

Beat the Heat: Community Perspectives Around Extreme Heat in Spokane, WA, Post-2021

Northwest Heat Dome

Jason J. Lau

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Tania Busch Isaksen

Faisal Malik

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Jason J. Lau

University of Washington

**Abstract**

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Jason J. Lau

Chair of the Supervisory Committee:

Tania Busch Isaksen

Department of Environmental & Occupational Health Sciences

Extreme heat events are the leading weather-related causes of death in the United States. Despite heat familiarity in eastern Washington, at least 19 heat-related deaths occurred in Spokane County during the 2021 “heat dome” in the Northwest. This study aimed to (1) examine the level of concern and impact of heat among heat-vulnerable groups, and (2) examine the access and barriers to utilizing home and public cooling. Spokane County resident perspectives were collected through a survey from July to November 2022 by recruiting through social media and community-based strategies. Descriptive statistics and ordinal logistic regression modeling was used to characterize perceptions of heat, access to home cooling, or interest in public cooling for vulnerable populations. Survey demographics were comparable to the study location’s US Census with 22.8% 65+ years old, 83.1% non-Hispanic White, 30.2% with an elderly at home, 29.6% with children at home, 40.9% disability or chronic illness at home, and 26.8% renter. Nearly half of respondents perceived a mild to no-threat of heat to personal well-being.

Households with disability/medical illness, history of seeking medical attention due to heat, homes without AC, and renters had significantly greater concern of heat threat and were more interested in utilizing public cooling centers. Access to home AC (84.4%) was high and preference to stay at home during extreme heat events. Even among those without AC, 66.9% preferred to stay home on very hot days and 44.4% would not consider using a public cooling center. Accessibility, entertainment, infection risk, and personal safety were among a wide range of barriers to utilizing public cooling opportunities. These results highlight that effective communication and intervention strategies must be tailored to the needs and perceptions of at-risk groups. Strong preferences for individuals to stay home and barriers including accessibility, social entertainment, and safety concerns are obstacles for utilization of public cooling spaces. Enhancing community resilience to extreme heat requires multimodal approaches that engage local leadership and reflect the unique context of at-risk populations.

## Introduction

Climate change poses a significant public health threat to communities worldwide. Extreme heat events are predicted to occur more frequently due to global warming.<sup>1</sup> In the U.S., such events are the leading cause of weather-related fatalities.<sup>2</sup>

The 2021 “heat dome” event severely affected the Northwest<sup>3</sup> particularly cities like Seattle, WA and Portland, OR which reached temperatures of 108°F and 116°F respectively, and persisted at these high temperatures for three consecutive days.<sup>4</sup> This unprecedented heat wave resulted in over 100 heat-related deaths in Washington State alone,<sup>5</sup> alongside significant increases in emergency department visits and unplanned hospitalizations.<sup>6</sup> Temperatures in Spokane, WA reached a record 109°F, where there were 19 documented health-related deaths.<sup>7</sup> This event highlighted the need to identify populations most at risk to extreme heat events in eastern Washington and to evaluate preparedness of communities for future occurrences.

Extreme heat does not affect everyone equally. Individual factors including chronic medical conditions,<sup>8</sup> disability,<sup>9</sup> age (particularly the elderly<sup>10-12</sup> and children<sup>13,14</sup>) are associated with increased susceptibility to adverse heat-related health outcomes. Recent studies have expanded our understanding, indicating that individuals as young as 45 years of age are also at heightened risk for negative impacts of extreme heat.<sup>15</sup> Additionally, socioeconomic variables such as income and race/ethnicity are indirectly related to heat-associated mortality.<sup>9</sup> These relationships may be mediated by factors including limited access to cooling, poorer overall physical health, residency in areas with less vegetative shade, institutional racism, and disparities in of educational awareness about heat risks.<sup>9,16,17</sup> Given the complex interplay of vulnerabilities, developing heat-resilient communities requires an approach that ensures all community members have the necessary support and infrastructure to withstand future extreme heat events.

Heat-related illness and mortality are often preventable by taking protective actions.<sup>18</sup> Utilizing home air conditioning (AC), visiting other air-conditioned places, and increasing social contact can improve health outcomes.<sup>19</sup> Understanding the access and limitations to home and public cooling is essential to addressing socioeconomic and infrastructural barriers that limit the use of cooling resources. Additionally, effective public communication through heat warning systems and emergency preparedness helps raise awareness and promote behaviors that mitigate heat-related risks.<sup>20,21</sup> Understanding community attitudes, beliefs, and fears regarding heat threat and cooling adaptations can inform messengers to tailor heat warnings that reach and engage vulnerable populations.<sup>22</sup>

We conducted a survey of perceptions of heat threat, access to resources, and factors that influence decision-making around adaptation behaviors of community members in Spokane County, WA. This survey aimed to explore the following: (1) examine the level of concern and impact of heat among heat-vulnerable groups, and (2) examine the access and barriers to utilizing home and public cooling.

## **Methods**

### Overview

This was a cross-sectional study that analyzed information collected from July 21 to November 30, 2022 via a one-time anonymous digital and paper survey of Spokane County's residents. The survey sought to elucidate perceptions of heat risk and the utilization of home and public cooling to address extreme heat events. The Gonzaga University's Institutional Review Board determined this study exempt.

### Survey Recruitment/Dissemination

The study population included Spokane County residents aged 18 years or older. Spokane County is located in eastern Washington and has a population of approximately 550,000 individuals.<sup>23</sup> A variety of recruitment strategies were employed to ensure broad community engagement through social media posts, distribution of brochures/flyers at community centers and grocery stores, and neighborhood canvassing of seniors, low-income populations, and racial minorities. Emails were distributed through local news and environmental organizations. Towards the end of recruitment period, two targeted social media advertisements were purchased to reach individuals aged 45 years or older. Incentives for survey completion included 98 five-dollar gift cards to local grocery stores and 8 tickets were raffled for multiple local sports games.

### Survey Instrument

The survey contained 52 multiple choice questions with free-text short answers for “other” response options. The survey was adapted from an instrument created by the Indiana University Environmental Resilience Institute.<sup>24</sup> In this study, we focused on 17 of the questions that covered three topic domains: (1) perceptions of heat threat and impact of heat on health, work, and community (2) access and barriers to utilizing home cooling, and (3) interest and barriers to utilizing public cooling opportunities. The survey was accessible online via Qualtrics and available in English, Spanish, Russian, and Dari.

## Data Analysis

Descriptive statistics were analyzed using R (version 2023.03.1). As all questions could be skipped, percentages were calculated by the responses per selected option divided by the total respondents that answered the given question. Several responses were regrouped; for example, perceived threat levels were collapsed into mild-to-no threat (no threat, very mild threat, and mild threat) and moderate-severe threat (moderate threat and severe threat) to simplify the descriptive reporting and left ungrouped for the regression analysis.

Vulnerability factors to heat risk were chosen a priori from literature review and included household presence of elderly, children, disability/chronic illness, respondent's age, access to home cooling,<sup>8</sup> history of seeking medical attention related to heat illness, home ownership and home location. Location was regrouped into city council district 1, 2, 3, or outside the city. Age, which was collected with response options for every decade starting at 18, was regrouped into 18-44 years old, 45-64 years, and 65+ years.

Multivariate ordinal regression was used to characterize the association between vulnerability factors and heat perceptions, as well as access to home cooling and interest in public cooling centers. We tested the proportional odds assumption using a graphical method.<sup>25</sup> We report significant vulnerability factors at p-value <0.05 and adjust for multiple comparisons using the Benjamini-Hochberg procedure.<sup>26</sup>

A qualitative content analysis<sup>27</sup> was conducted on “other” or “please explain” free-text responses when options were selected more than 10% of the time. Two research team members [JL, KT] used an inductive approach to develop a codebook and label all free-text responses with a consensus-based discussion. Percentages of labels were calculated based on the total number of

free-text responses for each question. Labels for free-text responses were summed together in the total counts when they matched provided options.

## **Results**

### Demographic and Vulnerability Factors

Of the 1,799 survey respondents, 1,477 participants were >18 years old and responded to at least one or more heat related questions (Figure 1). Table 1 presents the demographic characteristics of the data. Age 65+ years (22.8%) was similar to Spokane County's US Census (22.2%).<sup>23</sup> Race/ethnicity with White (83.1% vs 82.6%), Asian (2.1% vs 2.5%), Black (1.5% vs 2.2%), Native American (1.8% vs 1.9%) and Native Hawaiian/Pacific Islander (0.2% vs 0.7%) were similarly distributed in the survey compared to the county US census respectively. Hispanic/Latino (2.1% vs 6.9%) had lower representation in this study compared to the county US Census. There was good representation of households with elderly (30.2%), children (29.6%) and persons with a disability or chronic medical illness (40.9%). Only 2.7% of households had at least one person without health insurance. Home ownership in this study was similar to the county US Census with 68.6% owning their home, 26.8% renters, 1.8% staying with friends, 0.7% homeless, and 2.2% other. Income distribution was slightly higher in our study compared to the county US Census with below \$25k yearly household income (15.6% vs 17.5%) and above \$75k (46.9% vs 41.5%).

### Perceived Heat threat and Impact

Our findings indicate a disparity in how respondents perceive the impact of heat on themselves compared to the broader community. The majority of respondents rated heat as a

moderate-severe threat to the health of Spokane's community (84.3% 1195/1417) and Spokane's economy (71.7%). Fewer people rated heat as a moderate-severe threat to their personal health (53.1%) and to their personal economy (39.7%).

We assessed the health and economic impacts of heat on respondents. Discomfort (79.6% 557/1351), heat exhaustion (41.2%), and fainting/dizzy (27.4%) were the most common symptoms experienced from prior heat exposure. Heat stroke, a serious symptom, was self-reported for 6.4% of respondents. Lack of sleep (59.2% 325/549), negative health (50.1%), transportation (20.9%) were the most common impacts on ability to work. We found that 8.5% (117/1321) of all household members had been hospitalized or visited the emergency room or urgent care because of a heat-related health issue.

To further describe any effect modification between household level characteristics and perception of heat risk, we conducted an ordinal logistic regression to understand if the heat threat level to personal health differs among vulnerability factors. We found statistically significant differences (adjusted p-value <0.05) in heat risk perception for respondents with: a household disability / chronic medical illness (odds ratio [OR] = 2.25, 95% confidence interval [CI] = 1.79-2.83), history of seeking medical attention due to heat (OR = 2.07, 95% CI = 1.37-3.11), homes without cooling/AC (OR = 1.78, 95% CI = 1.25-2.54), households who rented (OR = 1.56, 95% CI = 1.20-2.01), with respondents age 45-64 (OR = 1.40, 95% CI = 1.08-1.81), and respondents age >64 (OR = 1.92, 95%CI = 1.19-3.08). All vulnerability factors met our qualitative inspection of the proportional odds assumption, with the exception of the history of seeking medical attention that didn't have a comparison to the "no heat threat".

## Home Cooling

We observed widespread access to home cooling systems among respondents, highlighting the concerns for utility costs, repair expenses, and infrastructure inadequacies. The majority of respondents (90.0%, 1220/1355) indicated they had access to home cooling, of which 58.8% had central AC, 34.9% had window AC, and 4.6% had only an electric fan. Overall, 84.4% of all respondents had access to home AC. Among those with home cooling systems, 23.0% (307/1337) reported usage limitations including: cost of utilities (79.0%), cost of repairs (9.2%), and broken cooling (8.2%) as three most common reasons. We conducted a qualitative analysis on the 76 “other” responses. The most common category was adequacy of the home electrical grid (27% 20/73). One respondent wrote *“Like many houses in Spokane, the house is from 1905 and needs updated wiring in order to run AC effectively. It can only run one room at a time.”*

Looking at effect modification between household level characteristics and access to home cooling, no significant differences were observed in the ordinal regression modeling for raw or adjusted p-values. We did observe several trends. Renters were less likely to have access to AC (OR 1.16, 95% CI = 0.73-1.83). Households with disability/medical illness (OR 0.84, 95% CI 0.55-1.28), children (OR 0.70, 95% CI 0.43-1.14), respondents age 45-64 (OR 0.84, 95% CI 0.52-1.36), and respondents age >64 (OR 0.47, 95%CI 0.21-1.04) were more likely to have access to AC.

## Public Cooling

We observed significant preferences towards staying home versus seeking alternative cooling during extreme heat, emphasizing respondents’ reliance on home AC and their attitudes

towards cooling centers. When asked about leaving one's home on very hot days, 88.8% (1213/1366) of respondents indicated they prefer to "stay home" compared to going generally "somewhere else" to cool (10.4%). Asked more specifically, "if a public community cooling center...were available in your neighborhood this summer, would you consider using it?" 22.9% (310/1355) said yes, 19.5% said maybe, and the remainder 57.6% said no. In our qualitative analysis of the 264 short responses for "maybe", the most common label was "prefer home cooling" (31.6%) which aligns with the high access to home AC. One respondent wrote "*I would absolutely use it if we had any issues with our cooling system at home, but I don't anticipate any issues so we're more likely to stay home*".

We asked where people might go for cooling outside of one's home, which most people preferred indoor locations that provided entertainment and socialization: shopping center (41.1% 403/974), friend's house (37.3%), movie theater (37.0%), library (29.6%). Outdoor locations included city parks (26.2%), splash pads (22.8%), and public pools (21.2%) were still of interest. In our qualitative analysis of the 287 responses for "other", the most common categories are: lake/river (45.7%), food locations (cafe, bar, restaurant) (10.6%), work/school (9.6%), and private pool (8.5%). If people were to leave their homes for cooling, they expected to be able to go to places with friends and family.

Investigating the facilitators for public cooling centers, people were incentivized by food and entertainment: food (52.1% 642/1232), swimming (51.1%), free wifi (50.9%), movie screenings (45.0%), and music (40.0%). Familiarity and accessibility were two major barriers with the most common responses: "not in the neighborhood" (37.0% 439/1186), "not knowing anyone there" (29.1%), "more than a few blocks away" (21.7%), and "transportation was difficult" (21.3%). In the "other" reasons, one respondent wrote, "*As a disabled person, the*

*spaces can be more difficult for me to be in. Accessibility, privacy and spaces for pets are also important to me.”*

Infection risk, personal safety, and privacy concerns were themes identified from our qualitative analysis of 248 short responses for “other” barriers from using public cooling centers. Given the timing of this survey, many people expressed concerns about Covid and other health risks, with one quote, *“Covid and masking compliance impacts a lot of my decisions about public spaces I’ll enter.”* Personal safety included concerns around security and fear of sharing the space with people experiencing homelessness, *“I feel like it would be a lot of homeless people using it and I’m unsure if I’d be safe...”* Lastly, several individuals expressed concerns about crowds and privacy, with one quote, *“Depends on how close/far away it is and if there is some sense of privacy. I do not like to be disturbed so if I have no choice to go to one of these centers, I want to know that I can be there while feeling safe and in a private environment”*.

We conducted a subgroup analysis among the 135 respondents without home AC to understand if their perspectives differ in utilizing cooling opportunities compared to the overall respondents. We observed no change in the relative rank order for multiple choices. Despite not having home AC, 66.9% preferred to stay home instead go elsewhere. A friend’s house (52.4%), shopping center (43.8%), and library (41.9%) were the most common places people found respite outside their home. Asked specifically about utilizing a public community cooling center in their neighborhood, 32.3% said yes, 23.3% said maybe, and 44.4% said no. We observed a similar reluctance to leave one’s home and utilize a public cooling opportunity regardless of access to AC.

To understand any effect modification between household level characteristics and interest in utilizing public cooling centers, we fitted a logistic regression to see “if a public

community cooling center were available in your neighborhood this summer, would you consider using it?" differs among vulnerable groups. In both raw and adjusted p-values, we found statistically greater interest in cooling centers from respondents with a history of seeking medical attention due to heat (OR = 2.65, 95% CI = 1.60-4.39), household disability / chronic medical illness (OR = 1.92, 95% CI = 1.47-2.49), without home cooling (OR = 1.73, 95% CI = 1.13-2.66), and households who rented (OR = 1.90, 95% CI = 1.42-2.56) (Figure 3). These vulnerability factors follow a similar pattern as perception of personal heat threat. We observed that older adults have decreased interest in cooling centers with age 45-64 years old (OR = 0.64, 95% CI = 0.47-0.87) having the least interest in cooling centers and age >64 years old (OR = 0.91, 95% CI = 0.50-1.63) somewhere in between <45 year olds and 45-64 years old.

## **Discussion**

This study examined the perceptions around heat risk and cooling interventions in Spokane, WA following the extreme heat event of 2021. We found household characteristics of those with disability, chronic medical illness, history of seeking medical attention due to heat, absence of AC, renters, and age over 45 years reported increased perceived heat susceptibility. Although at-risk groups acknowledged a higher perceived risk to extreme heat events, we found that a near majority of residents did not perceive a personal health threat from heat, underscoring the need to enhance public health messaging. Effectively reaching and communicating health risk with at-risk groups is a major challenge. People tend to underestimate their personal personal risk relative to others;<sup>28</sup> for example, many elderly individuals do not always recognize their susceptibility.<sup>29</sup> Additionally, elderly and socially isolated individuals are often not aware of heat alerts and education messaging.<sup>30</sup> To address these issues, collaboration between health clinics, community-based organizations, and public health departments can improve outreach to

the elderly and disabled populations. Partnerships with electric companies could provide more effective support to renters and socially isolated individuals. Employing inclusive messaging that emphasizes “anyone can be at risk” may be more engaging than messages about specific vulnerable groups.<sup>22</sup> These approaches could enhance the effectiveness of public health communication and mitigate the health impacts of extreme heat events.

Perceptions of home and public cooling facilities can inform communication strategies for promoting cooling adaptations. We found access to home AC to be notably high in Spokane (84.4%), much higher than in nearby major cities like Seattle, WA (53%) and Portland, OR (78%).<sup>31</sup> There was a strong preference to remain indoors during extreme heat, even among those without home AC. Such behavior is influenced by factors like familiarity of the hazard, uncertainty of the outcomes, and perceived personal control over the outcomes.<sup>32</sup> Spokane residents, accustomed to the warmer climates and possessing greater access to air conditioning, may perceive increased control over their environments. Drawing from immunization studies, increased familiarity with health outcomes can paradoxically delay care and immunizations, as the hazard is not considered to be as severe.<sup>33</sup> Additionally, even when individuals receive warnings, few people may actually change their behaviors.<sup>34</sup> Although various strategies have been implemented across cities, there remains a deficiency in robust methods for evaluating whether heat messaging effectively leads to behavioral changes.<sup>35</sup> For example, correlating media broadcasting with increased hydration or using mist fans can be very challenging. Social behavior frameworks such as the health belief model<sup>36</sup> and extended parallel processing model<sup>37</sup> try to explain how attitudes and fears lead to individuals’ responses. Researchers have utilized the health belief model to characterize public perceptions of heatwaves<sup>36</sup> and develop targeted communication formats that address drivers and barriers for clinicians caring for elderly or

chronically ill.<sup>38</sup> Future research should aim on developing metrics to evaluate the efficacy of various messaging modalities and content that foster adaptive behavioral changes.

Interventions tailored to individual preferences may be more readily adopted, particularly in populations that prefer to remain indoors. Although no significant disparities in AC access among various at-risk groups were detected in our study, research indicates that access is disproportionate for low-income households, renters and minority race and ethnicities.<sup>39</sup> While home AC is one of the most effective cooling adaptations,<sup>19,40,41</sup> it is financially costly. We found many people were concerned about the cost of utilities and repairs, echoing findings from other studies.<sup>34</sup> Targeted financial assistance programs or AC rentals could directly benefit vulnerable populations. Promoting home AC is also controversial since it is environmentally costly while there is a heavy reliance on fossil-fuel electricity. An over reliance on AC can also leave many defenseless from extreme heat during power outages.<sup>42,43</sup> For some at risk groups, such as those experiencing homelessness or outdoor workers, AC is not a viable solution. Low cost interventions such as mist fans, foot immersion, and cold showers can help to reduce heat stress. Yet these interventions are not always included in heat messaging. The most effective solutions will depend on the setting and needs such as workplaces, schools, or aged care homes.<sup>18</sup>

Public cooling spaces offer a low cost solution to reduce heat-related mortality;<sup>44</sup> however, the effectiveness depends on actual usage. Despite their potential, cooling centers in many cities suffer from low attendance.<sup>45,46</sup> We observed a reluctance to utilize cooling centers in our study, particularly elderly, who showed less interest compared to younger individuals. This contrasts the higher concern about heat threats among older populations. Additionally, households with disabilities and medical illness showed more interest in public cooling centers. Our findings revealed a variety of perspectives and barriers to public cooling. People want

entertainment and socialization with friends and family, where they can work and maintain daily activities. Specific groups, especially those with mobility challenges or medical equipment needs, encounter additional obstacles in using designated cooling spaces such as pools or movie theaters. In other studies, seniors have expressed concerns about safety of travel to cooling sites<sup>29</sup> and disinterest in socializing.<sup>47</sup> Additionally, individuals are concerned about personal safety, infection risk, and privacy. Other studies have found similar stigma or misconceptions that cooling centers are only for seniors or homeless individuals.<sup>48,49</sup> Effective communication about the range of provided services, such as extended library hours or social events at shopping malls, may help realign public expectations. The diverse needs and expectations highlight the importance of a multimodal approach and the critical role of community leaders in participating in the implementation of interventions that are tailored to the needs of at-risk groups.

## **Limitations**

There are several study limitations to note. First, data was collected with a convenience sampling method making it difficult to extend findings to the whole Spokane County population. Second, associations with low income were omitted in the analysis, despite the wide distribution of median household income levels. A more meaningful low-income measurement could be utilized if the income and number of household members are collected together. Alternatively, location data at the census block group level could allow more comprehensive analysis of disparities among social vulnerability index or area deprivation index levels.<sup>50</sup> Third, despite the availability of a multi-language survey, there were only three respondents who utilized a Spanish survey and the Hispanic/Latino representation is much lower than Spokane county's US Census distribution. Future studies should focus on identifying trusted messengers and strategies to engage these underrepresented communities. Fourth, the data was based on self-reports of

residents and therefore susceptible to various biases in responding. Last, the analysis was largely exploratory because of the lack of previous knowledge of the Spokane region to base hypotheses on.

## **Conclusions**

This research highlights the complexity in mitigating heat risk in Spokane, WA, following the extreme heat events of 2021. While a substantial portion of the population does not perceive heat as a severe threat, at-risk groups including elderly, disabled, and chronically ill are more cognizant of the potential dangers. The preference to remain home may be influenced by widespread access to home AC and familiarity to the warm climate in Spokane. Our results indicated that communication and interventions strategies should be tailored to the needs and perceptions of each at-risk group. Financial and environmental costs of AC use highlight the need for a diverse set of adaptation strategies. While using public cooling centers is a viable low-cost option, obstacles such as accessibility, social entertainment, and safety concerns need to be addressed. Multimodal approaches that engage community leaders and reflect the unique context of at-risk populations is critical for enhancing resilience to extreme heat.

## **Implications Policy and Practice**

- Design and deliver risk messages to inform community members about the health hazards to extreme heat exposure and the benefits of utilizing cooling interventions
- Develop cooling intervention options that include financial support for individuals who utilize in-home cooling systems and public cooling center services to align with users' expectations

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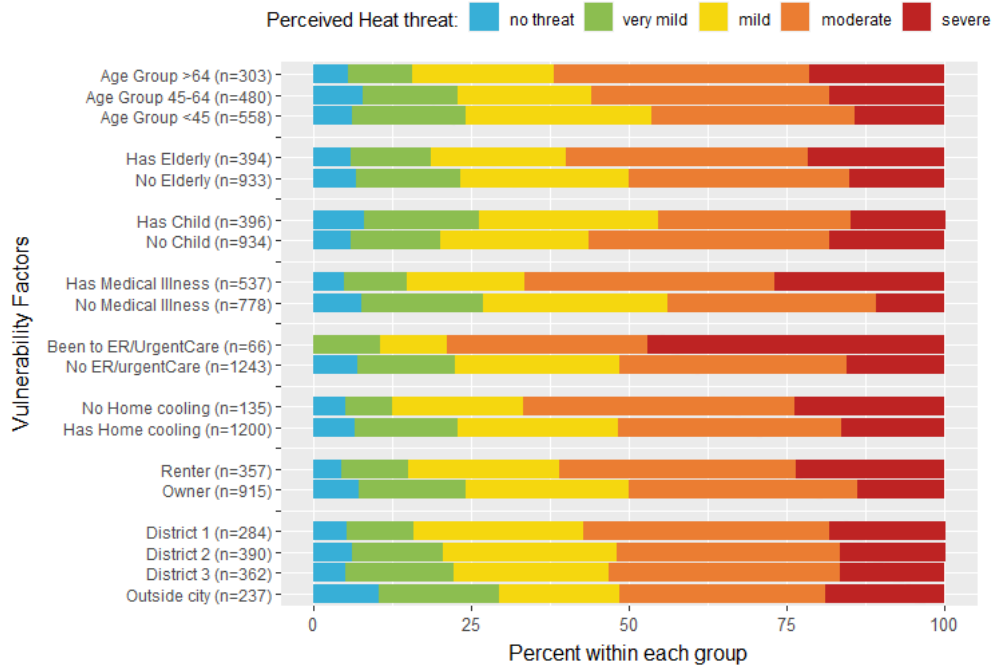
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## Appendix A

Table 1. Demographics

	N	%
Total surveys returned	1799	
Completed one or more heat related question and meeting eligibility criteria	1477	82.1%
Age (n=1441)		
18-44 years old	586	40.7%
45-64 years old	526	36.5%
65+ years old	329	22.8%
Race/Ethnicity (n=1367)		
Asian	30	2.1%
Black or African American	22	1.5%
Hispanic or Latino	30	2.1%
American Indian and Alaska Native	26	1.8%
Native Hawaiian and Other Pacific Islander	3	0.2%
White, not Hispanic or Latino	1201	83.1%
Two or More Races	82	5.7%
Location by Spokane District (n=1372)		
District1	317	23.1%
District2	420	30.6%
District3	383	27.9%
OUTSIDE CITY	252	18.4%
Child at home (n=1427)		
Yes (at least 1 or more)	423	29.6%

Elderly at home (n=1424)		
Yes (at least 1 or more)	430	30.2%
Disability or long-term illness at home (n=1348)		
Yes (at least 1 or more)	551	40.9%
Persons without insurance at home (n=1369)		
yes (at least 1 or more without insurance)	37	2.7%
Median Yearly Household Income (n=1404)		
\$0 - \$24,999	219	15.6%
\$25,000 - \$49,999	274	19.5%
\$50,000 - \$74,999	253	18.0%
\$75,000 - \$99,999	208	14.8%
\$100,000 - \$149,999	245	17.5%
\$150,000 - \$199,999	117	8.3%
\$200,000 or more	88	6.3%
Housing status (n=1428)		
Rent home	382	26.8%
Own home	979	68.6%
Currently Homeless	10	0.7%
Staying with friends	26	1.8%
Other	31	2.2%

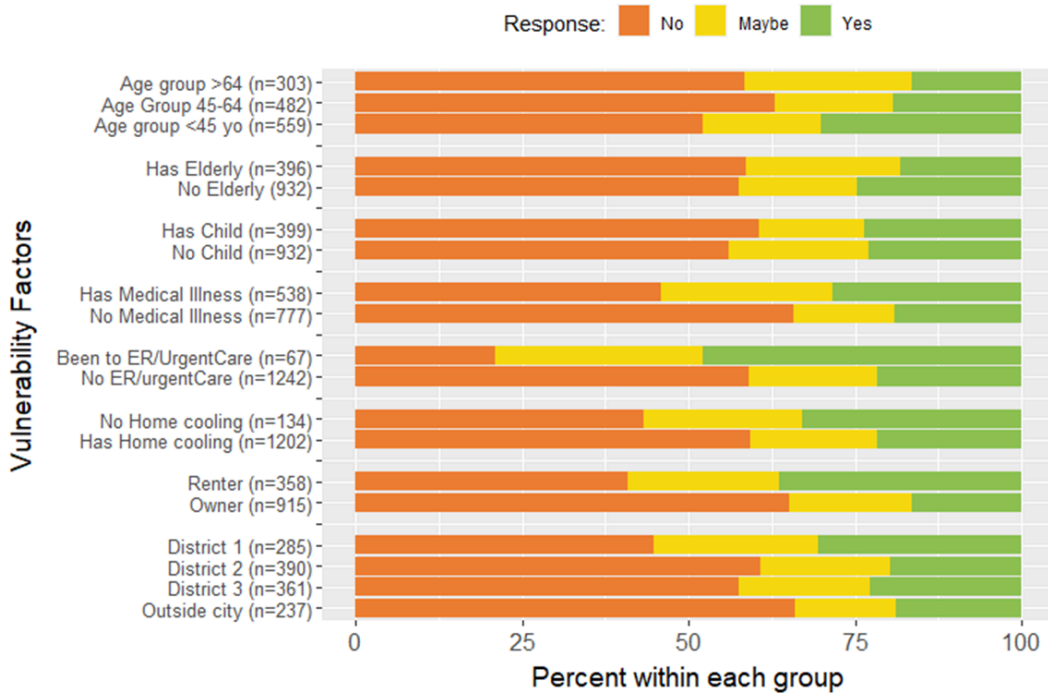


**Figure 1.** Perception of heat threat to personal health & well-being separated by vulnerability factors. Levels shown as percentage distributions for each vulnerability group.

**Table 2.** Statistical results for ordinal regression model investigating if heat threat level to personal health differs among vulnerability factors. \* indicating significance for raw and adjusted p-value <0.05.

	OR	95% CI	Raw p value	Adjusted P-value
Age Group 45-64	1.40	1.08-1.81	<b>9.85E-03*</b>	<b>1.81E-02*</b>
Age Group >64	1.92	1.19-3.08	<b>7.06E-03*</b>	<b>1.55E-02*</b>
Has elder at home	1.01	0.68-1.50	9.76E-01	9.76E-01
Has child at home	0.81	0.63-1.05	1.07E-01	1.18E-01
Has disability/illness at home	2.25	1.79-2.83	<b>3.41E-12*</b>	<b>3.75E-11*</b>

ER/Urgent Care history	2.07	1.37-3.11	<b>5.08E-04*</b>	<b>2.72E-03*</b>
Without home cooling	1.78	1.25-2.54	<b>1.46E-03*</b>	<b>4.01E-03*</b>
Renter	1.56	1.20-2.01	<b>7.42E-04*</b>	<b>2.72E-03*</b>
Location District 1	1.43	1.01-2.02	4.42E-02	6.94E-02
Location District 2	1.35	0.98-1.86	6.74E-02	9.27E-02
Location District 3	1.33	0.97-1.84	8.02E-02	9.80E-02



**Figure 2.** Interest in using a cooling center in the upcoming summer by vulnerability factors. Levels shown as percentage distributions for each vulnerability group.

**Table 3.** Statistical results for logistic regression model investigating if interest in using a public community cooling center the upcoming summer differs among vulnerability factors. \*

indicating significance for raw and adjusted p-value <0.05.

