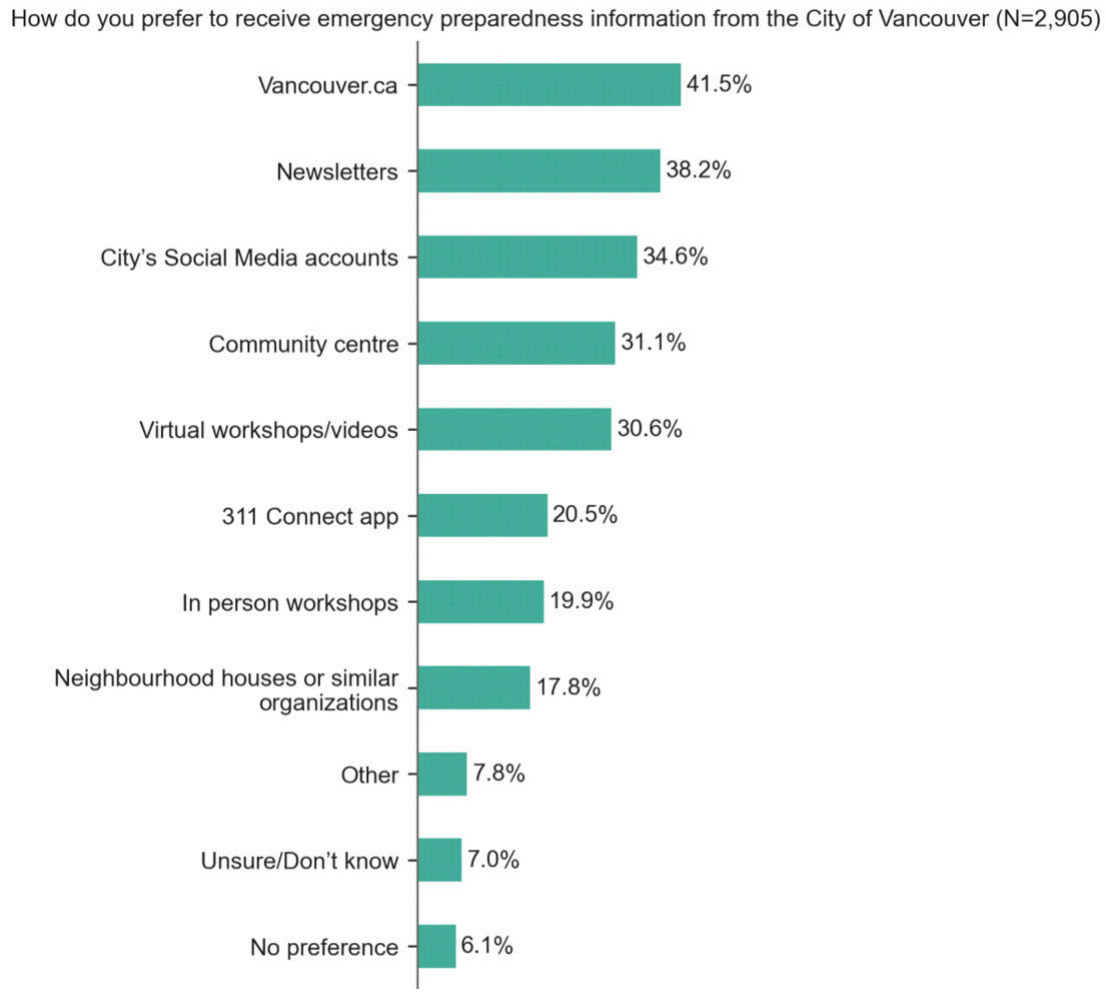


Figure A8: Preferred ways for receiving emergency preparedness information (Q8)

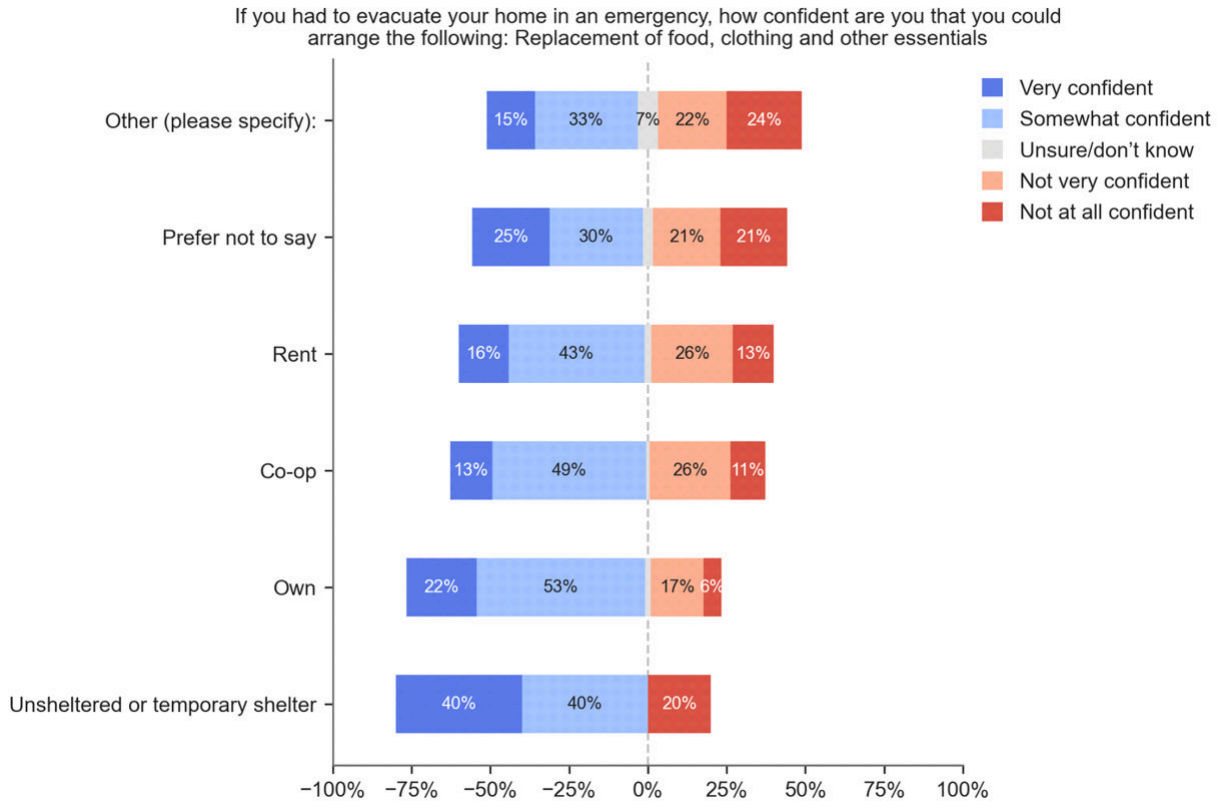


Note: "Other" includes responses indicating email, mail, radio, outreach events, library, YouTube, news media, etc.

Annex B: Subgroup Responses for Module 1 Survey

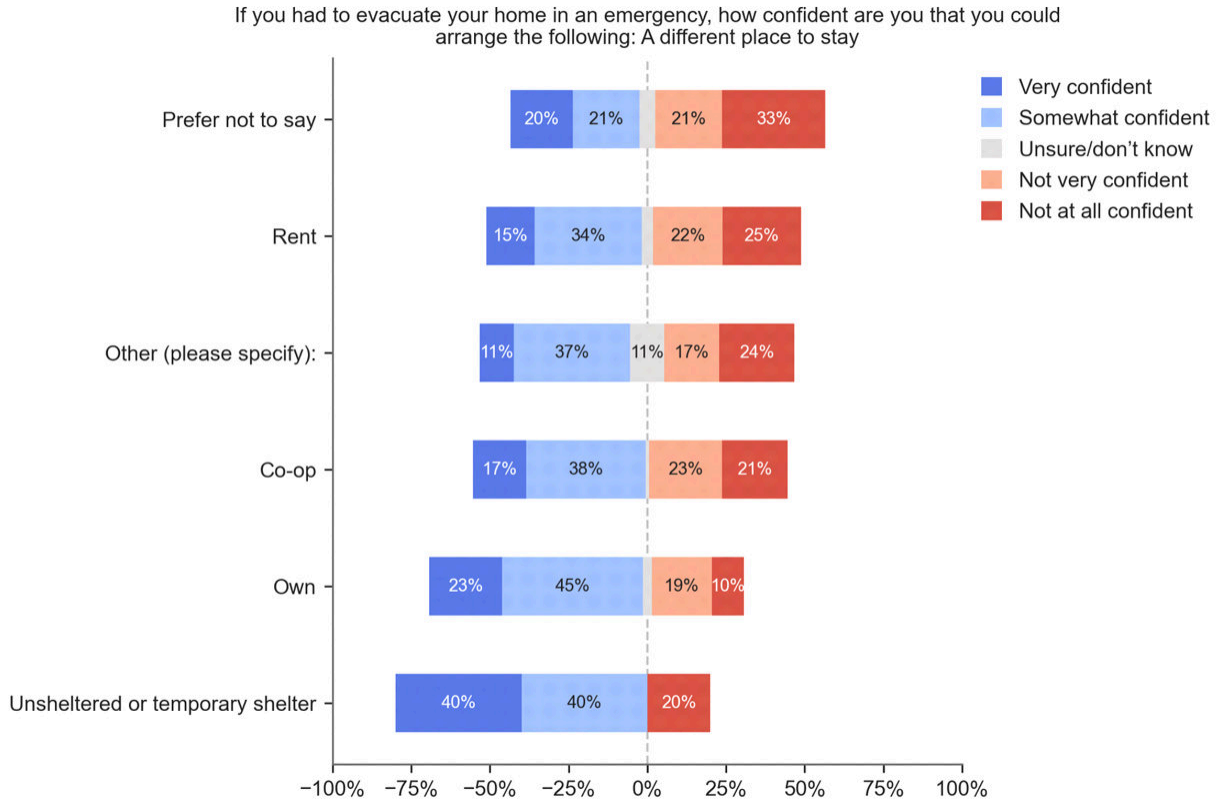
By housing tenure

Figure B1: Level of confidence in the replacement of food, clothing and other essentials by housing tenure



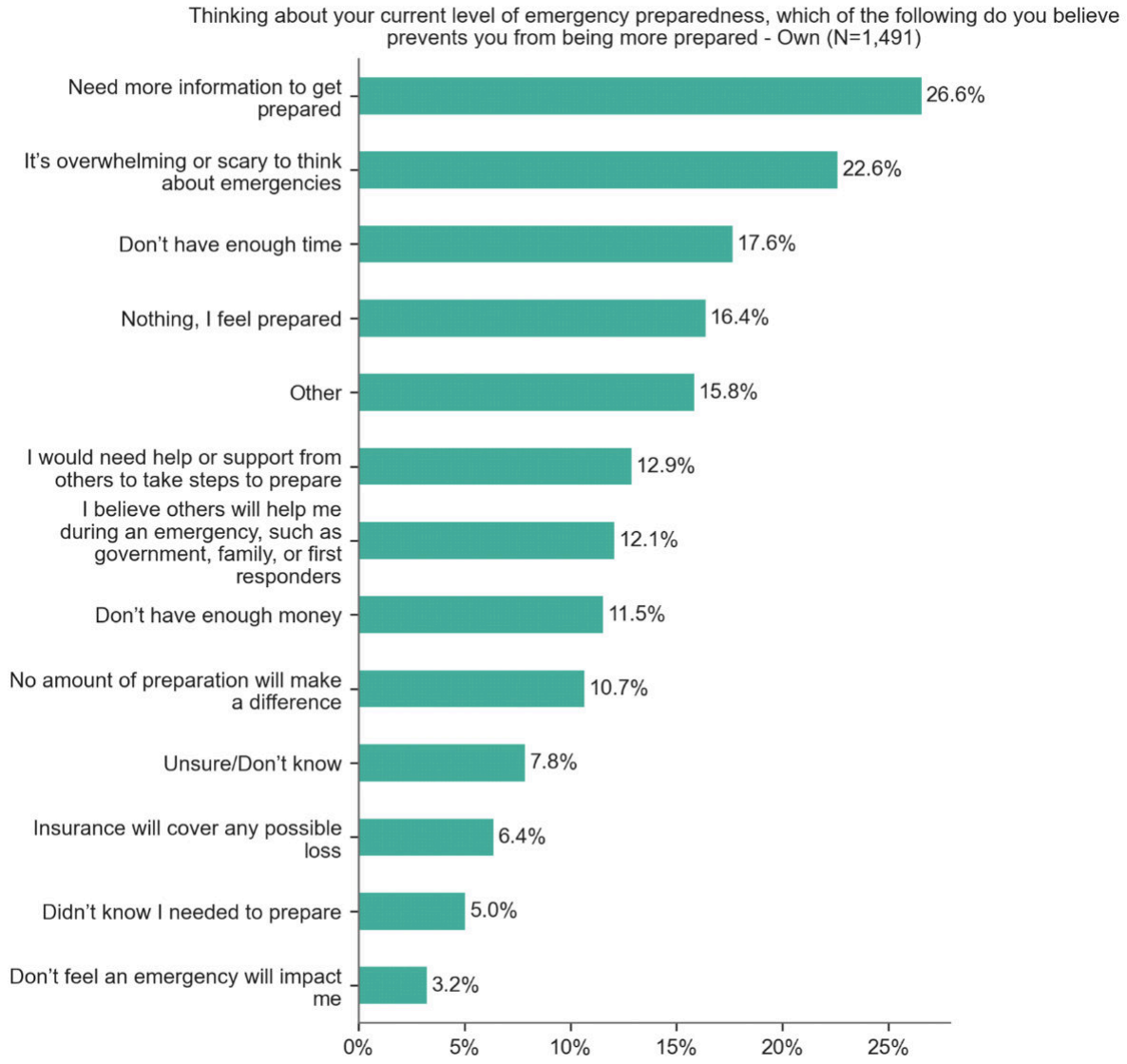
Note: The "Unsheltered or temporary shelter" group has a limited sample size (i.e. less than 30); "Other (please specify):" includes responses indicating living with family members, leasehold, care home, etc.

Figure B2: Level of confidence in arranging a different place to stay by housing tenure



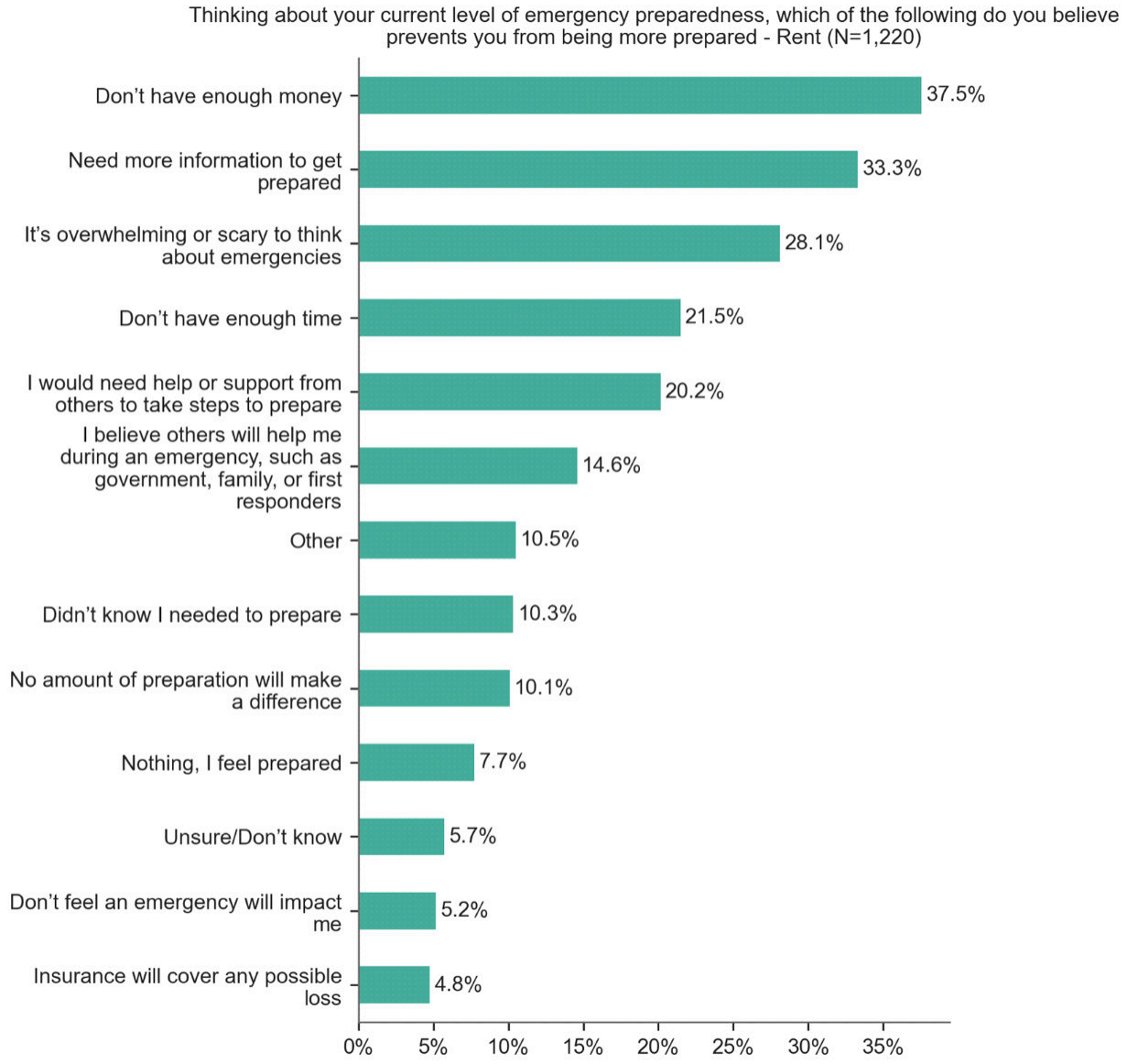
Note: The "Unsheltered or temporary shelter" group has a limited sample size (i.e. less than 30); "Other (please specify):" includes responses indicating living with family members, leasehold, care home, etc.