	OR	95% CI	Raw P-value	Adjusted P-value
Age Group 45-64	0.64	0.47-0.87	<b>4.40E-03*</b>	<b>1.03E-02*</b>
Age Group >64	0.91	0.50-1.63	7.40E-01	8.07E-01
Has elder at home	0.94	0.57-1.54	8.09E-01	8.09E-01
Has child at home	0.78	0.57-1.05	1.04E-01	1.39E-01
Has disability/illness at home	1.92	1.47-2.49	<b>1.30E-06*</b>	<b>1.56E-05*</b>
ER/Urgent Care Hx	2.65	1.60-4.39	<b>1.49E-04*</b>	<b>4.46E-04*</b>
Without home cooling	1.73	1.13-2.66	<b>1.21E-02*</b>	<b>2.07E-02*</b>
Renter	1.90	1.42-2.56	<b>2.20E-05*</b>	<b>8.81E-05*</b>
Location District 1	1.80	1.19-2.72	<b>5.16E-03*</b>	<b>1.03E-02*</b>
Location District 2	1.23	0.85-1.79	2.74E-01	3.29E-01
Location District 3	1.45	1.00-2.11	5.26E-02	7.89E-02

## Appendix B

Code that will be inserted at end of manuscript:

```
`` {r include = FALSE}
## Bunch of Libraries
library(ggpubr)
library(knitr)
library(lattice)
library(tidyverse)
library(likert)
library(MASS)
library(tidyr)
library(dplyr)
library(splitsstackshape)
library(rigr)

#import dataset
dat.raw <- read.csv("2022_GonzagaClimateSurvey_RAW.csv")

#cleaning data rows and rownames - putting questions as colnames and removing

#removing unneeded columns
#imported, recorded date, and informed consent
#attributes(dat.raw)
#length(dat.raw)
dat.clean <- dat.raw[-2,]
dat.clean <- dat.clean[-1,]
colnames(dat.clean) <- dat.raw[1,]
dat.clean <- dat.clean[,-c(3,7,12)]

#convert data to NA
dat.clean[dat.clean == ""] <- "BLANK"

##Exclusion
# age <18 year old
# location outside spokane county
# removing entries with <20% progress complete (this mostly people who consented by only filled out
demographic and nothing else)

#removing the entries with less than 20% progress incomplete
dat.clean <- subset(dat.clean, as.numeric(dat.clean$Progress) > 19)
```

```
dat.clean <- subset(dat.clean, dat.clean$`What is your age range?` != "Under 18 years old") #12 people
who selected under 18 years old
dat.clean <- subset(dat.clean, dat.clean$`Please indicate which part of Spokane you live in:` != "I live
outside Spokane County") #17 people who selected outside spokane county
```

```
datfinal <- dat.clean
```

```
summary(datfinal) #1477 new total after exclusion criteria
``
```

```
`` {r include = FALSE}
##Labeling demographic questions
```

```
##Yearly Income
##Household members
##Living situation
##Disability
##Insurance Status
```

```
names(datfinal)[names(datfinal)=="Please indicate which part of Spokane you live in:"] <- "Q1_location"
names(datfinal)[names(datfinal)=="How would you describe yourself? (Check all that apply)"] <-
"Q2_race"
names(datfinal)[names(datfinal)=="What is your age range?"] <- "Q3_age"
names(datfinal)[names(datfinal)=="How many people live in your household, including yourself?
(numbers only)"] <- "Q4_household_total"
names(datfinal)[names(datfinal)=="How many people aged 18+ live in your household? (numbers only)"]
<- "Q5_household_adult"
names(datfinal)[names(datfinal)=="How many children under the age of 18 live in your household?
(numbers only)"] <- "Q6_household_children"
names(datfinal)[names(datfinal)=="How many adults over the age of 65 live in your household?
(numbers only)"] <- "Q7_household_elderly"
names(datfinal)[names(datfinal)=="What is your current yearly household income range?"] <-
"Q8_householdincome"
names(datfinal)[names(datfinal)=="What is your current living situation?"] <- "Q9_livingsituation"
```

```
##Labeling Outcome Questions
```

```
names(datfinal)[names(datfinal)=="What types of transportation do you use most often? (Check all that
apply)"] <- "Q10_transport"
```

```
names(datfinal)[names(datfinal)=="How much of a threat do you think high heat is to the health and
wellbeing of the Spokane Community?"] <- "Q11_heatrisk_communitywellbeing"
```

names(datfinal)[names(datfinal)=="How much of a threat do you think high heat is to your personal health & wellbeing?"] <- "Q12\_heatrisk\_personalwellbeing"  
names(datfinal)[names(datfinal)=="How much of a threat do you think high heat is to the economy of the Spokane Community (e.g., due to reduced tourism, cancelled or postponed work, limited outdoor recreation, interrupted construction, etc.)?"] <- "Q13\_heatrisk\_communityecon"  
names(datfinal)[names(datfinal)=="How much of a threat do you think high heat is to your personal economic wellbeing (e.g., ability to pay utility bills, ability to work, etc.)?"] <-  
"Q14\_heatrisk\_personalecon"  
names(datfinal)[names(datfinal)=="How much of a threat do you think high heat is to the health & wellbeing of your other household members?"] <- "Q15\_heatrisk\_householdwellbeing"  
names(datfinal)[names(datfinal)=="To what extent do you consider people in your neighborhood to be vulnerable to heat?"] <- "Q16\_heatrisk\_neighborhood"

names(datfinal)[names(datfinal)=="How often do you talk to your neighbors?"] <- "Q17\_talktoneighbors"  
names(datfinal)[names(datfinal)=="Is there a neighbor you would feel comfortable asking for help during high heat events?"] <- "Q18\_askingneighbor"  
names(datfinal)[names(datfinal)=="When the weather is very hot, how likely are you to check on neighbors?"] <- "Q19\_checkonneighbor"  
names(datfinal)[names(datfinal)=="When the weather is very hot, does anyone from outside your household check on you?"] <- "Q20\_checkonyou"  
names(datfinal)[names(datfinal)=="What are your main sources of information in your community? (Check all that apply)"] <- "Q21\_information"  
names(datfinal)[names(datfinal)=="If applicable, select the ways that extreme heat events have affected your ability to work (Check all that apply)."] <- "Q22\_affectworkability"

names(datfinal)[names(datfinal)=="How much of a threat do you think air pollution is to the health and wellbeing of the Spokane Community?"] <- "Q23\_air\_communitywellbeing"  
names(datfinal)[names(datfinal)=="Over the past five years, do you think that air pollution in the Spokane region overall has improved, gotten worse or stayed about the same?"] <- "Q24\_air\_changed"  
names(datfinal)[names(datfinal)=="Over the past 12 months, have you voluntarily taken any action because of your concern with air quality and the effects on your health?"] <- "Q25\_air\_actions\_yn"  
names(datfinal)[names(datfinal)=="If you have taken actions over the past 12 months because of concerns with air quality and the effects on your health, please select which actions you have taken (select all that apply)"] <- "Q26\_air\_actions\_type"  
names(datfinal)[names(datfinal)=="How familiar are you with the symptoms and risk factors associated with heat-related illness?"] <- "Q27\_heatfamiliarity"  
names(datfinal)[names(datfinal)=="Do you personally live with a long-term illness or disability?"] <-  
"Q28\_disability\_personal"  
names(datfinal)[names(datfinal)=="Does anyone in your household live with a long-term illness or disability?"] <- "Q29\_disability\_household"  
names(datfinal)[names(datfinal)=="Have you ever experienced any of the following physical health conditions due to heat? (Check all that apply)"] <- "Q30\_heatsymptoms"  
names(datfinal)[names(datfinal)=="Has anyone in your household ever experienced any of the following physical health conditions due to heat? (Check all that apply)"] <- "Q31\_heatsymptoms\_household"

names(datfinal)[names(datfinal)== "Have you ever been hospitalized or visited the Emergency Room or Urgent Care because of a heat-related health issue?"] <- "Q32\_ER\_personal"

names(datfinal)[names(datfinal)== "Has anyone in your household ever been hospitalized or visited the Emergency Room or Urgent Care because of a heat-related health issue?"] <- "Q33\_ER\_household"

names(datfinal)[names(datfinal)== "Do you have access to healthcare or health insurance?"] <- "Q34\_healthinsurance\_personal"

names(datfinal)[names(datfinal)== "Does someone in your household have access to healthcare or health insurance?"] <- "Q35\_healthinsurance\_household"

names(datfinal)[names(datfinal)== "On very hot days, are you more likely to stay in your home or go somewhere else to stay cool?"] <- "Q36\_stayathome"

names(datfinal)[names(datfinal)== "Does your home have any cooling systems?"] <- "Q37\_coolingsystem\_yesno"

names(datfinal)[names(datfinal)== "If you answered yes, which cooling system(s) do you use to cool your home? (Check all that apply)"] <- "Q38\_coolingsystem\_type"

names(datfinal)[names(datfinal)== "If you use a cooling system to cool your home, which system currently works/functions in your home? (Check all that apply)"] <- "Q39\_coolingsystem\_functional"

names(datfinal)[names(datfinal)== "Does anything limit you from using your cooling system when you are hot or when it is hot inside your home?"] <- "Q40\_coolingsystem\_limit\_yesno"

names(datfinal)[names(datfinal)== "If you indicated that you limit use of your home cooling systems, please indicate the reason for the limitations (Check all that apply)"] <- "Q41\_coolingsystem\_limit\_type"

names(datfinal)[names(datfinal)== "If you go elsewhere to stay cool, where are you most likely to go when it is very hot outside? (Check all that apply)"] <- "Q42\_gotostaycool"

names(datfinal)[names(datfinal)== "What limitations, if any, prevent you from using cooling space opportunities? (Check all that apply)"] <- "Q43\_coolingspace\_limits"

names(datfinal)[names(datfinal)== "If a public community cooling center (a designated, air conditioned, public space where people can go to can cool off) were available in your neighborhood this summer, would you consider using it?"] <- "Q44\_coolingcenter\_yesno"

names(datfinal)[names(datfinal)== "If a public community cooling center were available in Spokane, what would keep you from using it? (Check all that apply)"] <- "Q45\_coolingcenter\_limits"

names(datfinal)[names(datfinal)== "Which of these activities might convince you to leave your home to stay cool at a public community cooling center when it is very hot outside? (Check all that apply)"] <- "Q46\_coolingcenter\_incentives"

names(datfinal)[names(datfinal)== "When it comes to the number of trees and greenery in your neighborhood, how do you rank your neighborhood compared to other neighborhoods in the city?"] <- "Q47\_neighborhood\_greenery\_rank"

names(datfinal)[names(datfinal)== "When it comes to the level of heat in your neighborhood (during heat events), how do you rank your neighborhood compared to other neighborhoods in the city?"] <- "Q48\_neighborhood\_heat\_rank"

names(datfinal)[names(datfinal)== "Do you have access to a park or green space within walking distance of your home?"] <- "Q49\_parkaccess"

names(datfinal)[names(datfinal)== "The things listed below can help bring temperatures down in neighborhoods. Which of these things would you like to see more of in your neighborhood? (Check all that apply)"] <- "Q50\_neighborhood\_greenery\_types"

```

names(datfinal)[names(datfinal)=="What community services would you like to see more of in your
neighborhood to help you and your household manage high temperatures? (Check all that apply)"] <-
"Q51_neighborhood_heat_assistance"
# names(datfinal)[names(datfinal)=="surveyname"] <- "Q52_location"
#

## Labeling the Other short response questions
colnames(datfinal)[60]<- "Q41_other"
colnames(datfinal)[62]<- "Q42_other"
colnames(datfinal)[66]<- "Q44_maybe"
colnames(datfinal)[68]<- "Q45_other"
colnames(datfinal)[70]<- "Q46_other"

# colnames(datfinal)
```



```

``` {r include = FALSE}
#code for splitting categorical questions to make unique columns for each response

datfinal <- cSplit_e(datfinal, 'Q10_transport', sep=',',
                    type = 'character', fill = 0, drop = FALSE)
datfinal <- cSplit_e(datfinal, 'Q22_affectworkability', sep=',',
                    type = 'character', fill = 0, drop = FALSE)
# datfinal <- cSplit_e(datfinal, 'Q26_air_actions_type', sep=',',
#                     type = 'character', fill = 0, drop = FALSE)
datfinal <- cSplit_e(datfinal, 'Q30_heatsymptoms', sep=',',
                    type = 'character', fill = 0, drop = FALSE)
datfinal <- cSplit_e(datfinal, 'Q31_heatsymptoms_household', sep=',',
                    type = 'character', fill = 0, drop = FALSE)
datfinal <- cSplit_e(datfinal, 'Q38_coolingsystem_type', sep=',',
                    type = 'character', fill = 0, drop = FALSE)
datfinal <- cSplit_e(datfinal, 'Q39_coolingsystem_functional', sep=',',
                    type = 'character', fill = 0, drop = FALSE)

datfinal <- cSplit_e(datfinal, 'Q41_coolingsystem_limit_type', sep=',',
                    type = 'character', fill = 0, drop = FALSE)
datfinal <- cSplit_e(datfinal, 'Q42_gotostaycool', sep=',',
                    type = 'character', fill = 0, drop = FALSE)
datfinal <- cSplit_e(datfinal, 'Q43_coolingspace_limits', sep=',',
                    type = 'character', fill = 0, drop = FALSE)
datfinal <- cSplit_e(datfinal, 'Q45_coolingcenter_limits', sep=',',
                    type = 'character', fill = 0, drop = FALSE)
datfinal <- cSplit_e(datfinal, 'Q46_coolingcenter_incentives', sep=',',

```


```

```

    type = 'character', fill = 0, drop = FALSE)
datfinal <- cSplit_e(datfinal, 'Q50_neighborhood_greenery_types', sep=',',
    type = 'character', fill = 0, drop = FALSE)
datfinal <- cSplit_e(datfinal, 'Q51_neighborhood_heat_assistance', sep=',',
    type = 'character', fill = 0, drop = FALSE)
datfinal <- cSplit_e(datfinal, 'Q21_information', sep=',',
    type = 'character', fill = 0, drop = FALSE)

```

...

##Demographic questions

## Age Distribution

Age groups defined as <45 years old, 45-64 and >64

45 years old or older has been shown to have some more significant in terms of heat illness risk. Elderly age >65 is also more significantly at risk.

##Age Raw Distribution

```
`` {r echo = FALSE}
```

```
#####
```

#age distribution

```
table(datfinal$Q3_age)
```

```
excluded_values <- datfinal$Q3_age %in% "BLANK"
```

```
nrespond <- sum(!excluded_values)
```

```
tempdata <- table(datfinal$Q3_age) ###
```

```
custom_order_row <- c("18-24 years old",
```

```
  "25-34 years old",
```

```
  "35-44 years old",
```

```
  "45-54 years old",
```

```
  "55-64 years old",
```

```
  "65-74 years old",
```

```
  "75-84 years old",
```

```
  "Over 85 years old",
```

```
  "BLANK")
```

```
custom_labels <-c("18-24 years old",
```

```
  "25-34 years old",
```

```
  "35-44 years old",
```

```
  "45-54 years old",
```

```
  "55-64 years old",
```

```
  "65-74 years old",
```

```
  "75-84 years old",
```

```
  "Over 85 years old",
```

```

"BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$row_names <- custom_labels
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
tempdata$prop_respond <- round(tempdata$count/nrespond*100, digits = 1)
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q3_age" ###
tableQ3_age <- tempdata ###
tableQ3_age
nrespond
write.table(tableQ3_age, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)

...

##Age Census comparison
`` {r echo = FALSE}
census_gov_age <- cbind(Census.gov = c("Under 18 years old",
    "18-64 years old",
    "65 years and over",
    "BLANK"),
    Prop_census2020 = c(21.8, 61.4, 16.8, "N/A"))

temp_under18 <- tableQ3_age[tableQ3_age$Q3_age == "Under 18 years old", "prop"]

temp_18_64 <- tableQ3_age[tableQ3_age$Q3_age == "18-24 years old", "prop"]+
tableQ3_age[tableQ3_age$Q3_age == "25-34 years old", "prop"]+
tableQ3_age[tableQ3_age$Q3_age == "35-44 years old", "prop"]+
tableQ3_age[tableQ3_age$Q3_age == "45-54 years old", "prop"]+
tableQ3_age[tableQ3_age$Q3_age == "55-64 years old", "prop"]

temp_over64 <- tableQ3_age[tableQ3_age$Q3_age == "65-74 years old", "prop"]+
tableQ3_age[tableQ3_age$Q3_age == "75-84 years old", "prop"]+
tableQ3_age[tableQ3_age$Q3_age == "Over 85 years old", "prop"]

temp_blank <- tableQ3_age[tableQ3_age$Q3_age == "BLANK", "prop"]

tableQ3_age_census <- cbind(Age = c("Under 18 years old",
    "18-64 years old",
    "65 years and over",
    "BLANK"),
    Prop_survey_1502 = c(temp_under18, temp_18_64, temp_over64, temp_blank),
    Prop_census2020 = c(21.8, 61.4, 16.8, "N/A"))

```

```
data.frame(tableQ3_age_census)
write.table(tableQ3_age_census, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
```

```
...
```

```
##Age Group creating
```

```
`` {r echo = FALSE}
```

```
##grouping age into 3 groups
```

```
datfinal$agegroup <- datfinal$Q3_age
```

```
i<- 1
```

```
while(i<length(datfinal$agegroup)+1){
```

```
  if(datfinal$agegroup[i] == "Under 18 years old" |
```

```
    datfinal$agegroup[i] == "18-24 years old" |
```

```
    datfinal$agegroup[i] == "25-34 years old" |
```

```
    datfinal$agegroup[i] == "35-44 years old")
```

```
  {
```

```
    datfinal$agegroup[i] <- "<45yo"
```

```
  }
```

```
  else if(datfinal$agegroup[i] == "45-54 years old" |
```

```
    datfinal$agegroup[i] == "55-64 years old")
```

```
  {
```

```
    datfinal$agegroup[i] <- "45-64yo"
```

```
  }
```

```
  else if(datfinal$agegroup[i] == "65-74 years old" |
```

```
    datfinal$agegroup[i] == "75-84 years old" |
```

```
    datfinal$agegroup[i] == "Over 85 years old" )
```

```
  {
```

```
    datfinal$agegroup[i] <- ">64yo"
```

```
  }
```

```
  else if(datfinal$agegroup[i] == "BLANK")
```

```
  {
```

```
    datfinal$agegroup[i] <- "BLANK"
```

```
  }
```

```
  i<- i +1
```

```
}
```

```
data.frame(table(datfinal$agegroup))
```

```
...
```

```
##Age Group Distributions
```

```
`` {r echo = FALSE}
```

```
table(datfinal$agegroup)
```

```
tempdata <- table(datfinal$agegroup) ###
```

```
custom_order_row <- c("<45yo",
```

```
  "45-64yo",
```

```

">64yo",
"BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "agegroup" ###
tableagegroup <- tempdata ###
tableagegroup
write.table(tableagegroup, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
` ``

```

```
#####
```

```

## Location Distribution
`` {r echo = FALSE}
table(datfinal$Q1_location)
tempdata <- table(datfinal$Q1_location) ###
custom_order_row <- c("Bemiss",
"Chief Garry Park",
"Hillyard",
"Logan",
"Nevada Heights",
"Minnehaha",
"Riverside",
"Shiloh Hills",
"Whitman",
"Cliff/Cannon",
"Comstock",
"East Central",
"Grandview/Thorpe",
"Latah/Hangman",
"Lincoln Heights",
"Manito/Cannon Hill",
"Rockwood",
"Southgate",
"West Hills",
"Audubon/Downriver",
"Balboa/South Indian Trail",
"Browne's Addition",
"Emerson/Garfield",
"Five Mile Prairie",
"North Hill",
"North Indian Trail",
"Northwest",

```

```

    "Peaceful Valley",
    "West Central",
    "I live in Spokane County, but not in the city of Spokane",
    "I live outside Spokane County",
    "BLANK")
custom_labels <-c("Bemiss",
    "Chief Garry Park",
    "Hillyard",
    "Logan",
    "Nevada Heights",
    "Minnehaha",
    "Riverside",
    "Shiloh Hills",
    "Whitman",
    "Cliff/Cannon",
    "Comstock",
    "East Central",
    "Grandview/Thorpe",
    "Latah/Hangman",
    "Lincoln Heights",
    "Manito/Cannon Hill",
    "Rockwood",
    "Southgate",
    "West Hills",
    "Audubon/Downriver",
    "Balboa/South Indian Trail",
    "Browne's Addition",
    "Emerson/Garfield",
    "Five Mile Prairie",
    "North Hill",
    "North Indian Trail",
    "Northwest",
    "Peaceful Valley",
    "West Central",
    "OUTSIDE CITY",
    "OUTSIDE COUNTY",
    "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$row_names <- custom_labels
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q1_location" ###
tableQ1_location <- tempdata ###

```

```
tableQ1_location
```

```
write.table(tableQ1_location, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)  
``
```

```
##Location into 3 districts
```

```
``{r echo = FALSE}
```

```
datfinal$locationgroup <- datfinal$Q1_location
```

```
i<- 1
```

```
while(i< length(datfinal$locationgroup)+1){
```

```
  if(datfinal$locationgroup[i] == "Bemiss" |
```

```
    datfinal$locationgroup[i] == "Chief Garry Park" |
```

```
    datfinal$locationgroup[i] == "Hillyard" |
```

```
    datfinal$locationgroup[i] == "Logan" |
```

```
    datfinal$locationgroup[i] == "Minnehaha" |
```

```
    datfinal$locationgroup[i] == "Nevada Heights" |
```

```
    datfinal$locationgroup[i] == "Riverside" |
```

```
    datfinal$locationgroup[i] == "Shiloh Hills" |
```

```
    datfinal$locationgroup[i] == "Whitman" )
```

```
  {
```

```
    datfinal$locationgroup[i] <- "District1"
```

```
  }
```

```
  if(datfinal$locationgroup[i] == "Cliff/Cannon" |
```

```
    datfinal$locationgroup[i] == "Comstock" |
```

```
    datfinal$locationgroup[i] == "East Central" |
```

```
    datfinal$locationgroup[i] == "Grandview/Thorpe" |
```

```
    datfinal$locationgroup[i] == "Latah/Hangman" |
```

```
    datfinal$locationgroup[i] == "Lincoln Heights" |
```

```
    datfinal$locationgroup[i] == "Manito/Cannon Hill" |
```

```
    datfinal$locationgroup[i] == "Rockwood" |
```

```
    datfinal$locationgroup[i] == "Southgate" |
```

```
    datfinal$locationgroup[i] == "West Hills" )
```

```
  {
```

```
    datfinal$locationgroup[i] <- "District2"
```

```
  }
```

```
  if(datfinal$locationgroup[i] == "Audubon/Downriver" |
```

```
    datfinal$locationgroup[i] == "Balboa/South Indian Trail" |
```

```
    datfinal$locationgroup[i] == "Browne's Addition" |
```

```
    datfinal$locationgroup[i] == "Emerson/Garfield" |
```

```
    datfinal$locationgroup[i] == "Five Mile Prairie" |
```

```
    datfinal$locationgroup[i] == "North Hill" |
```

```
    datfinal$locationgroup[i] == "North Indian Trail" |
```

```

datfinal$locationgroup[i] == "Northwest" |
datfinal$locationgroup[i] == "Peaceful Valley" |
datfinal$locationgroup[i] == "West Central" )
{
  datfinal$locationgroup[i] <- "District3"
}
if(datfinal$locationgroup[i] == "I live in Spokane County, but not in the city of Spokane" )
{
  datfinal$locationgroup[i] <- "OUTSIDE CITY"
}
if(datfinal$locationgroup[i] == "I live outside Spokane County" )
{
  datfinal$locationgroup[i] <- "OUTSIDE COUNTY"
}
# if{
# test[i] <- "BLANK"
# }
i<- i +1
}

table(datfinal$locationgroup)
tempdata <- table(datfinal$locationgroup) ###
custom_order_row <- c("District1",
  "District2",
  "District3",
  "OUTSIDE CITY",
  "OUTSIDE COUNTY",
  "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)

tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "locationgroup" ###
tablelocationgroup <- tempdata ###

tablelocationgroup
write.table(tablelocationgroup, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
```



```

## Race/Ethnicity

```{r echo = FALSE}
##Converting any multiple selected groups as multi

```


```

```

datfinal$Q2_racegroup <- datfinal$Q2_race
i <- 1
while(i <nrow(datfinal)+1) {
  if(grepl(",", datfinal[i,11])){
    datfinal$Q2_racegroup[i] <- "Multi"
  }
  i <- i+1
}
as.data.frame(table(datfinal$Q2_racegroup))
```

```{r echo = FALSE}

##Note: no middle Eastern or North African

##Census.gov information
https://www.census.gov/quickfacts/fact/table/spokanecountywashington/RHI125221#RHI125221
census_gov_race <-cbind(Census.gov = c("Asian",
  "Black or African American",
  "Hispanic or Latino",
  "American Indian and Alaska Native",
  "Native Hawaiian and Other Pacific Islander",
  "White, not Hispanic or Latino",
  "Two or More Races",
  "Other",
  "BLANK"),
  Prop_census2020 = c(2.5, 2.1, 6.6, 1.9, 0.7,88.4, 4.5, "N/A", "N/A"))

table(datfinal$Q2_racegroup)
tempdata <- table(datfinal$Q2_racegroup) ###
custom_order_row <- c("Asian",
  "Black or African American",
  "Hispanic and/or Latino/a",
  # "Middle Eastern or North African",
  "Native American or Alaska Native",
  "Native Hawaiian or Other Pacific Islander",
  "White",
  "Multi",
  "Some other race, ethnicity, or national origin (please describe)",
  "BLANK")
custom_labels <-c("Asian",
  "Black or African American",
  "Hispanic and/or Latino/a",
  # "Middle Eastern or North African",

```

```

    "Native American or Alaska Native",
    "Native Hawaiian or Other Pacific Islander",
    "White",
    "Multi",
    "Other",
    "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$row_names <- custom_labels
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q2_racegroup" ###
tableQ2_racegroup <- cbind(tempdata, census_gov_race)
tableQ2_racegroup
write.table(tableQ2_racegroup, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
``

```

```
## Income distribution
```

```
`` {r echo = FALSE}
```

```
#household income
```

```

table(datfinal$Q8_householdincome)
tempdata <- table(datfinal$Q8_householdincome) ###
custom_order_row <- c("$0 - $24,999",
    "$25,000 - $49,999",
    "$50,000 - $74,999",
    "$75,000 - $99,999",
    "$100,000 - $149,999",
    "$150,000 - $199,999",
    "$200,000 or more",
    "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q8_householdincome" ###
tableQ8_householdincome <- tempdata ###

```

```
tableQ8_householdincome
```

```
write.table(tableQ8_householdincome, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
```

```
```
```

```
##Household members
```

```
Census: 2.46 persons per household 2017-2021
```

```
`` {r echo = FALSE}
```

```
tableQ4_household_total <- data.frame(table(datfinal$Q4_household_total))
```

```
colnames(tableQ4_household_total) <- c("Total_household", "count")
```

```
tableQ4_household_total <- tableQ4_household_total[order(-tableQ4_household_total$count),]
```

```
average_household <- round(sum(as.numeric(datfinal$Q4_household_total), na.rm=TRUE, ###
```

```
  ifelse(is.na(as.numeric(datfinal$Q4_household_total)), 0,1))/1502, digits = 3) ###
```

```
average_row <- c("Average", average_household)
```

```
print <- rbind(tableQ4_household_total,average_row) ###
```

```
print
```

```
write.table(print, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
```

```
tableQ5_household_adult <- data.frame(table(datfinal$Q5_household_adult))
```

```
colnames(tableQ5_household_adult) <- c("Adult_household", "count")
```

```
tableQ5_household_adult <- tableQ5_household_adult[order(-tableQ5_household_adult$count),]
```

```
average_household <- round(sum(as.numeric(datfinal$Q5_household_adult), na.rm=TRUE,
```

```
  ifelse(is.na(as.numeric(datfinal$Q5_household_adult)), 0,1))/1502, digits = 3)
```

```
average_row <- c("Average", average_household)
```

```
print <- rbind(tableQ5_household_adult,average_row)
```

```
print
```

```
write.table(print, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
```

```
tableQ7_household_elderly <- data.frame(table(datfinal$Q7_household_elderly))
```

```
colnames(tableQ7_household_elderly) <- c("Elderly_household", "count")
```

```
tableQ7_household_elderly <- tableQ7_household_elderly[order(-tableQ7_household_elderly$count),]
```

```
average_household <- round(sum(as.numeric(datfinal$Q7_household_elderly), na.rm=TRUE, ###
```

```
  ifelse(is.na(as.numeric(datfinal$Q7_household_elderly)), 0,1))/1502, digits = 3) ###
```

```
average_row <- c("Average", average_household)
```

```
print <- rbind(tableQ7_household_elderly,average_row) ###
```

```
print
```

```
write.table(print, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
```

```
tableQ6_household_children <- data.frame(table(datfinal$Q6_household_children))
```

```
colnames(tableQ6_household_children) <- c("Children_household", "count")
```

```
tableQ6_household_children <-
```

```
tableQ6_household_children[order(-tableQ6_household_children$count),]
```

```
average_household <- round(sum(as.numeric(datfinal$Q6_household_children), na.rm=TRUE, ###
```

```
  ifelse(is.na(as.numeric(datfinal$Q6_household_children)), 0,1))/1502, digits = 3) ###
```

```
average_row <- c("Average", average_household)
```

```

print <- rbind(tableQ6_household_children,average_row) ###
print
write.table(print, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
...

## new category for 1 or more children at home
`` `{r echo = FALSE}
# head(datfinal$Q6_household_children)
# table(datfinal$Q6_household_children)
datfinal$Q6_household_childdoesno <- ifelse(datfinal$Q6_household_children ==0, "No",
ifelse(datfinal$Q6_household_children == "BLANK", "BLANK", "Yes"))
# head(datfinal$Q6_household_childdoesno)
print <- table(datfinal$Q6_household_childdoesno)
print
write.table(print, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
...

## new category for 1 or more elderly at home
`` `{r echo = FALSE}
table(datfinal$Q7_household_elderly)
datfinal$Q7_household_elderlyyesno <- ifelse(datfinal$Q7_household_elderly ==0, "No",
ifelse(datfinal$Q7_household_elderly == "BLANK", "BLANK", "Yes"))
# head(datfinal$Q6_household_childdoesno)
print <- table(datfinal$Q7_household_elderlyyesno)
print
write.table(print, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
...

## Housing Situation
`` `{r echo = FALSE}
#housing situation
table(datfinal$Q9_livingsituation)
tempdata <- table(datfinal$Q9_livingsituation) ###
custom_order_row <- c("I or my family rent my home",
"I or my family own my home",
"I am currently experiencing homelessness",
"Staying with friends or family",
"Other (please describe)",
"BLANK")
custom_labels <-c("Rent home",
"Own home",
"Currently Homeless",
"Staying with friends",
"Other",
"BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")

```

```

tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$row_names <- custom_labels
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q9_livingsituation" ###
tableQ9_livingsituation <- tempdata ###

tableQ9_livingsituation
write.table(tableQ9_livingsituation, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)

...

##Disability
`` {r echo = FALSE}
#disablity or long term illness
data.frame(table(datfinal$Q28_disability_personal))
tempdata <- table(datfinal$Q28_disability_personal) ###
custom_order_row <- c("Yes",
                    "No",
                    "Prefer not to answer",
                    "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q28_disability_personal" ###
tableQ28_disability_personal <- tempdata ###
tableQ28_disability_personal
write.table(tableQ28_disability_personal, "clipboard-16384", sep = "\t", row.names = FALSE, quote =
FALSE)
...

##personal disability
`` {r echo = FALSE}
##separating out into groups <65

temptable <- (table(datfinal$Q28_disability_personal, datfinal$agegroup))
less65 <- data.frame(temptable[,1] + temptable[,3])
blank <- data.frame(temptable[,4])
greater65 <- data.frame(temptable[,2])
tableDisability65 <- cbind(less65,greater65, blank)
names(tableDisability65) <- c("less65", "greater65", "BLANK")

custom_order_row <- c("Yes",
                    "No",
                    "Prefer not to answer",

```

```

"BLANK")
tableDisability65 <- tableDisability65[custom_order_row,]

tableDisability65$Q28_disability_personal <- rownames(tableDisability65)
tableDisability65
sum1 <- sum(tableDisability65$less65)
sum65 <- sum(tableDisability65$greater65)
sumBLANK <- sum(tableDisability65$BLANK)
total <- c(sum1, sum65, sumBLANK)
tableDisability65 <- rbind(tableDisability65, total)
rownames(tableDisability65)[nrow(tableDisability65)] <- "Total"
tableDisability65

tableDisability65prop <- tableDisability65
tableDisability65prop$less65 <- round(tableDisability65$less65/sum1*100,digits = 1)
tableDisability65prop$greater65 <- round(tableDisability65$greater65/sum65*100,digits = 1)
tableDisability65prop$BLANK <- round(tableDisability65$BLANK/sumBLANK*100,digits = 1)
tempdata$prop_1502 <-round(tempdata$count/nrow(tableDisability65)*100, digits = 1)
tableDisability65prop

write.table(tableDisability65prop, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)

```
``` {r echo = FALSE}
data.frame(table(datfinal$Q29_disability_household))
tempdata <- table(datfinal$Q29_disability_household) ###
custom_order_row <- c("Yes",
  "No",
  "Prefer not to answer",
  "Not applicable",
  "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <-round(tempdata$count/nrow(datfinal)*100, digits = 1)
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q29_disability_household" ###
tableQ29_disability_household <- tempdata ###
tableQ29_disability_household
write.table(tableQ29_disability_household, "clipboard-16384", sep = "\t", row.names = FALSE, quote =
FALSE)

```

```

```
##household disability
```{r echo = FALSE}
##separating out into groups <65

temptable <- (table(datfinal$Q29_disability_household, datfinal$agegroup)) ###
less65 <- data.frame(temptable[,1] + temptable[,3])
blank <- data.frame(temptable[,4])
greater65 <- data.frame(temptable[,2])
tableDisability65 <- cbind(less65,greater65, blank)
names(tableDisability65) <- c("less65", "greater65", "BLANK")
custom_order_row <- c("Yes",
                      "No",
                      "Prefer not to answer",
                      "BLANK")
tableDisability65 <- tableDisability65[custom_order_row,]
tableDisability65$Q28_disability_household <- rownames(tableDisability65) ###
tableDisability65
sum1 <- sum(tableDisability65$less65)
sum65 <- sum(tableDisability65$greater65)
sumBLANK <- sum(tableDisability65$BLANK)
total <- c(sum1, sum65, sumBLANK)
tableDisability65 <- rbind(tableDisability65, total)
rownames(tableDisability65)[nrow(tableDisability65)] <- "Total"
tableDisability65

tableDisability65prop <- tableDisability65
tableDisability65prop$less65 <- round(tableDisability65$less65/sum1*100,digits = 1)
tableDisability65prop$greater65 <- round(tableDisability65$greater65/sum65*100,digits = 1)
tableDisability65prop$BLANK <- round(tableDisability65$BLANK/sumBLANK*100,digits = 1)
tempdata$prop_1502 <-round(tempdata$count/nrow(tableDisability65)*100, digits = 1)
tableDisability65prop

write.table(tableDisability65prop, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)

```

## new category for 1 or more disability/long term illness at home

```{r echo = FALSE}
temp <- table(datfinal$Q28_disability_personal,datfinal$Q29_disability_household)
# write.table(temp, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

```

```

datfinal$Q28_disability_anyone <- ifelse((datfinal$Q28_disability_personal == 'Yes' |
datfinal$Q29_disability_household == "Yes"), "Yes", ifelse((datfinal$Q28_disability_personal == 'No' |
datfinal$Q29_disability_household == "No"), "No", "BLANK or Prefer not to answer"))
tempdata<- table(datfinal$Q28_disability_anyone)

```

```

write.table(tempdata, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)

```

```

```

```

```

## Personal Insurance

```

```

```{r echo = FALSE}
#personal insurance
table(datfinal$Q34_healthinsurance_personal)
tempdata <- table(datfinal$Q34_healthinsurance_personal) ###
custom_order_row <- c("Yes",
                      "No",
                      "Prefer not to answer",
                      "BLANK")

```

```

tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q34_healthinsurance_personal" ###
tableQ34_healthinsurance_personal <- tempdata ###

```

```

tableQ34_healthinsurance_personal

```

```

write.table(tableQ34_healthinsurance_personal, "clipboard-16384", sep = "\t", row.names = FALSE,
quote = FALSE)

```

```

```

```

```

```{r echo = FALSE}
#household insurance
table(datfinal$Q35_healthinsurance_household)
tempdata <- table(datfinal$Q35_healthinsurance_household) ###
custom_order_row <- c("Yes",
                      "No",
                      "Prefer not to answer",
                      "BLANK")

```

```

tempdata <- as.data.frame(tempdata[custom_order_row])

```

```

colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q35_healthinsurance_household" ###
tableQ35_healthinsurance_household <- tempdata ###

tableQ35_healthinsurance_household

write.table(tableQ35_healthinsurance_household, "clipboard-16384", sep = "\t", row.names = FALSE,
quote = FALSE)

...

## new category for 1 or more without insurance at home

```{r echo = FALSE}
temp <- table(datfinal$Q34_healthinsurance_personal,datfinal$Q35_healthinsurance_household)
temp
# write.table(temp, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

datfinal$Q34_noinsurance_anyone <- ifelse((datfinal$Q34_healthinsurance_personal == 'No' |
datfinal$Q35_healthinsurance_household == "No"), "No", ifelse((datfinal$Q34_healthinsurance_personal
== 'Yes' | datfinal$Q35_healthinsurance_household == "Yes"), "Yes", "BLANK or Prefer not to answer"))
tempdata<- table(datfinal$Q34_noinsurance_anyone)

write.table(tempdata, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)

...

##Q32 + Q33 combined for ER anyone
```{r echo = FALSE, fig.height = 7, fig.width = 7}
datfinal$Q32_ER_anyone <- ifelse((datfinal$Q32_ER_personal == 'Yes' | datfinal$Q33_ER_household
== "Yes"), "Yes", ifelse((datfinal$Q32_ER_personal == 'No' | datfinal$Q33_ER_household == "No"),
"No", "BLANK or Prefer not to answer"))
tempdata <- table(datfinal$Q32_ER_anyone)
tempdata
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)

...

## Q12 Heat Threat Personal Risk - convert to numerical value
```{r echo = FALSE, fig.height = 7, fig.width = 7}
##convert personal heat risk q12 into numerical values

```

```

## ranked from no threat = 0, to severe threat = 4
datfinal$Q12_heatrisk_num <- ifelse(datfinal$Q12_heatrisk_personalwellbeing == "No threat", 0,
  ifelse(datfinal$Q12_heatrisk_personalwellbeing == "A very mild threat", 1,
    ifelse(datfinal$Q12_heatrisk_personalwellbeing == "A mild threat", 2,
      ifelse(datfinal$Q12_heatrisk_personalwellbeing == "A moderate threat", 3,
        ifelse(datfinal$Q12_heatrisk_personalwellbeing == "A severe threat", 4, NA))))))

```

```

table(datfinal$Q12_heatrisk_num)

```

```

...

```

```

##Q38 cooling at most

```

```

`` {r echo = FALSE, fig.height = 7, fig.width = 7}
temp <- datfinal$Q38_coolingsystem_type
for (i in 1:length(temp)){
  if(grepl("Central", temp[i])){
    temp[i] <- "Central A/C at most"
  }
  if(grepl ("Window", temp[i])){
    temp[i]<- "Window Unit A/C at most"
  }
  if(grepl ("Electric", temp[i])){
    temp[i] <- "Electric Fan at most"
  }
}
datfinal$Q38_coolingsystem_typeatmost <- temp
tempdata <- table(datfinal$Q38_coolingsystem_typeatmost)

```

```

tempdata

```

```

write.table(tempdata, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
...

```

```

##Q39 cooling at most

```

```

`` {r echo = FALSE, fig.height = 7, fig.width = 7}
temp <- datfinal$Q39_coolingsystem_functional
for (i in 1:length(temp)){
  if(grepl("Central", temp[i])){
    temp[i] <- "Central A/C at most"
  }
  if(grepl ("Window", temp[i])){
    temp[i]<- "Window Unit A/C at most"
  }
  if(grepl ("Electric", temp[i])){
    temp[i] <- "Electric Fan at most"
  }
}

```

```

}
}
datfinal$Q39_coolingsystem_functionalatmost <- temp
tempdata <- table(datfinal$Q39_coolingsystem_functionalatmost)
tempdata
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
```

##Q44 consider public cooling center
```{r echo = FALSE, fig.height = 7, fig.width = 7}

##Clean up consider cooling center Q44
## 0 = no
## 1 = yes or maybe
datfinal$Q44_coolingcenter_yesnoonly <- ifelse(datfinal$Q44_coolingcenter_yesno == "No", "No",
ifelse(datfinal$Q44_coolingcenter_yesno == "Maybe; please explain why or why not"
|datfinal$Q44_coolingcenter_yesno == "Yes", "Yes/Maybe", "BLANK"))
table(datfinal$Q44_coolingcenter_yesnoonly)

##Clean up consider cooling center Q44
## No
## Maybe
## Yes
datfinal$Q44_coolingcenter_yesmaybeno <- ifelse(datfinal$Q44_coolingcenter_yesno == "No", "No",
ifelse(datfinal$Q44_coolingcenter_yesno == "Maybe; please explain why or why not", "Maybe",
ifelse(datfinal$Q44_coolingcenter_yesno == "Yes", "Yes", "BLANK")))
table(datfinal$Q44_coolingcenter_yesmaybeno)
```

#####

##Questions of interest
Questions we want proportional tables for:
transportation: 10 (split)
risk: 12, 14, 48
impact: 22 (split), 27, 30 (split), 32, 33
interventions: 36, 37, 38 (split), 40, 41 (split), 42 (split), 43 (split), 44, 45(split), 46 (split), 49, 50 (split),
51 (split)
communication: 21 (split)

##Question 10
```{r echo = FALSE, fig.height = 7, fig.width = 7}

table(datfinal$Q10_transport) ###

```

```

tempdata<-bind_rows(
  table(datfinal$Q10_transport_Bicycle),
  table(datfinal$Q10_transport_BLANK),
  table(datfinal$`Q10_transport_Bus or public transportation`),
  table(datfinal$Q10_transport_Car),
  table(datfinal$`Q10_transport_Carpool or rides from friends/family`),
  table(datfinal$`Q10_transport_Other (please describe)`),
  table(datfinal$Q10_transport_Walking)
)
colnames(tempdata) <- c("nocount", "count")
tempdata$row_names <- c("Bicycle", "BLANK", "Bus", "Car", "Carpool", "Other", "Walking" )
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names","count","prop_1502"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q10_transport" ####
tableQ10_transport <- tempdata ###

```

```

tableQ10_transport
graph <- tableQ10_transport ###
ggplot(graph,
  aes(x = reorder(Q10_transport, prop_1502),y = prop_1502))+ ###
  geom_bar(stat = "identity", position = "dodge",fill = "lightblue")+
  coord_flip()+
  xlab("Types")+ylab("Percentage out of total (1502)")+
  ggtitle("Q10_transport")+
  geom_text(aes(label = prop_1502), color = "black", size = 4, hjust = -0.1, position =
position_dodge(0.9))

```

```

write.table(tempdata, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
...

```

```

##Question 12

```

```

`` `{r echo = FALSE, fig.height = 6, fig.width = 8}

```

```

##Question 12 How much of a threat do you think high heat is to your personal health & wellbeing?

```

```

tempdata <- table(datfinal$Q12_heatrisk_personalwellbeing) ###

```

```

tempdata

```

```

custom_order_row <- c("A severe threat",
  "A moderate threat",
  "A mild threat",
  "A very mild threat",
  "No threat",
  "BLANK")

```

```

tempdata <- as.data.frame(tempdata[custom_order_row])

```

```

colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
excluded_values <- datfinal$Q12_heatrisk_personalwellbeing %in% "BLANK" ###new proportion of
only responses
nrespond <- sum(!excluded_values)
nrespond
tempdata$prop_respond <- round(tempdata$count/nrespond*100, digits = 1)
tempdata[tempdata$row_names == "BLANK", "prop_respond"] <- NA
tempdata

#####
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q12_heatrisk_personalwellbeing" ###
tableQ12_heatrisk_personalwellbeing <- tempdata ###

tableQ12_heatrisk_personalwellbeing
write.table(tableQ12_heatrisk_personalwellbeing, "clipboard-16384", sep = "\t", row.names = FALSE,
quote = FALSE)

graph <-
tableQ12_heatrisk_personalwellbeing[tableQ12_heatrisk_personalwellbeing$Q12_heatrisk_personalwell
being!="BLANK",]
title <- "Questions 12 How much of a threat do you think high heat is to your personal health &
wellbeing?"
ggplot(graph,
aes(x = Q12_heatrisk_personalwellbeing,y = prop_respond, fill =
Q12_heatrisk_personalwellbeing))+ ###
geom_bar(stat = "identity",position = "dodge")+
scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue"))+
labs(title = str_wrap(title, width =70))+
xlab("Severity")+ ylab(paste("Percentage out of total ( n = ", nrespond, ")"))+
ylim(0, 50)+
labs(fill = "Severity")+
scale_x_discrete(labels = c("Severe", "Moderate", "Mild", "Very Mild", "None"))+
geom_text(aes(label = prop_respond), color = "black", size = 5, vjust = -1, position =
position_dodge(0.9))+
theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2),legend.position = "none")

...

##Age group

```

```

`` {r echo = FALSE, fig.height = 6, fig.width = 8}
#Question 12 How much of a threat do you think high heat is to your personal health & wellbeing?

tempdata <- (table(datfinal$Q12_heatrisk_personalwellbeing, datfinal$agegroup)) ###
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
custom_order_row <- c("A severe threat",
  "A moderate threat",
  "A mild threat",
  "A very mild threat",
  "No threat")
custom_order_col <- c("<45yo", "45-64yo", ">64yo")
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)

tempdata_prop <- tempdata

sum45 <- sum(subset(tempdata, Predictor %in% "<45yo")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "<45yo"] <-
round(tempdata$Count[tempdata$Predictor %in% "<45yo"]/sum45*100, digits = 1)

sum4564 <- sum(subset(tempdata, Predictor %in% "45-64yo")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "45-64yo"] <-
round(tempdata$Count[tempdata$Predictor %in% "45-64yo"]/sum4564*100, digits = 1)

sum64 <- sum(subset(tempdata, Predictor %in% ">64yo")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% ">64yo"] <-
round(tempdata$Count[tempdata$Predictor %in% ">64yo"]/sum64*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop")

nrespond <- sum(tempdata$Count)
nrespond
#count graph
title <- paste("Question 12 How much of a threat do you think high heat is to your personal health &
wellbeing? - by Age Group (n =", nrespond, ")")
ggplot(tempdata, aes(x = Predictor, y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width = 70))+
  xlab("Xaxis")+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

```

```

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width =70))+
  xlab("Age Group")+ ylab("Percent by Age Group")+
  ylim(0, 50)+
  labs(fill = "Severity")+
  scale_x_discrete(labels = c(paste("<45yo (",sum45,")"), paste("45-64yo (",sum4564,")"), paste(">64yo
(",sum64,")")))+
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2))

```

```

tempdata_prop
#deprivation is each group
#health is the threat level

```

```

datfinal$Q12_heatrisk_personalwellbeing, datfinal$agegroup

```

```

datfinal$Q12_heatrisk_personalwellbeing
datfina$Q12_heatrisk_personal_num <-
#####

```

```

#proportional graph
ggplot(tempdata_prop, aes(y = Predictor))+
  geom_bar(aes(fill = Prop), position = position_fill(reverse=TRUE))+
  # scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width =70))+
  xlab("Age Group")+ ylab("Percent by Age Group")+
  ylim(0, 50)+
  labs(fill = "Severity")+
  scale_x_discrete(labels = c(paste("<45yo (",sum45,")"), paste("45-64yo (",sum4564,")"), paste(">64yo
(",sum64,")")))+
  # geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2))

```

```

```

```

```

#####

```

```

##Age group - trying to make stacked bar plot, trying out using tibble, trying to convert threat into
1,2,3,4,5, not sure why it's not working yet

```

```

#####

```

```

#Q12 vs Age Group
```{r echo = FALSE, fig.height = 6, fig.width = 8}
#Question 12 How much of a threat do you think high heat is to your personal health & wellbeing?

tempdata <- (table(datfinal$Q12_heatrisk_personalwellbeing, datfinal$agegroup)) ###
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
custom_order_row <- c("A severe threat",
  "A moderate threat",
  "A mild threat",
  "A very mild threat",
  "No threat")
custom_order_col <- c("<45yo", "45-64yo", ">64yo")
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)

tempdata_prop <- tempdata

sum45 <- sum(subset(tempdata, Predictor %in% "<45yo")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "<45yo"] <-
round(tempdata$Count[tempdata$Predictor %in% "<45yo"]/sum45*100, digits = 1)

sum4564 <- sum(subset(tempdata, Predictor %in% "45-64yo")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "45-64yo"] <-
round(tempdata$Count[tempdata$Predictor %in% "45-64yo"]/sum4564*100, digits = 1)

sum64 <- sum(subset(tempdata, Predictor %in% ">64yo")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% ">64yo"] <-
round(tempdata$Count[tempdata$Predictor %in% ">64yo"]/sum64*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop")

nrespond <- sum(tempdata$Count)
nrespond
#count graph
title <- paste("Question 12 How much of a threat do you think high heat is to your personal health &
wellbeing? - by Age Group (n =", nrespond, ")")

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor, y = Prop, fill = Threat)) +
  geom_bar(stat = "identity", position = "fill")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue"))+
  labs(title = str_wrap(title, width = 70))+

```

```

xlab("Age Group")+ ylab("Percent by Age Group")+
# ylim(0, 50)+
labs(fill = "Severity")+
scale_x_discrete(labels = c(paste("<45yo (",sum45,")"), paste("45-64yo (",sum4564,")"), paste(">64yo
(",sum64,")")))+
# geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
theme(axis.text.x = element_text(angle = 0, size = 12), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2))+
coord_flip()

```

```

stackedheatage <- tempdata_prop
```

```

```

##Q12 vs Elderly at home

```

```

```{r echo = FALSE, fig.height = 6, fig.width = 8}

```

```

#Question 12 How much of a threat do you think high heat is to your personal health & wellbeing?

```

```

table(datfinal$Q7_household_elderlyesno)

```

```

tempdata <- (table(datfinal$Q12_heatrisk_personalwellbeing, datfinal$Q7_household_elderlyesno)) ###

```

```

write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

```

```

custom_order_row <- c("A severe threat",

```

```

    "A moderate threat",

```

```

    "A mild threat",

```

```

    "A very mild threat",

```

```

    "No threat")

```

```

custom_order_col <- c("Yes", "No")

```

```

tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])

```

```

colnames(tempdata) <- c("Threat", "Predictor", "Count")

```

```

tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)

```

```

tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)

```

```

tempdata_prop <- tempdata

```

```

sumyes <- sum(subset(tempdata, Predictor %in% "Yes")$Count)

```

```

tempdata_prop$Count[tempdata_prop$Predictor %in% "Yes"] <-

```

```

round(tempdata$Count[tempdata$Predictor %in% "Yes"]/sumyes*100, digits = 1)

```

```

sumno <- sum(subset(tempdata, Predictor %in% "No")$Count)

```

```

tempdata_prop$Count[tempdata_prop$Predictor %in% "No"] <-

```

```

round(tempdata$Count[tempdata$Predictor %in% "No"]/sumno*100, digits = 1)

```

```

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

```

```

nrespond <- sum(tempdata$Count)

```

```

nrespond

```

```

#count graph
title <- paste("Question 12 How much of a threat do you think high heat is to your personal health &
wellbeing? - by elderly presence (n =", nrespond, ")")
xaxis <- "At least one elder present in household"
yaxis <- "Elderly present"
ggplot(tempdata, aes(x = Predictor, y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor, y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
  ylim(0, 50)+
  labs(fill = "Severity")+
  scale_x_discrete(labels = c(paste("Yes (", sumyes, ")"), paste("No (", sumno, ")")))+
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size = 12), axis.title = element_text(size = 12), axis.title.x =
element_text(vjust = -2))

stackedheatelder <- tempdata_prop

...

###Question 12 subgroup with children at home
`` {r echo = FALSE, fig.height = 6, fig.width = 8}
#Question 12 How much of a threat do you think high heat is to your personal health & wellbeing?
table(datfinal$Q6_household_childyesno)
tempdata <- (table(datfinal$Q12_heatrisk_personalwellbeing, datfinal$Q6_household_childyesno)) ###
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

custom_order_row <- c("A severe threat",
  "A moderate threat",
  "A mild threat",
  "A very mild threat",
  "No threat")

```

```

custom_order_col <- c("Yes", "No")
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
tempdata_prop <- tempdata

sumyes <- sum(subset(tempdata, Predictor %in% "Yes")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "Yes"] <-
round(tempdata$Count[tempdata$Predictor %in% "Yes"]/sumyes*100, digits = 1)

sumno <- sum(subset(tempdata, Predictor %in% "No")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "No"] <-
round(tempdata$Count[tempdata$Predictor %in% "No"]/sumno*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tempdata$Count)
nrespond
#count graph
title <- paste("Question 12 How much of a threat do you think high heat is to your personal health &
wellbeing? - by child presence (n =", nrespond, ")")
xaxis <- "At least one child present in household"
yaxis <- "Child present"
ggplot(tempdata, aes(x = Predictor, y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor, y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
  ylim(0, 50)+
  labs(fill = "Legend")+
  scale_x_discrete(labels = c(paste("Yes (", sumyes, ")"), paste("No (", sumno, ")")))+
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size = 12), axis.title = element_text(size = 12), axis.title.x =
element_text(vjust = -2))

```

```

stackedheatchild <- tempdata_prop
...

## Q12 - subgroup analysis: Disability/Long term illness
```{r echo = FALSE, fig.height = 6, fig.width = 8}
tempdata <- (table(datfinal$Q12_heatrisk_personalwellbeing, datfinal$Q28_disability_anyone)) ###
# table(datfinal$Q28_disability_anyone)
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
custom_order_row <- c("A severe threat",
  "A moderate threat",
  "A mild threat",
  "A very mild threat",
  "No threat")
custom_order_col <- c("Yes", "No") ###
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
tempdata_prop <- tempdata

sumyes <- sum(subset(tempdata, Predictor %in% "Yes")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "Yes"] <-
round(tempdata$Count[tempdata$Predictor %in% "Yes"]/sumyes*100, digits = 1)

sumno <- sum(subset(tempdata, Predictor %in% "No")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "No"] <-
round(tempdata$Count[tempdata$Predictor %in% "No"]/sumno*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tempdata$Count)
nrespond
#count graph
title <- paste("Question 12 How much of a threat do you think high heat is to your personal health &
wellbeing? - by disability/chronic illness presence (n =", nrespond, ")")
xaxis <- "Personal or household disability/chronic illness"
yaxis <- "disability/chronic illness at home"
ggplot(tempdata, aes(x = Predictor, y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width =70))+

```

```

xlab(xaxis)+ ylab("Counts")+
labs(fill = "Legend")+
geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
geom_bar(stat = "identity", position = "dodge")+
scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
labs(title = str_wrap(title, width =70))+
xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
ylim(0, 50)+
labs(fill = "Legend")+
scale_x_discrete(labels = c(paste("Yes (",sumyes,")"), paste("No (",sumno,")")))+ ###
geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2))
```

```

```
## Q12 - subgroup analysis: ER/urgent care impact
```

```
`` {r echo = FALSE, fig.height = 6, fig.width = 8}
```

```
#Question 12 How much of a threat do you think high heat is to your personal health & wellbeing?
```

```
tempdata <- (table(datfinal$Q12_heatrisk_personalwellbeing, datfinal$Q32_ER_personal)) ###
```

```
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
```

```
custom_order_row <- c("A severe threat",
```

```
  "A moderate threat",
```

```
  "A mild threat",
```

```
  "A very mild threat",
```

```
  "No threat")
```

```
custom_order_col <- c("Yes", "No")###
```

```
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
```

```
colnames(tempdata) <- c("Threat", "Predictor", "Count")
```

```
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
```

```
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
```

```
tempdata_prop <- tempdata
```

```
sumyes <- sum(subset(tempdata, Predictor %in% "Yes")$Count)
```

```
tempdata_prop$Count[tempdata_prop$Predictor %in% "Yes"] <-
```

```
round(tempdata$Count[tempdata$Predictor %in% "Yes"]/sumyes*100, digits = 1)
```

```
sumno <- sum(subset(tempdata, Predictor %in% "No")$Count)
```

```

tempdata_prop$Count[tempdata_prop$Predictor %in% "No"] <-
round(tempdata$Count[tempdata$Predictor %in% "No"]/sumno*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tempdata$Count)
nrespond

title <- paste("Question 12 How much of a threat do you think high heat is to your personal health &
wellbeing? - by ER experience (n =",nrespond,")")
ggplot(tempdata, aes(x = Predictor,y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width =70))+
  xlab("Xaxis")+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width =70))+
  xlab("ER/Hospital/Urgent Care experience")+ ylab("Percent by ER/Hospital/Urgent Care experience")+
  ylim(0, 50)+
  labs(fill = "Legend")+
  scale_x_discrete(labels = c(paste("Yes (",sumyes,")"), paste("No (",sumno,")")))+ ###
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2))

stackedheatER <- tempdata_prop

...

## Q12 - subgroup analysis: Q37cooling system yes/no
```{r echo = FALSE, fig.height = 6, fig.width = 8}
#Question 12 How much of a threat do you think high heat is to your personal health & wellbeing?
tempdata <- (table(datfinal$Q12_heatrisk_personalwellbeing, datfinal$Q37_coolingsystem_yesno)) ###
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
custom_order_row <- c("A severe threat",
  "A moderate threat",
  "A mild threat",
  "A very mild threat",

```

```

      "No threat")
custom_order_col <- c("Yes", "No")
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
tempdata_prop <- tempdata

sumyes <- sum(subset(tempdata, Predictor %in% "Yes")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "Yes"] <-
round(tempdata$Count[tempdata$Predictor %in% "Yes"]/sumyes*100, digits = 1)

sumno <- sum(subset(tempdata, Predictor %in% "No")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "No"] <-
round(tempdata$Count[tempdata$Predictor %in% "No"]/sumno*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tempdata$Count)
nrespond
title <- paste("Question 12 How much of a threat do you think high heat is to your personal health &
wellbeing? - by cooling system access (n =", nrespond, ")")
xaxis <- "Has a cooling system"
ggplot(tempdata, aes(x = Predictor, y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor, y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab("Percent by Age Group")+
  ylim(0, 50)+
  labs(fill = "Legend")+
  scale_x_discrete(labels = c(paste("Yes (", sumyes, ")"), paste("No (", sumno, ")")))+ ###
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size = 12), axis.title = element_text(size = 12), axis.title.x =
  element_text(vjust = -2))

```

```

stackedheathmcooling <- tempdata_prop

...

## Q12 - subgroup analysis: Housing situation - rent
```{r echo = FALSE, fig.height = 6, fig.width = 8}
table(datfinal$Q9_livingsituation)
tempdata <- (table(datfinal$Q12_heatrisk_personalwellbeing, datfinal$Q9_livingsituation)) ###
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
custom_order_row <- c("A severe threat",
  "A moderate threat",
  "A mild threat",
  "A very mild threat",
  "No threat")
custom_order_col <- c("I or my family own my home",
  "I or my family rent my home")

  # "I am currently experiencing homelessness",
  # "Staying with friends or family",
  # "Other (please describe)")
custom_labels <-c("Rent home",
  "Own home")

tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
tempdata
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
tempdata_prop <- tempdata

sumown <- sum(subset(tempdata, Predictor %in% "I or my family own my home")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "I or my family own my home"] <-
round(tempdata$Count[tempdata$Predictor %in% "I or my family own my home"]/sumown*100, digits =
1)

sumrent <- sum(subset(tempdata, Predictor %in% "I or my family rent my home")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "I or my family rent my home"] <-
round(tempdata$Count[tempdata$Predictor %in% "I or my family rent my home"]/sumrent*100, digits =
1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

```

```

nrespond <- sum(tempdata$Count)
nrespond
#count graph
title <- paste("Question 12 How much of a threat do you think high heat is to your personal health &
wellbeing? - by housing situation (n =",nrespond,")")
xaxis <- "Housing Ownership"
yaxis <- "Housing Type"
ggplot(tempdata, aes(x = Predictor,y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
  ylim(0, 50)+
  labs(fill = "Legend")+
  scale_x_discrete(labels = c(paste("Own (",sumown,")"), paste("Rent (",sumrent,")")))+ ###
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
  element_text(vjust = -2))

...

## Q12 - subgroup analysis: Location
```{r echo = FALSE, fig.height = 6, fig.width = 8}
#Question 12 How much of a threat do you think high heat is to your personal health & wellbeing?
tempdata <- (table(datfinal$Q12_heatrisk_personalwellbeing, datfinal$locationgroup)) ###
tempdata
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
custom_order_row <- c("A severe threat",
  "A moderate threat",
  "A mild threat",
  "A very mild threat",
  "No threat")
custom_order_col <- c("District1",

```

```

    "District2",
    "District3",
    "OUTSIDE CITY")
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
tempdata_prop <- tempdata

sumd1 <- sum(subset(tempdata, Predictor %in% "District1")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "District1"] <-
round(tempdata$Count[tempdata$Predictor %in% "District1"]/sumd1*100, digits = 1)

sumd2 <- sum(subset(tempdata, Predictor %in% "District2")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "District2"] <-
round(tempdata$Count[tempdata$Predictor %in% "District2"]/sumd2*100, digits = 1)

sumd3 <- sum(subset(tempdata, Predictor %in% "District3")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "District3"] <-
round(tempdata$Count[tempdata$Predictor %in% "District3"]/sumd3*100, digits = 1)

sumOC <- sum(subset(tempdata, Predictor %in% "OUTSIDE CITY")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "OUTSIDE CITY"] <-
round(tempdata$Count[tempdata$Predictor %in% "OUTSIDE CITY"]/sumOC*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tempdata$Count)
nrespond

#count graph
title <- paste("Question 12 How much of a threat do you think high heat is to your personal health &
wellbeing? - by Location (n =", nrespond, ")")
xaxis <- "By District Location"
yaxis <- "Location"
ggplot(tempdata, aes(x = Predictor, y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph

```

```

ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
  ylim(0, 50)+
  labs(fill = "Legend")+
  scale_x_discrete(labels = c(paste("District1 (",sumd1,")"), paste("District2 (",sumd2,")"),
paste("District3 (",sumd3,")"), paste("OUTSIDE CITY (",sumOC,")")))+
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =10), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2))

```

...

```
##Q12 Aggregated Stacked Barplot - new plan to just import an excel table
```

```
`` {r echo = FALSE, fig.height = 6, fig.width = 8}
```

```
dat12.raw <-read.csv("Q12HeatRisk_aggregated2.csv")
```

```
tempdata <- dat12.raw
```

```
data.frame(tempdata)
```

```
#vulnerability, Heat.Threat, Percentage
```

```
# tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
```

```
tempdata$Percentage <- round(tempdata$Percentage*100,1)
```

```
custom_order_threat <- c("severe",
```

```
  "moderate",
```

```
  "mild",
```

```
  "very mild",
```

```
  "no threat")
```

```
tempdata$Heat.Threat <- factor(tempdata$Heat.Threat, levels = custom_order_threat)
```

```
custom_order_vul <- c("Age Group >64 (n=322)",
```

```
"Age Group 45-64 (n= 513)",
```

```
"Age Group <45 (n=574)",
```

```
"1",
```

```
"Elderly at home - YES (n=419)",
```

```
"Elderly at home - NO (n=976)",
```

```
"2",
```

```
"Child at home - YES (n=413)",
```

"Child at home - No (n=985)",  
"3",  
"Disability/illness at home - YES (n=548)",  
"Disability/illness at home - NO (n=795)",  
"4",  
"ER/urgent - YES (n=69)",  
"ER/urgent - NO (n=1264)",  
"5",  
"Home cooling - NO (n=135)",  
"Home cooling - YES (n=1213)",  
"6",  
"Home Renter (n=376)",  
"Home Owner (n=959)",  
"7",  
"District 1 (n=307)",  
"District 2 (n=409)",  
"District 3 (n=379)",  
"Outside city (n=246)"

```
tempdata$Vulnerability <- factor(tempdata$Vulnerability, levels = rev(custom_order_vul))
```

```
custom_labels <- rev(c("Age Group >64 (n=322)",  
"Age Group 45-64 (n=513)",  
"Age Group <45 (n=574)",  
" ",  
"Has Elderly (n=419)",  
"No Elderly (n=976)",  
" ",  
"Has Child (n=413)",  
"No Child (n=985)",  
" ",  
"Has Medical Illness (n=548)",  
"No Medical Illness (n=795)",  
" ",  
"Been to ER/UrgentCare (n=69)",  
"No ER/urgentCare (n=1264)",  
" ",  
"No Home cooling (n=135)",  
"Has Home cooling (n=1213)",  
" ",  
"Renter (n=376)",  
"Owner (n=959)",  
" ",  
"District 1 (n=307)",
```

```
"District 2 (n=409)",  
"District 3 (n=379)",  
"Outside city (n=246)"))
```

```
title <- paste("Question 12 - How much of a threat do you think high heat is to your personal health &  
wellbeing? - By Vulnerability Factors")
```

```
ggplot(tempdata, aes(x= Vulnerability, y = Percentage, fill = Heat.Threat))+  
  geom_bar(stat = "identity")+  
  coord_flip()+  
  scale_fill_manual(values = c("#C02323", "#EF7E32", "#F8D90F", "#8CC152", "#3BAFDA"))+  
  labs(title = str_wrap(title, width =60))+  
  xlab("Vulnerability Factors")+ ylab("Percent within each group")+  
  labs(fill = "Perceived Heat threat:")+  
  scale_x_discrete(labels = custom_labels)+  
  guides(fill = guide_legend(reverse = TRUE))+  
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 14) ,axis.title.x =  
element_text(vjust = 0), axis.title.y = element_text(vjust = 4), axis.text.y = element_text(angle = 0, size  
=12), legend.position = "top", plot.margin = margin(0,0,25,25))
```

```
...
```

```
##Question 14
```

```
`` {r echo = FALSE, fig.height = 6, fig.width = 8}
```

```
##Question 14 How much of a threat do you think high heat is to your personal economic wellbeing (e.g.,  
ability to pay utility bills, ability to work, etc.)?
```

```
tempdata <- table(datfinal$Q14_heatrisk_personalecon) ###
```

```
custom_order_row <- c("A severe threat",  
  "A moderate threat",  
  "A mild threat",  
  "A very mild threat",  
  "No threat",  
  "BLANK")
```

```
tempdata <- as.data.frame(tempdata[custom_order_row])
```

```
colnames(tempdata) <- c("row_names", "count")
```

```
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
```

```
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
```

```
excluded_values <- datfinal$Q12_heatrisk_personalwellbeing %in% "BLANK" #####
```

```

nrespond <- sum(!excluded_values)
nrespond
tempdata$prop_respond <- round(tempdata$count/nrespond*100, digits = 1)
tempdata[tempdata$row_names == "BLANK", "prop_respond"] <- NA

colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q14_heatrisk_personalecon" ###
tableQ14_heatrisk_personalecon <- tempdata ###
tableQ14_heatrisk_personalecon

write.table(tableQQ14_heatrisk_personalecon, "clipboard-16384", sep = "\t", row.names = FALSE, quote
= FALSE)

graph <- tableQ14_heatrisk_personalecon ###
title <- "Question 14 How much of a threat do you think high heat is to your personal economic wellbeing
(e.g., ability to pay utility bills, ability to work, etc.)?"
ggplot(graph,
  aes(x = Q14_heatrisk_personalecon, y = prop_1502, fill = Q14_heatrisk_personalecon))+ ###
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width = 70))+
  xlab("Severity")+ ylab(paste("Percentage out of total ( n = ", nrespond, ")"))+
  ylim(0, 40)+
  ylim(0, 50)+
  labs(fill = "Severity")+
  geom_text(aes(label = prop_1502), color = "black", size = 3, vjust = 1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 90), )
...
## Questions 12 and 14 arranged together

```{r echo = FALSE, fig.height = 7, fig.width = 12}

graph1 <-
tableQ12_heatrisk_personalwellbeing[tableQ12_heatrisk_personalwellbeing$Q12_heatrisk_personalwell
being!="BLANK",]
title1 <- "Heat Threat on Personal Health "
nrespond <- 1348
plot1 <- ggplot(graph1,
  aes(x = Q12_heatrisk_personalwellbeing, y = prop_respond, fill =
Q12_heatrisk_personalwellbeing))+ ###
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue"))+
  # labs(title = str_wrap(title1, width = 50))+
  xlab("Health Level of Threat")+ ylab(paste("Percentage out of total (n = ", nrespond, ")"))+
  ylim(0, 40)+

```

```

ylim(0, 40)+
labs(fill = "Severity")+
geom_text(aes(label = prop_respond), color = "black", size = 5, vjust = -1, position =
position_dodge(0.9))+
scale_x_discrete(labels = c("Severe", "Moderate", "Mild", "Very Mild", "None"))+
theme(axis.text.x = element_text(angle = 0, size = 15), axis.title = element_text(size = 14), axis.title.x =
element_text(vjust = -3), legend.position = "none", plot.margin = margin(0,0,50,25))

```

```

graph2 <-
tableQ14_heatrisk_personalecon[tableQ14_heatrisk_personalecon$Q14_heatrisk_personalecon!="BLAN
K",] ###
title2 <- "Heat Threat on Personal Economic Wellbeing (e.g., ability to pay utility bills, ability to work,
etc.)?"
nrespond <- 1347

```

```

plot2 <- ggplot(graph2,
aes(x = Q14_heatrisk_personalecon, y = prop_respond, fill = Q14_heatrisk_personalecon))+
geom_bar(stat = "identity", position = "dodge")+
scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue"))+
# labs(title = str_wrap(title2, width = 50))+
xlab("Economic Level of Threat")+ ylab(paste("Percentage out of total (n =", nrespond, ")"))+
ylim(0, 40)+
ylim(0, 40)+
labs(fill = "Severity")+
geom_text(aes(label = prop_respond), color = "black", size = 5, vjust = -1, position =
position_dodge(0.9))+
scale_x_discrete(labels = c("Severe", "Moderate", "Mild", "Very Mild", "None"))+
theme(axis.text.x = element_text(angle = 0, size = 15), axis.title = element_text(size = 14), axis.title.x =
element_text(vjust = -3), legend.position = "none", plot.margin = margin(0,0,50,25))

```

```

grid.arrange(plot1, plot2, ncol = 2)

```

```

...