Figure B3: Barriers to preparedness identified by respondents who own their home



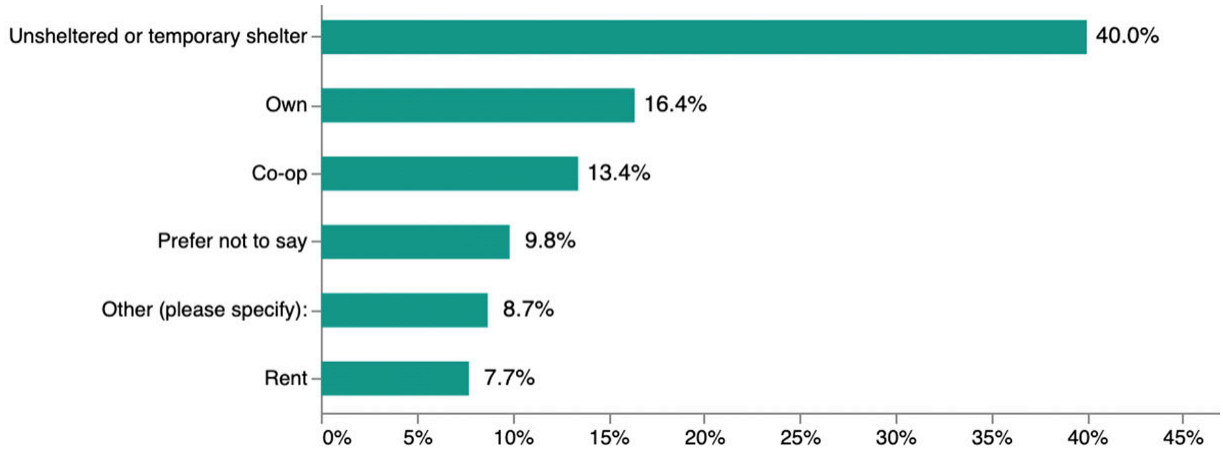
Note: "Other" includes responses indicating procrastination/inertia/laziness, limited space for storing supplies, already prepared/working on it, uncertainty about the likelihood/type of disaster happening, lack of urgency/not feeling that preparedness is a priority, etc.

Figure B4: Barriers to preparedness identified by respondents who rent their home



Note: "Other" includes responses indicating procrastination/inertia/laziness, lack of urgency/not feeling that preparedness is a priority, limited space for storing supplies, time constraints, financial constraints, physical constraints, etc.

Figure B5: Percentage of respondents reporting "Nothing (no barriers), I feel prepared", by housing tenure



Note: The percentage for the "Unsheltered or temporary shelter" group is based on a limited sample size (i.e. less than 30); "Other (please specify):" includes responses indicating living with family members, leasehold, and care home.

By neighbourhood

The neighbourhood maps illustrate the responses by the survey respondents living in each neighbourhood.

Figure B6: Level of concern for earthquake by neighbourhood

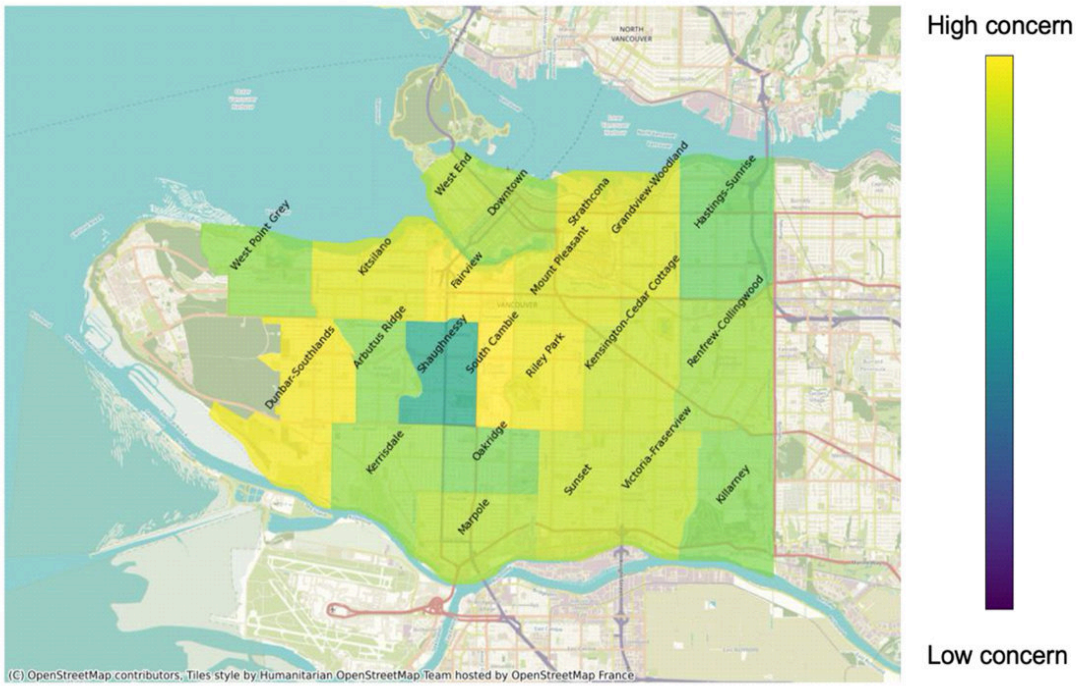


Figure B7: Level of concern for extreme heat by neighbourhood

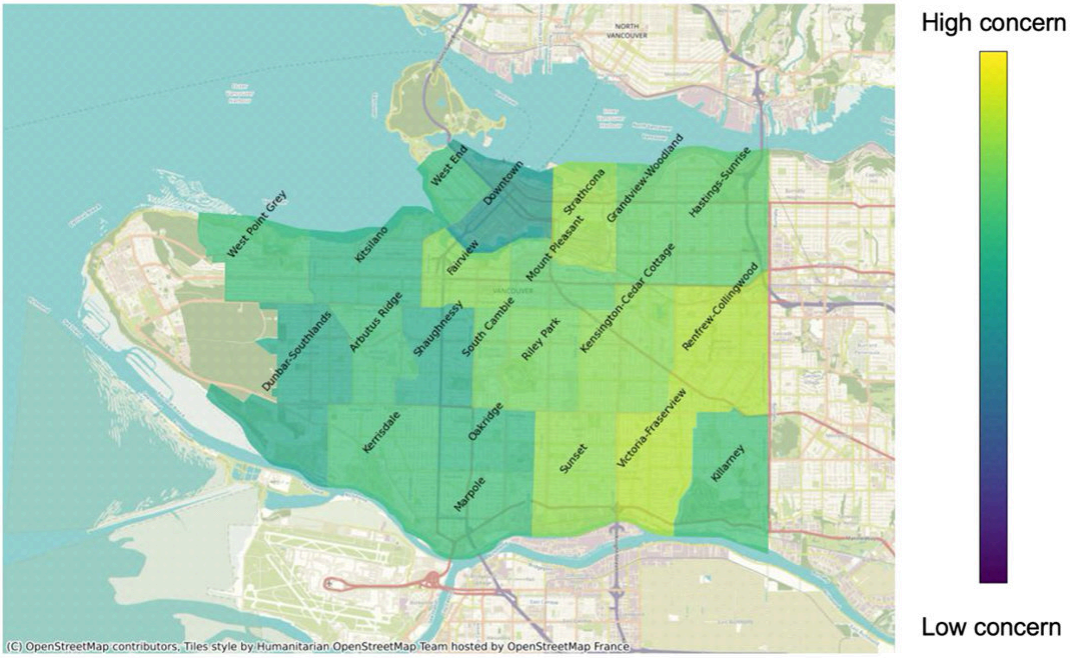


Figure B8: Level of concern for wildfire smoke and poor air quality by neighbourhood

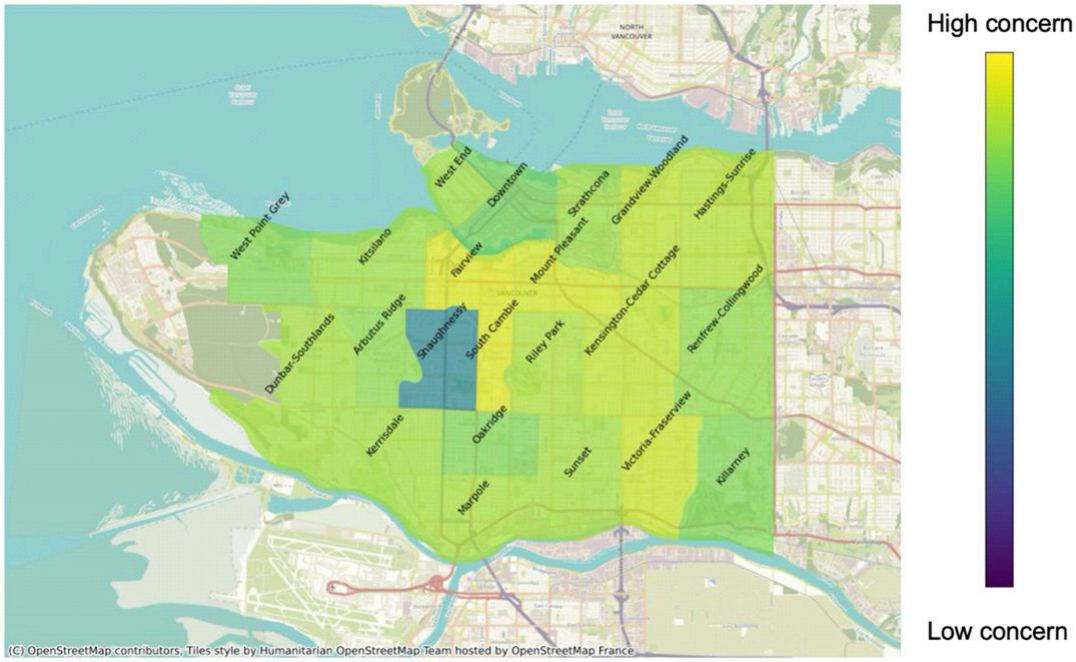


Figure B9: Level of concern for drought by neighbourhood

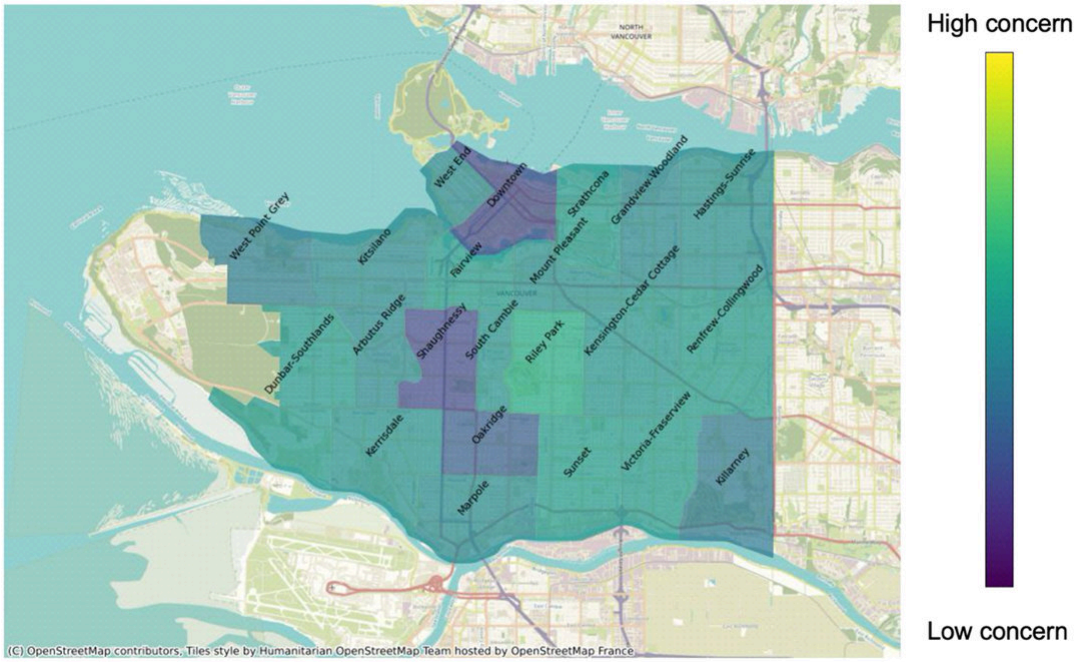


Figure B10: Level of concern for extreme cold by neighbourhood

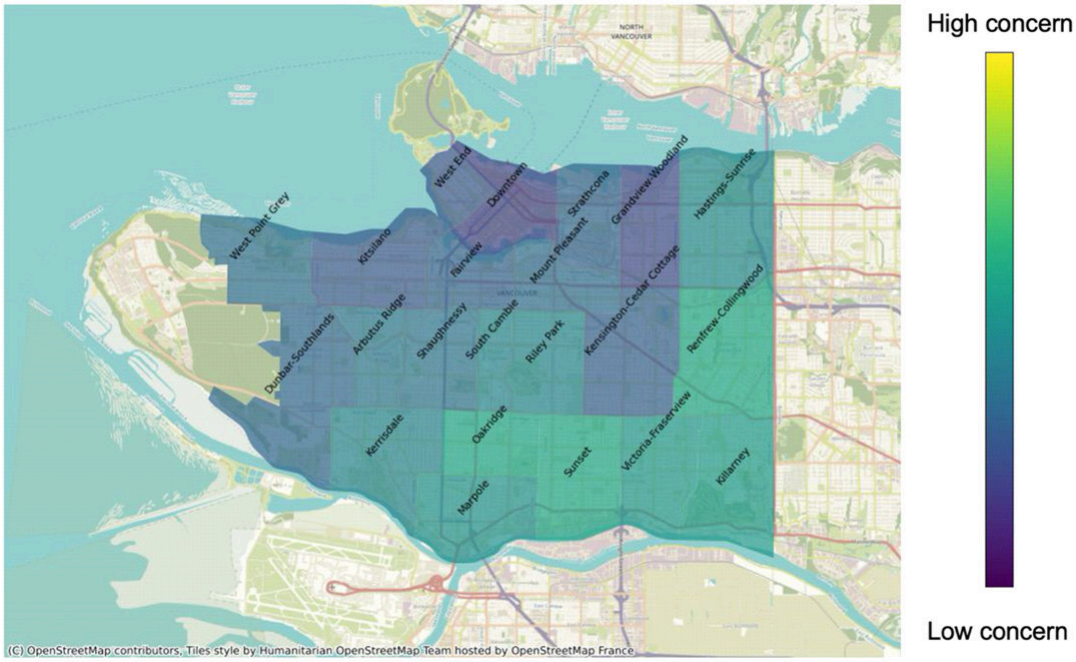


Figure B11: Level of concern for coastal flooding and sea level rise by neighbourhood

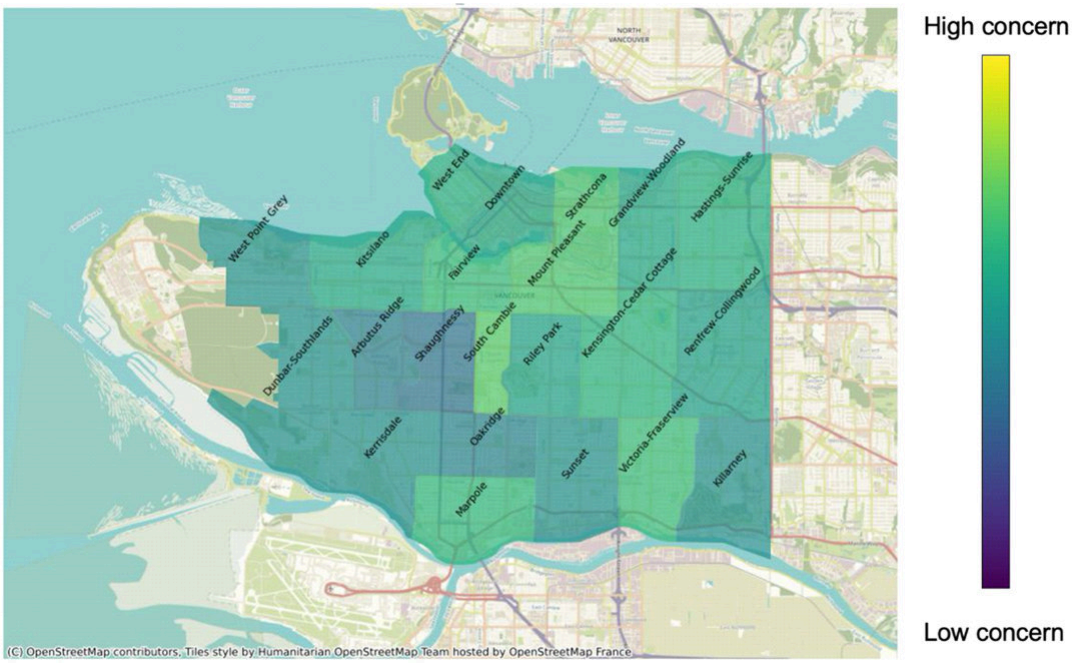


Figure B12: Level of concern for extreme rainfall by neighbourhood

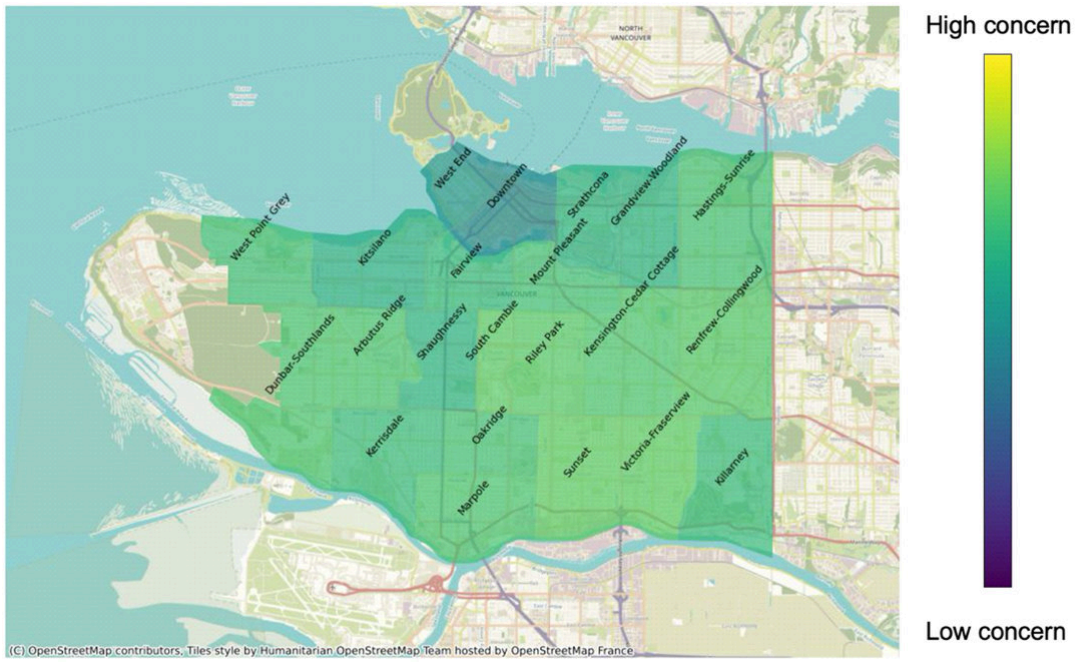


Figure B13: Level of concern for windstorms by neighbourhood

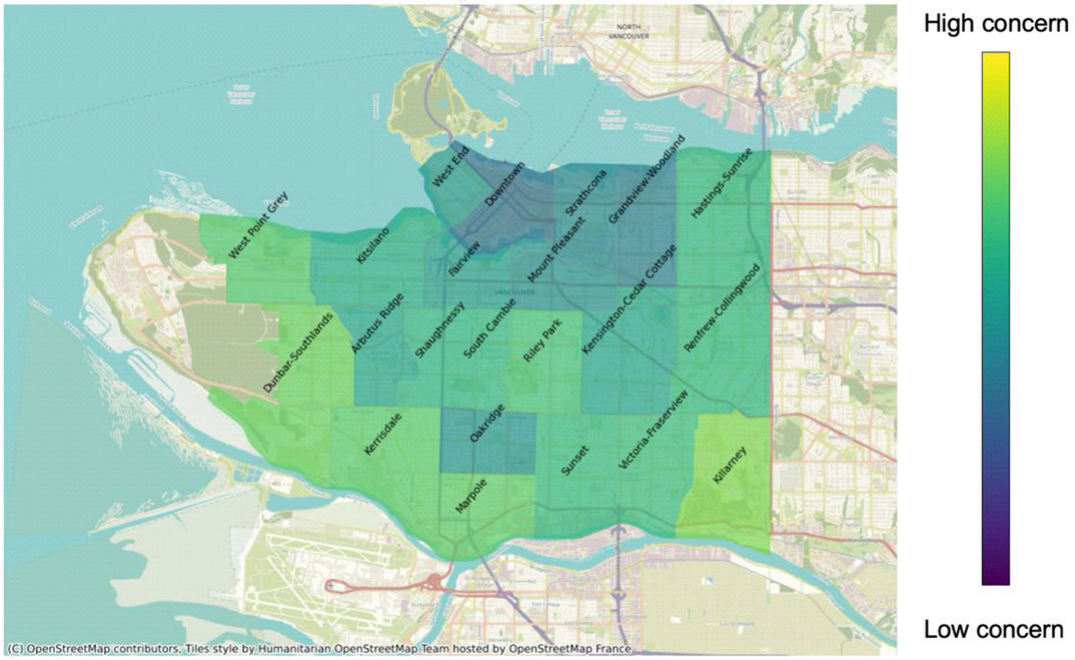


Figure B14: Level of concern for disease outbreak by neighbourhood

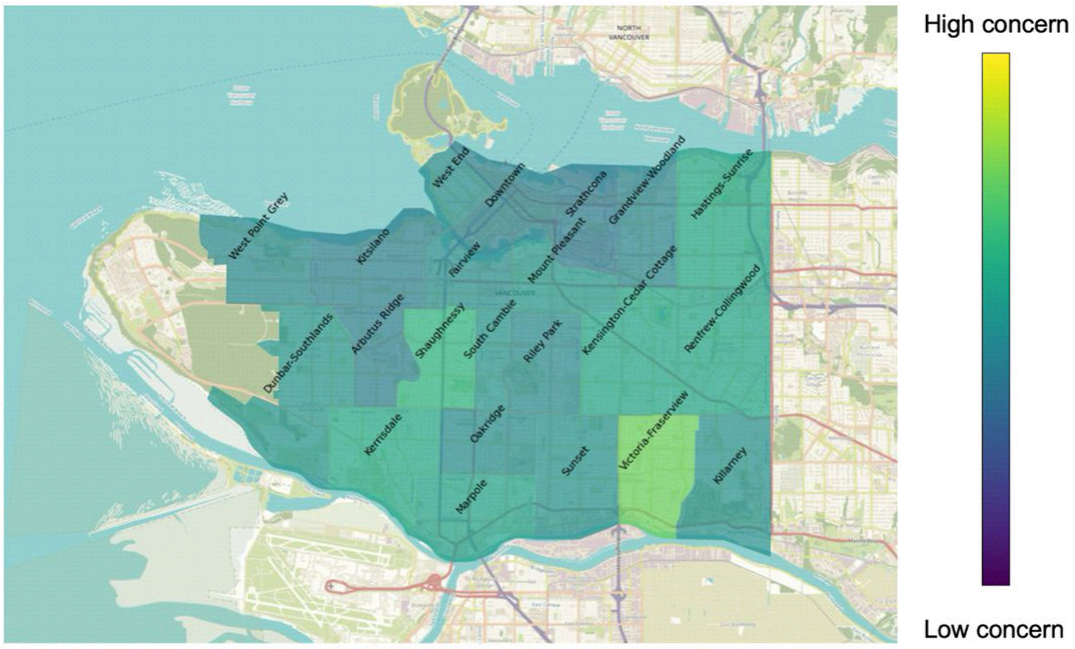


Figure B15: Level of concern for large structure fire by neighbourhood

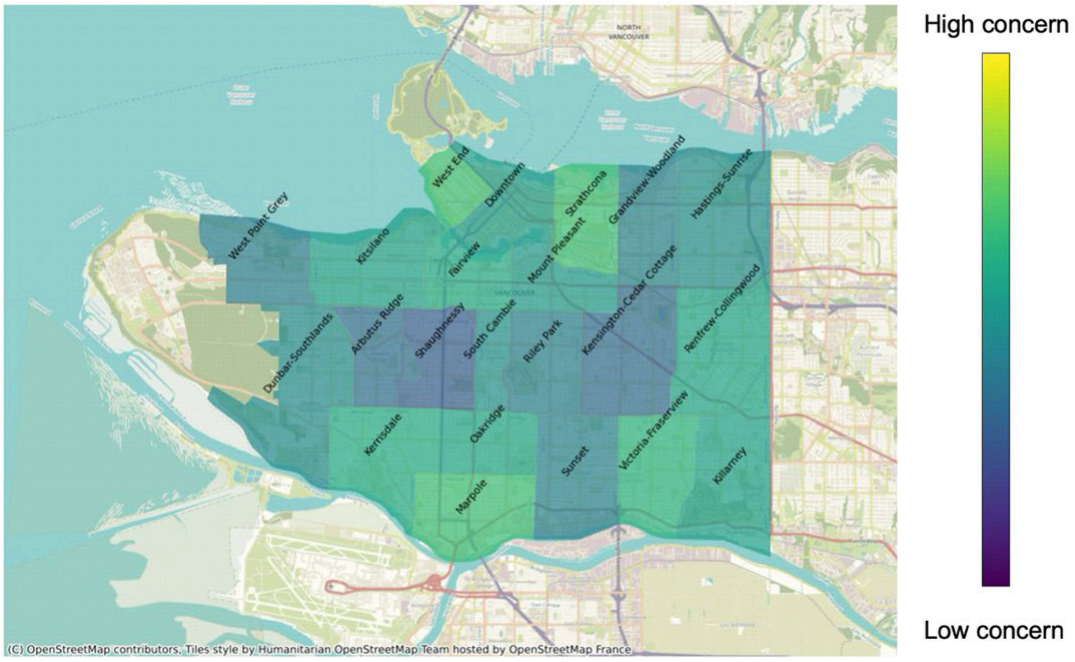


Figure B16: Level of concern for coastal spills by neighbourhood

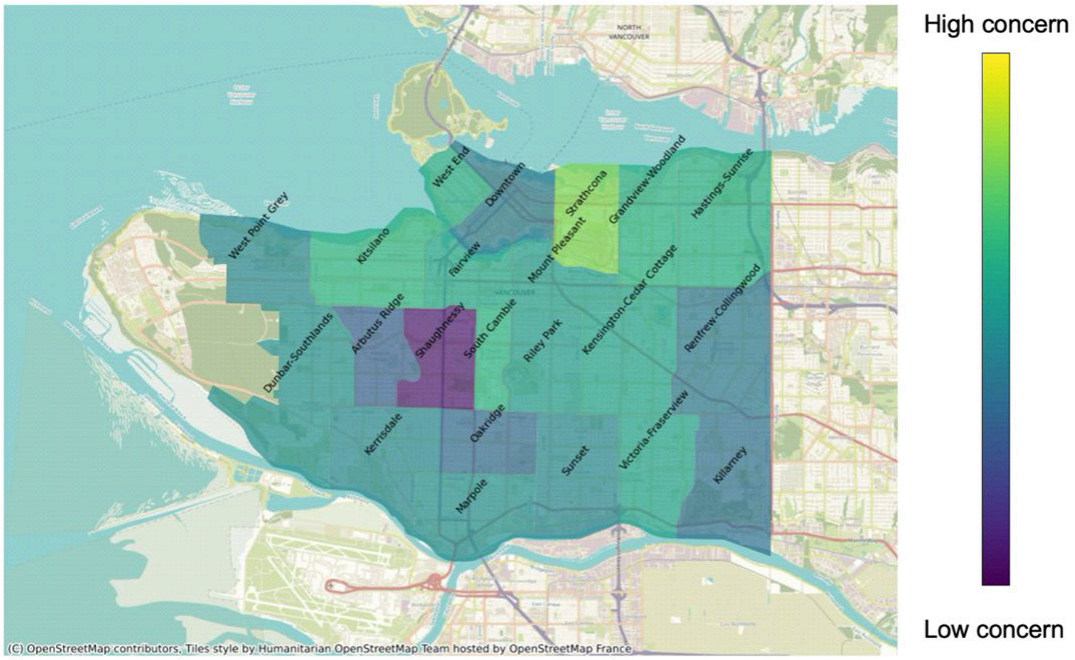


Figure B17: Level of concern for hazardous materials incident by neighbourhood

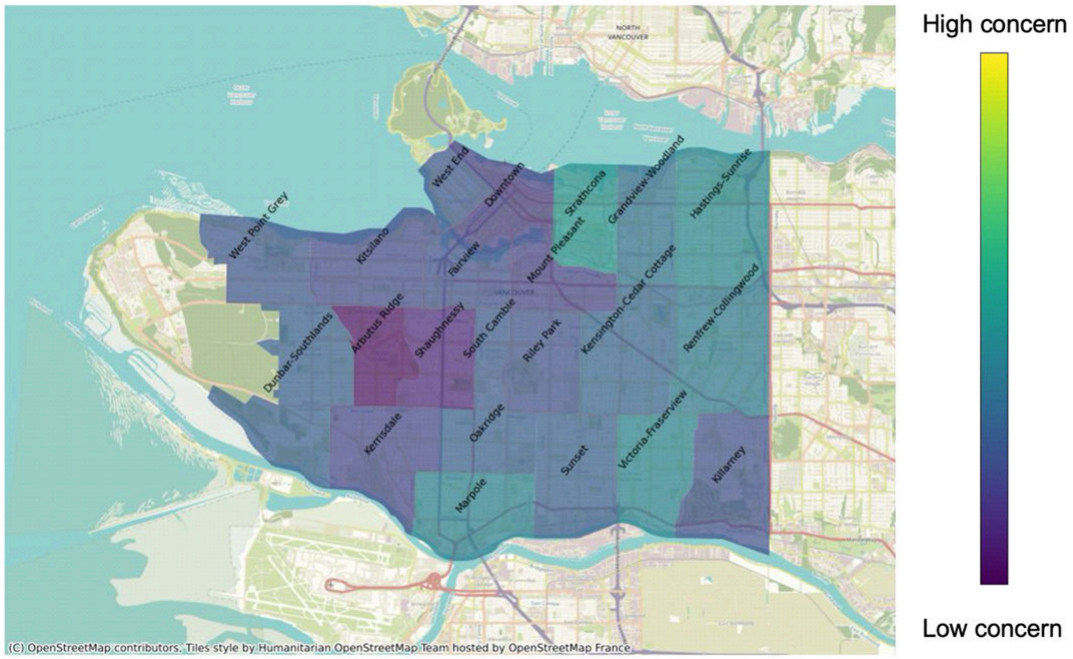


Figure B18: Level of concern for public disturbance by neighbourhood

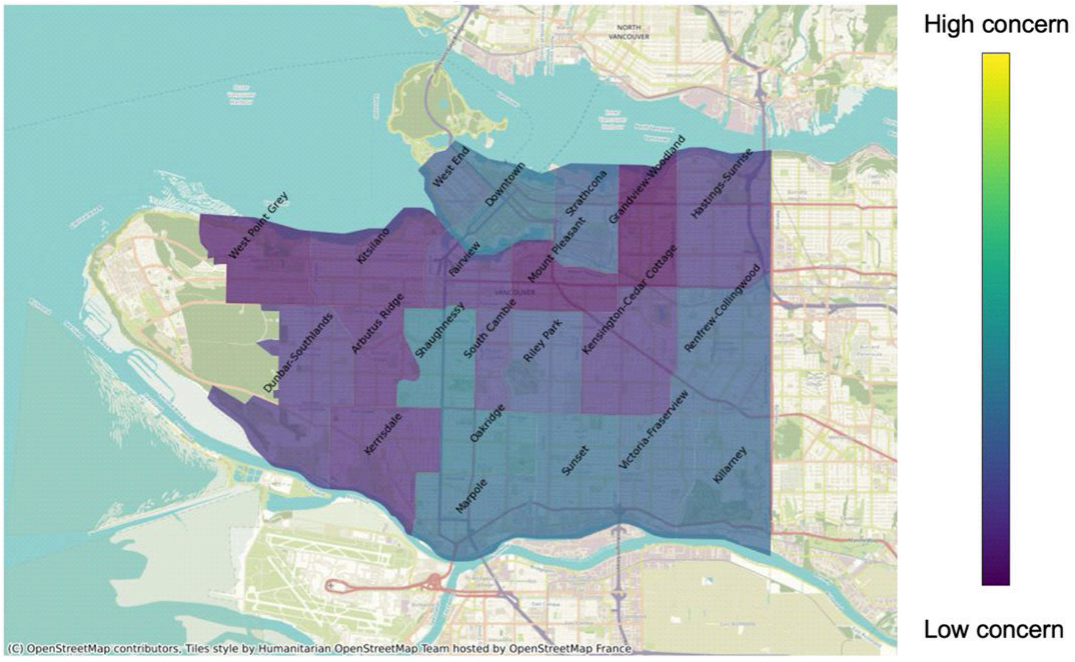


Figure B19: Level of confidence in the replacement of food, clothing and other essentials by neighbourhood