```

```

##Question 48

```

```

`` {r echo = FALSE, fig.height = 7, fig.width = 10}

```

```

##Question 48 When it comes to the level of heat in your neighborhood (during heat events), how do you
rank your neighborhood compared to other neighborhoods in the city?

```

```

tempdata <- table(datfinal$Q48_neighborhood_heat_rank) ###

```

```

custom_order_row <- c("A great deal hotter in my neighborhood than in others",
"A moderate amount hotter in my neighborhood than in others",
"The same level of heat in my neighborhood than in others",

```

```

      "A moderate amount cooler in my neighborhood than in others",
      "A great deal cooler in my neighborhood than in others",
      "BLANK")
custom_labels <-c("great deal hotter",
  "moderate hotter",
  "same level",
  "moderate cooler",
  "great deal cooler",
  "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("Q48_neighborhood_heat_rank", "count") ###
tempdata$Q48_neighborhood_heat_rank <- custom_labels ###
tempdata$prop_1502 <-round(tempdata$count/nrow(datfinal)*100, digits = 1)
tempdata$Q48_neighborhood_heat_rank <- factor(tempdata$Q48_neighborhood_heat_rank, levels =
custom_labels) ###
tableQ48_neighborhood_heat_rank <- tempdata ###

tableQ48_neighborhood_heat_rank
write.table(tableQ48_neighborhood_heat_rank, "clipboard-16384", sep = "\t", row.names = FALSE, quote
= FALSE)

graph <- tableQ48_neighborhood_heat_rank ###
title <- "Question 48 When it comes to the level of heat in your neighborhood (during heat events), how
do you rank your neighborhood compared to other neighborhoods in the city?"
ggplot(graph,
  aes(x = Q48_neighborhood_heat_rank,y = prop_1502, fill = Q48_neighborhood_heat_rank))+ ###
  geom_bar(stat = "identity",position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width =70))+
  xlab("Severity")+ ylab("Percentage out of total (1502)")+
  ylim(0, 50)+
  labs(fill = "Severity")+
  geom_text(aes(label = prop_1502), color = "black", size = 3, vjust=1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 90), )
```


```

```
###Question 22 (split)
```{r echo = FALSE, fig.height = 7, fig.width = 10}
###Question 22 If applicable, select the ways that extreme heat events have affected your ability to work
(circle all that apply):

###note: no one selected not applicable
table(datfinal$Q22_affectworkability) ###

```


```

```

tempdata<-bind_rows(
  table(datfinal$`Q22_affectworkability_Heat related illness has prevented me from going to work`),
  table(datfinal$`Q22_affectworkability_Extreme heat has affected how I get to work (transportation)`),
  table(datfinal$`Q22_affectworkability_I have worked in extreme heat conditions and experienced
negative health or other side effects.`),
  table(datfinal$`Q22_affectworkability_Heat related illness of a household member has prevented me
from going to work because I had to care for the household member`),
  table(datfinal$`Q22_affectworkability_Heat related lack of rest or sleep has prevented me from being
rested enough to go to work`),
  # table(datfinal$`Q22_affectworkability_Not Applicable`),
  table(datfinal$Q22_affectworkability_BLANK),
)
colnames(tempdata) <- c("nocount", "count")
tempdata$row_names <- c("Prevent going to work", "Affected transportation", "Experienced neg health",
"Need to care for household", "Lack of sleep", "BLANK") ###
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names","count","prop_1502"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q22_affectworkability" ###
tableQ22_affectworkability <- tempdata ###

```

```

tableQ22_affectworkability
write.table(tableQ22_affectworkability, "clipboard-16384", sep = "\t", row.names = FALSE, quote =
FALSE)

```

```

graph <- tableQ22_affectworkability ###
title <- "Question 22 If applicable, select the ways that extreme heat events have affected your ability to
work (circle all that apply):"

```

```

ggplot(graph,
  aes(x = reorder(Q22_affectworkability , prop_1502),y = prop_1502))+ ###
  geom_bar(stat = "identity", position = "dodge",fill = "lightblue")+
  coord_flip()+
  labs(title = str_wrap(title, width =70))+
  xlab("Types")+ylab("Percentage out of total (1502)")+
  ylim(0, 70)+
  theme(axis.text.y = element_text(size = 12), )+
  geom_text(aes(label = prop_1502), color = "black", size = 4, hjust = -0.2, position =
position_dodge(0.9))

```

```

```

```

```

##Question 27

```

```

```{r echo = FALSE, fig.height = 7, fig.width = 10}

```

```

##Question 27 How familiar are you with the symptoms and risk factors associated with heat-related
illness?
# datfinal$Q27_heatfamiliarity
tempdata <- table(datfinal$Q27_heatfamiliarity) ###
custom_order_row <- c("Extremely familiar",
  "Very familiar",
  "Moderately familiar",
  "Slightly familiar",
  "Not at all familiar",
  "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("Q27_heatfamiliarity", "count") ###
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
tempdata$Q27_heatfamiliarity <- factor(tempdata$Q27_heatfamiliarity, levels = custom_order_row) ###
tableQ27_heatfamiliarity <- tempdata ###

tableQ27_heatfamiliarity
write.table(tableQ27_heatfamiliarity, "clipboard-16384", sep = "\t", row.names = FALSE, quote =
FALSE)

graph <- tableQ27_heatfamiliarity ###
title <- "Question 27 How familiar are you with the symptoms and risk factors associated with
heat-related illness?"
ggplot(graph,
  aes(x = Q27_heatfamiliarity,y = prop_1502, fill = Q27_heatfamiliarity))+ ###
  geom_bar(stat = "identity",position = "dodge")+
  scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
  labs(title = str_wrap(title, width =70))+
  xlab("Types")+ ylab("Percentage out of total (1502)")+
  ylim(0, 50)+
  labs(fill = "Legend")+
  geom_text(aes(label = prop_1502), color = "black", size = 3, vjust =1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 90), )
` ``
` ``

##Question 30 (split)
`` {r echo = FALSE, fig.height = 7, fig.width = 10}
##Question 30 Have you ever experienced any of the following physical health conditions due to heat?
(Circle all that apply)

##note: no one selected respiratory distress
table(datfinal$Q30_heatsymptoms) ###
tempdata<-bind_rows(
  table(datfinal$`Q30_heatsymptoms_Discomfort related to heat`),

```

```

table(datfinal$`Q30_heatsymptoms_Heat cramps (muscle spasms due to a loss of a large amount of salt
and water through exercise)`),
table(datfinal$`Q30_heatsymptoms_Heat exhaustion (can include heavy sweating and a rapid pulse due
to overheating)`),
table(datfinal$`Q30_heatsymptoms_Heat stroke (results in a body temperature greater than 104 °F and
confusion)`),
table(datfinal$`Q30_heatsymptoms_Fainting or dizziness`),

table(datfinal$`Q30_heatsymptoms_I have not experienced any of these conditions or illnesses`),
table(datfinal$Q30_heatsymptoms_Other),
table(datfinal$Q30_heatsymptoms_BLANK)
)
colnames(tempdata) <- c("nocount", "count")
tempdata$row_names <- c("Discomfort", "Heat cramps", "Heat exhaustion", "Heat Stroke",
"Fainting/dizzy", "No experienced any", "Other", "BLANK" )
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)

excluded_values <- datfinal$Q30_heatsymptoms %in% "BLANK" #####
nrespond <- sum(!excluded_values)
nrespond
tempdata$prop_respond <-round(tempdata$count/nrespond*100, digits = 1)
tempdata[tempdata$row_names == "BLANK", "prop_respond"] <- NA
tempdata

tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names", "count", "prop_1502", "prop_respond"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q30_heatsymptoms" ###
tableQ30_heatsymptoms <- tempdata ###

tableQ30_heatsymptoms
write.table(tableQ30_heatsymptoms, "clipboard-16384", sep = "\t", row.names = FALSE, quote =
FALSE)

graph <- tableQ30_heatsymptoms ###
title <- "Question 30 Have you ever experienced any of the following physical health conditions due to
heat? (Circle all that apply)"
ggplot(graph,
aes(x = reorder(Q30_heatsymptoms, prop_1502), y = prop_1502))+ ###
geom_bar(stat = "identity", position = "dodge", fill = "lightblue")+
coord_flip()+
labs(title = str_wrap(title, width =70))+
xlab("Types")+ylab("Percentage out of total (1502)")+
ylim(0, 80)+
theme(axis.text.y = element_text(size = 12), )+

```

```
geom_text(aes(label = prop_1502), color = "black", size = 4, hjust = -0.2, position =  
position_dodge(0.9))
```

```
``
```

```
##Question 32
```

```
`` {r echo = FALSE, fig.height = 7, fig.width = 7}
```

```
##Question 32 Have you ever been hospitalized or visited the Emergency Room or Urgent Care because  
of a heat-related health issue?
```

```
# datfinal$Q32_ER_personal
```

```
table(datfinal$Q32_ER_personal) ###
```

```
tempdata <- table(datfinal$Q32_ER_personal) ###
```

```
custom_order_row <- c("Yes",
```

```
  "No",
```

```
  "Prefer not to answer",
```

```
  "BLANK")
```

```
tempdata <- as.data.frame(tempdata[custom_order_row])
```

```
colnames(tempdata) <- c("row_names", "count")
```

```
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
```

```
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
```

```
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q32_ER_personal" ###
```

```
tableQ32_ER_personal <- tempdata ###
```

```
tableQ32_ER_personal
```

```
# write.table(tableQ32_ER_personal, "clipboard-16384", sep = "\t", row.names = FALSE, quote =  
FALSE)
```

```
graph <- tableQ32_ER_personal ###
```

```
title <- "Question 32 Have you ever been hospitalized or visited the Emergency Room or Urgent Care  
because of a heat-related health issue?"
```

```
ggplot(graph,
```

```
  aes(x = Q32_ER_personal,y = prop_1502, fill = Q32_ER_personal))+ ###
```

```
geom_bar(stat = "identity",position = "dodge")+
```

```
scale_fill_manual(values = c("red", "orange", "yellow", "lightgreen", "lightblue", "grey"))+
```

```
labs(title = str_wrap(title, width =70))+
```

```
xlab("Types")+ ylab("Percentage out of total (1502))+
```

```
ylim(0, 100)+
```

```
labs(fill = "Report")+
```

```
theme(axis.text.x = element_text(angle = 90, size =12), )+
```

```
geom_text(aes(label = prop_1502), color = "black", size =4, vjust =-1, position = position_dodge(0.9))
```

```
``
```

```
##Question 33
`` {r echo = FALSE, fig.height = 7, fig.width = 10}
##questions 33 Has anyone in hour household ever been hospitalized or visited the Emergency Room or
Urgent Care because of a heat-related health issue?
```

```
# datfinal$Q33_ER_household
table(datfinal$Q33_ER_household)
tempdata <- table(datfinal$Q33_ER_household) ###
custom_order_row <- c("Yes",
  "No",
  "Prefer not to answer",
  "Not applicable",
  "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q33_ER_household" ###
tableQ33_ER_household <- tempdata ###
```

```
tableQ33_ER_household
write.table(tableQ33_ER_household, "clipboard-16384", sep = "\t", row.names = FALSE, quote =
FALSE)
``
```

```
##Question 32 and 33 combined
## Gonzaga-presentation
personal: yes 67
household: yes 71
`` {r echo = FALSE, fig.height = 7, fig.width = 7}
table(datfinal$Q32_ER_personal)
table(datfinal$Q32_ER_personal,datfinal$Q33_ER_household)
```

```
##Question 32+33 Has anyone gone to the ER/hospitalized or urgent care for heat related issue?
```

```
table(datfinal$Q32_ER_anyone) ###
tempdata <- table(datfinal$Q32_ER_anyone) ###
custom_order_row <- c("Yes",
  "No",
  "BLANK or Prefer not to answer")
custom_labels <- c("Yes",
  "No",
  "BLANK or Prefer not to answer")
tempdata <- as.data.frame(tempdata[custom_order_row])
```

```

colnames(tempdata) <- c("Q32_ER_anyone", "count") ###
tempdata$Q32_ER_anyone <- custom_labels ###
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
excluded_values <- datfinal$Q32_ER_anyone %in% c("BLANK or Prefer not to answer") ###
nrespond <- sum(!excluded_values)
nrespond
tempdata$prop_respond <- round(tempdata$count/nrespond*100, digits = 1)
tempdata[tempdata$row_names == "BLANK or Prefer not to answer", "prop_respond"] <- NA
tempdata$Q32_ER_anyone <- factor(tempdata$Q32_ER_anyone, levels = custom_labels) ###
tableQ32_ER_anyone <- tempdata ###
tableQ32_ER_anyone

tableQ32_ER_anyone
# write.table(tableQ32_ER_personal, "clipboard-16384", sep = "\t", row.names = FALSE, quote =
FALSE)

title <- "Q32+33: Have you or anyone in the household been hospitalized, emergency room, or urgent
care for a heat-related issue?"
graph <- tableQ32_ER_anyone[tableQ32_ER_anyone$Q32_ER_anyone!="BLANK or Prefer not to
answer",]
graph

ggplot(graph,
aes(x = Q32_ER_anyone,y = prop_respond, fill = Q32_ER_anyone))+ ###
geom_bar(stat = "identity",position = "dodge")+
scale_fill_manual(values = c("red", "lightblue"))+
labs(title = str_wrap(title, width =70))+
xlab("Sought medical care for heat-related health issue")+ ylab(paste("Percentage out of total (n =",
nrespond, ")"))+
ylim(0, 100)+
labs(fill = "Severity")+
geom_text(aes(label = prop_respond), color = "black", size = 5, vjust = -1, position =
position_dodge(0.9))+
theme(
axis.text.x = element_text(angle = 0, size =12),
axis.title = element_text(size = 12),
axis.title.x = element_text(vjust = -2),
legend.position = "none",
plot.margin = margin(50,50,50,50))

...

###Question 33 yesmaybeno by age group

```

```

`` {r echo = FALSE, fig.height = 6, fig.width = 8}

##Q32+33. Has anyone gone to the ER/hospitalized or urgent care for heat related issue?
tempdata <- (table(datfinal$Q33_ER_household, datfinal$agegroup)) ###
tempdata
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

custom_order_row <- c("Yes", "No")
custom_order_col <- c("<45yo", "45-64yo", ">64yo")
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)

tempdata_prop <- tempdata

sum45 <- sum(subset(tempdata, Predictor %in% "<45yo")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "<45yo"] <-
round(tempdata$Count[tempdata$Predictor %in% "<45yo"]/sum45*100, digits = 1)

sum4564 <- sum(subset(tempdata, Predictor %in% "45-64yo")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "45-64yo"] <-
round(tempdata$Count[tempdata$Predictor %in% "45-64yo"]/sum4564*100, digits = 1)

sum64 <- sum(subset(tempdata, Predictor %in% ">64yo")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% ">64yo"] <-
round(tempdata$Count[tempdata$Predictor %in% ">64yo"]/sum64*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop")

nrespond <- sum(tempdata$Count)
nrespond
#count graph
title <- paste("Q32+33. Has anyone gone to the ER/hospitalized or urgent care for heat related issue? - by
Age Group (n =", nrespond, ")")
ggplot(tempdata, aes(x = Predictor, y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#F8766D", "#00c1aa"))+
  labs(title = str_wrap(title, width = 70))+
  xlab("Xaxis")+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph

```

```

ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#F8766D", "#00c1aa"))+
  labs(title = str_wrap(title, width =70))+
  xlab("Age Group")+ ylab("Percent by Age Group")+
  # ylim(0, 50)+
  labs(fill = "Medical Eval")+
  scale_x_discrete(labels = c(paste("<45yo (",sum45,")"), paste("45-64yo (",sum4564,")"), paste(">64yo
(",sum64,")")))+
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2))

```

...

```
####Question 33 by Elderly at home
```

```
`{r echo = FALSE, fig.height = 6, fig.width = 8}
```

```
##Q32+33. Has anyone gone to the ER/hospitalized or urgent care for heat related issue?
tempdata <- (table(datfinal$Q33_ER_household, datfinal$Q7_household_elderlyesno))###
tempdata
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
```

```
custom_order_row <- c("Yes", "No")
custom_order_col <- c("Yes", "No")
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
tempdata_prop <- tempdata
```

```
sumyes <- sum(subset(tempdata, Predictor %in% "Yes")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "Yes"] <-
round(tempdata$Count[tempdata$Predictor %in% "Yes"]/sumyes*100, digits = 1)
```

```
sumno <- sum(subset(tempdata, Predictor %in% "No")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "No"] <-
round(tempdata$Count[tempdata$Predictor %in% "No"]/sumno*100, digits = 1)
```

```
colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop
```

```
nrespond <- sum(tempdata$Count)
nrespond
#count graph
```

```

title <- paste("Q32+33. Has anyone gone to the ER/hospitalized or urgent care for heat related issue? - by
elderly presence (n =", nrespond, ")")
xaxis <- "At least one elder present in household"
yaxis <- "Elderly present"
ggplot(tempdata, aes(x = Predictor, y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#F8766D", "#00c1aa"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor, y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#F8766D", "#00c1aa"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
  # ylim(0, 50)+
  labs(fill = "Medical Eval")+
  scale_x_discrete(labels = c(paste("Yes (", sumyes, ")"), paste("No (", sumno, ")")))+
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size = 12), axis.title = element_text(size = 12), axis.title.x =
element_text(vjust = -2))

...

####Question 33 by children at home
```{r echo = FALSE, fig.height = 6, fig.width = 8}
##Q32+33. Has anyone gone to the ER/hospitalized or urgent care for heat related issue?
tempdata <- (table(datfinal$Q33_ER_household, datfinal$Q6_household_childyesno)) ###
tempdata
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

custom_order_row <- c("Yes", "No")
custom_order_col <- c("Yes", "No")
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
tempdata_prop <- tempdata

sumyes <- sum(subset(tempdata, Predictor %in% "Yes")$Count)

```

```

tempdata_prop$Count[tempdata_prop$Predictor %in% "Yes"] <-
round(tempdata$Count[tempdata$Predictor %in% "Yes"]/sumyes*100, digits = 1)

sumno <- sum(subset(tempdata, Predictor %in% "No")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "No"] <-
round(tempdata$Count[tempdata$Predictor %in% "No"]/sumno*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tempdata$Count)
nrespond
#count graph
title <- paste("Q32+33. Has anyone gone to the ER/hospitalized or urgent care for heat related issue? - by
child presence (n =", nrespond, ")")
xaxis <- "At least one child present in household"
yaxis <- "Child present"
ggplot(tempdata, aes(x = Predictor, y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#F8766D", "#00c1aa"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor, y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#F8766D", "#00c1aa"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
  # ylim(0, 50)+
  labs(fill = "Medical Eval")+
  scale_x_discrete(labels = c(paste("Yes (", sumyes, ")"), paste("No (", sumno, ")")))+
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size = 12), axis.title = element_text(size = 12), axis.title.x =
element_text(vjust = -2))

...

##Question 33 by Disability/Long term illness
`` {r echo = FALSE, fig.height = 6, fig.width = 8}
##Q32+33. Has anyone gone to the ER/hospitalized or urgent care for heat related issue?
tempdata <- (table(datfinal$Q33_ER_household, datfinal$Q28_disability_anyone)) ###

```

```

tempdata
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

custom_order_row <- c("Yes", "No")
custom_order_col <- c("Yes", "No") ###
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
tempdata_prop <- tempdata

sumyes <- sum(subset(tempdata, Predictor %in% "Yes")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "Yes"] <-
round(tempdata$Count[tempdata$Predictor %in% "Yes"]/sumyes*100, digits = 1)

sumno <- sum(subset(tempdata, Predictor %in% "No")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "No"] <-
round(tempdata$Count[tempdata$Predictor %in% "No"]/sumno*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tempdata$Count)
nrespond
#count graph
title <- paste("Q32+33. Has anyone gone to the ER/hospitalized or urgent care for heat related issue? - by
disability/chronic illness presence (n =", nrespond, ")")
xaxis <- "Personal or household disability/chronic illness"
yaxis <- "disability/chronic illness at home"
ggplot(tempdata, aes(x = Predictor, y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#F8766D", "#00c1aa"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor, y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#F8766D", "#00c1aa"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
  # ylim(0, 50)+
  labs(fill = "Medical Eval")+

```

```

  scale_x_discrete(labels = c(paste("Yes (",sumyes,")"), paste("No (",sumno,")")))+ ###
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size = 12), axis.title = element_text(size = 12) ,axis.title.x =
  element_text(vjust = -2))
````

```

```
##Question 33 by Housing situation - rent
```

```
`` {r echo = FALSE, fig.height = 6, fig.width = 8}
```

```
##Q32+33. Has anyone gone to the ER/hospitalized or urgent care for heat related issue?
```

```
tempdata <- (table(datfinal$Q33_ER_household, datfinal$Q9_livingsituation)) ###
```

```
tempdata
```

```
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
```

```
custom_order_row <- c("Yes", "No")
```

```
custom_order_col <- c("I or my family own my home",
  "I or my family rent my home")
```

```
  # "I am currently experiencing homelessness",
```

```
  # "Staying with friends or family",
```

```
  # "Other (please describe)")
```

```
custom_labels <-c("Rent home",
  "Own home")
```

```
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
```

```
tempdata
```

```
colnames(tempdata) <- c("Threat", "Predictor", "Count")
```

```
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
```

```
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
```

```
tempdata_prop <- tempdata
```

```
sumown <- sum(subset(tempdata, Predictor %in% "I or my family own my home")$Count)
```

```
tempdata_prop$Count[tempdata_prop$Predictor %in% "I or my family own my home"] <-
```

```
round(tempdata$Count[tempdata$Predictor %in% "I or my family own my home"]/sumown*100, digits =
1)
```

```
sumrent <- sum(subset(tempdata, Predictor %in% "I or my family rent my home")$Count)
```

```
tempdata_prop$Count[tempdata_prop$Predictor %in% "I or my family rent my home"] <-
```

```
round(tempdata$Count[tempdata$Predictor %in% "I or my family rent my home"]/sumrent*100, digits =
1)
```

```
colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop
```

```
nrespond <- sum(tempdata$Count)
```

```

nrespond
#count graph
title <- paste("Q32+33. Has anyone gone to the ER/hospitalized or urgent care for heat related issue? - by
housing situation (n =",nrespond,")")
xaxis <- "Housing Ownership"
yaxis <- "Housing Type"
ggplot(tempdata, aes(x = Predictor,y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#F8766D", "#00c1aa"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#F8766D", "#00c1aa"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
  # ylim(0, 50)+
  labs(fill = "Medical Eval")+
  scale_x_discrete(labels = c(paste("Own (",sumown,")"), paste("Rent (",sumrent,")")))+ ###
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2))

...

##Question 33 by Location District
`` {r echo = FALSE, fig.height = 6, fig.width = 8}
##Q32+33. Has anyone gone to the ER/hospitalized or urgent care for heat related issue?
tempdata <- (table(datfinal$Q33_ER_household, datfinal$locationgroup)) ###
tempdata
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

custom_order_row <- c("Yes", "No")
custom_order_col <- c("District1",
  "District2",
  "District3",
  "OUTSIDE CITY")
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)

```

```

tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
tempdata_prop <- tempdata

sumd1 <- sum(subset(tempdata, Predictor %in% "District1")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "District1"] <-
round(tempdata$Count[tempdata$Predictor %in% "District1"]/sumd1*100, digits = 1)

sumd2 <- sum(subset(tempdata, Predictor %in% "District2")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "District2"] <-
round(tempdata$Count[tempdata$Predictor %in% "District2"]/sumd2*100, digits = 1)

sumd3 <- sum(subset(tempdata, Predictor %in% "District3")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "District3"] <-
round(tempdata$Count[tempdata$Predictor %in% "District3"]/sumd3*100, digits = 1)

sumOC <- sum(subset(tempdata, Predictor %in% "OUTSIDE CITY")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "OUTSIDE CITY"] <-
round(tempdata$Count[tempdata$Predictor %in% "OUTSIDE CITY"]/sumOC*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tempdata$Count)
nrespond

#count graph
title <- paste("Q32+33. Has anyone gone to the ER/hospitalized or urgent care for heat related issue? - by
Location (n =", nrespond, ")")
xaxis <- "By District Location"
yaxis <- "Location"
ggplot(tempdata, aes(x = Predictor, y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#F8766D", "#00c1aa"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor, y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#F8766D", "#00c1aa"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
  # ylim(0, 50)+

```

```

labs(fill = "Medical Eval")+
scale_x_discrete(labels = c(paste("District1 (",sumd1,")"), paste("District2 (",sumd2,")"),
paste("District3 (",sumd3,")"), paste("OUTSIDE CITY (",sumOC,")")))+
geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
theme(axis.text.x = element_text(angle = 0, size = 10), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2))

```

...

```
##Question 36
```

```
` `{r echo = FALSE, fig.height = 7, fig.width = 10}
```

```
##Question 36 On very hot days, are you more likely to stay in your home or go somewhere else to stay cool?
```

```
table(datfinal$Q36_stayathome)
```

```
tempdata <- table(datfinal$Q36_stayathome) ###
```

```
custom_order_row <- c("Stay home",
```

```
  "Go elsewhere",
```

```
  "I am currently experiencing homelessness",
```

```
  "BLANK")
```

```
custom_labels <-c("Stay home",
```

```
  "Go elsewhere",
```

```
  "Homeless",
```

```
  "BLANK")
```

```
tempdata <- as.data.frame(tempdata[custom_order_row])
```

```
colnames(tempdata) <- c("Q36_stayathome", "count") ###
```

```
tempdata$Q36_stayathome <- custom_labels ###
```

```
tempdata$prop_1502 <-round(tempdata$count/nrow(datfinal)*100, digits = 1)
```

```
tempdata$Q36_stayathome <- factor(tempdata$Q36_stayathome, levels = custom_labels) ###
```

```
tableQ36_stayathome <- tempdata ###
```

```
tableQ36_stayathome
```

```
write.table(tableQ36_stayathome, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
```

```
test <- tableQ36_stayathome ###
```

```
title <- "Question 36 On very hot days, are you more likely to stay in your home or go somewhere else to stay cool?"
```

```
ggplot(test,
```

```
  aes(x = Q36_stayathome,y = prop_1502, fill = Q36_stayathome))+ ###
```

```
geom_bar(stat = "identity",position = "dodge")+
```

```
scale_fill_manual(values = c("lightblue", "lightgreen", "red", "grey" ))+
```

```
labs(title = str_wrap(title, width = 70))+
```

```
xlab("Types")+ ylab("Percentage out of total (1502))+
```

```
# ylim(0, 100)+
```

```

labs(fill = "Legend")+
theme(axis.text.x = element_text(angle = 90, size = 12), )
# geom_text(aes(label = prop_1502), color = "black", size = 4, vjust =-1, position =
position_dodge(0.9))

...

##Question 37
```{r echo = FALSE, fig.height = 6, fig.width = 7}
##Question 37. Does your home have any cooling systems?
table(datfinal$Q37_coolingsystem_yesno)
tempdata <- table(datfinal$Q37_coolingsystem_yesno) ###
custom_order_row <- c("Yes",
                      "No",
                      "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("Q37_coolingsystem_yesno", "count") ###
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
tempdata$Q37_coolingsystem_yesno <- factor(tempdata$Q37_coolingsystem_yesno, levels =
custom_order_row) ###
tableQ37_coolingsystem_yesno <- tempdata ###
tableQ37_coolingsystem_yesno

write.table(tableQ37_coolingsystem_yesno, "clipboard-16384", sep = "\t", row.names = FALSE, quote =
FALSE)

graph <- tableQ37_coolingsystem_yesno ###
title <- "Question 37. Does your home have any cooling systems?"
ggplot(graph,
       aes(x = Q37_coolingsystem_yesno,y = prop_1502, fill = Q37_coolingsystem_yesno))+ ###
  geom_bar(stat = "identity",position = "dodge")+
  scale_fill_manual(values = c("lightblue", "orange", "grey"))+
  labs(title = str_wrap(title, width =70))+
  xlab("Types")+ ylab("Percentage out of total (1502)")+
  ylim(0, 100)+
  labs(fill = "Legend")+
  theme(axis.text.x = element_text(angle = 0, size =10), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2))+
  geom_text(aes(label = prop_1502), color = "black", size = 4, vjust =-1, position = position_dodge(0.9))

...