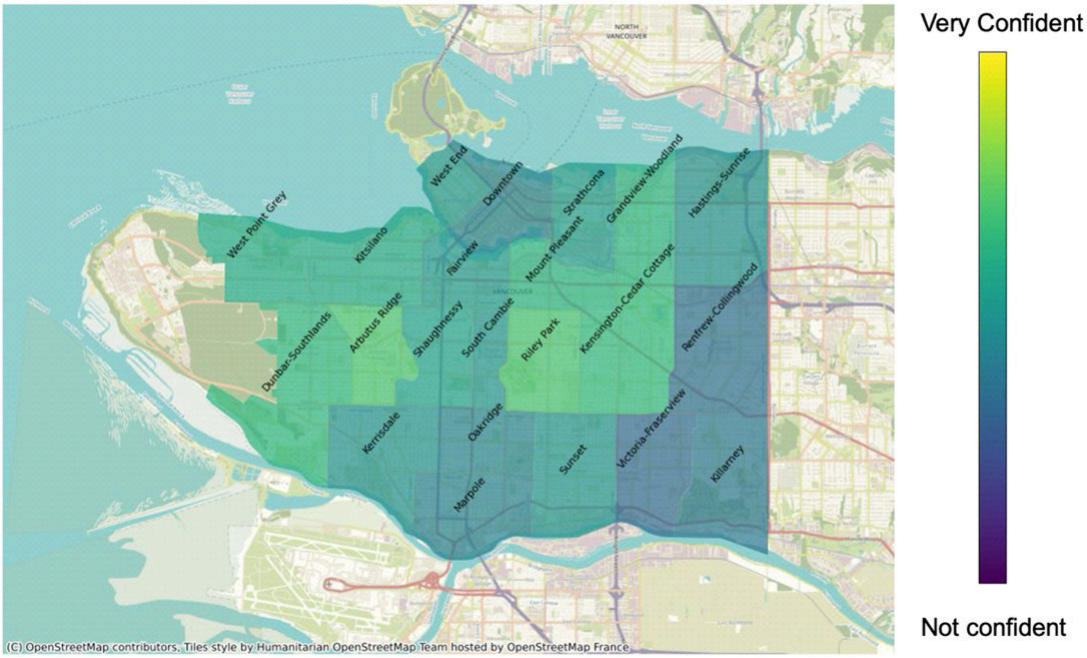
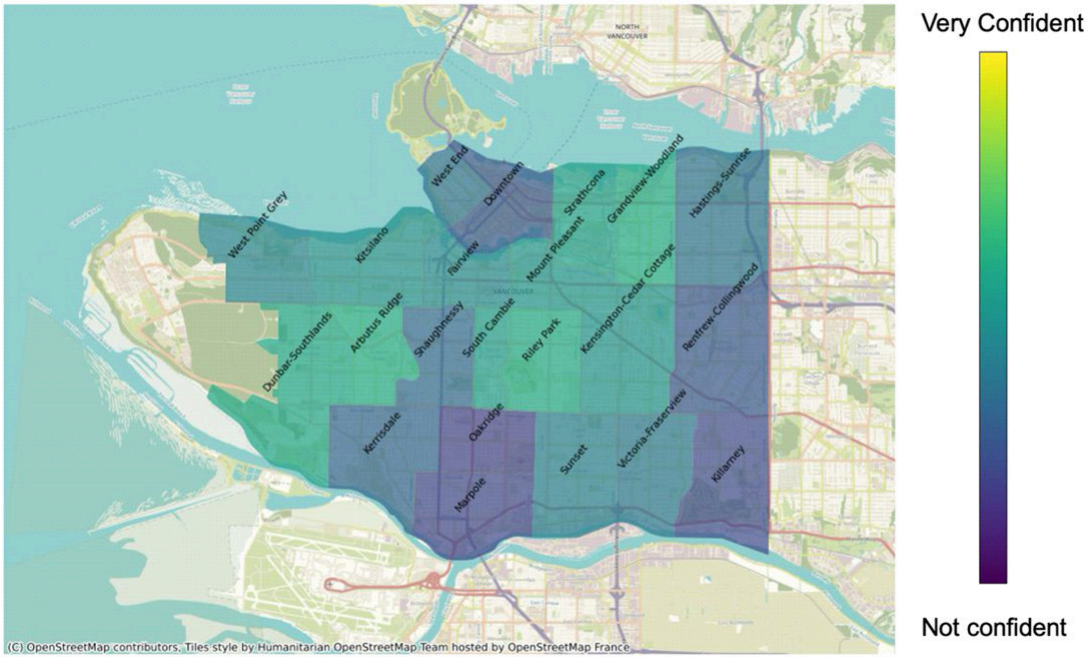
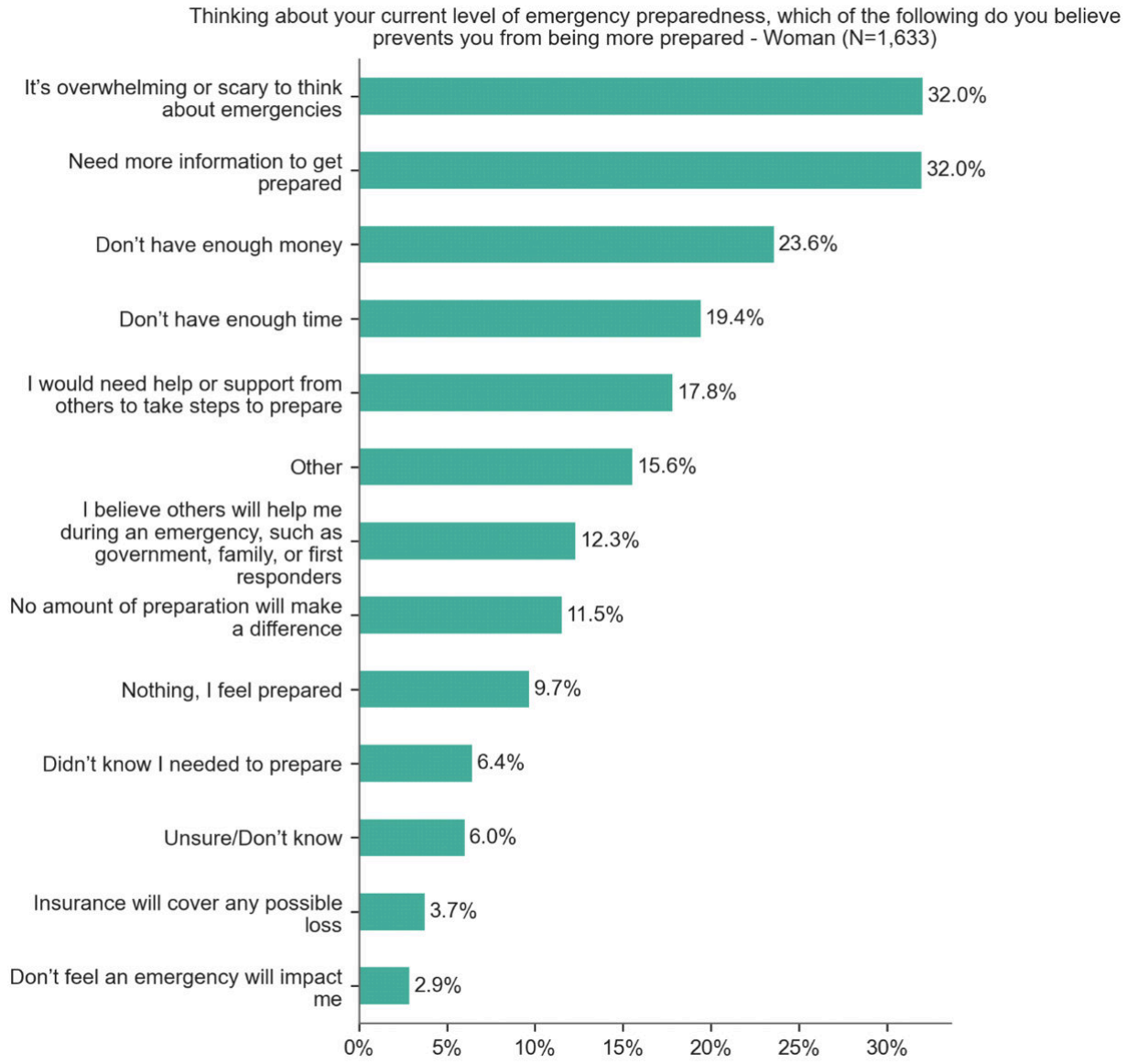


Figure B20: Level of confidence in arranging a different place to stay by neighbourhood



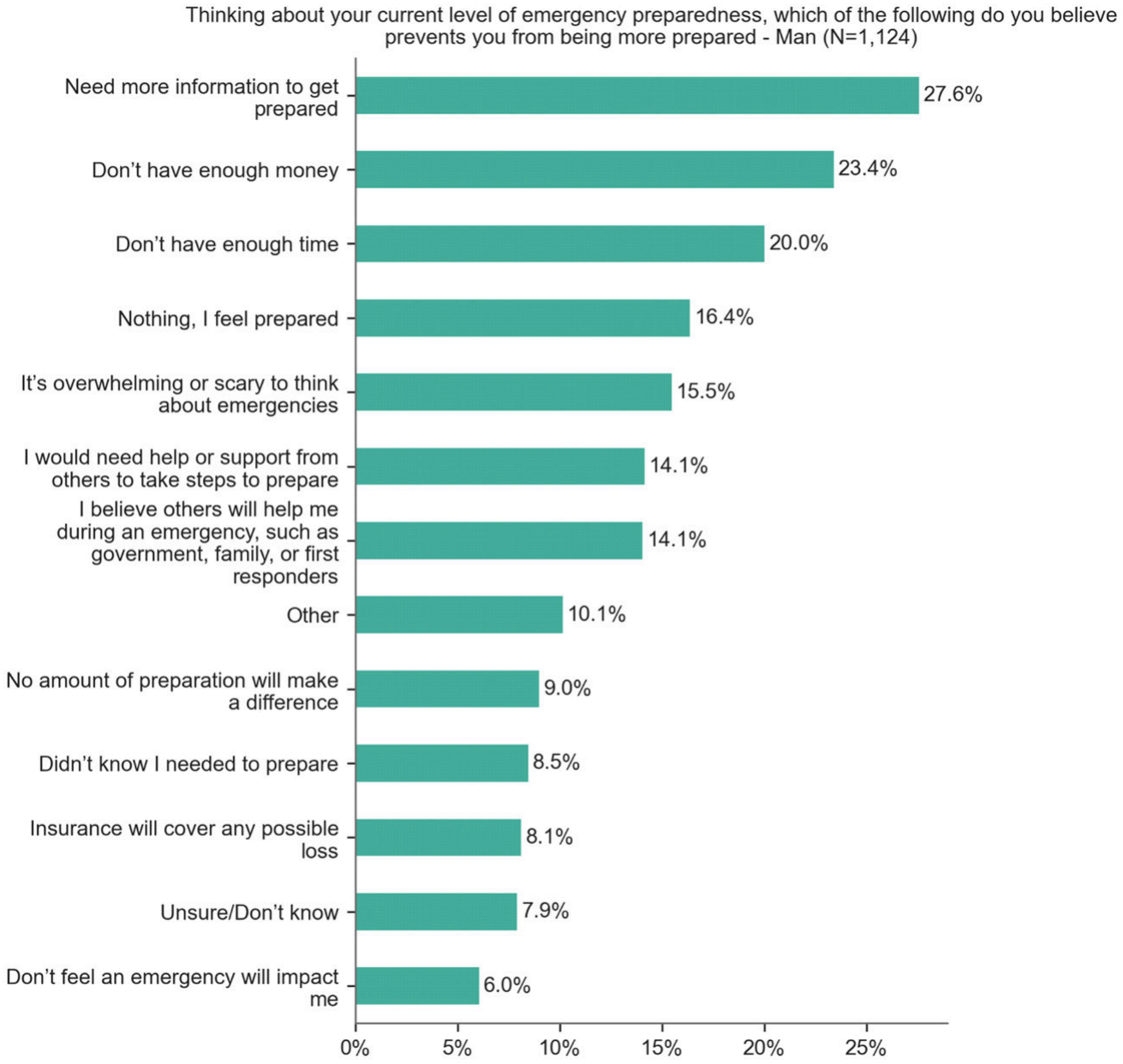
By gender

Figure B21: Barriers to preparedness identified by women-identified respondents



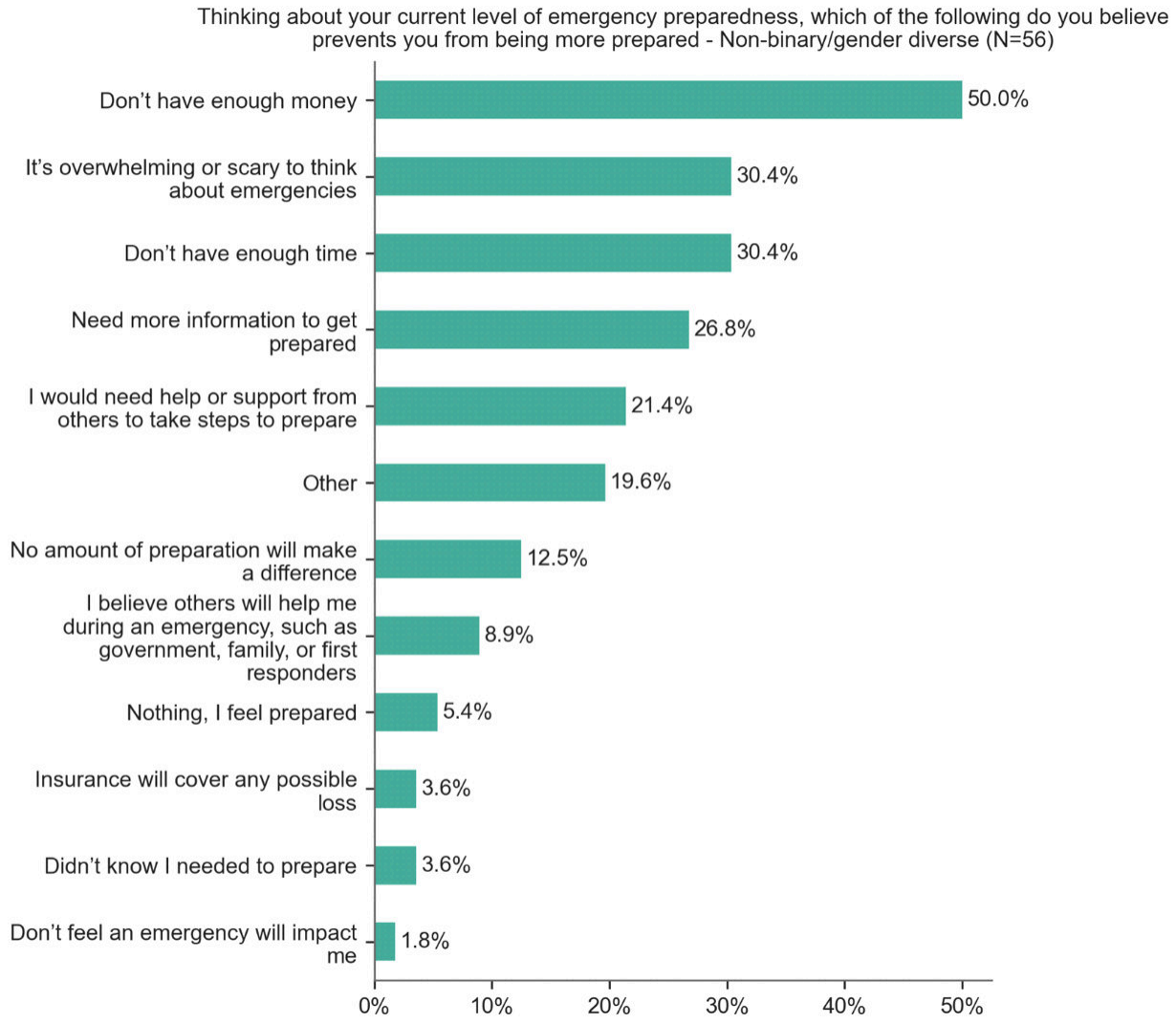
Note: "Other" includes responses indicating limited space for storing supplies, procrastination/inertia/ laziness, lack of urgency/not feeling that preparedness is a priority, uncertainty about the likelihood/type of disaster happening, skepticism about individual effort, etc.

Figure B22: Barriers to preparedness identified by men-identified respondents



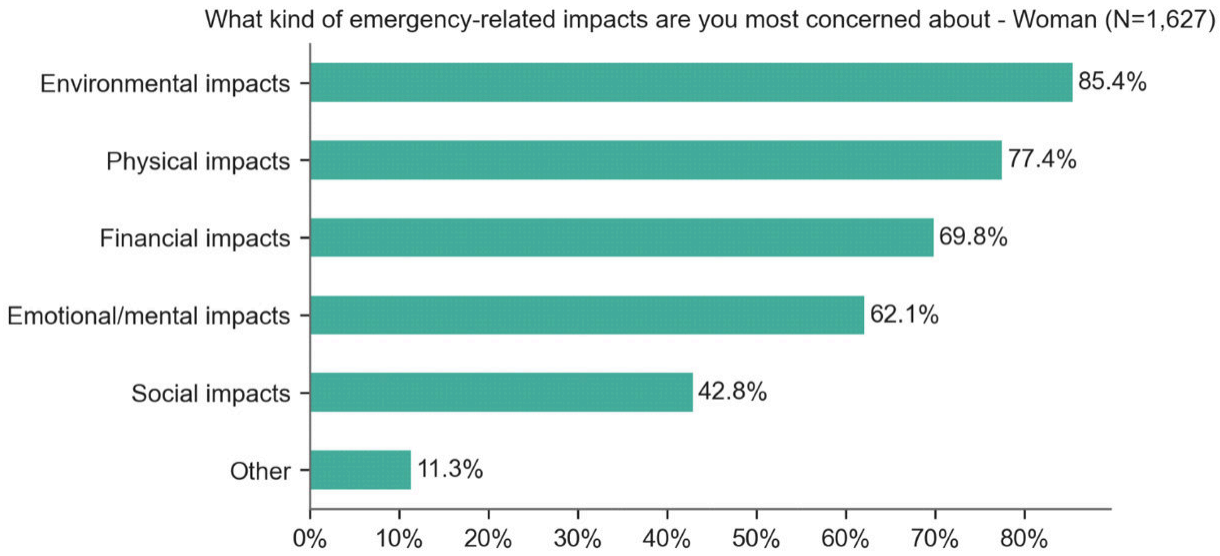
Note: "Other" includes responses indicating procrastination/inertia/laziness, lack of urgency/not feeling that preparedness is a priority, apathy, limited space for storing supplies, skepticism about individual effort, etc.

Figure B23: Barriers to preparedness identified by non-binary / gender diverse respondents



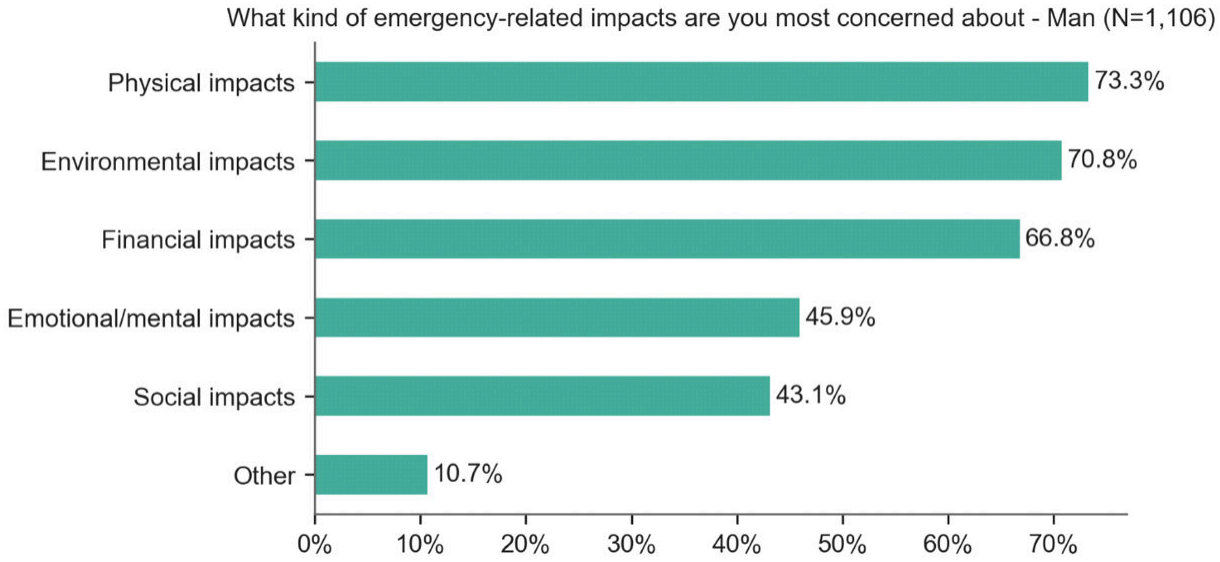
Note: "Other" includes responses indicating limited space for storing supplies, procrastination/inertia/ laziness, perceived lack of commitment from others, challenges to access or rotate emergency supplies, financial constraints, etc.

Figure B24: Emergency-related impacts of most concern for women-identified respondents



Note: "Other" includes responses indicating impacts on housing (e.g., loss of property value, loss of home), impacts on resources (e.g., food, water, medical care), impacts on public safety and community well-being (e.g., crimes, social isolation, substance use), impacts on infrastructure (e.g., transportation), impacts on vulnerable populations (e.g., seniors, homeless, racialized groups), etc.

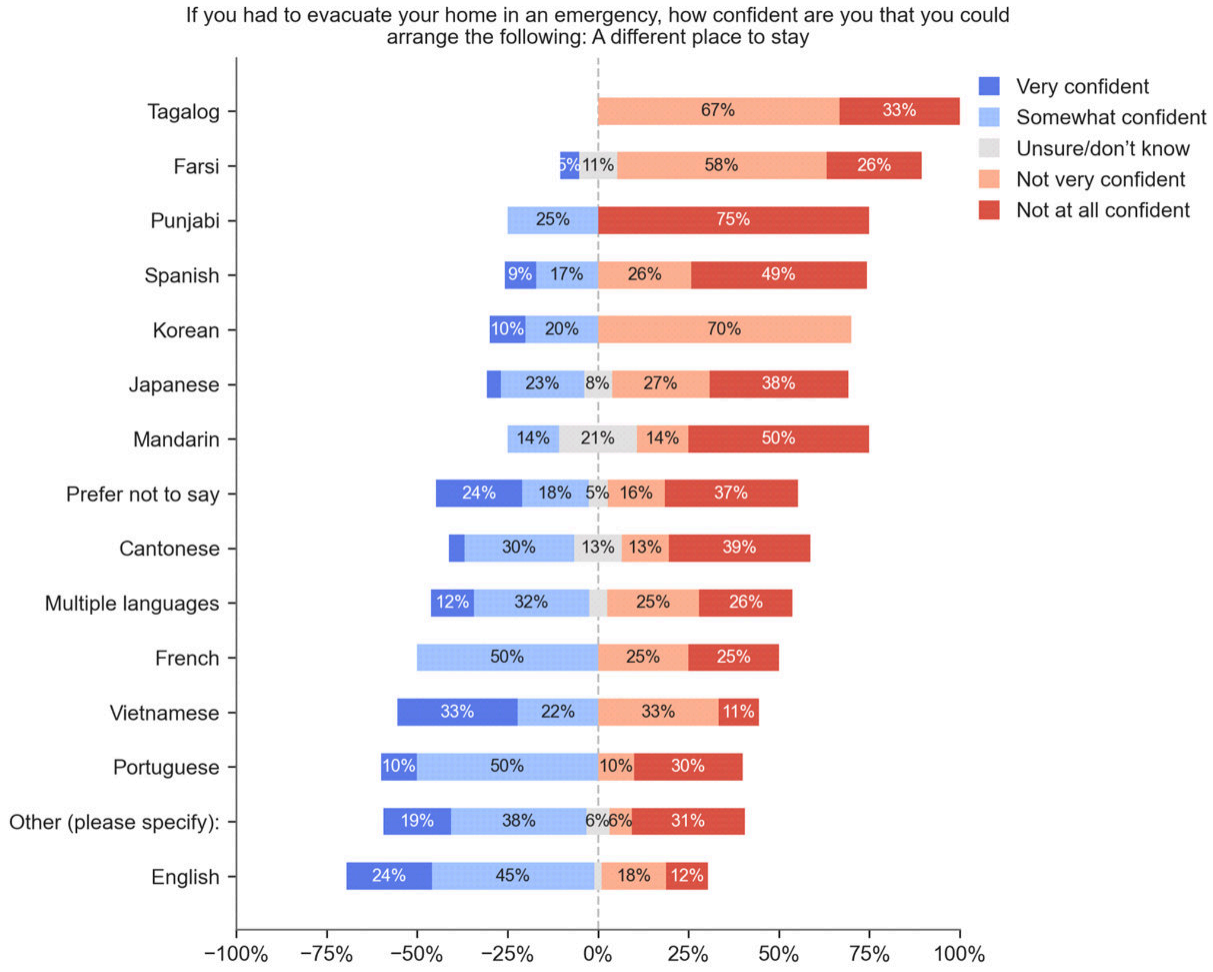
Figure B25: Emergency-related impacts of most concern for men-identified respondents



Note: "Other" includes responses indicating impacts on infrastructure (e.g., transportation), impacts on resources (e.g., food, water, medical care), impacts on public safety and community well-being (e.g., crimes, social isolation, substance use), impacts on housing (e.g., loss of property value, loss of home), impacts on health (e.g. access to medications, death), etc.

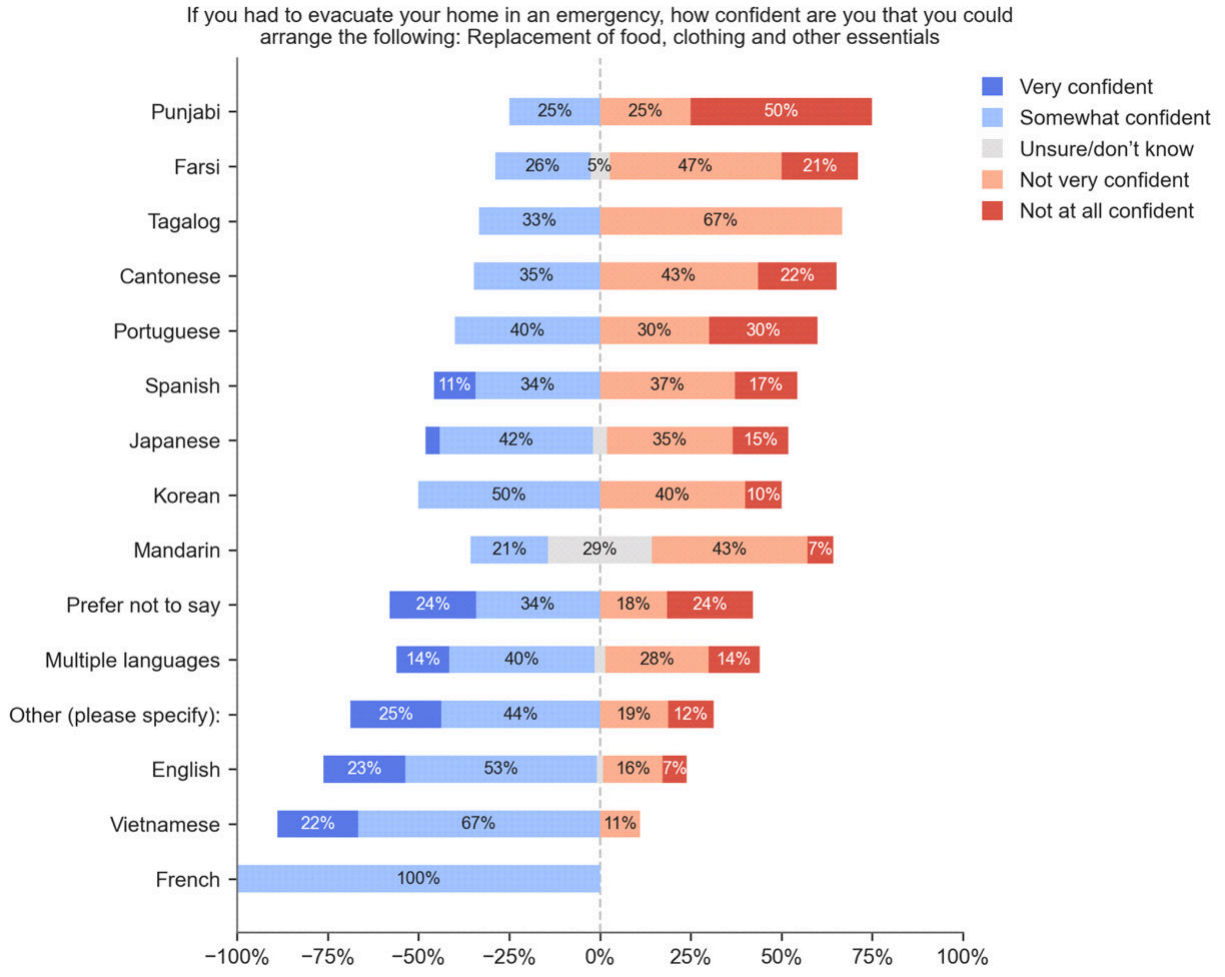
By language group

Figure B26: Level of confidence in arranging a different place to stay by language group



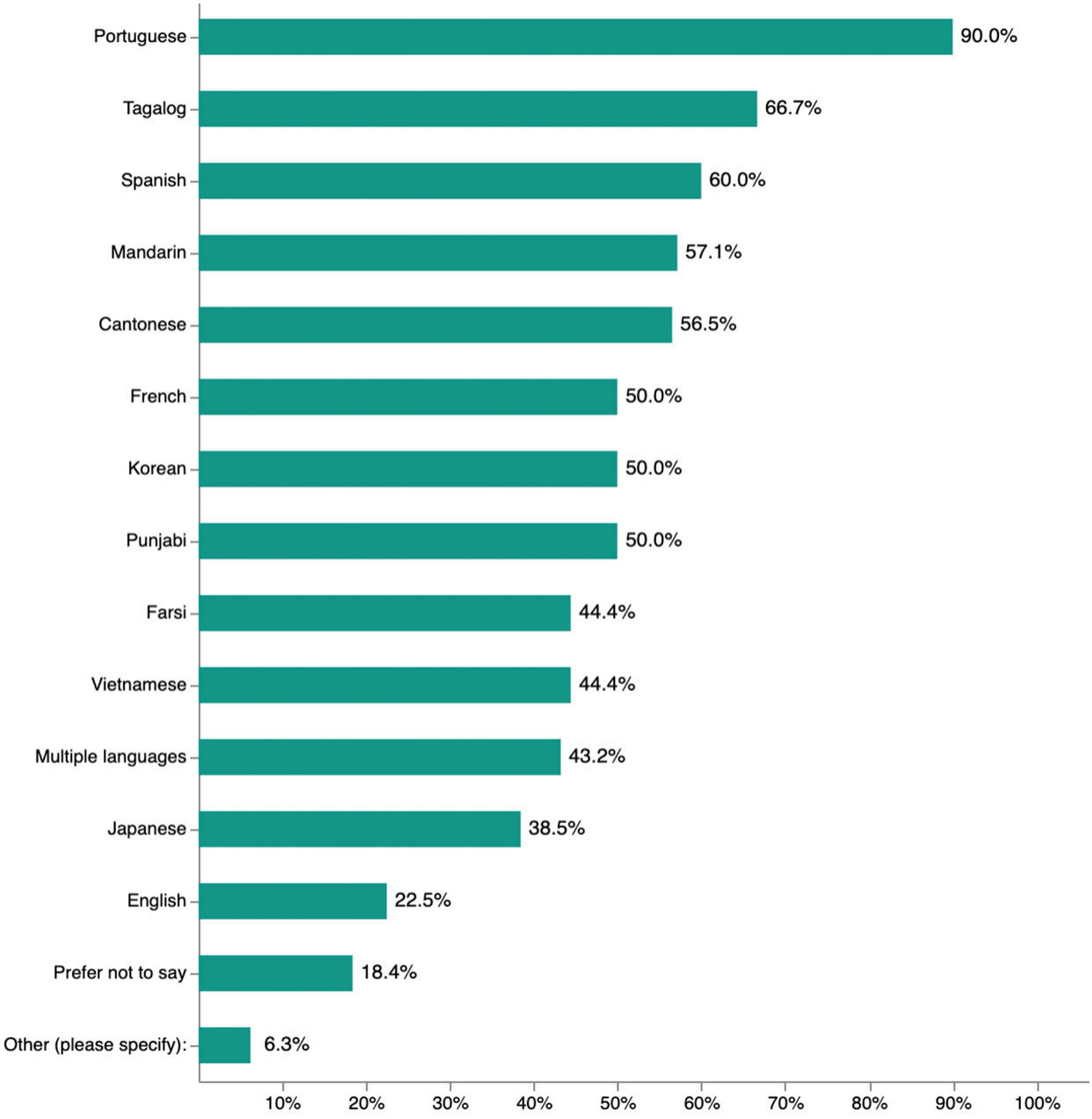
Note: The Tagalog, French, Punjabi, Vietnamese, Korean, Portuguese, Mandarin, Other, Farsi, Cantonese, and Japanese groups have limited sample sizes (i.e. less than 30); "Multiple languages" includes responses indicating more than one language; "Other (please specify):" includes responses indicating Ukrainian, Russian, Bengali, Canadian, Dutch, German, Greek, Hebrew, Italian, Sindhi, and Swahili.

Figure B27: Level of confidence in the replacement of food, clothing and other essentials by language group



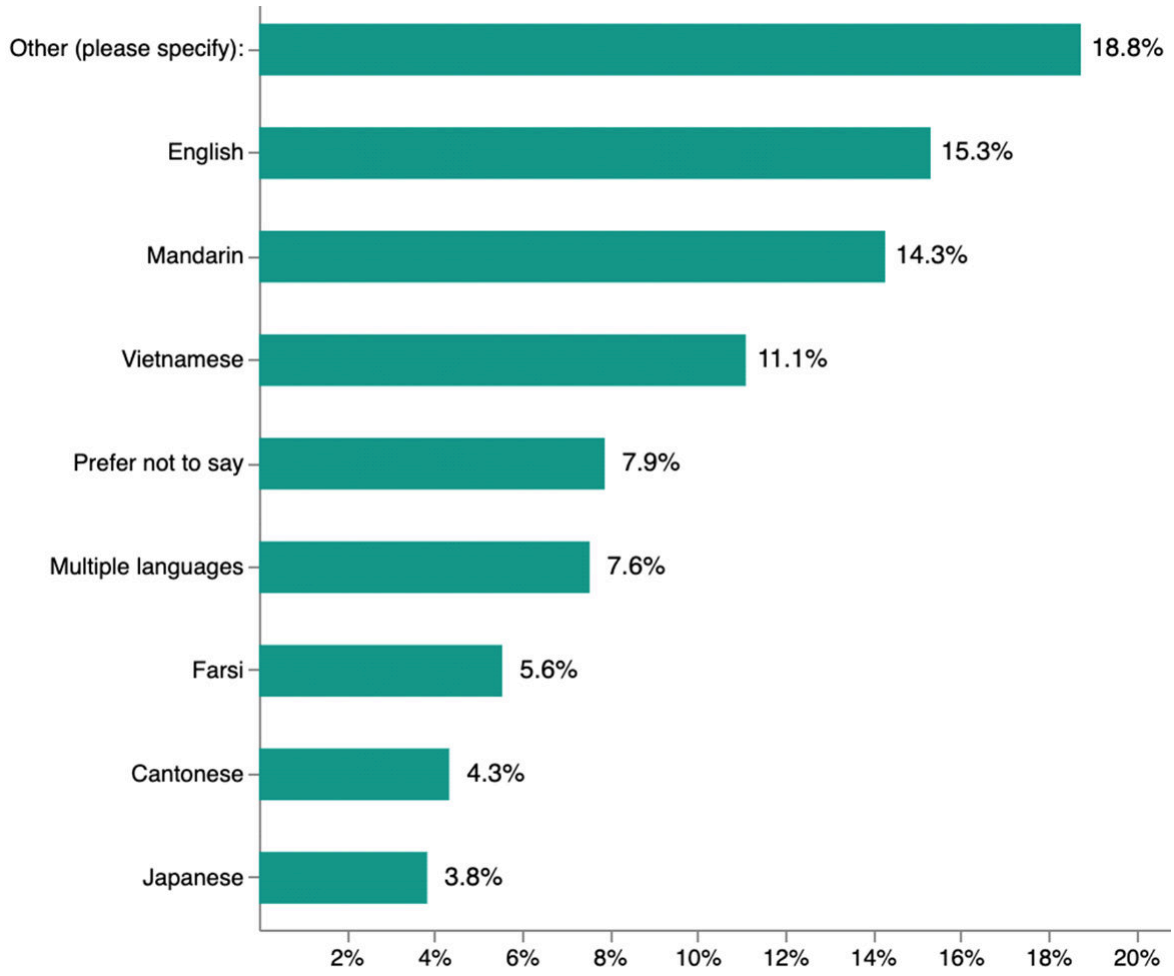
Note: The Tagalog, French, Punjabi, Vietnamese, Korean, Portuguese, Mandarin, Other, Farsi, Cantonese, and Japanese groups have limited sample sizes (i.e. less than 30); "Multiple languages" includes responses indicating more than one language; "Other (please specify):" includes responses indicating Ukrainian, Russian, Bengali, Canadian, Dutch, German, Greek, Hebrew, Italian, Sindhi, and Swahili.

Figure B28: Percentage of each language group reporting "Need more information" as a barrier to preparedness



Note: The percentages for the Tagalog, French, Punjabi, Vietnamese, Korean, Portuguese, Mandarin, Other, Farsi, Cantonese, and Japanese groups are based on limited sample sizes (i.e. less than 30); "Multiple languages" includes responses indicating more than one language; "Other (please specify):" includes response indicating Dutch.