```

```

##test for do people who use cooling centers not have home a/c
```{r echo = FALSE, fig.height = 6, fig.width = 8}
##Question 36. would you stay in your home or go somewhere else by cooling system
tempdata <- (table(datfinal$Q36_stayathome, datfinal$Q38_coolingsystem_typeatmost)) ###
tempdata
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)

tempdata_prop <- round(prop.table(table(datfinal$Q36_stayathome, datfinal$Q37_coolingsystem_yesno),
margin =2)*100,digits =1) ###
tempdata_prop
custom_order_row <- c("Stay home", "Go elsewhere", "I am currently experiencing homelessness",
"BLANK")
custom_order_col <- c("Yes", "No", "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
tempdata$Var1 <- factor(tempdata$Var1, levels = custom_order_row)
tempdata$Var2 <- factor(tempdata$Var2, levels = custom_order_col)

tempdata_prop <- as.data.frame(tempdata_prop[custom_order_row, custom_order_col])
tempdata_prop$Var1 <- factor(tempdata_prop$Var1, levels = custom_order_row)
tempdata_prop$Var2 <- factor(tempdata_prop$Var2, levels = custom_order_col)

#count graph
title <- "Question 36. would you stay in your home or go somewhere else by cooling system"
xaxis <- "Have a cooling system"
ggplot(tempdata, aes(x = Var2,y = Freq, fill = Var1))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("lightgreen", "orange", "grey"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Has cooling system")+
  geom_text(aes(label = Freq), color = "black", size = 3, vjust =1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Var2,y = Freq, fill = Var1))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("lightgreen", "orange", "grey"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab("percent by age group")+
  labs(fill = "Has cooling system")+
  # ylim(0,50)+
  geom_text(aes(label = Freq), color = "black", size = 3, vjust =1, position = position_dodge(0.9))

```

```

```
#####  
#####
```

```
##
```

```
##Subgroup analysis of Q37 #####
```

```
##Q37 subgrouped by agegroup
```

```
`` {r echo = FALSE, fig.height = 6, fig.width = 8}
```

```
##Question 37. Does your home have any cooling systems? - age by home cooling
```

```
dat_q37_yesno <- subset(datfinal,Q37_coolingsystem_yesno != "BLANK" )
```

```
dat_q37_noblank <-subset(dat_q37_yesno, agegroup != "BLANK") ###
```

```
tempdata <- (table(dat_q37_noblank$agegroup, dat_q37_noblank$Q37_coolingsystem_yesno)) ###
```

```
tempdata_prop <- round(prop.table(table(dat_q37_noblank$agegroup,  
dat_q37_noblank$Q37_coolingsystem_yesno), margin =2)*100,digits =1) ###
```

```
tempdata_combined <- cbind(tempdata, tempdata_prop)
```

```
tempdata_combined
```

```
write.table(tempdata_combined, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
```

```
``
```

```
####Q37 subgrouped by location group
```

```
`` {r echo = FALSE}
```

```
dat_q37_yesno <- subset(datfinal,Q37_coolingsystem_yesno != "BLANK" )
```

```
dat_q37_noblank <-subset(dat_q37_yesno, locationgroup != "BLANK") ###
```

```
tempdata <- (table(dat_q37_noblank$locationgroup, dat_q37_noblank$Q37_coolingsystem_yesno)) ###
```

```
tempdata_prop <- round(prop.table(table(dat_q37_noblank$locationgroup,  
dat_q37_noblank$Q37_coolingsystem_yesno), margin =2)*100,digits =1) ###
```

```
tempdata_combined <- cbind(tempdata, tempdata_prop)
```

```
tempdata_combined
```

```
write.table(tempdata_combined, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
```

```
``
```

```
####Q37 subgrouped by q2 race/ethnicity
```

```
`` {r echo = FALSE}
```

```
dat_q37_yesno <- subset(datfinal,Q37_coolingsystem_yesno != "BLANK" )
```

```
dat_q37_noblank <-subset(dat_q37_yesno, Q2_racegroup != "BLANK") ###
```

```
tempdata <- (table(dat_q37_noblank$Q2_racegroup, dat_q37_noblank$Q37_coolingsystem_yesno)) ###
```

```
tempdata_prop <- round(prop.table(table(dat_q37_noblank$Q2_racegroup,  
dat_q37_noblank$Q37_coolingsystem_yesno), margin =2)*100,digits =1) ###
```

```
tempdata_combined <- cbind(tempdata, tempdata_prop)
```

```
tempdata_combined
```

```
write.table(tempdata_combined, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
```

```
``
```

```
####Q37 subgrouped by q6 children household
```

```

```{r echo = FALSE}
dat_q37_yesno <- subset(datfinal,Q37_coolingsystem_yesno != "BLANK" )
dat_q37_noblank <-subset(dat_q37_yesno, Q6_household_childyesno != "BLANK") ####
tempdata <- (table(dat_q37_noblank$Q6_household_childyesno,
dat_q37_noblank$Q37_coolingsystem_yesno)) ####
tempdata_prop <- round(prop.table(table(dat_q37_noblank$Q6_household_childyesno,
dat_q37_noblank$Q37_coolingsystem_yesno), margin =2)*100,digits =1) ####
tempdata_combined <- cbind(tempdata, tempdata_prop)
tempdata_combined
write.table(tempdata_combined, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
```

```

#####Q37 subgrouped by q8 elderly household

```

```{r echo = FALSE}
dat_q37_yesno <- subset(datfinal,Q37_coolingsystem_yesno != "BLANK" )
dat_q37_noblank <-subset(dat_q37_yesno, Q7_household_elderyesno != "BLANK") ####
tempdata <- (table(dat_q37_noblank$Q7_household_elderyesno,
dat_q37_noblank$Q37_coolingsystem_yesno)) ####
tempdata_prop <- round(prop.table(table(dat_q37_noblank$Q7_household_elderyesno,
dat_q37_noblank$Q37_coolingsystem_yesno), margin =2)*100,digits =1) ####
tempdata_combined <- cbind(tempdata, tempdata_prop)
tempdata_combined
write.table(tempdata_combined, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
```

```

#####Q37 subgrouped by q8 household income

```

```{r echo = FALSE}
#household income
dat_q37_yesno <- subset(datfinal,Q37_coolingsystem_yesno != "BLANK" )
dat_q37_noblank <-subset(dat_q37_yesno, Q8_householdincome != "BLANK") ####
tempdata <- (table(dat_q37_noblank$Q8_householdincome,
dat_q37_noblank$Q37_coolingsystem_yesno)) ####
tempdata_prop <- round(prop.table(table(dat_q37_noblank$Q8_householdincome,
dat_q37_noblank$Q37_coolingsystem_yesno), margin =2)*100,digits =1) ####
tempdata_combined <- cbind(tempdata, tempdata_prop)
tempdata_combined
write.table(tempdata_combined, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
```

```

...

#####Q37 subgrouped by q9 home situation ownership

```

```{r echo = FALSE}
datfinal$Q9_livingsituation
dat_q37_yesno <- subset(datfinal,Q37_coolingsystem_yesno != "BLANK" )
dat_q37_noblank <-subset(dat_q37_yesno, Q9_livingsituation != "BLANK") ####

```

```

tempdata <- (table(dat_q37_noblank$Q9_livingsituation, dat_q37_noblank$Q37_coolingsystem_yesno))
###
tempdata_prop <- round(prop.table(table(dat_q37_noblank$Q9_livingsituation,
dat_q37_noblank$Q37_coolingsystem_yesno), margin =2)*100,digits =1) ###
tempdata_combined <- cbind(tempdata, tempdata_prop)
tempdata_combined

...

#####Q37 subgrouped by q28 disability anyone
`` {r echo = FALSE}
dat_q37_yesno <- subset(datfinal,Q37_coolingsystem_yesno != "BLANK" )
dat_q37_noblank <-subset(dat_q37_yesno, Q28_disability_anyone != "BLANK or Prefer not to answer")
###
tempdata <- (table(dat_q37_noblank$Q28_disability_anyone,
dat_q37_noblank$Q37_coolingsystem_yesno)) ###
tempdata_prop <- round(prop.table(table(dat_q37_noblank$Q28_disability_anyone,
dat_q37_noblank$Q37_coolingsystem_yesno), margin =2)*100,digits =1) ###
tempdata_combined <- cbind(tempdata, tempdata_prop)
tempdata_combined
write.table(tempdata_combined, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
...

#####Q37 subgrouped by q32 ER anyone
`` {r echo = FALSE}
dat_q37_yesno <- subset(datfinal,Q37_coolingsystem_yesno != "BLANK" )
dat_q37_noblank <-subset(dat_q37_yesno, Q32_ER_anyone != "BLANK or Prefer not to answer") ###
tempdata <- (table(dat_q37_noblank$Q32_ER_anyone, dat_q37_noblank$Q37_coolingsystem_yesno))
###
tempdata_prop <- round(prop.table(table(dat_q37_noblank$Q32_ER_anyone,
dat_q37_noblank$Q37_coolingsystem_yesno), margin =2)*100,digits =1) ###
tempdata_combined <- cbind(tempdata, tempdata_prop)
tempdata_combined
write.table(tempdata_combined, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
...

#####Q37 subgrouped by q34 household insurance
`` {r echo = FALSE}
#household insurance
dat_q37_yesno <- subset(datfinal,Q37_coolingsystem_yesno != "BLANK" )
dat_q37_noblank <-subset(dat_q37_yesno, Q35_healthinsurance_household != "Prefer not to answer" &
Q35_healthinsurance_household != "BLANK") ###
tempdata <- (table(dat_q37_noblank$Q35_healthinsurance_household,
dat_q37_noblank$Q37_coolingsystem_yesno)) ###

```

```
tempdata_prop <- round(prop.table(table(dat_q37_noblank$Q35_healthinsurance_household,
dat_q37_noblank$Q37_coolingsystem_yesno), margin =2)*100,digits =1) ###
tempdata_combined <- cbind(tempdata, tempdata_prop)
tempdata_combined
write.table(tempdata_combined, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
```

```
...
```

Q12\_heatrisk\_personalwellbeing

```
####Q37 subgrouped by q12 heat threat
```

```
`` {r echo = FALSE, fig.height = 7, fig.width = 10}
```

```
dat_q37_yesno <- subset(datfinal,Q37_coolingsystem_yesno != "BLANK" )
```

```
dat_q37_noblank <-subset(dat_q37_yesno, Q12_heatrisk_personalwellbeing != "BLANK") ###
```

```
tempdata <- (table(dat_q37_noblank$Q12_heatrisk_personalwellbeing,
```

```
dat_q37_noblank$Q37_coolingsystem_yesno)) ###
```

```
tempdata_prop <- round(prop.table(table(dat_q37_noblank$Q12_heatrisk_personalwellbeing,
```

```
dat_q37_noblank$Q37_coolingsystem_yesno), margin =2)*100,digits =1) ###
```

```
tempdata_combined <- cbind(tempdata, tempdata_prop)
```

```
tempdata_combined
```

```
write.table(tempdata_combined, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
```

```
...
```

Q27\_heatfamiliarity

```
####Q37 subgrouped by q17 heat familiarity
```

```
`` {r echo = FALSE, fig.height = 7, fig.width = 10}
```

```
dat_q37_yesno <- subset(datfinal,Q37_coolingsystem_yesno != "BLANK" )
```

```
dat_q37_noblank <-subset(dat_q37_yesno, Q27_heatfamiliarity != "BLANK") ###
```

```
tempdata <- (table(dat_q37_noblank$Q27_heatfamiliarity,
```

```
dat_q37_noblank$Q37_coolingsystem_yesno)) ###
```

```
tempdata_prop <- round(prop.table(table(dat_q37_noblank$Q27_heatfamiliarity,
```

```
dat_q37_noblank$Q37_coolingsystem_yesno), margin =2)*100,digits =1) ###
```

```
tempdata_combined <- cbind(tempdata, tempdata_prop)
```

```
tempdata_combined
```

```
write.table(tempdata_combined, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
```

```
...
```

```
#####Q37 subgrouped by q36 stay at home
```

```
`` {r echo = FALSE, fig.height = 7, fig.width = 10}
```

```
dat_q37_yesno <- subset(datfinal,Q37_coolingsystem_yesno != "BLANK" )
```

```
dat_q37_noblank <-subset(dat_q37_yesno, Q36_stayathome != "BLANK") ###
```

```
tempdata <- (table(dat_q37_noblank$Q36_stayathome, dat_q37_noblank$Q37_coolingsystem_yesno))
```

```
###
```

```
tempdata_prop <- round(prop.table(table(dat_q37_noblank$Q36_stayathome,
```

```
dat_q37_noblank$Q37_coolingsystem_yesno), margin =2)*100,digits =1) ###
```

```
tempdata_combined <- cbind(tempdata, tempdata_prop)
```

```
tempdata_combined
```

```
write.table(tempdata_combined, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
```

```
...
```

```
#####Q37 subgrouped by q44 cooling center yesno
```

```
`` {r echo = FALSE, fig.height = 7, fig.width = 10}
```

```
##questions 44. If a public community cooling center (a designated, air conditioned, public space where people can go to can cool off) were available in your neighborhood this summer, would you consider using it?
```

```
dat_q37_yesno <- subset(datfinal,Q37_coolingsystem_yesno != "BLANK" )
```

```
dat_q37_noblank <-subset(dat_q37_yesno, Q44_coolingcenter_yesno != "BLANK") ###
```

```
tempdata <- (table(dat_q37_noblank$Q44_coolingcenter_yesno,
```

```
dat_q37_noblank$Q37_coolingsystem_yesno)) ###
```

```
tempdata_prop <- round(prop.table(table(dat_q37_noblank$Q44_coolingcenter_yesno,
```

```
dat_q37_noblank$Q37_coolingsystem_yesno), margin =2)*100,digits =1) ###
```

```
tempdata_combined <- cbind(tempdata, tempdata_prop)
```

```
tempdata_combined
```

```
write.table(tempdata_combined, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
```

```
...
```

```
#####Q37 subgrouped by q10 transport (split)
```

```
`` {r echo = FALSE, fig.height = 7, fig.width = 7}
```

```
dat_q37_no <- subset(datfinal,Q37_coolingsystem_yesno == "No" )
nrespond<- length(dat_q37_no$Q10_transport)-sum(dat_q37_no$Q10_transport_BLANK)
```

```
table(dat_q37_no$Q10_transport) ###
tempdata<-bind_rows(
  table(dat_q37_no$Q10_transport_Bicycle),
  table(dat_q37_no`Q10_transport_Bus or public transportation`),
  table(dat_q37_no$Q10_transport_Car),
  table(dat_q37_no`Q10_transport_Carpool or rides from friends/family`),
  table(dat_q37_no`Q10_transport_Other (please describe)`),
  table(dat_q37_no$Q10_transport_Walking)
)
colnames(tempdata) <- c("nocount", "count")
tempdata$row_names <- c("Bicycle", "Bus", "Car", "Carpool", "Other", "Walking" )
tempdata$prop <- round(tempdata$count/nrespond*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names","count","prop"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q10_transport" ###
print(nrespond)
print(tempdata)
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
```

...

```
#####Q37 subgrouped by q22 affect workability (split)
```

```
` `{r echo = FALSE, fig.height = 7, fig.width = 10}
```

```
##Question 22 If applicable, select the ways that extreme heat events have affected your ability to work  
(circle all that apply):
```

```
dat_q37_no <- subset(datfinal,Q37_coolingsystem_yesno == "No" )
nrespond<-
length(dat_q37_no$Q22_affectworkability)-sum(dat_q37_no$Q22_affectworkability_BLANK)
```

```
tempdata<-bind_rows(
  table(dat_q37_no`Q22_affectworkability_Heat related illness has prevented me from going to work`),
  table(dat_q37_no`Q22_affectworkability_Extreme heat has affected how I get to work  
(transportation)`),
  table(dat_q37_no`Q22_affectworkability_I have worked in extreme heat conditions and experienced  
negative health or other side effects.`),
  table(dat_q37_no`Q22_affectworkability_Heat related illness of a household member has prevented me  
from going to work because I had to care for the household member`),
  table(dat_q37_no`Q22_affectworkability_Heat related lack of rest or sleep has prevented me from  
being rested enough to go to work`)
```

```

# table(datfinal$`Q22_affectworkability_Not Applicable`),
)
colnames(tempdata) <- c("nocount", "count")
tempdata$row_names <- c("Prevent going to work", "Affected transportation", "Experienced neg health",
"Need to care for household", "Lack of sleep") ###
tempdata$prop <- round(tempdata$count/nrespond*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names", "count", "prop"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q22_affectworkability" ###
print(nrespond)
print(tempdata)
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)

```

...

```

#####Q37 subgrouped by q31 household heat symptoms (split)
`` {r echo = FALSE}
#Q31 Has anyone in your household ever experienced any of the following physical health conditions due
to heat? (Check all that apply)
dat_q37_no <- subset(datfinal, Q37_coolingsystem_yesno == "No" )
nrespond<-
length(dat_q37_no$Q31_heatsymptoms_household)-sum(dat_q37_no$Q31_heatsymptoms_household_B
LANK)

tempdata<-bind_rows(
  table(dat_q37_no$`Q31_heatsymptoms_household_Discomfort related to heat`),
  table(dat_q37_no$`Q31_heatsymptoms_household_Fainting or dizziness`),
  table(dat_q37_no$`Q31_heatsymptoms_household_Heat cramps (muscle spasms due to a loss of a large
amount of salt and water through exercise)`),
  table(dat_q37_no$`Q31_heatsymptoms_household_Heat exhaustion (can include heavy sweating and a
rapid pulse due to overheating)`),
  table(dat_q37_no$`Q31_heatsymptoms_household_Heat stroke (results in a body temperature greater
than 104 °F and confusion)`),
  table(dat_q37_no$`Q31_heatsymptoms_household_Members of my household have not experienced
any of these conditions or illnesses`),
  table(dat_q37_no$Q31_heatsymptoms_household_Other)
)
tempdata
colnames(tempdata) <- c("nocount", "count")
tempdata$row_names <- c("Discomfort", "Fainting/dizzy", "Heat cramps", "Heat exhaustion", "Heat
Stroke", "Not experienced any", "Other" )
tempdata$prop <- round(tempdata$count/nrespond*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]

```

```

tempdata <- tempdata[,c("row_names","count","prop"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q31_heatsymptoms_household" ###
print(nrespond)
print(tempdata)
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)

...

#####Q37 subgrouped by q41 cooling system limit (split)
`` {r echo = FALSE, fig.height = 7, fig.width = 10}
##question 41. If you indicated 'Yes', that you limit use of your home cooling systems, please indicate the
reason for the limitations (Check all that apply)
dat_q37_no <- subset(datfinal,Q37_coolingsystem_yesno == "No" )
nrespond<-
length(dat_q37_no$Q41_coolingsystem_limit_type)-sum(dat_q37_no$Q41_coolingsystem_limit_type_B
LANK)
table(dat_q37_no$Q41_coolingsystem_limit_type) ###
tempdata<-bind_rows(
  table(dat_q37_no$`Q41_coolingsystem_limit_type_Cost of utility bills associated with the cooling
system`),
  table(dat_q37_no$`Q41_coolingsystem_limit_type_Cost of repairs to fix the non-working cooling
system`),
  table(dat_q37_no$`Q41_coolingsystem_limit_type_Confusing technology of the cooling system`),
  table(dat_q37_no$`Q41_coolingsystem_limit_type_Medical and/or mobility limitations related to the
cooling system`),
  table(dat_q37_no$`Q41_coolingsystem_limit_type_Cooling system does not currently work`),
  table(dat_q37_no$`Q41_coolingsystem_limit_type_Other (please describe)`))
)
colnames(tempdata) <- c("nocount", "count")
tempdata$row_names <- c("Cost of utilities", "Cost of repairs", "Medical/Mobility limits", "Confusing
tech", "Broken cooling", "Other" )
tempdata$prop <- round(tempdata$count/nrespond*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names","count","prop"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q41_coolingsystem_limit_type" ###
print(nrespond)
print(tempdata)
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)

...

#####Q37 subgrouped by q42 gotostay cool (split)
`` {r echo = FALSE, fig.height = 7, fig.width = 10}
##question 42. If you go elsewhere to stay cool, where are you most likely to go when it is very hot
outside? (Check all that apply)

```

```

##NOTE: not not applicable
dat_q37_no <- subset(datfinal,Q37_coolingsystem_yesno == "No" )
nrespond<- length(dat_q37_no$Q42_gotostaycool)-sum(dat_q37_no$Q42_gotostaycool_BLANK)

table(dat_q37_no$Q42_gotostaycool) ###
tempdata<-bind_rows(
  table(dat_q37_no$`Q42_gotostaycool_Splash pads`),
  table(dat_q37_no$`Q42_gotostaycool_City parks with shade`),
  table(dat_q37_no$`Q42_gotostaycool_Public pool`),
  table(dat_q37_no$Q42_gotostaycool_Library),
  table(dat_q37_no$Q42_gotostaycool_Church),
  table(dat_q37_no$`Q42_gotostaycool_Community center`),
  table(dat_q37_no$`Q42_gotostaycool_Senior center`),
  table(dat_q37_no$`Q42_gotostaycool_Friend or neighbor's air-conditioned home`),
  table(dat_q37_no$`Q42_gotostaycool_Community organization`),
  table(dat_q37_no$`Q42_gotostaycool_Shopping center or mall`),
  table(dat_q37_no$`Q42_gotostaycool_Movie theater`),
  table(dat_q37_no$Q42_gotostaycool_Other)
)
colnames(tempdata) <- c("nocount", "count")
tempdata$row_names <- c("Splash pads", "City parks", "Public Pool", "Library", "Church", "Community
center", "Senior Center", "Friend's house", "Community organization", "Shopping center", "Movie
theater", "Other" )
tempdata$prop <- round(tempdata$count/nrespond*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names", "count", "prop"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q42_gotostaycool" ###
print(nrespond)
print(tempdata)
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
...

```

```

#####Q37 subgrouped by q43 cooling space limits (split)
`` {r echo = FALSE, fig.height = 7, fig.width = 10}
##question 43. What limitations, if any, prevent you from using cooling space opportunities? (Check all
that apply)

```

```

dat_q37_no <- subset(datfinal,Q37_coolingsystem_yesno == "No" )
nrespond<-
length(dat_q37_no$Q43_coolingspace_limits)-sum(dat_q37_no$Q43_coolingspace_limits_BLANK)

table(dat_q37_no$Q43_coolingspace_limits) ###

```

```

tempdata<-bind_rows(
  table(dat_q37_no$`Q43_coolingspace_limits_No limitations to leaving my home to access cooling elsewhere`),
  table(dat_q37_no$`Q43_coolingspace_limits_Lack of transportation to or from another location`),
  table(dat_q37_no$`Q43_coolingspace_limits_Medical or mobility limitations`),
  table(dat_q37_no$`Q43_coolingspace_limits_Cost of accessing non-public cool spaces`),
  table(dat_q37_no$`Q43_coolingspace_limits_Unaware of cooling space opportunities`),
  table(dat_q37_no$`Q43_coolingspace_limits_Unknown in the cooling space is safe or meant for me`),
  table(dat_q37_no$`Q43_coolingspace_limits_Other (please describe)`))
)
colnames(tempdata) <- c("nocount", "count")
tempdata$row_names <- c("No limits", "Transport limits", "Medical limits", "Cost of access", "Unaware", "Uncertain if safe or meant for me", "Other")
tempdata$prop <- round(tempdata$count/nrespond*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names","count","prop"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q43_coolingspace_limits" ###
print(nrespond)
print(tempdata)
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
``

```

#####Q37 subgrouped by q45 coolingcenter limits (split)

```
`` {r echo = FALSE, fig.height = 7, fig.width = 10}
```

##question 45. If a public community cooling center were available in Spokane, what would keep you from using it? (Check all that apply)

```
dat_q37_no <- subset(datfinal,Q37_coolingsystem_yesno == "No" )
```

```
nrespond<-
```

```
length(dat_q37_no$Q45_coolingcenter_limits)-sum(dat_q37_no$Q45_coolingcenter_limits_BLANK)
```

```
table(dat_q37_no$Q45_coolingcenter_limits) ###
```

```
tempdata<-bind_rows(
```

```
  table(dat_q37_no$`Q45_coolingcenter_limits_If it were more than a few blocks from your house`),
```

```
  table(dat_q37_no$`Q45_coolingcenter_limits_If it was not in your neighborhood`),
```

```
  table(dat_q37_no$`Q45_coolingcenter_limits_If it didn't offer any activities`),
```

```
  table(dat_q37_no$`Q45_coolingcenter_limits_If transportation to the center was difficult`),
```

```
  table(dat_q37_no$`Q45_coolingcenter_limits_If I didn't know anyone there`),
```

```
  table(dat_q37_no$`Q45_coolingcenter_limits_If domestic pets were not allowed/accommodated`),
```

```
  table(dat_q37_no$`Q45_coolingcenter_limits_If there were no resources/accommodations available for access & functional needs`),
```

```
  table(dat_q37_no$`Q45_coolingcenter_limits_If there were no resources (fluent speakers and/or print resources) in my native language available`),
```

```
  table(dat_q37_no$`Q45_coolingcenter_limits_Other (please describe)`))
```

```

)
colnames(tempdata) <- c("nocount", "count")
tempdata$row_names <- c("More than a few blocks away", "Not in your neighborhood", "Didn't offer
activities", "Transportation was difficult", "I didn't know anyone there", "No pets allowed", "No
resources/accomodations for needs", "No resources in native language", "Other")
tempdata$prop <- round(tempdata$count/nrespond*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names", "count", "prop"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q45_coolingcenter_limits" ###
print(nrespond)
print(tempdata)
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
```

```

```

#####Q37 subgrouped by q46 cooling center incentives (split)
```{r echo = FALSE, fig.height = 7, fig.width = 10}
##question 46. Which of these activities might convince you to leave your home to stay cool at a public
community cooling center when it is very hot outside? (Check all that apply)
dat_q37_no <- subset(datfinal,Q37_coolingsystem_yesno == "No" )
nrespond<-
length(dat_q37_no$Q46_coolingcenter_incentives)-sum(dat_q37_no$Q46_coolingcenter_incentives_BL
ANK)

```

```

tempdata<-bind_rows(
  table(dat_q37_no$Q46_coolingcenter_incentives_Sports),
  table(dat_q37_no$Q46_coolingcenter_incentives_Games),
  table(dat_q37_no$Q46_coolingcenter_incentives_Swimming),
  table(dat_q37_no$Q46_coolingcenter_incentives_Music),
  table(dat_q37_no$Q46_coolingcenter_incentives_Food),
  table(dat_q37_no$`Q46_coolingcenter_incentives_Classes or educational opportunities`),
  table(dat_q37_no$`Q46_coolingcenter_incentives_Movie screenings`),
  table(dat_q37_no$`Q46_coolingcenter_incentives_Laptops for public use`),
  table(dat_q37_no$`Q46_coolingcenter_incentives_Free WiFi`),
  table(dat_q37_no$`Q46_coolingcenter_incentives_Free transportation to/from the center`),
  table(dat_q37_no$`Q46_coolingcenter_incentives_Ability to freely charge electronic devices or
medical devices`),
  table(dat_q37_no$`Q46_coolingcenter_incentives_Ability to have my domestic pet with me`),
  table(dat_q37_no$`Q46_coolingcenter_incentives_If there were resources/accommodations for access
& functional needs`),
  table(dat_q37_no$`Q46_coolingcenter_incentives_If there were resources (fluent speakers and/or print
resources) in my native language available`),
  table(dat_q37_no$`Q46_coolingcenter_incentives_Other (please describe)`))
)
colnames(tempdata) <- c("nocount", "count")

```

```

tempdata$row_names <- c("Sports", "Games", "Swimming", "Music", "Food", "Educational
opportunities", "Movie screenings", "Computers for public use", "Free Wifi", "Free transportation", "Free
charging of electronics", "Pets allowed", "resource/accomodations for needs", "Resources in native
language", "Other")
tempdata$prop <- round(tempdata$count/nrespond*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names", "count", "prop"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q46_coolingcenter_incentives" ###
print(nrespond)
print(tempdata)
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
``

```

```

#####
#####
##

```

```

`` {r echo = FALSE, fig.height = 6, fig.width = 8}
##Question 37. Does your home have any cooling systems? - by district
tempdata <- (table(datfinal$Q37_coolingsystem_yesno, datfinal$locationgroup)) ###
tempdata
tempdata_prop <- round(prop.table(table(datfinal$Q37_coolingsystem_yesno, datfinal$locationgroup),
margin =2)*100,digits =1) ###
tempdata_prop
custom_order_row <- c("Yes", "No", "BLANK")
custom_order_col <- c("District1", "District2", "District3", "OUTSIDE CITY", "OUTSIDE COUNTY",
"BLANK")
table(datfinal$locationgroup)
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
tempdata$Var1 <- factor(tempdata$Var1, levels = custom_order_row)
tempdata$Var2 <- factor(tempdata$Var2, levels = custom_order_col)

```

```

tempdata_prop <- as.data.frame(tempdata_prop[custom_order_row, custom_order_col])
tempdata_prop$Var1 <- factor(tempdata_prop$Var1, levels = custom_order_row)
tempdata_prop$Var2 <- factor(tempdata_prop$Var2, levels = custom_order_col)

```

```

#count graph
title <- "Question 37. Does your home have any cooling systems? - by age group"
xaxis <- "Location group"
ggplot(tempdata, aes(x = Var2,y = Freq, fill = Var1))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("lightgreen", "orange", "grey"))+
  labs(title = str_wrap(title, width =70))+

```

```
xlab(xaxis)+ ylab("Counts")+
labs(fill = "Has cooling system")+
geom_text(aes(label = Freq), color = "black", size = 3, vjust =1, position = position_dodge(0.9))
```

```
#proportional graph
ggplot(tempdata_prop, aes(x = Var2,y = Freq, fill = Var1))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("lightgreen", "orange", "grey"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab("percent by district")+
  labs(fill = "Has cooling system")+
  # ylim(0,50)+
  geom_text(aes(label = Freq), color = "black", size = 3, vjust =1, position = position_dodge(0.9))
```

```
...
```

```
##Question 37 - by by housing
```

```
` `{r echo = FALSE, fig.height = 6, fig.width = 8}
```

```
##Question 37. Does your home have any cooling systems? - by housing
```

```
tempdata <- (table(datfinal$Q37_coolingsystem_yesno, datfinal$Q9_livingsituation)) ####
```

```
tempdata
```

```
# write.table(tempdata, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
```

```
tempdata_prop <- round(prop.table(table(datfinal$Q37_coolingsystem_yesno, datfinal$agegroup), margin
=2)*100,digits =1) ####
```

```
tempdata_prop
```

```
custom_order_row <- c("Yes", "No", "BLANK")
```

```
custom_order_col <- c("I or my family own my home", "I or my family rent my home", "Staying with
friends or family", "I am currently experiencing homelessness", "Other (please describe)", "BLANK")
```

```
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
```

```
tempdata$Var1 <- factor(tempdata$Var1, levels = custom_order_row)
```

```
tempdata$Var2 <- factor(tempdata$Var2, levels = custom_order_col)
```

```
tempdata_prop <- as.data.frame(tempdata_prop[custom_order_row, custom_order_col])
```

```
tempdata_prop$Var1 <- factor(tempdata_prop$Var1, levels = custom_order_row)
```

```
tempdata_prop$Var2 <- factor(tempdata_prop$Var2, levels = custom_order_col)
```

```
#count graph
```

```
title <- "Question 37. Does your home have any cooling systems? - by housing"
```

```
xaxis <- "by housing"
```

```
ggplot(tempdata, aes(x = Var2,y = Freq, fill = Var1))+
```

```
  geom_bar(stat = "identity", position = "dodge")+
```

```
  scale_fill_manual(values = c("lightgreen", "orange", "grey"))+
  labs(title = str_wrap(title, width =70))+
```

```

xlab(xaxis)+ ylab("Counts")+
labs(fill = "Has cooling system")+
geom_text(aes(label = Freq), color = "black", size = 3, vjust =1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Var2,y = Freq, fill = Var1))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("lightgreen", "orange", "grey"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab("percent by age group")+
  labs(fill = "Has cooling system")+
  # ylim(0,50)+
  geom_text(aes(label = Freq), color = "black", size = 3, vjust =1, position = position_dodge(0.9))

...

```

```

##Question 37 by age group
`` {r echo = FALSE, fig.height = 6, fig.width = 8}

```

```

##Question 37. Does your home have any cooling systems? - by housing
tempdata <- (table(datfinal$Q37_coolingsystem_yesno, datfinal$agegroup)) ###
tempdata
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

```

```

custom_order_row <- c("Yes", "No")
custom_order_col <- c("<45yo", "45-64yo", ">64yo")
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)

```

```
tempdata_prop <- tempdata
```

```

sum45 <- sum(subset(tempdata, Predictor %in% "<45yo")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "<45yo"] <-
round(tempdata$Count[tempdata$Predictor %in% "<45yo"]/sum45*100, digits = 1)

```

```

sum4564 <- sum(subset(tempdata, Predictor %in% "45-64yo")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "45-64yo"] <-
round(tempdata$Count[tempdata$Predictor %in% "45-64yo"]/sum4564*100, digits = 1)

```

```
sum64 <- sum(subset(tempdata, Predictor %in% ">64yo")$Count)
```

```

tempdata_prop$Count[tempdata_prop$Predictor %in% ">64yo"] <-
round(tempdata$Count[tempdata$Predictor %in% ">64yo"]/sum64*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop")

nrespond <- sum(tempdata$Count)
nrespond
#count graph
title <- paste("Question 37. Does your home have any cooling systems? - by Age Group (n
=",nrespond,")")
ggplot(tempdata, aes(x = Predictor,y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab("Xaxis")+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab("Age Group")+ ylab("Percent by Age Group")+
  # ylim(0, 50)+
  labs(fill = "Home cooling")+
  scale_x_discrete(labels = c(paste("<45yo (",sum45,")"), paste("45-64yo (",sum4564,")"), paste(">64yo
(",sum64,")")))+
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2))

...