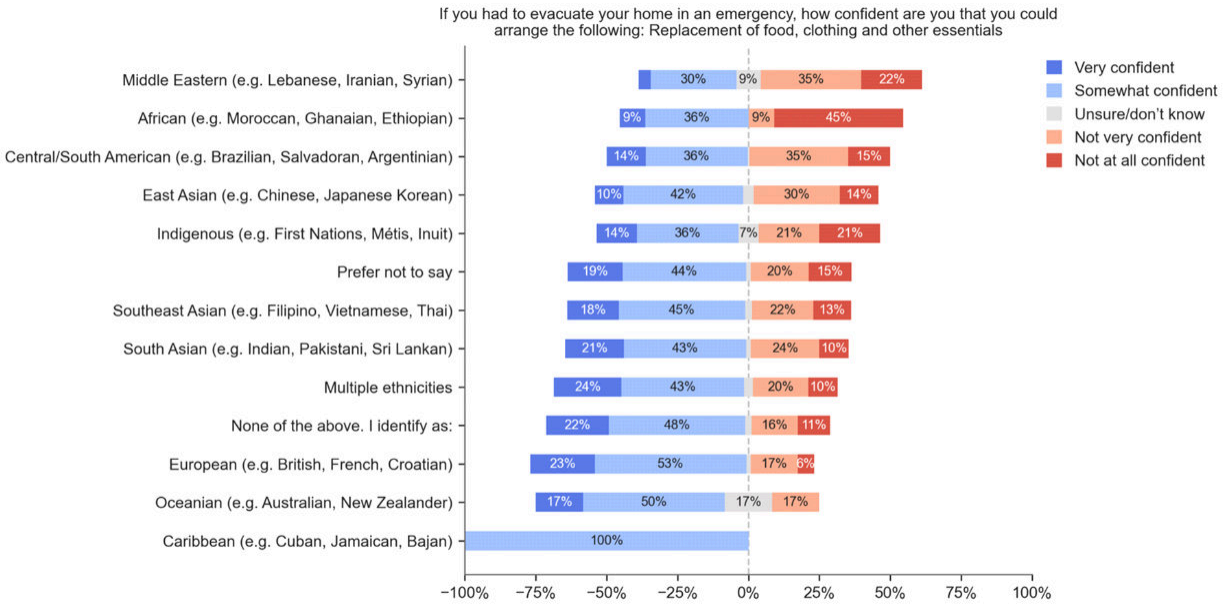
Figure B29: Percentage of each language group reporting "Nothing (no barrier), I feel prepared"



Note: The percentages for the Vietnamese, Mandarin, Other, Farsi, Cantonese, and Japanese groups are based on limited sample sizes (i.e. less than 30); "Multiple languages" includes responses indicating more than one language; "Other (please specify):" includes responses indicating Russian and Greek.

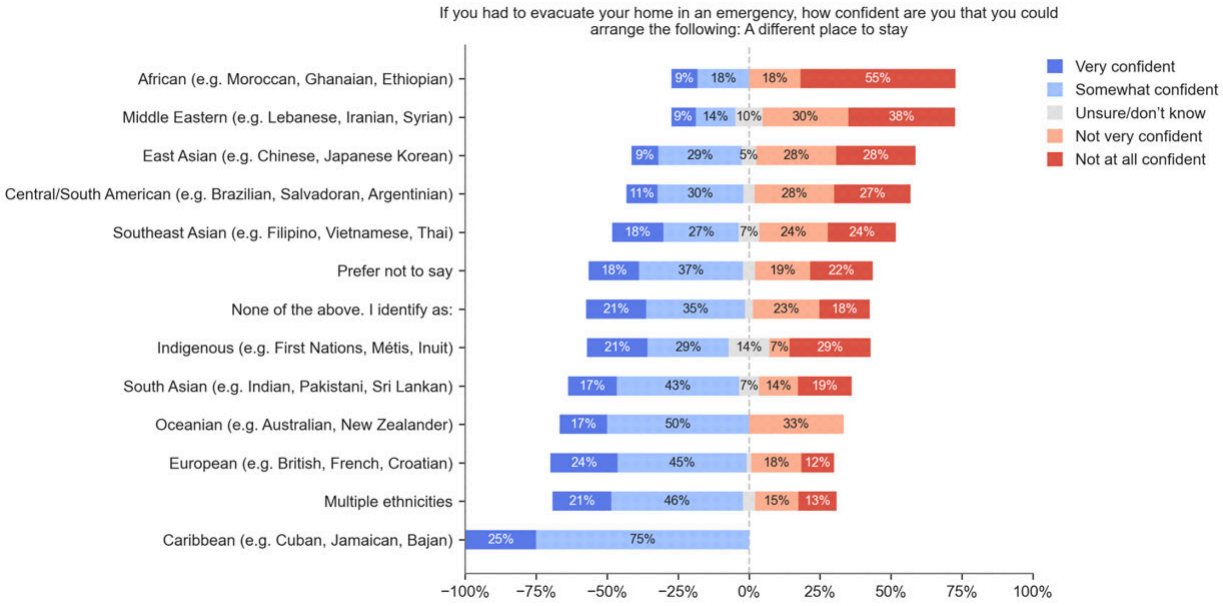
By ethnic origin

Figure B30: Level of confidence in the replacement of food, clothing and other essentials by ethnicity



Note: The Caribbean, Oceanian, African, and Indigenous groups have limited sample sizes (i.e. less than 30); "Multiple ethnicities" includes responses indicating more than one ethnicity; "None of the above. I identify as _____" includes responses indicating Canadian, North American, Latino/Hispanic, Mexican, Jewish, Iranian, Polish, Turkish, Afghan, Persian, Russian, Greek, and Gaelic.

Figure B31: Level of confidence in arranging a different place to stay by ethnicity

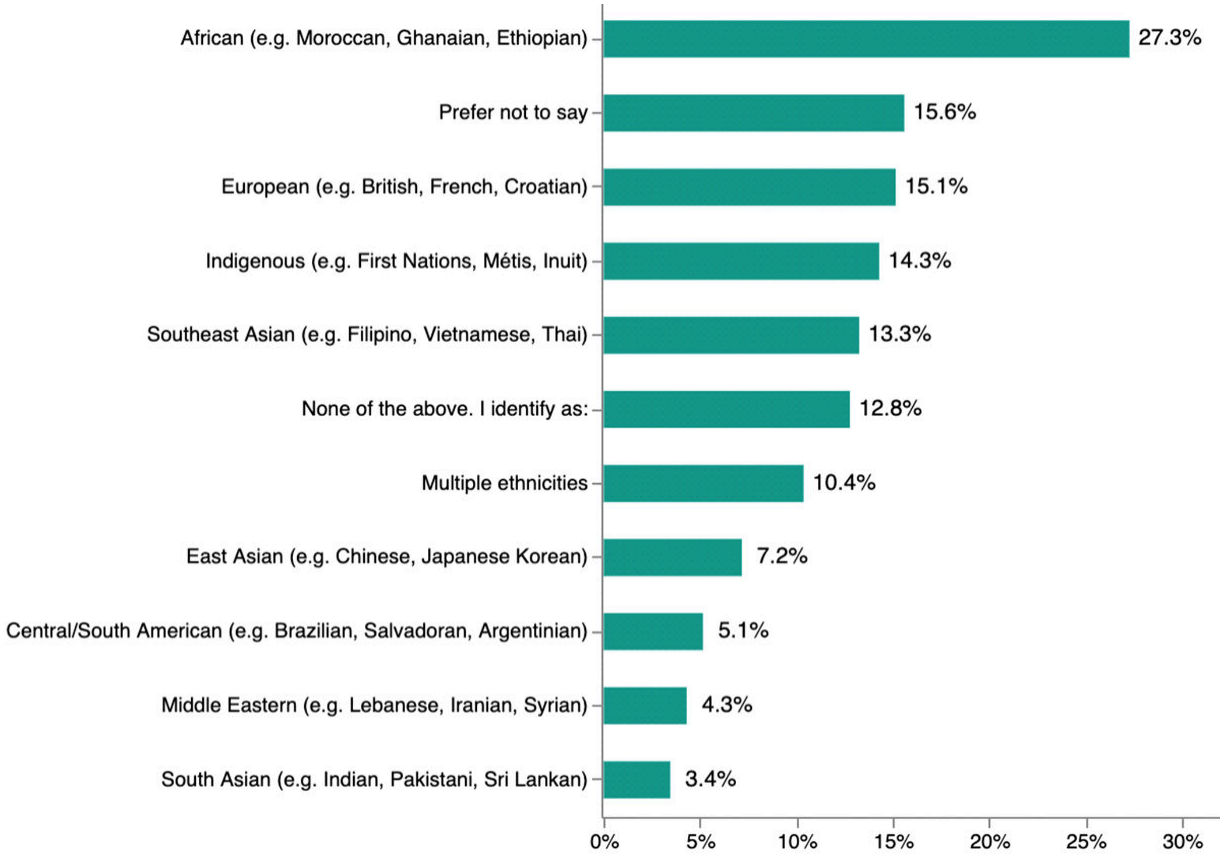


Note: The Caribbean, Oceanian, African, and Indigenous groups have limited sample sizes (i.e. less than 30); "Multiple ethnicities" includes responses indicating more than one ethnicity; "None of the above. I identify as _____" includes responses indicating Canadian, North American, Latino/Hispanic, Mexican, Jewish, Iranian, Polish, Turkish, Afghan, Persian, Russian, Greek, and Gaelic.

Figure B32: Percentage of each ethnic group reporting "Need more information" as a barrier to preparedness

Note: The percentages for the Caribbean, African, and Indigenous groups are based on limited sample sizes (i.e. less than 30); "Multiple ethnicities" includes responses indicating more than one ethnicity; "None of the above. I identify as _____" includes responses indicating Canadian, North American, Latino/Hispanic, Mexican, Iranian, Turkish, Persian, and Russian.

Figure B33: Percentage of each ethnic group reporting "Nothing (no barrier), I feel prepared"

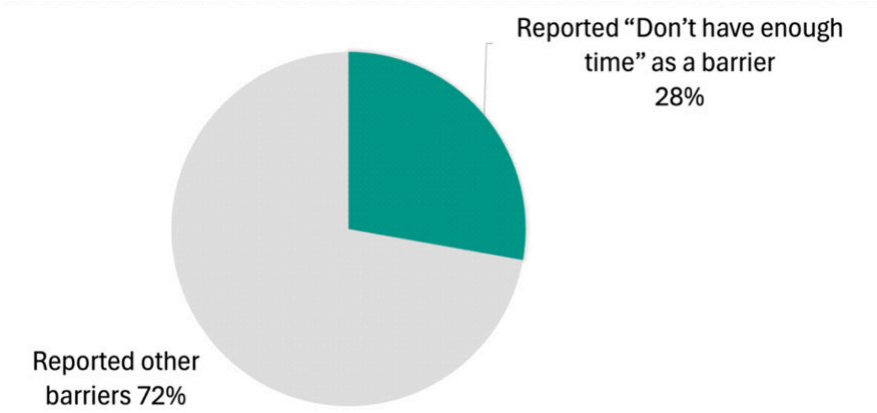


Note: The percentages for the African and Indigenous groups are based on limited sample sizes (i.e. less than 30); "Multiple ethnicities" includes responses indicating more than one ethnicity; "None of the above. I identify as _____" includes responses indicating Canadian, North American, Latino/Hispanic, Mexican, Jewish, Iranian, and Gaelic.

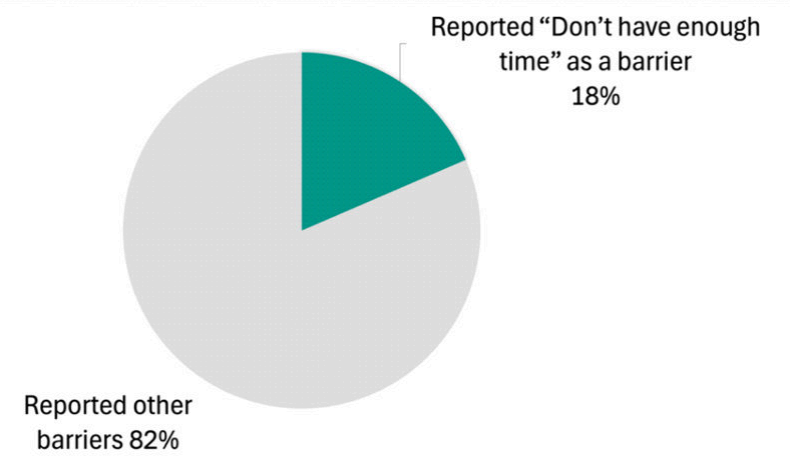
By the presence of children in households

Figure B34: Reporting of "Don't have enough time" as a barrier to preparedness, by respondents with children in household vs. without children in household

Respondents with children under 18 in household



Respondents with children over 18 in household



Respondents without children in household

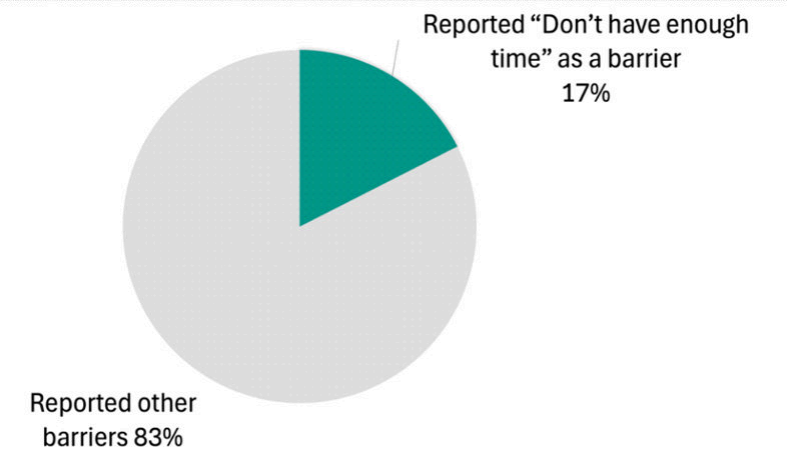
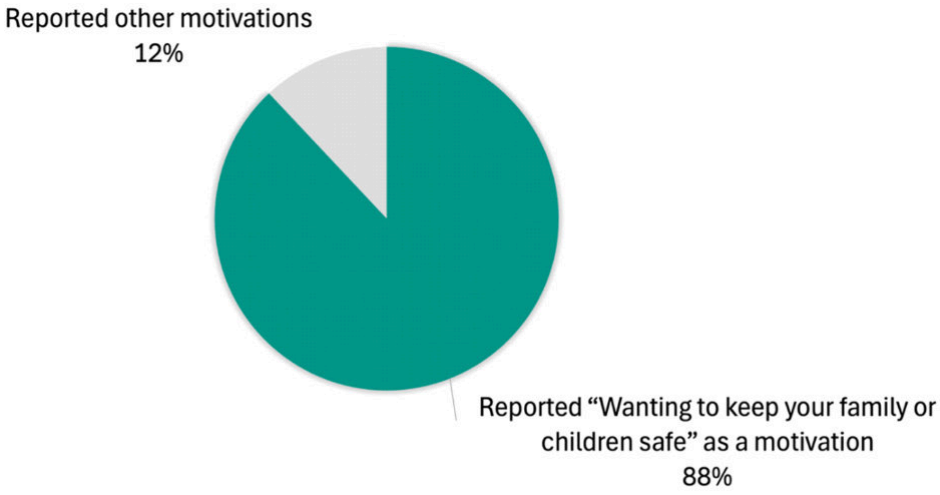
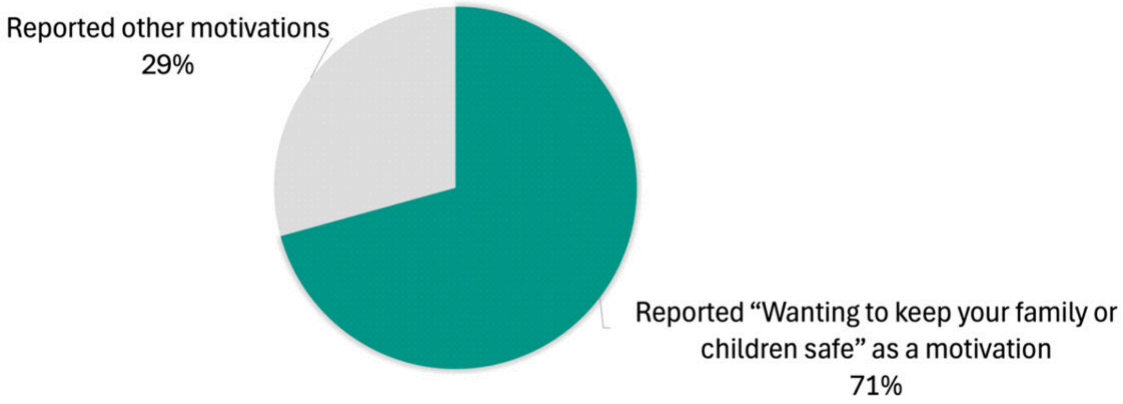


Figure B35: Reporting of "Wanting to keep your family or children safe" as a motivation for preparedness, by respondents with children in household vs. without children in household

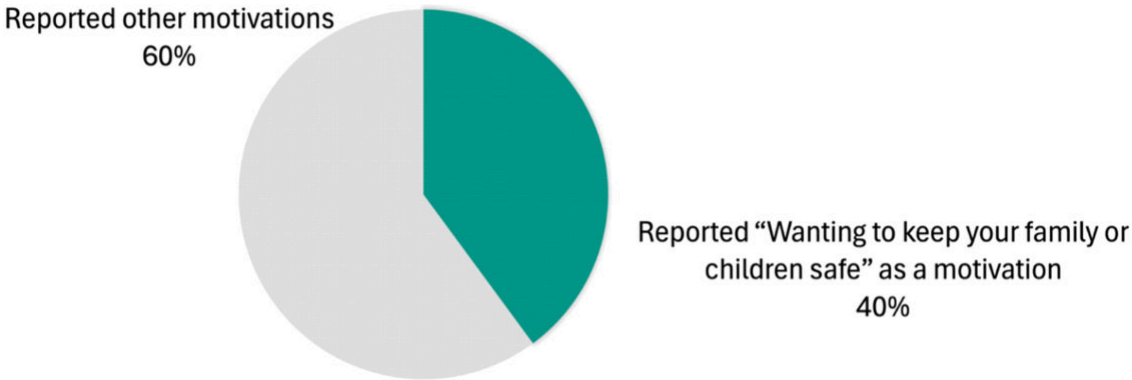
Respondents with children under 18 in household



Respondents with children over 18 in household



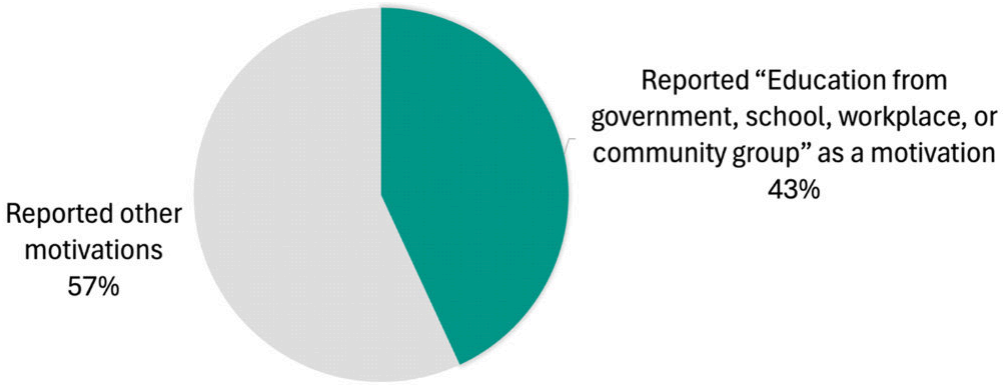
Respondents without children in households



By group/organization connection

Figure B36: Reporting of "Education from government, school, workplace, or community group" as a motivation for preparedness, by respondents with group/organization connection vs. without group/ organization connection

Respondents with group / organization connection



Respondents without group / organization connection

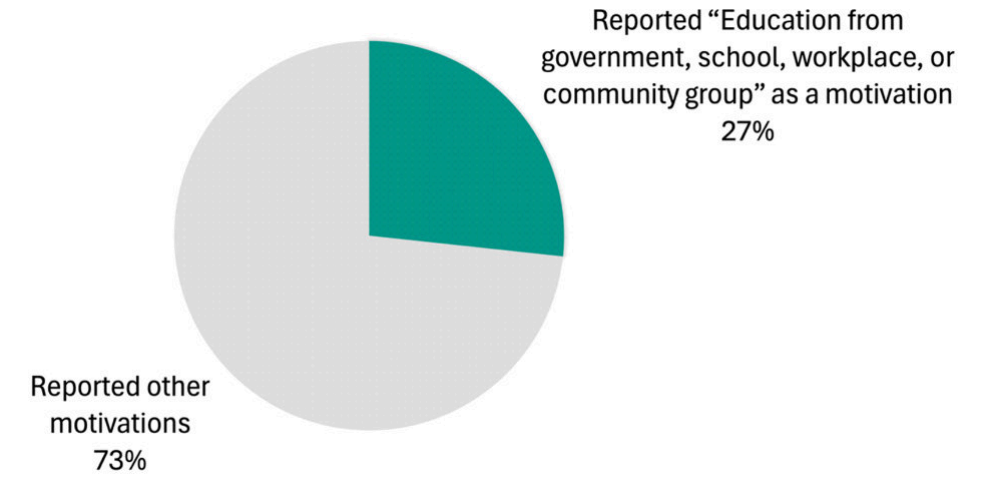
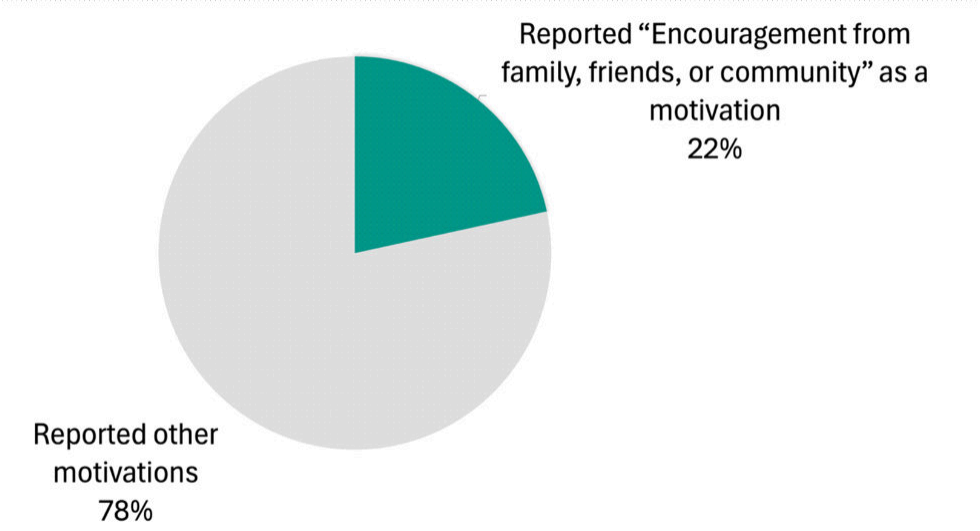
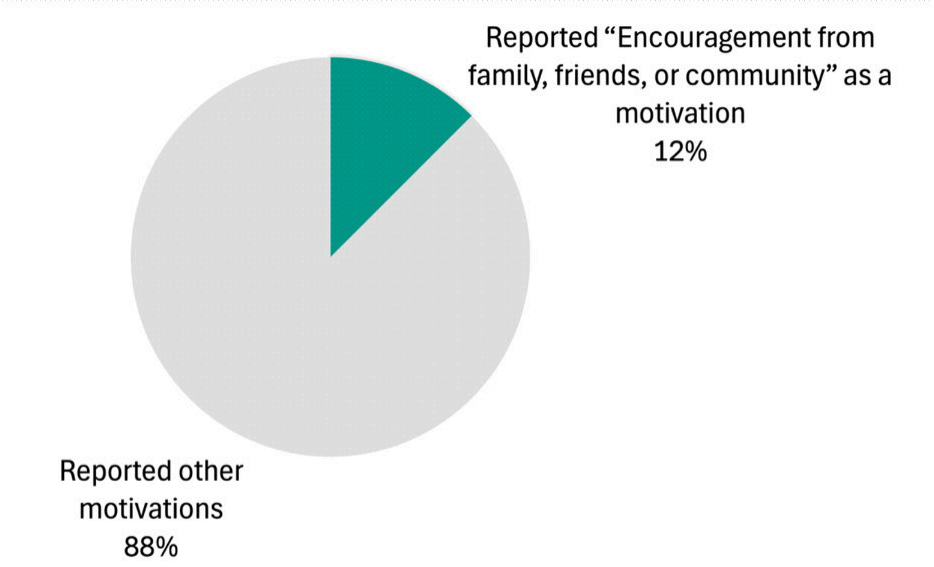


Figure B37: Reporting of "Encouragement from family, friends, or community" as a motivation for preparedness, by respondents with group/organization connection vs. without group/organization connection

Respondents with group / organization connection



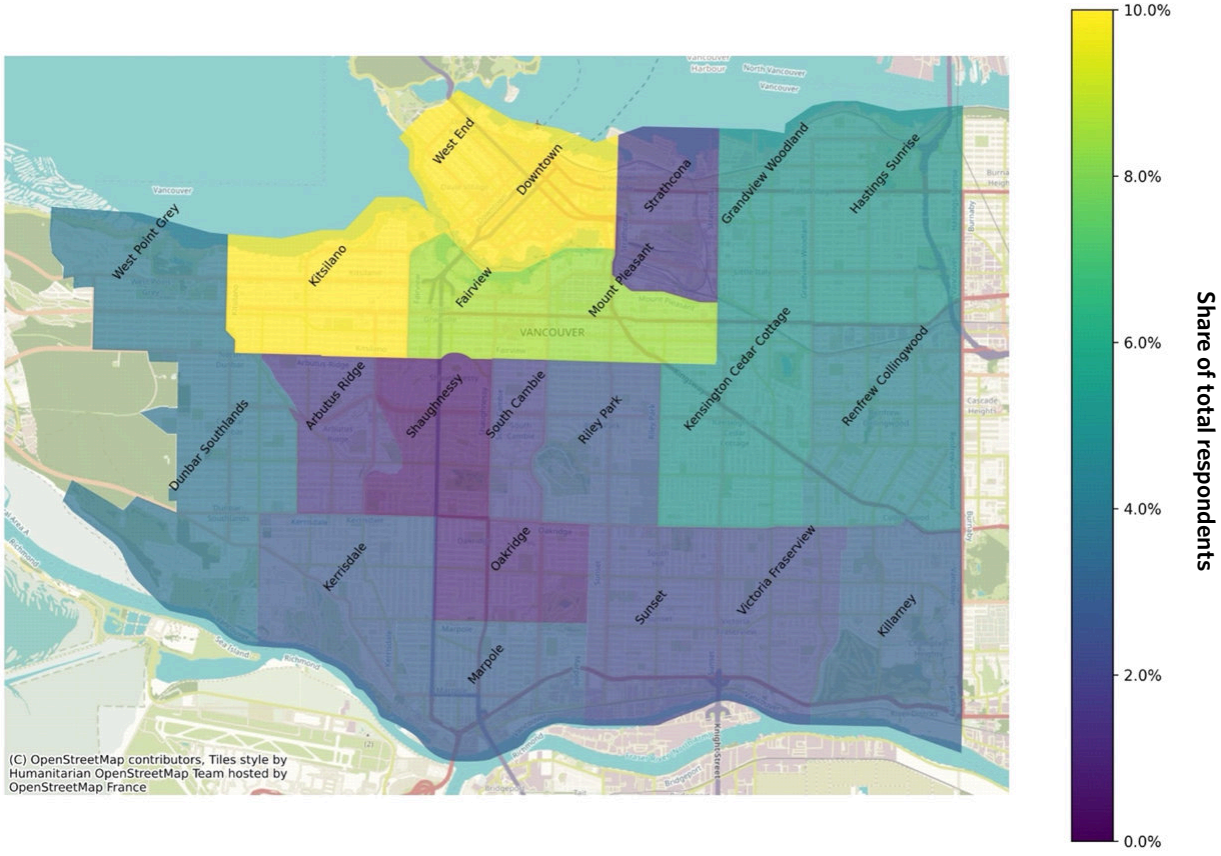
Respondents without group / organization connection



Annex C: Characteristics of Module 1 Survey Respondents

The figures in this annex illustrate the raw characteristics of the survey respondents. (See Annex D for a statistical analysis of the representativeness of each demographic group).

Figure C1: Neighbourhood Distribution of Respondents



Note: The survey also collected 358 responses from individuals living in Metro Vancouver (outside the City of Vancouver) and 60 from those outside Metro Vancouver. These responses are outside the scope of this survey, which focuses specifically on the City of Vancouver.

Figure C2: Distribution of respondents by age group

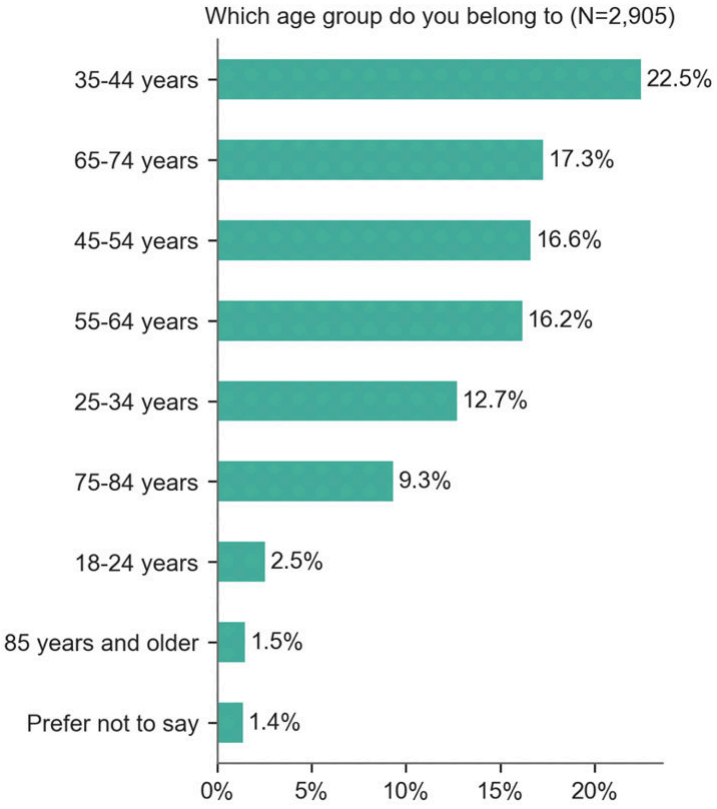
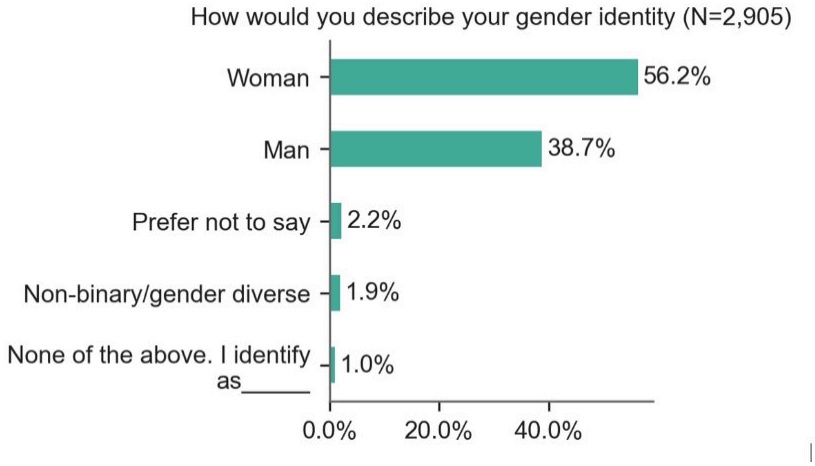
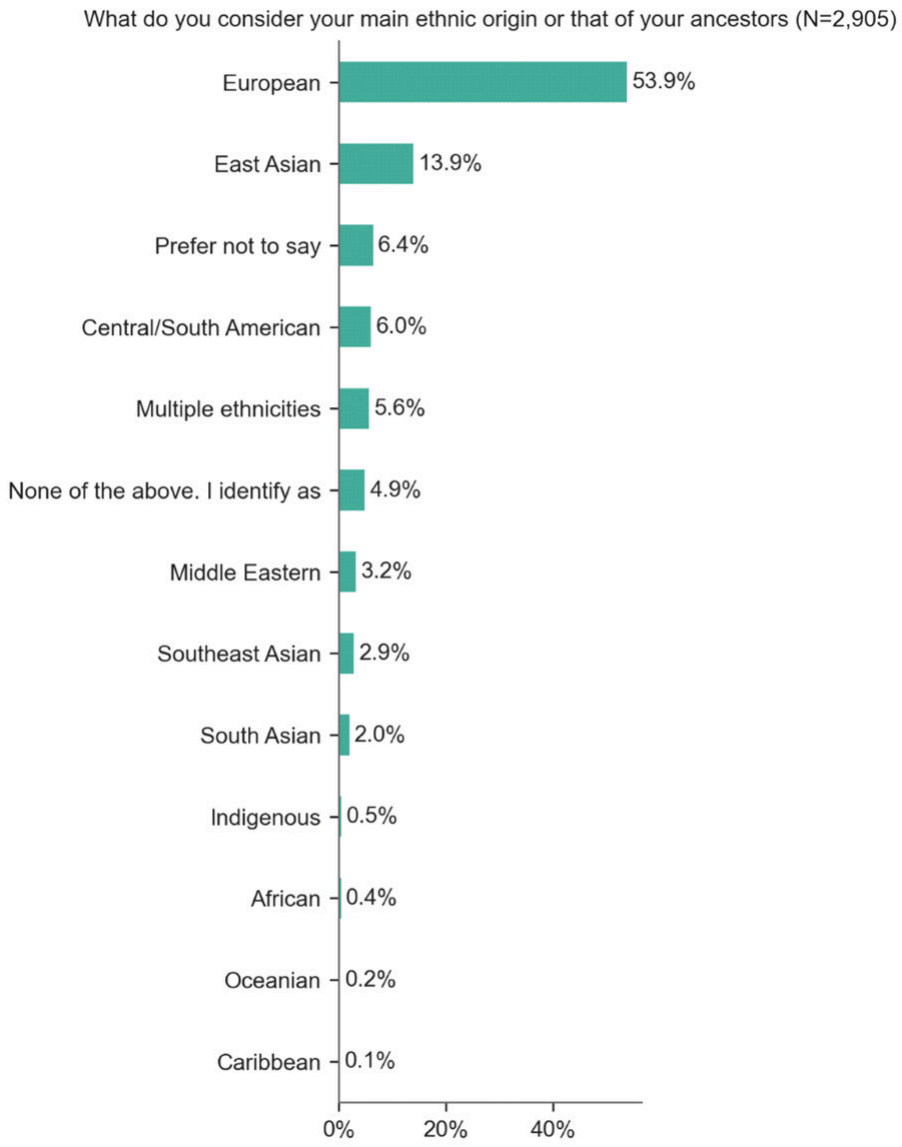


Figure C3: Distribution of respondents by gender



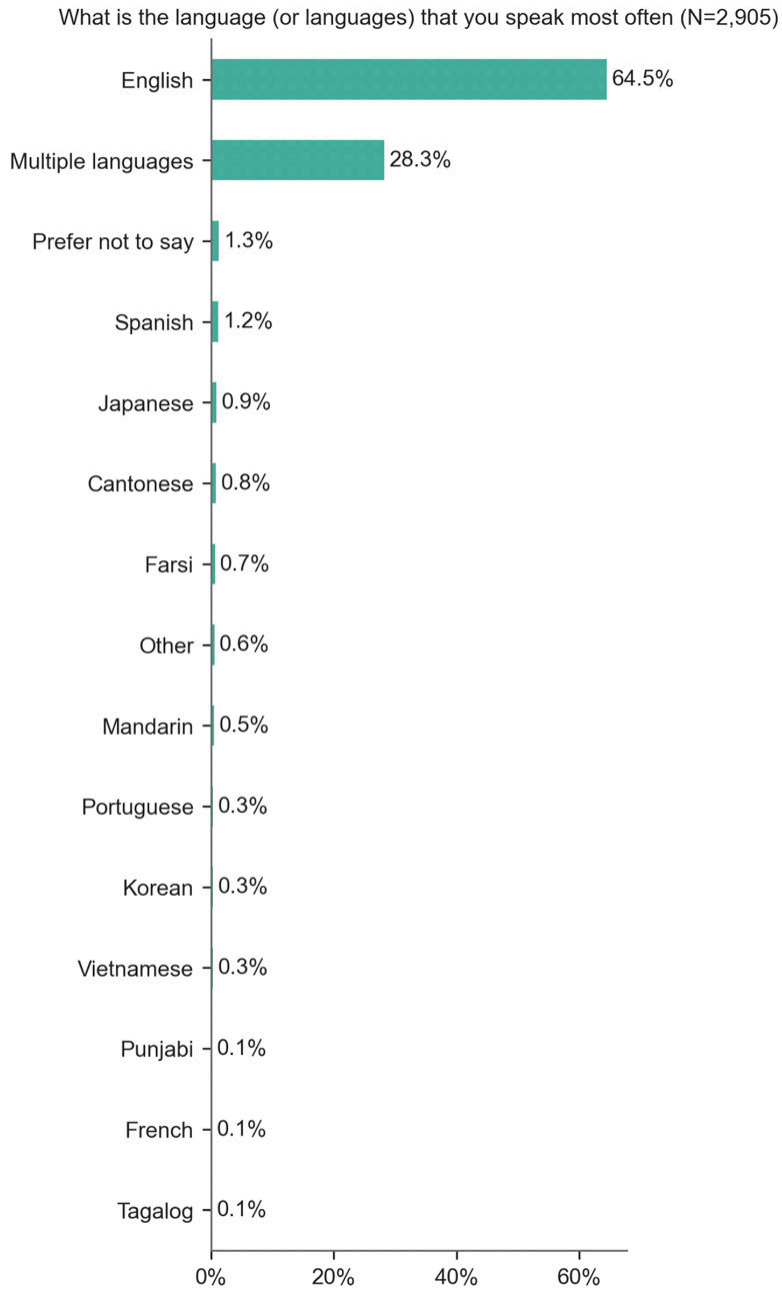
Note: "None of the above. I identify as _____" includes responses indicating transgender, gay male, two-spirit, etc.