####Question 37 by Elderly at home
`` {r echo = FALSE, fig.height = 6, fig.width = 8}

##Question 37. Does your home have any cooling systems? - by elderly
table(datfinal$Q7_household_elderlyyesno)
tempdata <- (table(datfinal$Q37_coolingsystem_yesno, datfinal$Q7_household_elderlyyesno)) ###
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

custom_order_row <- c("Yes", "No")
custom_order_col <- c("Yes", "No")

```

```

tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
tempdata_prop <- tempdata

sumyes <- sum(subset(tempdata, Predictor %in% "Yes")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "Yes"] <-
round(tempdata$Count[tempdata$Predictor %in% "Yes"]/sumyes*100, digits = 1)

sumno <- sum(subset(tempdata, Predictor %in% "No")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "No"] <-
round(tempdata$Count[tempdata$Predictor %in% "No"]/sumno*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tempdata$Count)
nrespond
#count graph
title <- paste("Question 37. Does your home have any cooling systems? - by elderly presence (n
=",nrespond,")")
xaxis <- "At least one elder present in household"
yaxis <- "Elderly present"
ggplot(tempdata, aes(x = Predictor,y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
  # ylim(0, 50)+
  labs(fill = "Home Cooling")+
  scale_x_discrete(labels = c(paste("Yes (",sumyes,")"), paste("No (",sumno,")")))+
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2))

```

```
...
```

```
#####Question 37 by children at home
```

```
``{r echo = FALSE, fig.height = 6, fig.width = 8}
```

```
##Question 37. Does your home have any cooling systems? - by child
```

```
table(datfinal$Q7_household_elderlyesno)
```

```
tempdata <- (table(datfinal$Q37_coolingsystem_yesno, datfinal$Q6_household_childyesno)) ###  
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
```

```
custom_order_row <- c("Yes", "No")
```

```
custom_order_col <- c("Yes", "No")
```

```
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
```

```
colnames(tempdata) <- c("Threat", "Predictor", "Count")
```

```
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
```

```
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
```

```
tempdata_prop <- tempdata
```

```
sumyes <- sum(subset(tempdata, Predictor %in% "Yes")$Count)
```

```
tempdata_prop$Count[tempdata_prop$Predictor %in% "Yes"] <-  
round(tempdata$Count[tempdata$Predictor %in% "Yes"]/sumyes*100, digits = 1)
```

```
sumno <- sum(subset(tempdata, Predictor %in% "No")$Count)
```

```
tempdata_prop$Count[tempdata_prop$Predictor %in% "No"] <-  
round(tempdata$Count[tempdata$Predictor %in% "No"]/sumno*100, digits = 1)
```

```
colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop
```

```
nrespond <- sum(tempdata$Count)
```

```
nrespond
```

```
#count graph
```

```
title <- paste("Question 37. Does your home have any cooling systems? - by child presence (n  
=", nrespond, ")")
```

```
xaxis <- "At least one child present in household"
```

```
yaxis <- "Child present"
```

```
ggplot(tempdata, aes(x = Predictor, y = Count, fill = Threat))+
```

```
  geom_bar(stat = "identity", position = "dodge")+
```

```
  scale_fill_manual(values = c("#00c1aa", "#F8766D"))+
```

```
  labs(title = str_wrap(title, width = 70))+
```

```
  xlab(xaxis)+ ylab("Counts")+
```

```
  labs(fill = "Legend")+
```

```
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))
```

```
#proportional graph
```

```
ggplot(tempdata_prop, aes(x = Predictor, y = Prop, fill = Threat))+
```

```

geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
  # ylim(0, 50)+
  labs(fill = "Home Cooling")+
  scale_x_discrete(labels = c(paste("Yes (",sumyes,")"), paste("No (",sumno,")")))+
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2))

```

````

```
##Question 37 by Disabilty/Long term illness
```

```
````{r echo = FALSE, fig.height = 6, fig.width = 8}
```

```
##Question 37. Does your home have any cooling systems?
```

```
table(datfinal$Q7_household_elderyesno)
```

```
tempdata <- (table(datfinal$Q37_coolingsystem_yesno, datfinal$Q28_disability_anyone)) ###
```

```
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
```

```
custom_order_row <- c("Yes", "No")
```

```
custom_order_col <- c("Yes", "No") ###
```

```
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
```

```
colnames(tempdata) <- c("Threat", "Predictor", "Count")
```

```
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
```

```
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
```

```
tempdata_prop <- tempdata
```

```
sumyes <- sum(subset(tempdata, Predictor %in% "Yes")$Count)
```

```
tempdata_prop$Count[tempdata_prop$Predictor %in% "Yes"] <-
```

```
round(tempdata$Count[tempdata$Predictor %in% "Yes"]/sumyes*100, digits = 1)
```

```
sumno <- sum(subset(tempdata, Predictor %in% "No")$Count)
```

```
tempdata_prop$Count[tempdata_prop$Predictor %in% "No"] <-
```

```
round(tempdata$Count[tempdata$Predictor %in% "No"]/sumno*100, digits = 1)
```

```
colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop
```

```
nrespond <- sum(tempdata$Count)
```

```
nrespond
```

```
#count graph
```

```
title <- paste("Question 37. Does your home have any cooling systems? - by disability/chronic illness  
presence (n =",nrespond,")")
```

```

xaxis <- "Personal or household disability/chronic illness"
yaxis <- "disability/chronic illness at home"
ggplot(tempdata, aes(x = Predictor, y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#F8766D"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor, y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#F8766D"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
  # ylim(0, 50)+
  labs(fill = "Legend")+
  scale_x_discrete(labels = c(paste("Yes (", sumyes, ")"), paste("No (", sumno, ")")))+ ###
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size = 12), axis.title = element_text(size = 12), axis.title.x =
  element_text(vjust = -2))
```



```

###Question 37 by ER/urgent care impact
```{r echo = FALSE, fig.height = 6, fig.width = 8}
###Question 37. Does your home have any cooling systems?
table(datfinal$Q7_household_elderlyesno)
tempdata <- (table(datfinal$Q37_coolingsystem_yesno, datfinal$Q32_ER_personal)) ###
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

custom_order_row <- c("Yes", "No")
custom_order_col <- c("Yes", "No")###
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
tempdata_prop <- tempdata

sumyes <- sum(subset(tempdata, Predictor %in% "Yes")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "Yes"] <-
round(tempdata$Count[tempdata$Predictor %in% "Yes"]/sumyes*100, digits = 1)

```


```

```

sumno <- sum(subset(tempdata, Predictor %in% "No")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "No"] <-
round(tempdata$Count[tempdata$Predictor %in% "No"]/sumno*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tempdata$Count)
nrespond
title <- paste("Question 37. Does your home have any cooling systems? - by ER experience (n
=",nrespond,")")
ggplot(tempdata, aes(x = Predictor,y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab("Xaxis")+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab("ER/Hospital/Urgent Care experience")+ ylab("Percent by ER/Hospital/Urgent Care experience")+
  # ylim(0, 50)+
  labs(fill = "Legend")+
  scale_x_discrete(labels = c(paste("Yes (",sumyes,")"), paste("No (",sumno,")")))+ ###
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
  element_text(vjust = -2))

...

##Question 37 by Housing situation - rent
`` {r echo = FALSE, fig.height = 6, fig.width = 8}
##Question 37. Does your home have any cooling systems?
table(datfinal$Q7_household_elderlyesno)
tempdata <- (table(datfinal$Q37_coolingsystem_yesno, datfinal$Q9_livingsituation)) ###
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

custom_order_row <- c("Yes", "No")
custom_order_col <- c("I or my family own my home",
  "I or my family rent my home")

```

```

      # "I am currently experiencing homelessness",
      # "Staying with friends or family",
      # "Other (please describe)")
custom_labels <-c("Rent home",
                 "Own home")

tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
tempdata
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
tempdata_prop <- tempdata

sumown <- sum(subset(tempdata, Predictor %in% "I or my family own my home")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "I or my family own my home"] <-
round(tempdata$Count[tempdata$Predictor %in% "I or my family own my home"]/sumown*100, digits =
1)

sumrent <- sum(subset(tempdata, Predictor %in% "I or my family rent my home")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "I or my family rent my home"] <-
round(tempdata$Count[tempdata$Predictor %in% "I or my family rent my home"]/sumrent*100, digits =
1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tempdata$Count)
nrespond
#count graph
title <- paste("Question 37. Does your home have any cooling systems? - by housing situation (n
=",nrespond,")")
xaxis <- "Housing Ownership"
yaxis <- "Housing Type"
ggplot(tempdata, aes(x = Predictor,y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+

```

```

scale_fill_manual(values = c("#00c1aa", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
  # ylim(0, 50)+
  labs(fill = "Legend")+
  scale_x_discrete(labels = c(paste("Own (",sumown,")"), paste("Rent (",sumrent,")")))+ ###
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
  element_text(vjust = -2))

```

```

```

```

```

###Question 37 by Location District

```

```

```{r echo = FALSE, fig.height = 6, fig.width = 8}

```

```

###Question 37. Does your home have any cooling systems?

```

```

table(datfinal$Q7_household_elderyesno)

```

```

tempdata <- (table(datfinal$Q37_coolingsystem_yesno, datfinal$locationgroup)) ###

```

```

write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

```

```

custom_order_row <- c("Yes", "No")

```

```

custom_order_col <- c("District1",

```

```

  "District2",

```

```

  "District3",

```

```

  "OUTSIDE CITY")

```

```

tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])

```

```

colnames(tempdata) <- c("Threat", "Predictor", "Count")

```

```

tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)

```

```

tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)

```

```

tempdata_prop <- tempdata

```

```

sumd1 <- sum(subset(tempdata, Predictor %in% "District1")$Count)

```

```

tempdata_prop$Count[tempdata_prop$Predictor %in% "District1"] <-

```

```

round(tempdata$Count[tempdata$Predictor %in% "District1"]/sumd1*100, digits = 1)

```

```

sumd2 <- sum(subset(tempdata, Predictor %in% "District2")$Count)

```

```

tempdata_prop$Count[tempdata_prop$Predictor %in% "District2"] <-

```

```

round(tempdata$Count[tempdata$Predictor %in% "District2"]/sumd2*100, digits = 1)

```

```

sumd3 <- sum(subset(tempdata, Predictor %in% "District3")$Count)

```

```

tempdata_prop$Count[tempdata_prop$Predictor %in% "District3"] <-

```

```

round(tempdata$Count[tempdata$Predictor %in% "District3"]/sumd3*100, digits = 1)

```

```

sumOC <- sum(subset(tempdata, Predictor %in% "OUTSIDE CITY")$Count)

```

```

tempdata_prop$Count[tempdata_prop$Predictor %in% "OUTSIDE CITY"] <-
round(tempdata$Count[tempdata$Predictor %in% "OUTSIDE CITY"]/sumOC*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tempdata$Count)
nrespond

#count graph
title <- paste("Question 37. Does your home have any cooling systems? - by Location (n =",nrespond,")")
xaxis <- "By District Location"
yaxis <- "Location"
ggplot(tempdata, aes(x = Predictor,y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
  # ylim(0, 50)+
  labs(fill = "Legend")+
  scale_x_discrete(labels = c(paste("District1 (",sumd1,")"), paste("District2 (",sumd2,")"),
paste("District3 (",sumd3,")"), paste("OUTSIDE CITY (",sumOC,")")))+
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =10), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2))

...

##Question 38 (split)
`` {r echo = FALSE, fig.height = 6, fig.width = 8}
##question 38. If yes, which cooling system(s) do you use to cool your home? (Select all that apply)
##NOTE: no one selected sunshades/sunscreens/blinds

```

##Note: need to convert into ordinal - central air at most, window unit at most, etc

```
table(datfinal$Q38_coolingsystem_typeatmost) ###
tempdata <- table(datfinal$Q38_coolingsystem_typeatmost) ###
custom_order_row <- c("Central A/C at most",
  "Window Unit A/C at most",
  "Electric Fan at most",
  "Other (please describe)",
  "None of these",
  "BLANK")
custom_labels <-c("Central A/C at most",
  "Window Unit A/C at most",
  "Electric Fan at most",
  "Other",
  "None of these",
  "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("Q38_coolingsystem_typeatmost", "count") ###
tempdata$Q38_coolingsystem_typeatmost <- custom_labels ###
tempdata$prop_1502 <-round(tempdata$count/nrow(datfinal)*100, digits = 1)

excluded_values <- datfinal$Q38_coolingsystem_typeatmost %in% "BLANK" #####
nrespond <- sum(!excluded_values)
tempdata$prop_respond <-round(tempdata$count/nrespond*100, digits = 1)
tempdata[tempdata$row_names == "BLANK", "prop_respond"] <- NA

tempdata$Q38_coolingsystem_typeatmost <- factor(tempdata$Q38_coolingsystem_typeatmost, levels =
custom_labels) ###
tableQ38_coolingsystem_typeatmost <- tempdata ###
tableQ38_coolingsystem_typeatmost

write.table(tableQ38_coolingsystem_typeatmost, "clipboard-16384", sep = "\t", row.names = FALSE,
quote = FALSE)

graph <-
tableQ38_coolingsystem_typeatmost[tableQ38_coolingsystem_typeatmost$Q38_coolingsystem_typeatm
ost!="BLANK",] ###
title <- "Q38. Which cooling system do you have at most at home?"
ggplot(graph,
  aes(x = Q38_coolingsystem_typeatmost,y = prop_respond, fill = Q38_coolingsystem_typeatmost))+
###
  geom_bar(stat = "identity",position = "dodge")+
  scale_fill_manual(values = c("lightgreen", "lightblue", "orange", "yellow", "grey"))+
```

```

    geom_text(aes(label = prop_respond), color = "black", size = 4.5, vjust = -1, position =
position_dodge(0.9))+
  labs(title = str_wrap(title, width = 70))+
  xlab("Cooling systems at home")+ ylab(paste("Percentage out of total (n =", nrespond, ")"))+
  ylim(0, 70)+
  labs(fill = "Legend")+
  scale_x_discrete(labels = c("Central A/C", "Window A/C", "Fan", "Other", "None of these"))+
  theme(axis.text.x = element_text(angle = 0, size = 12), axis.title = element_text(size = 12), axis.title.x =
element_text(vjust = -2), legend.position = "none", plot.margin = margin(50, 50, 50, 50))

```

...

```

###Question 38 (split) - original - without the at most
```{r echo = FALSE, fig.height = 7, fig.width = 10}
table(datfinal$Q38_coolingsystem_typeatmost) ###
tempdata<-bind_rows(
  table(datfinal$`Q38_coolingsystem_type_Central air conditioning`),
  table(datfinal$`Q38_coolingsystem_type_Window unit air conditioning`),
  table(datfinal$`Q38_coolingsystem_type_Electric fans (ceiling or portable)`),
  table(datfinal$`Q38_coolingsystem_type_None of these`),
  table(datfinal$`Q38_coolingsystem_type_Other (please describe)`),
  table(datfinal$Q38_coolingsystem_type_BLANK)
)
colnames(tempdata) <- c("nocount", "count")
tempdata$row_names <- c("Central A/C", "Window A/C", "Electric Fan", "None of these", "Other",
"BLANK")
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names", "count", "prop_1502"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q38_coolingsystem_type" ###
tableQ38_coolingsystem_type <- tempdata ###
tableQ38_coolingsystem_type
...

```

```

###Question 39 (split)
```{r echo = FALSE, fig.height = 6, fig.width = 8}
##question 39. If yes, which cooling system(s) do you use to cool your home? (Select all that apply)
##NOTE: no one selected sunshades/sunscreens/blinds
##Note: need to convert into ordinal - central air at most, window unit at most, etc

```

```

table(datfinal$Q39_coolingsystem_functionalatmost) ###
tempdata <- table(datfinal$Q39_coolingsystem_functionalatmost) ###
custom_order_row <- c("Central A/C at most",

```

```

      "Window Unit A/C at most",
      "Electric Fan at most",
      "Other (please describe)",
      "None of these",
      "BLANK")
custom_labels <-c("Central A/C at most",
      "Window Unit A/C at most",
      "Electric Fan at most",
      "Other",
      "None of these",
      "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("Q39_coolingsystem_functionalatmost", "count") ###
tempdata$Q39_coolingsystem_functionalatmost <- custom_labels ###
tempdata$prop_1502 <-round(tempdata$count/nrow(datfinal)*100, digits = 1)

excluded_values <- datfinal$Q39_coolingsystem_functionalatmost %in% "BLANK" #####
nrespond <- sum(!excluded_values)
tempdata$prop_respond <-round(tempdata$count/nrespond*100, digits = 1)
tempdata[tempdata$row_names == "BLANK", "prop_respond"] <- NA

tempdata$Q38_coolingsystem_typeatmost <- factor(tempdata$Q39_coolingsystem_functionalatmost,
levels = custom_labels) ###
tableQ38_coolingsystem_typeatmost <- tempdata ###
tableQ38_coolingsystem_typeatmost

# write.table(tableQ37_coolingsystem_yesno, "clipboard-16384", sep = "\t", row.names = FALSE, quote
= FALSE)

graph <-
tableQ38_coolingsystem_typeatmost[tableQ38_coolingsystem_typeatmost$Q39_coolingsystem_function
alatmost!="BLANK",] ###
title <- "Q39. Which cooling system are working, at most at home?"
ggplot(graph,
  aes(x = Q38_coolingsystem_typeatmost,y = prop_respond, fill =
Q39_coolingsystem_functionalatmost))+ ###
  geom_bar(stat = "identity",position = "dodge")+
  scale_fill_manual(values = c("lightgreen", "lightblue", "orange", "yellow", "grey"))+
  geom_text(aes(label = prop_respond), color = "black", size = 4.5, vjust =-1, position =
position_dodge(0.9))+
  labs(title = str_wrap(title, width =70))+
  xlab("Cooling systems at home")+ ylab(paste("Percentage out of total (n =", nrespond, ")"))+
  ylim(0, 70)+
  labs(fill = "Legend")+

```

```

scale_x_discrete(labels = c("Central A/C", "Window A/C", "Fan", "Other", "None of these"))+
  theme(axis.text.x = element_text(angle = 0, size = 12), axis.title = element_text(size = 12), axis.title.x =
element_text(vjust = -2), legend.position = "none", plot.margin = margin(50, 50, 50, 50))
write.table(tableQ38_coolingsystem_typeatmost, "clipboard-16384", sep = "\t", row.names = FALSE,
quote = FALSE)
```

```

```

###Question 40

```

```

```{r echo = FALSE, fig.height = 7, fig.width = 10}
##questions 40. Does anything limit you from using your cooling system when you are hot or when it is
hot inside your home?
table(datfinal$Q40_coolingsystem_limit_yesno)
tempdata <- table(datfinal$Q40_coolingsystem_limit_yesno) ###
custom_order_row <- c("Yes",
  "No",
  "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q40_coolingsystem_limit_yesno" ###
tableQ40_coolingsystem_limit_yesno <- tempdata ###
tableQ40_coolingsystem_limit_yesno

write.table(tableQ40_coolingsystem_limit_yesno, "clipboard-16384", sep = "\t", row.names = FALSE,
quote = FALSE)
```

```

```

###Question 41 (split)

```

```

```{r echo = FALSE, fig.height = 7, fig.width = 10}
##question 41. If you indicated 'Yes', that you limit use of your home cooling systems, please indicate the
reason for the limitations (Check all that apply)
table(datfinal$Q41_coolingsystem_limit_type) ###
tempdata <- bind_rows(
  table(datfinal$`Q41_coolingsystem_limit_type_Cost of utility bills associated with the cooling system`),
  table(datfinal$`Q41_coolingsystem_limit_type_Cost of repairs to fix the non-working cooling system`),
  table(datfinal$`Q41_coolingsystem_limit_type_Confusing technology of the cooling system`),
  table(datfinal$`Q41_coolingsystem_limit_type_Medical and/or mobility limitations related to the
cooling system`),
  table(datfinal$`Q41_coolingsystem_limit_type_Cooling system does not currently work`),
  table(datfinal$`Q41_coolingsystem_limit_type_Other (please describe)`),
  table(datfinal$Q41_coolingsystem_limit_type_BLANK)
)
colnames(tempdata) <- c("nocount", "count")

```

```

tempdata$row_names <- c("Cost of utilities", "Cost of repairs", "Medical/Mobility limits", "Confusing
tech", "Broken cooling", "Other", "BLANK" )
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names", "count", "prop_1502"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q41_coolingsystem_limit_type" ###
tableQ41_coolingsystem_limit_type <- tempdata ###
tableQ41_coolingsystem_limit_type

```

```

write.table(tableQ41_coolingsystem_limit_type, "clipboard-16384", sep = "\t", row.names = FALSE,
quote = FALSE)
``

```

```

###Question 42 (split)

```

```

`` {r echo = FALSE, fig.height = 7, fig.width = 10}

```

```

###question 42. If you go elsewhere to stay cool, where are you most likely to go when it is very hot
outside? (Check all that apply)

```

```

###NOTE: not not applicable

```

```

table(datfinal$Q42_gotostaycool) ###

```

```

tempdata<-bind_rows(
  table(datfinal$`Q42_gotostaycool_Splash pads`),
  table(datfinal$`Q42_gotostaycool_City parks with shade`),
  table(datfinal$`Q42_gotostaycool_Public pool`),
  table(datfinal$Q42_gotostaycool_Library),
  table(datfinal$Q42_gotostaycool_Church),
  table(datfinal$`Q42_gotostaycool_Community center`),
  table(datfinal$`Q42_gotostaycool_Senior center`),
  table(datfinal$`Q42_gotostaycool_Friend or neighbor's air-conditioned home`),
  table(datfinal$`Q42_gotostaycool_Community organization`),
  table(datfinal$`Q42_gotostaycool_Shopping center or mall`),
  table(datfinal$`Q42_gotostaycool_Movie theater`),
  table(datfinal$Q42_gotostaycool_Other),
  table(datfinal$Q42_gotostaycool_BLANK)
)

```

```

colnames(tempdata) <- c("nocount", "count")

```

```

tempdata$row_names <- c("Splash pads", "City parks", "Public Pool", "Library", "Church", "Community
center", "Senior Center", "Friend's house", "Community organization", "Shopping center", "Movie
theater", "Other" , "BLANK" )

```

```

tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)

```

```

tempdata <- tempdata[order(-tempdata$count),]

```

```

tempdata <- tempdata[,c("row_names", "count", "prop_1502"), with = FALSE]

```

```

colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q42_gotostaycool" ###

```

```

tableQ42_gotostaycool <- tempdata ###
tableQ42_gotostaycool

write.table(tableQ42_gotostaycool, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
```

##Question 43 (split)
```{r echo = FALSE, fig.height = 7, fig.width = 10}
##question 43. What limitations, if any, prevent you from using cooling space opportunities? (Check all
that apply)
table(datfinal$Q43_coolingspace_limits) ###
tempdata<-bind_rows(
  table(datfinal`Q43_coolingspace_limits_No limitations to leaving my home to access cooling
elsewhere`),
  table(datfinal`Q43_coolingspace_limits_Lack of transportation to or from another location`),
  table(datfinal`Q43_coolingspace_limits_Medical or mobility limitations`),
  table(datfinal`Q43_coolingspace_limits_Cost of accessing non-public cool spaces`),
  table(datfinal`Q43_coolingspace_limits_Unaware of cooling space opportunities`),
  table(datfinal`Q43_coolingspace_limits_Unknown in the cooling space is safe or meant for me`),
  table(datfinal`Q43_coolingspace_limits_Other (please describe)`),
  table(datfinal$Q43_coolingspace_limits_BLANK)
)
colnames(tempdata) <- c("nocount", "count")
tempdata$row_names <- c("No limits", "Transport limits", "Medical limits", "Cost of access", "Unaware",
"Uncertain if safe or meant for me", "Other", "BLANK")
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names","count","prop_1502"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q43_coolingspace_limits" ###
tableQ43_coolingspace_limits <- tempdata ###
tableQ43_coolingspace_limits

write.table(tableQ43_coolingspace_limits, "clipboard-16384", sep = "\t", row.names = FALSE, quote =
FALSE)
```

##Question 44
```{r echo = FALSE, fig.height = 7, fig.width = 10}
##questions 44. If a public community cooling center (a designated, air conditioned, public space where
people can go to can cool off) were available in your neighborhood this summer, would you consider
using it?
table(datfinal$Q44_coolingcenter_yesno)
tempdata <- table(datfinal$Q44_coolingcenter_yesno) ###
custom_order_row <- c("Yes",

```

```

    "No",
    "Maybe; please explain why or why not",
    "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q44_coolingcenter_yesno" ###
tableQ44_coolingcenter_yesno <- tempdata ###
tableQ44_coolingcenter_yesno

write.table(tableQ44_coolingcenter_yesno, "clipboard-16384", sep = "\t", row.names = FALSE, quote =
FALSE)
``

```

```

##Question 44 yesmaybeno by age group
`` {r echo = FALSE, fig.height = 6, fig.width = 8}

```

```

##Question 44. Would you consider a public cooling center?
tempdata <- (table(datfinal$Q44_coolingcenter_yesmaybeno, datfinal$agegroup)) ###
tempdata
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

```

```

custom_order_row <- c("Yes", "Maybe", "No")
custom_order_col <- c("<45yo", "45-64yo", ">64yo")
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)

```

```

tempdata_prop <- tempdata

```

```

sum45 <- sum(subset(tempdata, Predictor %in% "<45yo")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "<45yo"] <-
round(tempdata$Count[tempdata$Predictor %in% "<45yo"]/sum45*100, digits = 1)

```

```

sum4564 <- sum(subset(tempdata, Predictor %in% "45-64yo")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "45-64yo"] <-
round(tempdata$Count[tempdata$Predictor %in% "45-64yo"]/sum4564*100, digits = 1)

```

```

sum64 <- sum(subset(tempdata, Predictor %in% ">64yo")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% ">64yo"] <-
round(tempdata$Count[tempdata$Predictor %in% ">64yo"]/sum64*100, digits = 1)

```

```

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop")

nrespond <- sum(tempdata$Count)
nrespond
#count graph
title <- paste("Question 37. Would you consider a public cooling center? - by Age Group (n
=",nrespond,")")
ggplot(tempdata, aes(x = Predictor,y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa","#cd9600", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab("Xaxis")+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa","#cd9600", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab("Age Group")+ ylab("Percent by Age Group")+
  # ylim(0, 50)+
  labs(fill = "Consider public cooling")+
  scale_x_discrete(labels = c(paste("<45yo (",sum45,")"), paste("45-64yo (",sum4564,")"), paste(">64yo
(",sum64,")")))+
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2))

...

####Question 44 by Elderly at home
`` {r echo = FALSE, fig.height = 6, fig.width = 8}

##Question 44. Would you consider a public cooling center?
tempdata <- (table(datfinal$Q44_coolingcenter_yesmaybeno, datfinal$Q7_household_elderyesno)) ###
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

custom_order_row <- c("Yes", "Maybe", "No")
custom_order_col <- c("Yes", "No")
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)

```

```

tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
tempdata_prop <- tempdata

sumyes <- sum(subset(tempdata, Predictor %in% "Yes")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "Yes"] <-
round(tempdata$Count[tempdata$Predictor %in% "Yes"]/sumyes*100, digits = 1)

sumno <- sum(subset(tempdata, Predictor %in% "No")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "No"] <-
round(tempdata$Count[tempdata$Predictor %in% "No"]/sumno*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tempdata$Count)
nrespond
#count graph
title <- paste("Question 37. Would you consider a public cooling center? - by elderly presence (n
=",nrespond,")")
xaxis <- "At least one elder present in household"
yaxis <- "Elderly present"
ggplot(tempdata, aes(x = Predictor,y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa","#cd9600", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa","#cd9600", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
  # ylim(0, 50)+
  labs(fill = "Consider public cooling")+
  scale_x_discrete(labels = c(paste("Yes (",sumyes,")"), paste("No (",sumno,")")))+
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2))

...

####Question 44 by children at home

```

```

`` {r echo = FALSE, fig.height = 6, fig.width = 8}
##Question 44. Would you consider a public cooling center?
tmpdata <- (table(datfinal$Q44_coolingcenter_ yesmaybeno, datfinal$Q6_household_childyesno)) ###
write.table(tmpdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

custom_order_row <- c("Yes", "Maybe", "No")
custom_order_col <- c("Yes", "No")
tmpdata <- as.data.frame(tmpdata[custom_order_row, custom_order_col])
colnames(tmpdata) <- c("Threat", "Predictor", "Count")
tmpdata$Threat <- factor(tmpdata$Threat, levels = custom_order_row)
tmpdata$Predictor <- factor(tmpdata$Predictor, levels = custom_order_col)
tmpdata_prop <- tmpdata

sumyes <- sum(subset(tmpdata, Predictor %in% "Yes")$Count)
tmpdata_prop$Count[tmpdata_prop$Predictor %in% "Yes"] <-
round(tmpdata$Count[tmpdata$Predictor %in% "Yes"]/sumyes*100, digits = 1)

sumno <- sum(subset(tmpdata, Predictor %in% "No")$Count)
tmpdata_prop$Count[tmpdata_prop$Predictor %in% "No"] <-
round(tmpdata$Count[tmpdata$Predictor %in% "No"]/sumno*100, digits = 1)

colnames(tmpdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tmpdata$Count)
nrespond
#count graph
title <- paste("Question 37. Would you consider a public cooling center? - by child presence (n
=", nrespond, ")")
xaxis <- "At least one child present in household"
yaxis <- "Child present"
ggplot(tmpdata, aes(x = Predictor, y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#cd9600", "#f8766d"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tmpdata_prop, aes(x = Predictor, y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#cd9600", "#f8766d"))+
  labs(title = str_wrap(title, width = 70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+

```

```

# ylim(0, 50)+
labs(fill = "Consider Public Cooling")+
scale_x_discrete(labels = c(paste("Yes (",sumyes,")"), paste("No (",sumno,")")))+
geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
theme(axis.text.x = element_text(angle = 0, size = 12), axis.title = element_text(size = 12), axis.title.x =
element_text(vjust = -2))

...

##Question 44 by Disability/Long term illness
```{r echo = FALSE, fig.height = 6, fig.width = 8}
##Question 44. Would you consider a public cooling center?
tempdata <- (table(datfinal$Q44_coolingcenter_yesmaybeno, datfinal$Q28_disability_anyone)) ###
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

custom_order_row <- c("Yes", "Maybe", "No")
custom_order_col <- c("Yes", "No") ###
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
tempdata_prop <- tempdata

sumyes <- sum(subset(tempdata, Predictor %in% "Yes")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "Yes"] <-
round(tempdata$Count[tempdata$Predictor %in% "Yes"]/sumyes*100, digits = 1)

sumno <- sum(subset(tempdata, Predictor %in% "No")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "No"] <-
round(tempdata$Count[tempdata$Predictor %in% "No"]/sumno*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tempdata$Count)
nrespond
#count graph
title <- paste("Question 37. Would you consider a public cooling center? - by disability/chronic illness
presence (n =", nrespond, ")")
xaxis <- "Personal or household disability/chronic illness"
yaxis <- "disability/chronic illness at home"
ggplot(tempdata, aes(x = Predictor, y = Count, fill = Threat))+
geom_bar(stat = "identity", position = "dodge")+
scale_fill_manual(values = c("#00c1aa", "#cd9600", "#F8766D"))+

```

```

labs(title = str_wrap(title, width =70))+
xlab(xaxis)+ ylab("Counts")+
labs(fill = "Legend")+
geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

```

```

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#cd9600", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
  # ylim(0, 50)+
  labs(fill = "Consider Public Cooling")+
  scale_x_discrete(labels = c(paste("Yes (",sumyes,")"), paste("No (",sumno,")")))+ ###
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
  element_text(vjust = -2))
...

```

```

###Question 44 by ER/urgent care impact

```

```

`` {r echo = FALSE, fig.height = 6, fig.width = 8}

```

```

###Question 44. Would you consider a public cooling center?

```

```

tempdata <- (table(datfinal$Q44_coolingcenter_yesmaybeno, datfinal$Q32_ER_personal)) ###
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

```

```

custom_order_row <- c("Yes", "Maybe", "No")

```

```

custom_order_col <- c("Yes", "No")###

```

```

tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])

```

```

colnames(tempdata) <- c("Threat", "Predictor", "Count")

```

```

tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)

```

```

tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)

```

```

tempdata_prop <- tempdata

```

```

sumyes <- sum(subset(tempdata, Predictor %in% "Yes")$Count)

```

```

tempdata_prop$Count[tempdata_prop$Predictor %in% "Yes"] <-

```

```

round(tempdata$Count[tempdata$Predictor %in% "Yes"]/sumyes*100, digits = 1)

```

```

sumno <- sum(subset(tempdata, Predictor %in% "No")$Count)

```

```

tempdata_prop$Count[tempdata_prop$Predictor %in% "No"] <-

```

```

round(tempdata$Count[tempdata$Predictor %in% "No"]/sumno*100, digits = 1)

```

```

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

```

```

nrespond <- sum(tempdata$Count)
nrespond
title <- paste("Question 44. Would you consider a public cooling center? - by ER experience (n
=",nrespond,")")
ggplot(tempdata, aes(x = Predictor,y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#cd9600", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab("Xaxis")+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#cd9600", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab("ER/Hospital/Urgent Care experience")+ ylab("Percent by ER/Hospital/Urgent Care experience")+
  # ylim(0, 50)+
  labs(fill = "Consider Public Cooling")+
  scale_x_discrete(labels = c(paste("Yes (",sumyes,")"), paste("No (",sumno,")")))+ ###
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
  element_text(vjust = -2))

...

##Question 44 by home cooling access
`` {r echo = FALSE, fig.height = 6, fig.width = 8}
##Question 44. Would you consider a public cooling center? with Q37
table(datfinal$Q37_coolingsystem_yesno)

tempdata <- (table(datfinal$Q44_coolingcenter_yesmaybeno, datfinal$Q37_coolingsystem_yesno)) ###
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

custom_order_row <- c("Yes", "Maybe", "No")
custom_order_col <- c("Yes", "No")####
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
tempdata_prop <- tempdata

```

```

sumyes <- sum(subset(tempdata, Predictor %in% "Yes")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "Yes"] <-
round(tempdata$Count[tempdata$Predictor %in% "Yes"]/sumyes*100, digits = 1)

sumno <- sum(subset(tempdata, Predictor %in% "No")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "No"] <-
round(tempdata$Count[tempdata$Predictor %in% "No"]/sumno*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tempdata$Count)
nrespond
title <- paste("Question 44. Would you consider a public cooling center? - by ER experience (n
=",nrespond,")")
ggplot(tempdata, aes(x = Predictor,y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#cd9600", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab("Xaxis")+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa", "#cd9600", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab("ER/Hospital/Urgent Care experience")+ ylab("Percent by ER/Hospital/Urgent Care experience")+
  # ylim(0, 50)+
  labs(fill = "Consider Public Cooling")+
  scale_x_discrete(labels = c(paste("Yes (",sumyes,")"), paste("No (",sumno,")")))+ ###
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
  element_text(vjust = -2))

...

##test for do people who use cooling centers not have home a/c
`` {r echo = FALSE, fig.height = 6, fig.width = 8}
##Question 37. Would you go to a cooling center
tempdata <- (table(datfinal$Q44_coolingcenter_yesno, datfinal$Q37_coolingsystem_yesno)) ###

```

```

tempdata_prop <- round(prop.table(table(datfinal$Q44_coolingcenter_yesno,
datfinal$Q37_coolingsystem_yesno), margin =2)*100,digits =1) ###
tempdata_prop
custom_order_row <- c("Yes", "Maybe; please explain why or why not", "No" ) ## cooling center
custom_order_col <- c("Yes", "No") ## cooling system
tempdata
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
tempdata$Var1 <- factor(tempdata$Var1, levels = custom_order_row)
tempdata$Var2 <- factor(tempdata$Var2, levels = custom_order_col)

tempdata_prop <- as.data.frame(tempdata_prop[custom_order_row, custom_order_col])
tempdata_prop$Var1 <- factor(tempdata_prop$Var1, levels = custom_order_row)
tempdata_prop$Var2 <- factor(tempdata_prop$Var2, levels = custom_order_col)

#count graph
title <- "Q44 + Q37 Would you go to a cooling center, by access to home cooling system? (n=1336)"
xaxis <- "Access to home cooling system"
ggplot(tempdata, aes(x = Var2,y = Freq, fill = Var1))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("lightgreen", "yellow", "orange", "grey"), labels = c("Yes - would use
cooling center", "Maybe", "No"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Would go to public cooling center")+
  # scale_x_discrete(labels = c("Yes", "Moderate", "Mild", "Very Mild", "None"))+
  theme(axis.text.x = element_text(angle = 0, size =10), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = 0))+
  geom_text(aes(label = Freq), color = "black", size = 4, vjust =-1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Var2,y = Freq, fill = Var1))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("lightgreen", "yellow", "orange", "grey"), labels = c("Yes - would use
cooling center", "Maybe", "No"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab("Percent by cooling system response")+
  labs(fill = "Would go to public cooling center")+
  ylim(0,75)+
  theme(axis.text.x = element_text(angle = 0, size =12), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = 0))+
  geom_text(aes(label = Freq), color = "black", size = 4, vjust =-1, position = position_dodge(0.9))

...

```

```

##Question 44 by Housing situation - rent
```{r echo = FALSE, fig.height = 6, fig.width = 8}
##Question 44. Would you consider a public cooling center?
tempdata <- (table(datfinal$Q44_coolingcenter_yesmaybeno, datfinal$Q9_livingsituation)) ###
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

custom_order_row <- c("Yes", "Maybe", "No")
custom_order_col <- c("I or my family own my home",
  "I or my family rent my home")

  # "I am currently experiencing homelessness",
  # "Staying with friends or family",
  # "Other (please describe)")
custom_labels <-c("Rent home",
  "Own home")

tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
tempdata
colnames(tempdata) <- c("Threat", "Predictor", "Count")
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
tempdata_prop <- tempdata

sumown <- sum(subset(tempdata, Predictor %in% "I or my family own my home")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "I or my family own my home"] <-
round(tempdata$Count[tempdata$Predictor %in% "I or my family own my home"]/sumown*100, digits =
1)

sumrent <- sum(subset(tempdata, Predictor %in% "I or my family rent my home")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "I or my family rent my home"] <-
round(tempdata$Count[tempdata$Predictor %in% "I or my family rent my home"]/sumrent*100, digits =
1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tempdata$Count)
nrespond
#count graph
title <- paste("Question 44. Would you consider a public cooling center? - by housing situation (n
=", nrespond, ")")
xaxis <- "Housing Ownership"
yaxis <- "Housing Type"
ggplot(tempdata, aes(x = Predictor, y = Count, fill = Threat))+

```

```

geom_bar(stat = "identity", position = "dodge")+
scale_fill_manual(values = c("#00c1aa", "#cd9600", "#F8766D"))+
labs(title = str_wrap(title, width = 70))+
xlab(xaxis)+ ylab("Counts")+
labs(fill = "Legend")+
geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

```

#proportional graph

```

ggplot(tempdata_prop, aes(x = Predictor, y = Prop, fill = Threat))+
geom_bar(stat = "identity", position = "dodge")+
scale_fill_manual(values = c("#00c1aa", "#cd9600", "#F8766D"))+
  labs(title = str_wrap(title, width = 70))+
xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
# ylim(0, 50)+
labs(fill = "Consider Public Cooling")+
  scale_x_discrete(labels = c(paste("Own (", sumown, ")"), paste("Rent (", sumrent, ")")))+ ###
geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size = 12), axis.title = element_text(size = 12), axis.title.x =
element_text(vjust = -2))

```

...

##Question 44 by Location District

```
`` {r echo = FALSE, fig.height = 6, fig.width = 8}
```

##Question 44. Would you consider a public cooling center?

```
tempdata <- (table(datfinal$Q44_coolingcenter_ yesmaybeno, datfinal$locationgroup)) ###
```

```
write.table(tempdata, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
```

```
custom_order_row <- c("Yes", "Maybe", "No")
```

```
custom_order_col <- c("District1",
```

```
  "District2",
```

```
  "District3",
```

```
  "OUTSIDE CITY")
```

```
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
```

```
colnames(tempdata) <- c("Threat", "Predictor", "Count")
```

```
tempdata$Threat <- factor(tempdata$Threat, levels = custom_order_row)
```

```
tempdata$Predictor <- factor(tempdata$Predictor, levels = custom_order_col)
```

```
tempdata_prop <- tempdata
```

```
sumd1 <- sum(subset(tempdata, Predictor %in% "District1")$Count)
```

```
tempdata_prop$Count[tempdata_prop$Predictor %in% "District1"] <-
```

```
round(tempdata$Count[tempdata$Predictor %in% "District1"]/sumd1*100, digits = 1)
```

```
sumd2 <- sum(subset(tempdata, Predictor %in% "District2")$Count)
```

```

tempdata_prop$Count[tempdata_prop$Predictor %in% "District2"] <-
round(tempdata$Count[tempdata$Predictor %in% "District2"]/sumd2*100, digits = 1)

sumd3 <- sum(subset(tempdata, Predictor %in% "District3")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "District3"] <-
round(tempdata$Count[tempdata$Predictor %in% "District3"]/sumd3*100, digits = 1)

sumOC <- sum(subset(tempdata, Predictor %in% "OUTSIDE CITY")$Count)
tempdata_prop$Count[tempdata_prop$Predictor %in% "OUTSIDE CITY"] <-
round(tempdata$Count[tempdata$Predictor %in% "OUTSIDE CITY"]/sumOC*100, digits = 1)

colnames(tempdata_prop) <- c("Threat", "Predictor", "Prop") #change names for prop

nrespond <- sum(tempdata$Count)
nrespond

#count graph
title <- paste("Question 44. Would you consider a public cooling center? - by Location (n =",nrespond,")")
xaxis <- "By District Location"
yaxis <- "Location"
ggplot(tempdata, aes(x = Predictor,y = Count, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa","#cd9600", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Count), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))

#proportional graph
ggplot(tempdata_prop, aes(x = Predictor,y = Prop, fill = Threat))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("#00c1aa","#cd9600", "#F8766D"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab(paste("Percent by ", yaxis))+
  # ylim(0, 50)+
  labs(fill = "Public Cooling Center")+
  scale_x_discrete(labels = c(paste("District1 (" ,sumd1,")"), paste("District2 (" ,sumd2,")"),
paste("District3 (" ,sumd3,")"), paste("OUTSIDE CITY (" ,sumOC,")")))+
  geom_text(aes(label = Prop), color = "black", size = 4, vjust = -1, position = position_dodge(0.9))+
  theme(axis.text.x = element_text(angle = 0, size =10), axis.title = element_text(size = 12) ,axis.title.x =
element_text(vjust = -2))

```

...

```
#####  
#####
```

```
##Q45 Aggregated Stacked Barplot
```

```
`` {r echo = FALSE, fig.height = 6, fig.width = 8}
```

```
##Question 44. Would you consider a public cooling center?
```

```
dat44.raw <- read.csv("Q44PublicCoolingYMN_aggregated2.csv")
```

```
tempdata <- dat44.raw
```

```
data.frame(tempdata)
```

```
#vulnerability, YNMaybe, Percentage
```

```
tempdata$Percentage <- round(tempdata$Percentage*100,1)
```

```
custom_order_threat <- c("Yes",
```

```
  "Maybe",
```

```
  "No")
```

```
tempdata$YNMaybe <- factor(tempdata$YNMaybe, levels = custom_order_threat)
```

```
custom_order_vul <- c("Age group >64 (n=303)",
```

```
"Age group 45-64 (n= 482)",
```

```
"Age group <45 yo (n=559)",
```

```
"1",
```

```
"elderly at home - yes (n=396)",
```

```
"elderly at home - no (n=932)",
```

```
"2",
```

```
"child at home - yes (n=399)",
```

```
"child at home - no (n=932)",
```

```
"3",
```

```
"disability/illness at home - yes (n=538)",
```

```
"disability/illness at home - no (n=777)",
```

```
"4",
```

```
"ER/urgent yes (n=67)",
```

```
"ER/urgent no (n=1242)",
```

```
"5",
```

```
"home cooling no (n=134)",
```

```
"home cooling yes (n=1202)",
```

```
"6",
```

```
"rent home (n=358)",
```

```
"own home (n=915)",
```

```
"7",
```

```
"location - district 1 (n=285)",
```

```
"location - district 2 (n=390)",
```

```
"location - district 3 (n=361)",  
"location - outside city (n=237)"))
```

```
tempdata$Vulnerability <- factor(tempdata$Vulnerability, levels = rev(custom_order_vul))
```

```
custom_labels <- rev(c("Age group >64 (n=303)",  
"Age Group 45-64 (n=482)",  
"Age group <45 yo (n=559)",  
" ",  
"Has Elderly (n=396)",  
"No Elderly (932)",  
" ",  
"Has Child (n=399)",  
"No Child (n=932)",  
" ",  
"Has Medical Illness (n=538)",  
"No Medical Illness (n=777)",  
" ",  
"Been to ER/UrgentCare (n=67)",  
"No ER/urgentCare (n=1242)",  
" ",  
"No Home cooling (n=134)",  
"Has Home cooling (n=1202)",  
" ",  
"Renter (n=358)",  
"Owner (n=915)",  
" ",  
"District 1 (n=285)",  
"District 2 (n=390)",  
"District 3 (n=361)",  
"Outside city (n=237)"))
```

```
title <- paste("Question 44. If a public community cooling center were available in your neighborhood  
this summer, would you consider using it? - By Vulnerability Factors")
```

```
ggplot(tempdata, aes(x= Vulnerability, y = Percentage, fill = YNMaybe))+  
  geom_bar(stat = "identity")+  
  coord_flip()+  
  # scale_fill_manual(values = c("#1AC9E6", "#DB4CB2", "#7D3AC1"))+  
  scale_fill_manual(values = c("#8cc152", "#f8d90f", "#EF7E32"))+  
  labs(title = str_wrap(title, width =60))+  
  xlab("Vulnerability Factors")+ ylab("Percent within each group")+
```

```

labs(fill = "Response:")+
scale_x_discrete(labels = custom_labels)+
guides(fill = guide_legend(reverse = TRUE))+
theme(axis.text.x = element_text(angle = 0, size = 12), axis.title = element_text(size = 14) ,axis.title.x =
element_text(vjust = 0), axis.title.y = element_text(vjust = 4), axis.text.y = element_text(angle = 0, size
=10), legend.position = "top", plot.margin = margin(0,15,25,25))

```

...

```

###Question 45 (split)

```

```

`` {r echo = FALSE, fig.height = 7, fig.width = 10}

```

```

##question 45. If a public community cooling center were available in Spokane, what would keep you
from using it? (Check all that apply

```

```

table(datfinal$Q45_coolingcenter_limits) ###

```

```

tempdata<-bind_rows(

```

```

  table(datfinal$`Q45_coolingcenter_limits_If it were more than a few blocks from your house`),

```

```

  table(datfinal$`Q45_coolingcenter_limits_If it was not in your neighborhood`),

```

```

  table(datfinal$`Q45_coolingcenter_limits_If it didn't offer any activities`),

```

```

  table(datfinal$`Q45_coolingcenter_limits_If transportation to the center was difficult`),

```

```

  table(datfinal$`Q45_coolingcenter_limits_If I didn't know anyone there`),

```

```

  table(datfinal$`Q45_coolingcenter_limits_If domestic pets were not allowed/accommodated`),

```

```

  table(datfinal$`Q45_coolingcenter_limits_If there were no resources/accommodations available for
access & functional needs`),

```

```

  table(datfinal$`Q45_coolingcenter_limits_If there were no resources (fluent speakers and/or print
resources) in my native language available`),

```

```

  table(datfinal$`Q45_coolingcenter_limits_Other (please describe)`),

```

```

  table(datfinal$Q45_coolingcenter_limits_BLANK)

```

```

)

```

```

colnames(tempdata) <- c("nocount", "count")

```

```

tempdata$row_names <- c("More than a few blocks away", "Not in your neighborhood", "Didn't offer
activities", "Transportation was difficult", "I didn't know anyone there", "No pets allowed", "No
resources/accomodations for needs", "No resources in native language", "Other", "BLANK")

```

```

tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)

```

```

tempdata <- tempdata[order(-tempdata$count),]

```

```

tempdata <- tempdata[,c("row_names","count","prop_1502"), with = FALSE]

```

```

colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q45_coolingcenter_limits" ###

```

```

tableQ45_coolingcenter_limits <- tempdata ###

```

```

tableQ45_coolingcenter_limits

```

```

write.table(tableQ45_coolingcenter_limits, "clipboard-16384", sep = "\t", row.names = FALSE, quote =
FALSE)

```

...

```

###Question 46 (split)
```{r echo = FALSE, fig.height = 7, fig.width = 10}
##question 46. Which of these activities might convince you to leave your home to stay cool at a public
community cooling center when it is very hot outside? (Check all that apply)
# table(datfinal$Q46_coolingcenter_incentives) ###
tempdata<-bind_rows(
  table(datfinal$Q46_coolingcenter_incentives_Sports),
  table(datfinal$Q46_coolingcenter_incentives_Games),
  table(datfinal$Q46_coolingcenter_incentives_Swimming),
  table(datfinal$Q46_coolingcenter_incentives_Music),
  table(datfinal$Q46_coolingcenter_incentives_Food),
  table(datfinal$`Q46_coolingcenter_incentives_Classes or educational opportunities`),
  table(datfinal$`Q46_coolingcenter_incentives_Movie screenings`),
  table(datfinal$`Q46_coolingcenter_incentives_Laptops for public use`),
  table(datfinal$`Q46_coolingcenter_incentives_Free WiFi`),
  table(datfinal$`Q46_coolingcenter_incentives_Free transportation to/from the center`),
  table(datfinal$`Q46_coolingcenter_incentives_Ability to freely charge electronic devices or medical
devices`),
  table(datfinal$`Q46_coolingcenter_incentives_Ability to have my domestic pet with me`),
  table(datfinal$`Q46_coolingcenter_incentives_If there were resources/accommodations for access &
functional needs`),
  table(datfinal$`Q46_coolingcenter_incentives_If there were resources (fluent speakers and/or print
resources) in my native language available`),
  table(datfinal$`Q46_coolingcenter_incentives_Other (please describe)`),
  table(datfinal$Q46_coolingcenter_incentives_BLANK)
)
colnames(tempdata) <- c("nocount", "count")
tempdata$row_names <- c("Sports", "Games", "Swimming", "Music", "Food", "Educational
opportunities", "Movie screenings", "Computers for public use", "Free Wifi", "Free transportation", "Free
charging of electronics", "Pets allowed", "resource/accomodations for needs", "Resources in native
language", "Other", "BLANK" )
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names","count","prop_1502"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q46_coolingcenter_incentives" ###
tableQ46_coolingcenter_incentives <- tempdata ###
tableQ46_coolingcenter_incentives

write.table(tableQ46_coolingcenter_incentives, "clipboard-16384", sep = "\t", row.names = FALSE, quote
= FALSE)
```

###Question 49

```

```

```{r echo = FALSE, fig.height = 7, fig.width = 10}
##questions 49 Do you have access to a park or green space within walking distance of your home?
table(datfinal$Q49_parkaccess)
tempdata <- table(datfinal$Q49_parkaccess) ###
custom_order_row <- c("Yes",
                      "No",
                      "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q49_parkaccess" ###
tableQ49_parkaccess <- tempdata ###
tableQ49_parkaccess
write.table(tableQ49_parkaccess, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
```

```

```
## Question 49 - subgroup by location
```

```

```{r echo = FALSE, fig.height = 7, fig.width = 10}
##Q49 Do you have access to a park or green space within walking distance of your home?
tempdata <- (table(datfinal$Q49_parkaccess, datfinal$locationgroup)) ###
tempdata
tempdata_prop <- round(prop.table(table(datfinal$Q49_parkaccess, datfinal$locationgroup), margin
=2)*100,digits=1) ###
tempdata_prop
custom_order_row <- c("Yes",
                      "No",
                      "BLANK")
custom_order_col <- c("District1",
                      "District2",
                      "District3",
                      "OUTSIDE CITY")
tempdata <- as.data.frame(tempdata[custom_order_row, custom_order_col])
tempdata$Var1 <- factor(tempdata$Var1, levels = custom_order_row)
tempdata$Var2 <- factor(tempdata$Var2, levels = custom_order_col)

tempdata_prop <- as.data.frame(tempdata_prop[custom_order_row, custom_order_col])
tempdata_prop$Var1 <- factor(tempdata_prop$Var1, levels = custom_order_row)
tempdata_prop$Var2 <- factor(tempdata_prop$Var2, levels = custom_order_col)

```

```
#count graph
```

```

title <- "Q49 Do you have access to a park or green space within walking distance of your home? - by
Location"
xaxis <- "Location Group"

```

```

ggplot(tempdata, aes(x = Var2,y = Freq, fill = Var1))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("lightgreen", "orange", "grey"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab("Counts")+
  labs(fill = "Legend")+
  geom_text(aes(label = Freq), color = "black", size = 3, vjust =1, position = position_dodge(0.9))

```

#proportional graph

```

ggplot(tempdata_prop, aes(x = Var2,y = Freq, fill = Var1))+
  geom_bar(stat = "identity", position = "dodge")+
  scale_fill_manual(values = c("lightgreen", "orange", "grey"))+
  labs(title = str_wrap(title, width =70))+
  xlab(xaxis)+ ylab("Percent by Location Group ")
  labs(fill = "Legend")+
  ylim(0,100)+
  geom_text(aes(label = Freq), color = "black", size = 2.5, vjust =-0.2, position = position_dodge(0.9))
...

```

##Question 50 (split)

```
`` {r echo = FALSE, fig.height = 7, fig.width = 10}
```

##question 50. The things listed below can help bring temperatures down in neighborhoods. Which of these things would you like to see more of in your neighborhood? (Circle all that apply)

```
table(datfinal$Q50_neighborhood_greenery_types) ###
```

```
tempdata<-bind_rows(
```

```
  table(datfinal$`Q50_neighborhood_greenery_types_Tree plantings`),
```

```
  table(datfinal$`Q50_neighborhood_greenery_types_Parks`),
```

```
  table(datfinal$`Q50_neighborhood_greenery_types_Community gardens and green space`),
```

```
  table(datfinal$`Q50_neighborhood_greenery_types_Cool roofs (painting many roofs on one block with a white paint that reflects heat)`),
```

```
  table(datfinal$`Q50_neighborhood_greenery_types_None of the above`),
```

```
  table(datfinal$`Q50_neighborhood_greenery_types_Other (please describe)`),
```

```
  table(datfinal$`Q50_neighborhood_greenery_types_BLANK`)
```

```
)
```

```
colnames(tempdata) <- c("nocount", "count")
```

```
tempdata$row_names <- c("Tree plantings", "Parks", "Community gardens", "Cool roofs", "None of the above", "Other", "BLANK" )
```

```
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
```

```
tempdata <- tempdata[order(-tempdata$count),]
```

```
tempdata <- tempdata[,c("row_names", "count", "prop_1502"), with = FALSE]
```

```
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q50_neighborhood_greenery_types" ###
```

```
tableQ50_neighborhood_greenery_types <- tempdata ###
```

```
tableQ50_neighborhood_greenery_types
```

```
write.table(tableQ50_neighborhood_greenery_types, "clipboard-16384", sep = "\t", row.names = FALSE,
quote = FALSE)
````
```

```
##Question 51 (split)
```

```
`` {r echo = FALSE, fig.height = 7, fig.width = 10}
```

```
##question 51. What community services would you like to see more of in your neighborhood to help you
and your household manage high temperatures? (Circle all that apply)
```

```
table(datfinal$Q51_neighborhood_heat_assistance) ###
```

```
tempdata<-bind_rows(
```

```
  table(datfinal$`Q51_neighborhood_heat_assistance_UTILITY bill assistance`),
  table(datfinal$`Q51_neighborhood_heat_assistance_Financial assistance with cooling system repairs`),
  table(datfinal$`Q51_neighborhood_heat_assistance_Heat illness awareness campaign & resources`),
  table(datfinal$`Q51_neighborhood_heat_assistance_Cell phone alerts on hot days to remind me to stay
cool and hydrated`),
  table(datfinal$`Q51_neighborhood_heat_assistance_Public splash pads`),
  table(datfinal$`Q51_neighborhood_heat_assistance_Public pools`),
  table(datfinal$`Q51_neighborhood_heat_assistance_Financial assistance with cooling system repairs`),
  table(datfinal$`Q51_neighborhood_heat_assistance_Other (please describe)`),
  table(datfinal$Q51_neighborhood_heat_assistance_BLANK)
)
```

```
colnames(tempdata) <- c("nocount", "count")
```

```
tempdata$row_names <- c("UTILITY bill assistance", "Repair financial assistance", "Heat illness resources",
"Cell phone alerts", "Public splash pads", "Public pools", "Financial assistance for cooling
space", "Other", "BLANK" )
```

```
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
```

```
tempdata <- tempdata[order(-tempdata$count),]
```

```
tempdata <- tempdata[,c("row_names", "count", "prop_1502"), with = FALSE]
```

```
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q51_neighborhood_heat_assistance" ###
```

```
tableQ51_neighborhood_heat_assistance <- tempdata ###
```

```
tableQ51_neighborhood_heat_assistance
```

```
write.table(tableQ51_neighborhood_heat_assistance, "clipboard-16384", sep = "\t", row.names = FALSE,
quote = FALSE)
```

```
````
```

```
##Question 21 (split)
```

```
`` {r echo = FALSE, fig.height = 7, fig.width = 10}
```

```
##question 21. What are your main sources of information in your community? (Circle all that apply)
```

```
table(datfinal$Q21_information) ###
```

```
tempdata<-bind_rows(
```

```
  table(datfinal$`Q21_information_Neighbors (word of mouth)`),
  table(datfinal$`Q21_information_Friends or family (word of mouth)`),
  table(datfinal$`Q21_information_Neighborhood block captain or community leader`),
```

```

table(datfinal$`Q21_information_Social media`),
table(datfinal$`Q21_information_Community organization`),
table(datfinal$Q21_information_Television),
table(datfinal$Q21_information_Radio),
table(datfinal$Q21_information_Newspaper),
table(datfinal$`Q21_information_E-mail`),
table(datfinal$`Q21_information_Other (please describe)`),
table(datfinal$Q21_information_BLANK)
)
colnames(tempdata) <- c("nocount", "count")
tempdata$row_names <- c("Neighbors", "Friends/Family", "Community leader", "Social Media",
"Community organization", "Television", "Radio", "Newspaper", "E-mail", "Other", "BLANK" )
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names", "count", "prop_1502"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q21_information" ###
tableQ21_information <- tempdata ###
tableQ21_information

write.table(tableQ21_information, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)

```

...

#### Question 11

```

`` `{r echo = FALSE}
#Q11 Has anyone in your household ever experienced any of the following physical health conditions due
to heat? (Check all that apply)
# Q11_heatrisk_communitywellbeing

tempdata <- table(datfinal$Q11_heatrisk_communitywellbeing) ###
tempdata
custom_order_row <- c("A severe threat",
"A moderate threat",
"A mild threat",
"A very mild threat",
"No threat",
"BLANK")

tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
excluded_values <- datfinal$Q11_heatrisk_communitywellbeing %in% "BLANK" ###new proportion of
only responses
nrespond <- sum(!excluded_values)

```

```

nrespond
tempdata$prop_respond <- round(tempdata$count/nrespond*100, digits = 1)
tempdata[tempdata$row_names == "BLANK", "prop_respond"] <- NA
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q11_heatrisk_communitywellbeing" ###
tableQQ11_heatrisk_communitywellbeing <- tempdata ###
tableQQ11_heatrisk_communitywellbeing
write.table(tableQQ11_heatrisk_communitywellbeing, "clipboard-16384", sep = "\t", row.names =
FALSE, quote = FALSE)

```

...

### Question 13

```
`` {r echo = FALSE}
```

#Q13 How much of a threat do you think high heat is to the economy of the Spokane Community (e.g., due to reduced tourism, cancelled or postponed work, limited outdoor recreation, interrupted construction, etc.)?

```
# Q13_heatrisk_communityecon
```

```
tempdata <- table(datfinal$Q13_heatrisk_communityecon) ###
```

```
tempdata
```

```
custom_order_row <- c("A severe threat",
  "A moderate threat",
  "A mild threat",
  "A very mild threat",
  "No threat",
  "BLANK")
```

```
tempdata <- as.data.frame(tempdata[custom_order_row])
```

```
colnames(tempdata) <- c("row_names", "count")
```

```
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
```

```
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
```

```
excluded_values <- datfinal$Q13_heatrisk_communityecon %in% "BLANK" ###new proportion of only
responses
```

```
nrespond <- sum(!excluded_values)
```

```
nrespond
```

```
tempdata$prop_respond <- round(tempdata$count/nrespond*100, digits = 1)
```

```
tempdata[tempdata$row_names == "BLANK", "prop_respond"] <- NA
```

```
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q13_heatrisk_communityecon" ###
```

```
tableQQ13_heatrisk_communityecon <- tempdata ###
```

```
tableQQ13_heatrisk_communityecon
```

```
write.table(tableQQ13_heatrisk_communityecon, "clipboard-16384", sep = "\t", row.names = FALSE,
quote = FALSE)
```

...

### Question 15

```
`` `{r echo = FALSE}
#Q11 Has anyone in your household ever experienced any of the following physical health conditions due
to heat? (Check all that apply)
# Q11_heatrisk_communitywellbeing
datfinal$Q15_heatrisk_householdwellbeing

tempdata <- table(datfinal$Q15_heatrisk_householdwellbeing) ###
tempdata
custom_order_row <- c("A severe threat",
  "A moderate threat",
  "A mild threat",
  "A very mild threat",
  "No threat",
  "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
excluded_values <- datfinal$Q15_heatrisk_householdwellbeing %in% "BLANK" ###new proportion of
only responses
nrespond <- sum(!excluded_values)
nrespond
tempdata$prop_respond <- round(tempdata$count/nrespond*100, digits = 1)
tempdata[tempdata$row_names == "BLANK", "prop_respond"] <- NA
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q15_heatrisk_householdwellbeing" ###
tableQQ15_heatrisk_householdwellbeing <- tempdata ###
tableQQ15_heatrisk_householdwellbeing
write.table(tableQQ15_heatrisk_householdwellbeing, "clipboard-16384", sep = "\t", row.names = FALSE,
quote = FALSE)

``
```

### Question 16

```
`` `{r echo = FALSE}
#Q16 To what extent do you consider people in your neighborhood to be vulnerable to heat?
# Q16_heatrisk_neighborhood

tempdata <- table(datfinal$Q16_heatrisk_neighborhood) ###
tempdata
custom_order_row <- c("Extremely vulnerable",
  "Vulnerable",
  "Same as everyone in Spokane",
```

```

    "Less vulnerable",
    "Not vulnerable at all",
    "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
excluded_values <- datfinal$Q16_heatrisk_neighborhood %in% "BLANK" ####new proportion of only
responses
nrespond <- sum(!excluded_values)
nrespond
tempdata$prop_respond <- round(tempdata$count/nrespond*100, digits = 1)
tempdata[tempdata$row_names == "BLANK", "prop_respond"] <- NA
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q16_heatrisk_neighborhood" ####
tableQQ16_heatrisk_neighborhood <- tempdata ####
tableQQ16_heatrisk_neighborhood
write.table(tableQQ16_heatrisk_neighborhood, "clipboard-16384", sep = "\t", row.names = FALSE, quote
= FALSE)

```

...