Figure C4: Distribution of respondents by ethnic origin



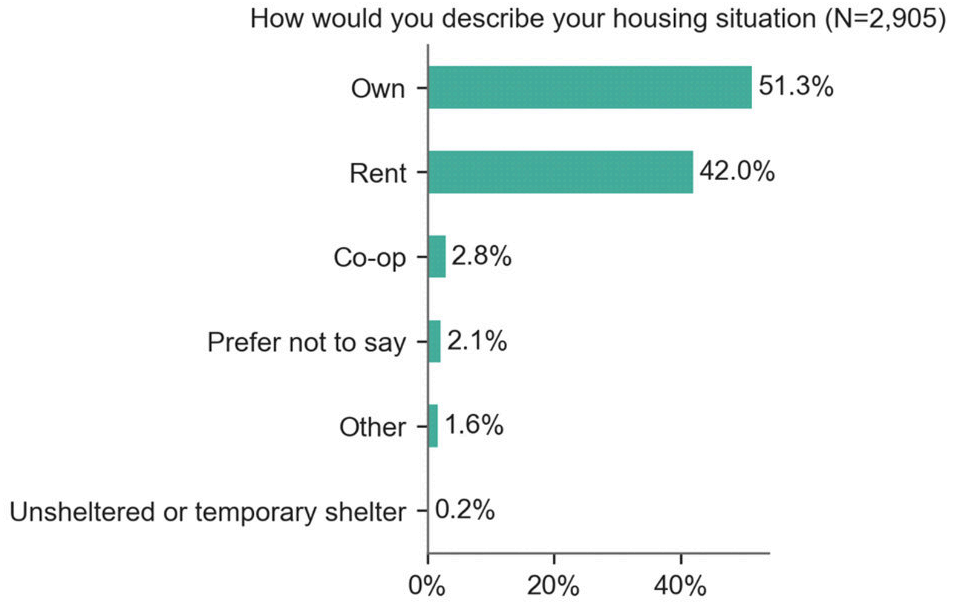
Note: "Multiple ethnicities" includes responses indicating more than one ethnicity; "None of the above. I identify as _____" includes responses indicating Canadian, North American, Latino/Hispanic, Mexican, Jewish, Iranian, Polish, Turkish, Afghan, Persian, Russian, Greek, and Gaelic.

Figure C5: Distribution of respondents by language group



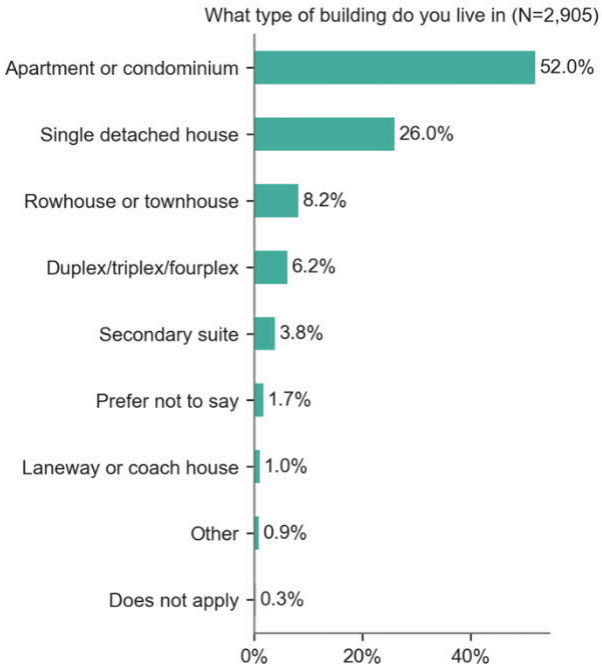
Note: "Multiple languages" includes responses indicating more than one language; "Other" includes responses indicating Ukrainian, Russian, Bengali, Canadian, Dutch, German, Greek, Hebrew, Italian, Sindhi, and Swahili.

Figure C6: Distribution of respondents by housing tenure



Note: "Other" includes responses indicating living with family members, leasehold, care home, etc.

Figure C7: Distribution of respondents by building type



Note: "Other" includes responses indicating basement, university housing, bunker, high-rise building, etc.

Figure C8: Distribution of respondents by the presence of children in households

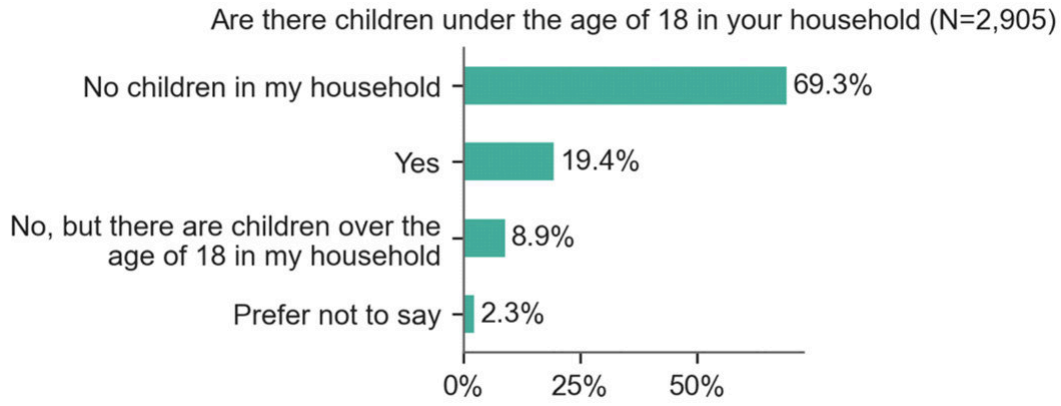


Figure C9: Distribution of respondents by income level

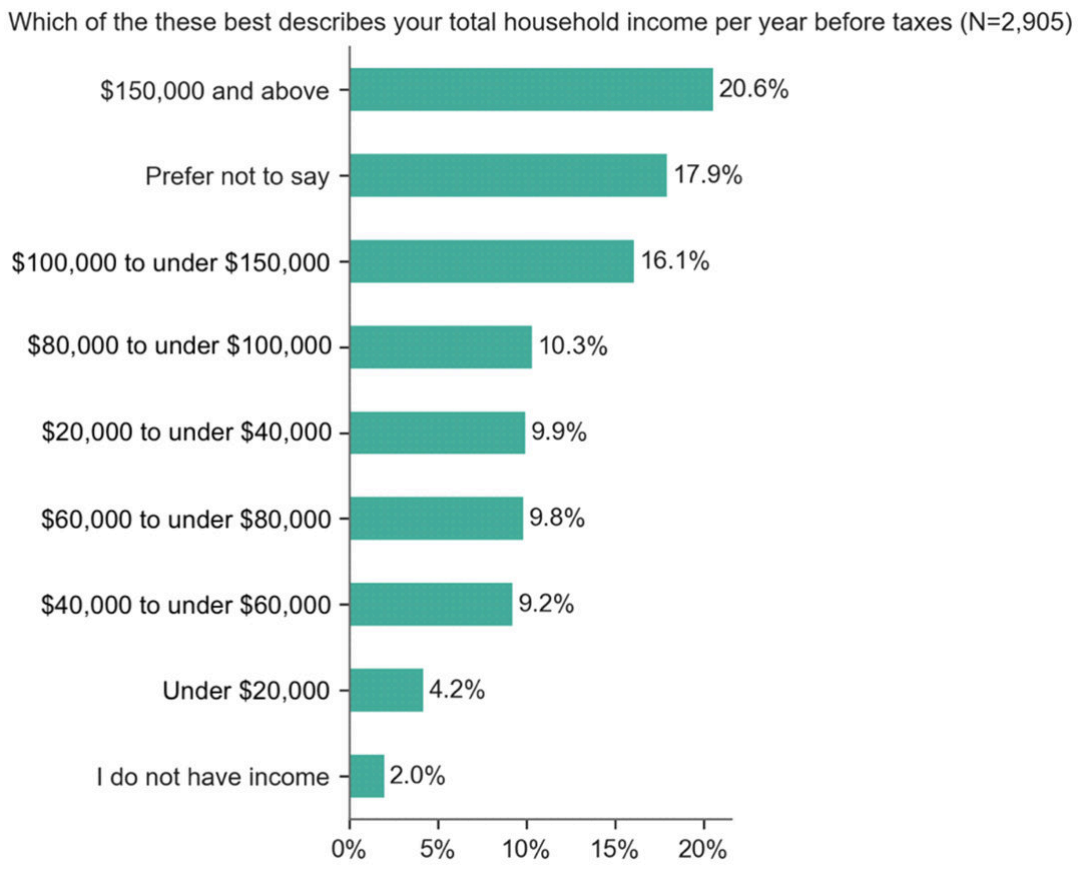
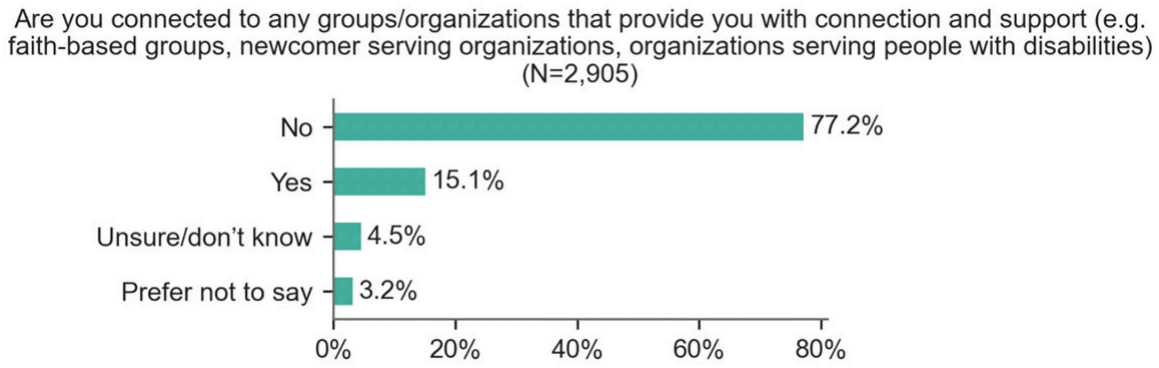


Figure C10: Respondents with group/organization connection and support



Note: "Yes" includes responses indicating church, neighbourhood groups, community centres, friends, sports groups, cultural groups, etc.

Annex D: Statistical Assessment of Demographic Group Representation for Module 1 Survey

This annex presents the results of chi-squared tests conducted to assess whether the survey sample accurately reflects the demographic profiles of the general population, based on 2016 Census data. These tests were performed across various demographic features, including ethnic origin, language group, income level, neighbourhood, housing tenure, and presence of children in the household. The results should be interpreted as follows:

- **Total chi-square value**: A total chi-square value exceeding the critical value indicates a statistically significant difference between the demographic composition of the sample and that of the general population.
- **Coloured cells**: The coloured cells highlight the specific groups that contribute most substantially to that overall difference between the sample's demographic composition and the general population.
- **Difference from expected**: This value represents the difference between the observed sample frequencies in this survey and the expected frequencies calculated based on 2016 Census data. A negative difference indicates underrepresentation of that group in the survey sample, while a positive difference indicates overrepresentation.

Some response options in this survey lack direct equivalents in census data. For example, this survey collected responses such as "unsheltered or temporary shelter" and "co-op" for housing status, categories not available in the census. These responses without a census equivalent were categorized as "other" in the chi-squared test. Furthermore, responses are sometimes counted differently in the census. For instance, Annex B presented "multiple ethnicities" as a single group, whereas census data count individuals reporting multiple ethnicities as belonging to each reported ethnicity. To ensure the most accurate assessment of representativeness, the counting method in this section adhered to census principles. Consequently, the counts for each group presented here may differ from the counts in Annex B.

Table D1: Chi-square results of sample representativeness by ethnic origin

Ethnic origin	Survey (count)	2016 Census (count)	Difference from expected (count)	Total Chi-square value
East and Southeast Asian origins	633	251,175	-381.3	**1187.232 ($p < 0.05$, critical value = 16.918)**
Other North American origins	74	77,505	-238.5	
South Asian origins	72	37,625	-79.8	
African origins	21	9,720	-18.2	
North American Aboriginal origins	55	17,335	-15.0	
Oceania origins	16	6,040	-8.4	
Caribbean origins	14	4,275	-3.3	
West Central Asian and Middle Eastern origins	123	19,110	45.5	
Latin, Central and South American origins	248	15,115	186.1	
European origins	1,719	297,695	512.9	
Total	**2,975**	**735,595**		

Note: "Other North American" refers to Acadian, American, Canadian, New Brunswicker, Newfoundlander, Nova Scotian, Ontarian and Québecois.

Table D2: Chi-square results of sample representativeness by language group

Language group	Survey (count)	2016 Census (count)	Difference from expected (count)	Total Chi-square value
Cantonese	22	60,385	-254.6	**1273.035 ($p < 0.05$, critical value = 21.026)**
Mandarin	14	30,080	-123.8	
Tagalog	3	9,565	-40.8	
Punjabi	4	8,125	-33.2	
English	1,874	413,605	-28.4	
Vietnamese	9	6,950	-22.9	
French	4	3,850	-13.6	
Korean	10	4,685	-11.5	
Farsi	18	4,435	-2.4	
Portuguese	10	2,320	-0.7	
Spanish	34	5,455	8.9	
Japanese	26	3,540	9.7	
Others	836	69,640	513.3	
Total	**2,864**	**622,635**		

Note: "Others" includes responses indicating multiple responses or languages other than the 12 most commonly spoken languages listed; survey respondents were asked "What is the language (or languages) that you speak most often? (Select all that apply)", while 2016 Census respondents were asked "What language does this person speak most often at home?". This discrepancy may contribute to the observed "overrepresentation" of respondents speaking multiple languages in this survey.

Table D3: Chi-square results of sample representativeness by income level

Income level	Survey (count)	2016 Census (count)	Difference from expected (count)	Total Chi-square value
Under $20,000	121	181,84	-667.4	**4398.047 ($p < 0.05$, critical value = 14.067)**
$20,000 to under $40,000	289	121,36	-238.1	
$40,000 to under $60,000	268	87,215	-111.0	
Without total income	57	17,745	-20.1	
$60,000 to under $80,000	285	54,270	48.6	
$80,000 to under $100,000	300	32,990	155.8	
$100,000 to under $150,000	467	31,570	328.2	
$150,000 and above	597	20,855	504.1	
Total	**2,384**	**547,850**		

Note: The respondents in this survey are aged 18 or older, whereas the census income question includes individuals aged 15 or older. This discrepancy in age criteria may have contributed to the observed underrepresentation of lower-income groups within this survey.

Table D4: Chi-square results of sample representativeness by neighbourhood

Neighbourhood	Survey (count)	2016 Census (count)	Difference from expected (count)	Total Chi-square value
Renfrew Collingwood	101	51,530	-93.0	**468.392 ($p < 0.05$, critical value = 32.670)**
Sunset	53	36,500	-84.3	
Kensington Cedar Cottage	115	49,325	-70.8	
Victoria Fraser	55	31,065	-61.9	
Killarney	70	29,325	-40.5	
Marpole	67	24,460	-25.2	
Riley Park	64	22,555	-21.0	
Oakridge	30	13,030	-19.1	
Arbutus Ridge	40	15,295	-17.6	
Shaughnessy	18	8,430	-13.7	
Hastings Sunrise	118	34,575	-12.4	
Strathcona	42	12,585	-5.4	
Dunbar Southlands	86	21,425	5.2	
Grandview Woodland	117	29,175	6.9	
Kerrisdale	65	13,975	12.2	
South Cambie	47	7,970	16.9	
Downtown	261	62,030	26.9	
West Point Grey	92	13,065	42.6	
Mount Pleasant	202	32,955	77.4	
Fairview	207	33,620	79.9	
Kitsilano	259	43,045	96.3	
West End	279	47,200	100.6	
Total	**2,388**	**633,135**		

Table D5: Chi-square results of sample representativeness by housing tenure

Housing tenure	Survey (count)	2016 Census (count)	Difference from expected (count)	Total Chi-square value
Tenant	1,220	150,750	-217.4	**69.978 ($p < 0.05$, critical value = 3.841)**
Owner	1,491	133,165	217.4	
Total	**2,711**	**283,915**		

Note: Census 2016 data regarding housing tenure is limited to tenant, owner, and band housing. Therefore, an assessment of the representativeness of individuals living in co-op housing or experiencing unsheltered homelessness was not included.

Table D6: Chi-square results of sample representativeness by presence of children

Presence of children	Survey (count)	2016 Census (count)	Difference from expected (count)	Total Chi-square value
With children	824	80,990	14.6	**0.367 ($p < 0.05$, critical value = 3.841)**
Without children	2,013	202,925	-14.6	
Total	**2,837**	**283,915**		