#### Question 17

```
```{r echo = FALSE}
```

```
#Q17 How often do you talk to your neighbors?
```

```
# Q17_talktoneighbors
```

```
tempdata <- table(datfinal$Q17_talktoneighbors) ####
```

```
tempdata
```

```
custom_order_row <- c("Often",
    "Occasionally",
    "Never",
    "BLANK")
```

```
tempdata <- as.data.frame(tempdata[custom_order_row])
```

```
colnames(tempdata) <- c("row_names", "count")
```

```
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
```

```
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
```

```
excluded_values <- datfinal$Q17_talktoneighbors %in% "BLANK" ####new proportion of only responses
```

```
nrespond <- sum(!excluded_values)
```

```
nrespond
```

```
tempdata$prop_respond <- round(tempdata$count/nrespond*100, digits = 1)
```

```
tempdata[tempdata$row_names == "BLANK", "prop_respond"] <- NA
```

```
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q17_talktoneighbors" ####
```

```
tableQQ17_talktoneighbors <- tempdata ####
```

```
tableQQ17_talktoneighbors
```

```
write.table(tableQQ17_talktoneighbors, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
```

```
````
```

Question 18

```
````{r echo = FALSE}
```

```
#Q18 Is there a neighbor you would feel comfortable asking for help during high heat events?
```

```
# Q18_askingneighbor
```

```
tempdata <- table(datfinal$Q18_askingneighbor) ###
```

```
tempdata
```

```
custom_order_row <- c("Yes",  
  "No",  
  "BLANK")
```

```
tempdata <- as.data.frame(tempdata[custom_order_row])
```

```
colnames(tempdata) <- c("row_names", "count")
```

```
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
```

```
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
```

```
excluded_values <- datfinal$Q18_askingneighbor %in% "BLANK" ####new proportion of only responses
```

```
nrespond <- sum(!excluded_values)
```

```
nrespond
```

```
tempdata$prop_respond <- round(tempdata$count/nrespond*100, digits = 1)
```

```
tempdata[tempdata$row_names == "BLANK", "prop_respond"] <- NA
```

```
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q18_askingneighbor" ###
```

```
tableQQ18_askingneighbor <- tempdata ###
```

```
tableQQ18_askingneighbor
```

```
write.table(tableQQ18_askingneighbor, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
```

```
````
```

Question 19

```
````{r echo = FALSE}
```

```
#Q19 When the weather is very hot, how likely are you to check on neighbors?
```

```
# Q19_checkonneighbor
```

```
tempdata <- table(datfinal$Q19_checkonneighbor) ###
```

```
tempdata
```

```
custom_order_row <- c("Extremely likely",  
  "Likely",  
  "Neutral",
```

```

    "Unlikely",
    "Extremely unlikely",
    "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
excluded_values <- datfinal$Q19_checkonneighbor %in% "BLANK" ###new proportion of only
responses
nrespond <- sum(!excluded_values)
nrespond
tempdata$prop_respond <- round(tempdata$count/nrespond*100, digits = 1)
tempdata[tempdata$row_names == "BLANK", "prop_respond"] <- NA
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q19_checkonneighbor" ###
tableQQ19_checkonneighbor <- tempdata ###
tableQQ19_checkonneighbor
write.table(tableQQ19_checkonneighbor, "clipboard-16384", sep = "\t", row.names = FALSE, quote =
FALSE)

```

...

#### Question 20

```
`` {r echo = FALSE}
```

```
#Q20 When the weather is very hot, does anyone from outside your household check on you?
```

```
# Q20_checkonyou
```

```

tempdata <- table(datfinal$Q20_checkonyou) ###
tempdata
custom_order_row <- c("Yes",
    "No",
    "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
excluded_values <- datfinal$Q20_checkonyou %in% "BLANK" ###new proportion of only responses
nrespond <- sum(!excluded_values)
nrespond
tempdata$prop_respond <- round(tempdata$count/nrespond*100, digits = 1)
tempdata[tempdata$row_names == "BLANK", "prop_respond"] <- NA
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q20_checkonyou" ###
tableQ20_checkonyou <- tempdata ###
tableQ20_checkonyou

```

```
write.table(tableQ20_checkonyou, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
```

```
...
```

```
names(datfinal)[names(datfinal)=="If you have taken actions over the past 12 months because of concerns with air quality and the effects on your health, please select which actions you have taken (select all that apply)"] <- "Q26_air_actions_type"
```

```
Question 23
```

```
`` {r echo = FALSE}
```

```
#Q23 How much of a threat do you think air pollution is to the health and wellbeing of the Spokane Community?
```

```
# Q23_air_commmunitywellbeing
```

```
tempdata <- table(datfinal$Q23_air_commmunitywellbeing) ###
```

```
tempdata
```

```
custom_order_row <- c("A severe threat",
```

```
  "A moderate threat",
```

```
  "A mild threat",
```

```
  "A very mild threat",
```

```
  "No threat",
```

```
  "BLANK")
```

```
tempdata <- as.data.frame(tempdata[custom_order_row])
```

```
colnames(tempdata) <- c("row_names", "count")
```

```
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
```

```
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
```

```
excluded_values <- datfinal$Q23_air_commmunitywellbeing %in% "BLANK" ###new proportion of only responses
```

```
nrespond <- sum(!excluded_values)
```

```
nrespond
```

```
tempdata$prop_respond <- round(tempdata$count/nrespond*100, digits = 1)
```

```
tempdata[tempdata$row_names == "BLANK", "prop_respond"] <- NA
```

```
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q23_air_commmunitywellbeing" ###
```

```
tableQ23_air_commmunitywellbeing <- tempdata ###
```

```
tableQ23_air_commmunitywellbeing
```

```
write.table(tableQ23_air_commmunitywellbeing, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
```

```
...
```

```
Question 24
```

```

```{r echo = FALSE}
#Q24 Over the past five years, do you think that air pollution in the Spokane region overall has improved,
gotten worse or stayed about the same?
# Q24_air_changed

tempdata <- table(datfinal$Q24_air_changed) ###
tempdata
custom_order_row <- c("Improved",
                      "Stayed the same",
                      "Gotten worse",
                      "Unsure",
                      "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
excluded_values <- datfinal$Q24_air_changed %in% "BLANK" ###new proportion of only responses
nrespond <- sum(!excluded_values)
nrespond
tempdata$prop_respond <- round(tempdata$count/nrespond*100, digits = 1)
tempdata[tempdata$row_names == "BLANK", "prop_respond"] <- NA
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q24_air_changed" ###
tableQ24_air_changed <- tempdata ###
tableQ24_air_changed
write.table(tableQ24_air_changed, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)

```

```

#### Question 25

```

```{r echo = FALSE}
#Q25 Over the past 12 months, have you voluntarily taken any action because of your concern with air
quality and the effects on your health?
# Q25_air_actions_yn

tempdata <- table(datfinal$Q25_air_actions_yn) ###
tempdata
custom_order_row <- c("Yes",
                      "No",
                      "Unsure",
                      "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)

```

```

excluded_values <- datfinal$Q25_air_actions_yn %in% "BLANK" ###new proportion of only responses
nrespond <- sum(!excluded_values)
nrespond
tempdata$prop_respond <- round(tempdata$count/nrespond*100, digits = 1)
tempdata[tempdata$row_names == "BLANK", "prop_respond"] <- NA
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q25_air_actions_yn" ###
tableQ25_air_actions_yn <- tempdata ###
tableQ25_air_actions_yn
write.table(tableQ25_air_actions_yn, "clipboard-16384", sep = "\t", row.names = FALSE, quote =
FALSE)

```

```

```

```

Question 31

```

```{r echo = FALSE}

```

```

#Q31 Has anyone in your household ever experienced any of the following physical health conditions due
to heat? (Check all that apply)

```

```

# Q31_heatsymptoms_household

```

```

##question 10 What types of transportation do you use most often? (Circle all that apply)

```

```

table(datfinal$Q31_heatsymptoms_household) ###

```

```

tempdata<-bind_rows(

```

```

  table(datfinal$Q31_heatsymptoms_household_BLANK),

```

```

  table(datfinal$`Q31_heatsymptoms_household_Discomfort related to heat`),

```

```

  table(datfinal$`Q31_heatsymptoms_household_Fainting or dizziness`),

```

```

  table(datfinal$`Q31_heatsymptoms_household_Heat cramps (muscle spasms due to a loss of a large
amount of salt and water through exercise)`),

```

```

  table(datfinal$`Q31_heatsymptoms_household_Heat exhaustion (can include heavy sweating and a rapid
pulse due to overheating)`),

```

```

  table(datfinal$`Q31_heatsymptoms_household_Heat stroke (results in a body temperature greater than
104 °F and confusion)`),

```

```

  table(datfinal$`Q31_heatsymptoms_household_Members of my household have not experienced any of
these conditions or illnesses`),

```

```

  table(datfinal$Q31_heatsymptoms_household_Other)

```

```

)

```

```

tempdata

```

```

colnames(tempdata) <- c("nocount", "count")

```

```

tempdata$row_names <- c("BLANK", "Discomfort", "Fainting/dizzy", "Heat cramps", "Heat exhaustion",
"Heat Stroke", "Not experienced any", "Other" )

```

```

tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)

```

```

tempdata <- tempdata[order(-tempdata$count),]

```

```

tempdata <- tempdata[,c("row_names", "count", "prop_1502"), with = FALSE]

```

```

colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q31_heatsymptoms_household" ###

```

```

tableQ31_heatsymptoms_household <- tempdata ###

```

```
tableQ31_heatsymptoms_household
```

```
write.table(tableQ31_heatsymptoms_household, "clipboard-16384", sep = "\t", row.names = FALSE,  
quote = FALSE)
```

```
...
```

```
Question 38
```

```
`` `{r echo = FALSE}
```

```
#Q38 If you answered yes, which cooling system(s) do you use to cool your home? (Check all that apply)
```

```
# Q38_coolingsystem_type
```

```
table(datfinal$Q38_coolingsystem_type) ###
```

```
tempdata<-bind_rows(  
  table(datfinal$`Q38_coolingsystem_type_Central air conditioning`),  
  table(datfinal$`Q38_coolingsystem_type_Window unit air conditioning`),  
  table(datfinal$`Q38_coolingsystem_type_Electric fans (ceiling or portable)`),  
  table(datfinal$`Q38_coolingsystem_type_None of these`),  
  table(datfinal$`Q38_coolingsystem_type_Other (please describe)`),  
  table(datfinal$Q38_coolingsystem_type_BLANK)  
)
```

```
tempdata
```

```
colnames(tempdata) <- c("nocount", "count")
```

```
tempdata$row_names <- c("Central a/c", "Window a/c", "Electric fan", "None of these", "Other",  
"BLANK")
```

```
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
```

```
tempdata <- tempdata[order(-tempdata$count),]
```

```
tempdata <- tempdata[,c("row_names","count","prop_1502"), with = FALSE]
```

```
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q38_coolingsystem_type" ###
```

```
tableQQ38_coolingsystem_type <- tempdata ###
```

```
tableQQ38_coolingsystem_type
```

```
write.table(tableQQ38_coolingsystem_type, "clipboard-16384", sep = "\t", row.names = FALSE, quote =  
FALSE)
```

```
...
```

```
Question 39
```

```
`` `{r echo = FALSE}
```

```
#Q39 If you use a cooling system to cool your home, which system currently works/functions in your  
home? (Check all that apply)
```

```
# Q39_coolingsystem_functional
```

```

table(datfinal$Q39_coolingsystem_functional) ###
tempdata<-bind_rows(
  table(datfinal$`Q39_coolingsystem_functional_Central air conditioning`),
  table(datfinal$`Q39_coolingsystem_functional_Window unit air conditioning`),
  table(datfinal$`Q39_coolingsystem_functional_Electric fans (ceiling or portable)`),
  table(datfinal$`Q39_coolingsystem_functional_None of these`),
  table(datfinal$`Q39_coolingsystem_functional_Other (please describe)`),
  table(datfinal$Q39_coolingsystem_functional_BLANK)
)
tempdata
colnames(tempdata) <- c("nocount", "count")
tempdata$row_names <- c("Central a/c", "Window a/c", "Electric fan", "None of these", "Other",
"BLANK")
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names", "count", "prop_1502"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q39_coolingsystem_functional" ###
tableQQ39_coolingsystem_functional <- tempdata ###
tableQQ39_coolingsystem_functional
write.table(tableQQ39_coolingsystem_functional, "clipboard-16384", sep = "\t", row.names = FALSE,
quote = FALSE)

```

...

#### Question 47

```
`` {r echo = FALSE}
```

#Q47 When it comes to the number of trees and greenery in your neighborhood, how do you rank your neighborhood compared to other neighborhoods in the city?

```
# Q47_neighborhood_greenery_rank
```

```

tempdata <- table(datfinal$Q47_neighborhood_greenery_rank) ###
tempdata
custom_order_row <- c("A great deal more trees and greenery in my neighborhood than in others",
  "Moderately more trees and greenery in my neighborhood than in others",
  "The same amount of trees and greenery in my neighborhood than in others",
  "Moderately fewer trees and greenery in my neighborhood than in others",
  "A great deal fewer trees and greenery in my neighborhood than in others",
  "BLANK")
tempdata <- as.data.frame(tempdata[custom_order_row])
colnames(tempdata) <- c("row_names", "count")
tempdata$row_names <- factor(tempdata$row_names, levels = custom_order_row)
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)

```

```

excluded_values <- datfinal$Q47_neighborhood_greenery_rank %in% "BLANK" ###new proportion of
only responses
nrespond <- sum(!excluded_values)
nrespond
tempdata$prop_respond <- round(tempdata$count/nrespond*100, digits = 1)
tempdata[tempdata$row_names == "BLANK", "prop_respond"] <- NA
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q47_neighborhood_greenery_rank" ###
tableQ47_neighborhood_greenery_rank <- tempdata ###
tableQ47_neighborhood_greenery_rank
write.table(tableQ47_neighborhood_greenery_rank, "clipboard-16384", sep = "\t", row.names = FALSE,
quote = FALSE)
``

```

```

###Green Space Questions

```

```

##Q49. Do you have access to a park or green space within walking distance of your home?

```

```

`` {r echo = FALSE, fig.height = 5, fig.width = 7}

```

```

table(datfinal$Q49_parkaccess)

```

```

tempdata <- table(datfinal$Q49_parkaccess) ###

```

```

custom_order_row <- c("Yes",

```

```

    "No",

```

```

    "BLANK")

```

```

custom_labels <- c("Yes",

```

```

    "No",

```

```

    "BLANK")

```

```

tempdata <- as.data.frame(tempdata[custom_order_row])

```

```

colnames(tempdata) <- c("Q49_parkaccess", "count") ###

```

```

tempdata$Q49_parkaccess <- custom_labels ###

```

```

tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)

```

```

tempdata$Q49_parkaccess <- factor(tempdata$Q49_parkaccess, levels = custom_labels) ###

```

```

tableQ49_parkaccess <- tempdata ###

```

```

tableQ49_parkaccess

```

```

#plotting bargraph with ggplot

```

```

graph <- tableQ49_parkaccess ###

```

```

title <- "Q49. Do you have access to a park or green space within walking distance of your home?"

```

```

ggplot(graph,

```

```

  aes(x = Q49_parkaccess,y = prop_1502, fill = Q49_parkaccess))+ ###

```

```

  geom_bar(stat = "identity",position = "dodge")+

```

```

  scale_fill_manual(values = c("lightgreen", "orange", "grey"))+

```

```

  labs(title = str_wrap(title, width =70))+

```

```

  xlab("Types")+ ylab("Percentage out of total (1502))+

```

```

  # ylim(0, 50)+

```

```

  labs(fill = "Legend")+

```

```

  theme(axis.text.x = element_text(angle = 90), )+

```

```

geom_text(aes(label = prop_1502), color = "black", size = 3, vjust = 1, position = position_dodge(0.9))

write.table(tableQ49_parkaccess, "clipboard-16384", sep = "\t", row.names = FALSE, quote = FALSE)
...

##50. The things listed below can help bring temperatures down in neighborhoods. Which of these things
would you like to see more of in your neighborhood? (Circle all that apply) (split)
```{r echo = FALSE, fig.height = 7, fig.width = 10}
table(datfinal$Q50_neighborhood_greenery_types) ###
tempdata<-bind_rows(
  table(datfinal$`Q50_neighborhood_greenery_types_Tree plantings`),
  table(datfinal$`Q50_neighborhood_greenery_types_Parks`),
  table(datfinal$`Q50_neighborhood_greenery_types_Community gardens and green space`),
  table(datfinal$`Q50_neighborhood_greenery_types_Cool roofs (painting many roofs on one block with a
white paint that reflects heat)`),
  table(datfinal$`Q50_neighborhood_greenery_types_None of the above`),
  table(datfinal$`Q50_neighborhood_greenery_types_Other (please describe)`),
  table(datfinal$Q50_neighborhood_greenery_types_BLANK)
)
colnames(tempdata) <- c("nocount", "count")
tempdata$row_names <- c("Tree plantings", "Parks", "Community gardens", "Cool roofs", "None of the
above", "Other", "BLANK" )
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names","count","prop_1502"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q50_neighborhood_greenery_types" ###
tableQ50_neighborhood_greenery_types <- tempdata ###
tableQ50_neighborhood_greenery_types

##Graph simple categorical data
graph <- tableQ50_neighborhood_greenery_types ###
title <- "The things listed below can help bring temperatures down in neighborhoods. Which of these
things would you like to see more of in your neighborhood?"
ggplot(graph,
  aes(x = reorder(Q50_neighborhood_greenery_types, prop_1502), y = prop_1502))+ ###
  geom_bar(stat = "identity", position = "dodge", fill = "lightblue")+
  coord_flip()+
  labs(title = str_wrap(title, width = 70))+
  xlab("Types")+ylab("Percentage out of total (1502)")+
  ylim(0, 70)+
  theme(axis.text.y = element_text(size = 12), )+
  geom_text(aes(label = prop_1502), color = "black", size = 4, hjust = -0.2, position =
position_dodge(0.9))

```

```
write.table(tableQ50_neighborhood_greenery_types, "clipboard-16384", sep = "\t", row.names = FALSE,
quote = FALSE)
``
```

```
##51. What community services would you like to see more of in your neighborhood to help you and your
household manage high temperatures? (Circle all that apply) (split)
`` {r echo = FALSE, fig.height = 7, fig.width = 10}
```

```
table(datfinal$Q51_neighborhood_heat_assistance) ###
tempdata<-bind_rows(
  table(datfinal$`Q51_neighborhood_heat_assistance_Utility bill assistance`),
  table(datfinal$`Q51_neighborhood_heat_assistance_Financial assistance with cooling system repairs`),
  table(datfinal$`Q51_neighborhood_heat_assistance_Heat illness awareness campaign & resources`),
  table(datfinal$`Q51_neighborhood_heat_assistance_Cell phone alerts on hot days to remind me to stay
cool and hydrated`),
  table(datfinal$`Q51_neighborhood_heat_assistance_Public splash pads`),
  table(datfinal$`Q51_neighborhood_heat_assistance_Public pools`),
  table(datfinal$`Q51_neighborhood_heat_assistance_Financial assistance with cooling system repairs`),
  table(datfinal$`Q51_neighborhood_heat_assistance_Other (please describe)`),
  table(datfinal$Q51_neighborhood_heat_assistance_BLANK)
)
colnames(tempdata) <- c("nocount", "count")
tempdata$row_names <- c("Utilities assistance", "Financial assistance with repairs", "Heat illness
resources", "Cellphone alerts", "Public splash pads", "Public pools", "Financial assistance for accessing
cooling spaces", "Other", "BLANK" )

table(datfinal$`If you answered other above, please describe below..14` )
tempdata$prop_1502 <- round(tempdata$count/nrow(datfinal)*100, digits = 1)
tempdata <- tempdata[order(-tempdata$count),]
tempdata <- tempdata[,c("row_names","count","prop_1502"), with = FALSE]
colnames(tempdata)[colnames(tempdata) == "row_names"] <- "Q51_neighborhood_heat_assistance" ###
tableQ51_neighborhood_heat_assistance <- tempdata ###
tableQ51_neighborhood_heat_assistance
```

```
##Graph simple categorical data
graph <- tableQ51_neighborhood_heat_assistance ###
title <- "What community services would you like to see more of in your neighborhood to help you and
your household manage high temperatures?"
ggplot(graph,
  aes(x = reorder(Q51_neighborhood_heat_assistance, prop_1502),y = prop_1502))+ ###
  geom_bar(stat = "identity", position = "dodge",fill = "lightblue")+
  coord_flip()+
```

```

labs(title = str_wrap(title, width =70))+
xlab("Types")+ylab("Percentage out of total (1502)")+
ylim(0, 50)+
theme(axis.text.y = element_text(size = 12), )+
geom_text(aes(label = prop_1502), color = "black", size = 4, hjust = -0.2, position =
position_dodge(0.9))

write.table(tableQ51_neighborhood_heat_assistance, "clipboard-16384", sep = "\t", row.names = FALSE,
quote = FALSE)
```

#####

#####

#####

ordered logistic regression
use polr - comes from proportional odds logistics regression
Hess = TRUE to have model return observed information matrix from optimization which gets standard
errors

```{r echo = FALSE, fig.height = 7, fig.width = 10}
##work within copy
dattemp <- datfinal

##clean up personal heat risk Q12
## ranked from no threat as lowest to severe threat as highest
dattemp$Q12_heatrisk_personalwellbeing <- ifelse(dattemp$Q12_heatrisk_personalwellbeing ==
"BLANK", NA, dattemp$Q12_heatrisk_personalwellbeing)
table(dattemp$Q12_heatrisk_personalwellbeing)
custom_order_row <- c("No threat",
"A very mild threat",
"A mild threat",
"A moderate threat",
"A severe threat")
dattemp$Q12_heatrisk_personalwellbeing <- factor(dattemp$Q12_heatrisk_personalwellbeing, levels =
custom_order_row)
table(dattemp$Q12_heatrisk_personalwellbeing)

##convert personal heat risk q12 into numerical values
## ranked from no threat = 0, to severe threat = 4
dattemp$Q12_heatrisk_num <- ifelse(dattemp$Q12_heatrisk_personalwellbeing == "No threat", 0,
ifelse(dattemp$Q12_heatrisk_personalwellbeing == "A very mild threat", 1,
ifelse(dattemp$Q12_heatrisk_personalwellbeing == "A mild threat", 2,

```

```
ifelse(dattemp$Q12_heatrisk_personalwellbeing == "A moderate threat", 3,  
ifelse(dattemp$Q12_heatrisk_personalwellbeing == "A severe threat", 4, NA))))
```

```
table(dattemp$Q12_heatrisk_num)
```

```
##clean up home cooling Q37 - making it without cooling system the factor
```

```
## 0 = yes home cooling
```

```
## 1 = no home cooling
```

```
table(dattemp$Q37_coolingsystem_yesno)
```

```
dattemp$Q37_withoutcoolingsystem_yn <- ifelse(dattemp$Q37_coolingsystem_yesno == "No", 1,  
ifelse(dattemp$Q37_coolingsystem_yesno == "Yes", 0, NA))
```

```
##Clean up consider cooling center Q44
```

```
## 0 = no
```

```
## 1 = yes or maybe
```

```
dattemp$Q44_coolingcenter_yesnoonly <- ifelse(dattemp$Q44_coolingcenter_yesno == "No", 0,  
ifelse(dattemp$Q44_coolingcenter_yesno == "Maybe; please explain why or why not"  
|dattemp$Q44_coolingcenter_yesno == "Yes", 1, NA))
```

```
table(dattemp$Q44_coolingcenter_yesnoonly)
```

```
##Clean up consider cooling center Q44
```

```
## No
```

```
## Maybe
```

```
## Yes
```

```
dattemp$Q44_coolingcenter_yesmaybeno <- ifelse(dattemp$Q44_coolingcenter_yesno == "No", "No",  
ifelse(dattemp$Q44_coolingcenter_yesno == "Maybe; please explain why or why not", "Maybe",  
ifelse(dattemp$Q44_coolingcenter_yesno == "Yes", "Yes", NA)))
```

```
table(dattemp$Q44_coolingcenter_yesmaybeno)
```

```
##Predictors #####
```

```
##clean agegroup
```

```
## 0 = <45 yo
```

```
## 1 = 45-64
```

```
## 2 = >64yo
```

```
table(dattemp$agegroup)
```

```
dattemp$agegroup <- ifelse(dattemp$agegroup == "<45yo", 0, ifelse(dattemp$agegroup == "45-64yo", 1,  
ifelse(dattemp$agegroup == ">64yo", 2, NA)))
```

```
##clean elderly at home
```

```
## 0 = no elderly at home
```

```
## 1 = yes elderly at home
```

```

table(dattemp$Q7_household_elderyesno)
dattemp$Q7_household_elderyesno <- ifelse(dattemp$Q7_household_elderyesno == "No", 0,
ifelse(dattemp$Q7_household_elderyesno == "Yes", 1, NA))
table(dattemp$Q7_household_elderyesno)

##clean up child household
## 0 = no child at home
## 1 = yes child at home
table(dattemp$Q6_household_childyesno)
dattemp$Q6_household_childyesno <- ifelse(dattemp$Q6_household_childyesno == "No", 0,
ifelse(dattemp$Q6_household_childyesno == "Yes", 1, NA))
table(dattemp$Q6_household_childyesno)

##clean up disability / chronic illness
## 0 = no disability/chronic illness
## 1 = yes disability/chronic illness
table(dattemp$Q28_disability_anyone)
dattemp$Q28_disability_anyone <- ifelse(dattemp$Q28_disability_anyone == "No", 0,
ifelse(dattemp$Q28_disability_anyone == "Yes", 1, NA))

##clean up ER/urgent care anyone
## 0 = no never been to ER for heat
## 1 = yes never been to ER for heat
table(dattemp$Q32_ER_anyone)
dattemp$Q32_ER_anyone <- ifelse(dattemp$Q32_ER_anyone == "No", 0,
ifelse(dattemp$Q32_ER_anyone == "Yes", 1, NA))

##clean up home ownership
## 0 = own
## 1 = rent
table(dattemp$Q9_livingsituation)
dattemp$Q9_livingsituation <- ifelse(dattemp$Q9_livingsituation == "I or my family own my home", 0,
ifelse(dattemp$Q9_livingsituation == "I or my family rent my home", 1, NA))

##clean up location
## 0 = Outside City
## 1 = District1
## 2 = District2
## 3 = District3
table(dattemp$locationgroup)
dattemp$locationgroup <- ifelse(dattemp$locationgroup == "OUTSIDE CITY", 0,
ifelse(dattemp$locationgroup == "District1", 1, ifelse(dattemp$locationgroup == "District2", 2,
ifelse(dattemp$locationgroup == "District3", 3, NA))))

```

```

```
agegroup
Q6_household_childyesno
Q28_disability_anyone
Q32_ER_personal
Q37_coolingsystem_yesno
Q9_livingsituation
locationgroup
`` `{r echo = FALSE, fig.height = 7, fig.width = 10}
##ordered regression
# m1 <- polr(formula = Q12_heatrisk_personalwellbeing ~ Q6_household_childyesno, data = dattemp,
Hess = TRUE)
# summary(m1)
# m1
#
# m2 <- polr(formula = Q12_heatrisk_personalwellbeing ~ Q32_ER_anyone, data = dattemp, Hess =
TRUE)
# summary(m2)
dattemp_q12only <- subset(dattemp, dattemp$Q12_heatrisk_personalwellbeing != "NA" &
  dattemp$agegroup != "NA" &
  dattemp$Q7_household_elderyesno != "NA" &
  dattemp$Q6_household_childyesno != "NA" &
  dattemp$Q28_disability_anyone != "NA" &
  dattemp$Q32_ER_anyone != "NA" &
  dattemp$Q37_withoutcoolingsystem_yn != "NA" &
  dattemp$Q9_livingsituation != "NA" &
  dattemp$locationgroup != "NA"
)
missingdata <- nrow(dattemp) - nrow(dattemp_q12only)
print(missingdata) #335 missing values

m3 <- polr(formula = Q12_heatrisk_personalwellbeing ~ factor(agegroup)+ Q7_household_elderyesno +
Q6_household_childyesno + Q28_disability_anyone + Q32_ER_anyone +Q37_withoutcoolingsystem_yn
+ Q9_livingsituation + factor(locationgroup), data = dattemp_q12only, Hess = TRUE)
summary(m3)

```
```

T-value is simply the ratio of the coefficient to its standard error, no significant test by default

```
`` `{r echo = FALSE, fig.height = 7, fig.width = 10}
##calculating p-values
```

```

ctable <- coef(summary(m3))
p <- pnorm (abs (ctable[, "t value"]), lower.tail = FALSE)*2
ctable <- cbind(ctable, "p value" = p)
ctable

write.table(ctable, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
...

adjusting p-values using Benjamin Hochberg procedure - FDR
`` {r echo = FALSE, fig.height = 7, fig.width = 10}
##calculating p-values
pvalues_raw <- head(p,11)
pvalues_fdradjust <- p.adjust(pvalues_raw,method="BH")
ctable <- cbind(pvalues_raw, pvalues_fdradjust)
ctable

write.table(ctable, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
...

`` {r echo = FALSE, fig.height = 7, fig.width = 10}
## calculating confidence intervals
ci <- confint.default(m3, level = 0.95)
colnames(ci) <- cbind("5.0 %", "95.5 %")

##calculating odds ratios
dat <- exp(cbind(OR = coef(m3), ci))
dat
write.table(dat, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
...

`` {r echo = FALSE, fig.height = 7, fig.width = 10}
table(as.numeric(dattemp_q12only$Q12_heatrisk_personalwellbeing))
table(dattemp_q12only$Q12_heatrisk_personalwellbeing)

sf <- function(y){
  c('Y>=1' = qlogis(mean(y >= 1)),
    'Y>=2' = qlogis(mean(y >= 2)),
    'Y>=3' = qlogis(mean(y >= 3)),
    'Y>=4' = qlogis(mean(y >= 4)),
    'Y>=5' = qlogis(mean(y >= 5))
  )
}

```

```

}

s <- with(dattemp_q12only, summary(as.numeric(Q12_heatrisk_personalwellbeing) ~ factor(agegroup)+
Q7_household_elderlyesno + Q6_household_childyesno + Q28_disability_anyone
+Q37_withoutcoolingsystem_yn + Q9_livingsituation + factor(locationgroup), fun=sf))
s
write.table(s, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

summary(dattemp_q12only$Q12_heatrisk_personalwellbeing)

summary(dattemp_q12only$q37)

m3 <- polr(formula = Q12_heatrisk_personalwellbeing ~ factor(agegroup) +Q6_household_childyesno
+Q28_disability_anyone +Q32_ER_anyone +Q37_withoutcoolingsystem_yn +Q9_livingsituation+
factor(locationgroup), data = dattemp_q12only, Hess = TRUE)
# m3 <- polr(formula = Q12_heatrisk_personalwellbeing ~ factor(agegroup)+ Q7_household_elderlyesno
+ Q6_household_childyesno + Q28_disability_anyone + Q32_ER_anyone
+Q37_withoutcoolingsystem_yn + Q9_livingsituation + factor(locationgroup), data = dattemp_q12only,
Hess = TRUE)
summary(m3)

s[, 6] <- s[, 6] - s[, 3]
s[, 5] <- s[, 5] - s[, 3]
s[, 4] <- s[, 4] - s[, 3]
s[, 3] <- s[, 3] - s[, 3]
s
plot(s, which=1:5, pch=1:5, xlab='logit', main=' ',xlim = range(s[,3:6]))
```



```

##Aim 2 - logistic regression of Q37 home cooling and vulnerability factors
```{r echo = FALSE, fig.height = 7, fig.width = 10}
dattemp_q37only <- subset(dattemp, dattemp$Q37_withoutcoolingsystem_yn != "NA" &
  dattemp$agegroup != "NA" &
  dattemp$Q7_household_elderlyesno != "NA" &
  dattemp$Q6_household_childyesno != "NA" &
  dattemp$Q28_disability_anyone != "NA" &
  dattemp$Q32_ER_anyone != "NA" &
  dattemp$Q9_livingsituation != "NA" &
  dattemp$locationgroup != "NA"
)
missingdata <- nrow(dattemp) -nrow(dattemp_q37only)

```


```

```

print(missingdata)
#331 cases deleted due to missing values

table(dattemp_q37only$Q37_withoutcoolingsystem_yn)

# m1 <- regress("odds",Q37_coolingsystem_yesno~Q9_livingsituation +Q32_ER_anyone, data = dattemp
)
# m1

m2 <- regress("odds",Q37_withoutcoolingsystem_yn ~ factor(agegroup)+ Q7_household_elderlyyesno +
Q6_household_childyesno + Q28_disability_anyone + Q32_ER_anyone +Q9_livingsituation +
factor(locationgroup), data = dattemp_q37only )
m2

ctable <- coef(m2)
pvalues_raw <- ctable[, "Pr(>|t|)"]
pvalues_fdradjust <- p.adjust(pvalues_raw,method="BH")
temp <- cbind(ctable, pvalues_fdradjust)
temp

write.table(temp, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)

...

##Aim 2 - logistic regression of Q44 public cooling center and vulnerability factors
## public cooling as yes/maybe vs no
`` {r echo = FALSE, fig.height = 7, fig.width = 10}
dattemp_q44only <- subset(dattemp, dattemp$Q44_coolingcenter_yesnoonly != "NA" &
dattemp$agegroup != "NA" &
dattemp$Q7_household_elderlyyesno != "NA" &
dattemp$Q6_household_childyesno != "NA" &
dattemp$Q28_disability_anyone != "NA" &
dattemp$Q32_ER_anyone != "NA" &
dattemp$Q37_withoutcoolingsystem_yn != "NA" &
dattemp$Q9_livingsituation != "NA" &
dattemp$locationgroup != "NA"
)
missingdata <- nrow(dattemp) -nrow(dattemp_q44only)
print(missingdata)
#342 cases deleted due to missing values

```

```
m2 <- regress("odds", Q44_coolingcenter_yesnoonly ~ factor(agegroup)+ Q7_household_elderyesno +
Q6_household_childyesno + Q28_disability_anyone + Q32_ER_anyone +Q37_withoutcoolingsystem_yn
+ Q9_livingsituation + factor(locationgroup), data = dattemp_q44only )
m2
```

```
ctable <- coef(m2)
pvalues_raw <- ctable[, "Pr(>|t|)"]
pvalues_fdradjust <- p.adjust(pvalues_raw,method="BH")
temp <- cbind(ctable, pvalues_fdradjust)
temp
```

```
write.table(temp, "clipboard-16384", sep = "\t", row.names = TRUE, quote = FALSE)
````
```

```
##public cooling as yes vs maybe vs no
````{r echo = FALSE, fig.height = 7, fig.width = 10}
```

```
table(dattemp$Q44_coolingcenter_yesmaybeno)
m1 <- regress("odds",Q44_coolingcenter_yesmaybeno~Q9_livingsituation, data = dattemp )
m1
```

```
m2 <- regress("odds",Q44_coolingcenter_yesmaybeno ~ Q9_livingsituation + factor(agegroup) +
Q7_household_elderyesno +Q6_household_childyesno +Q28_disability_anyone +Q32_ER_anyone +
factor(locationgroup), data = dattemp )
m2
```