Oklahoma City Summer Heat Survey Report

March 2024

Report prepared by CAPA Strategies, LLC

Credit: Raychel Sanner

Background

In summer 2023, the City of Oklahoma City (OKC) Office of Sustainability contracted CAPA Strategies (CAPA) to conduct a Heat Watch heat mapping campaign, as well as air quality monitoring across the city. As a complement to those environmental monitoring campaigns, CAPA performed an additional assessment via a social survey distributed widely in OKC. The 'OKC Summer Heat Survey' examined where residents are most exposed to or impacted by summer heat and air pollution; how residents perceive summer conditions in OKC, heat risk, and personal preparedness; residents' attitudes about trees, green space, and other heat mitigation or adaptation measures the City might take; and their knowledge of the urban heat island effect and impacts of heat. The results of the survey are presented in this report.

Survey Methods

CAPA and the OKC Office of Sustainability co-developed a 20-question survey which was provided online in both English and Spanish. It was offered by City staff at in-person events and was also distributed citywide via the City's email network and through the OKC Zoo. The survey included 13 standard multiple choice questions, five of which offered a write-in "other" option, and two of which asked for additional information to be written in conditionally (e.g., "If you answered 'yes,' please explain..."). It also included four short answer questions and three matrix-style multiple choice questions. Content was divided into four thematic sections: demographic information, risk perception, exposure, and preparedness. Participants were asked to identify themselves and provide contact information at the end of the survey. This was optional for those who wished to be enrolled in a prize drawing, offered by the OKC Office of Sustainability as an incentive for completing the survey.

The OKC Summer Heat Survey was open online from November 8 through December 31, 2024. In total, 2,231 responses were received, of which 2,009 were complete and considered suitable for analysis. All responses were provided to the OKC Sustainability Office, though only 250 were analyzed for this report in keeping with project parameters. Those 250 were identified using a mix of intentional and random selection. First, the OKC Sustainability Office identified 12 priority ZIP codes that were of greatest interest (participants' ZIP code of residence was captured in a survey question). These included five ZIP codes that had scored low on a heat vulnerability index used by the City (Low HVI), and seven ZIP codes that had scored high (High HVI).

Theoretically, residents in the Low HVI areas would be less exposed to and/or more able to cope with summer heat compared to those living in High HVI areas and the Sustainability Office sought to compare results from two groups. The number of survey responses covered by these 12 ZIP codes was 435, still exceeding the cap of 250. For the final analysis, CAPA included all 96 survey responses that came from High HVI ZIP codes, and took a random sample of 154 out of the 357 from Low HVI areas. Survey results in this report have been broken out according to Low and High HVI categories for easy comparison between the two.

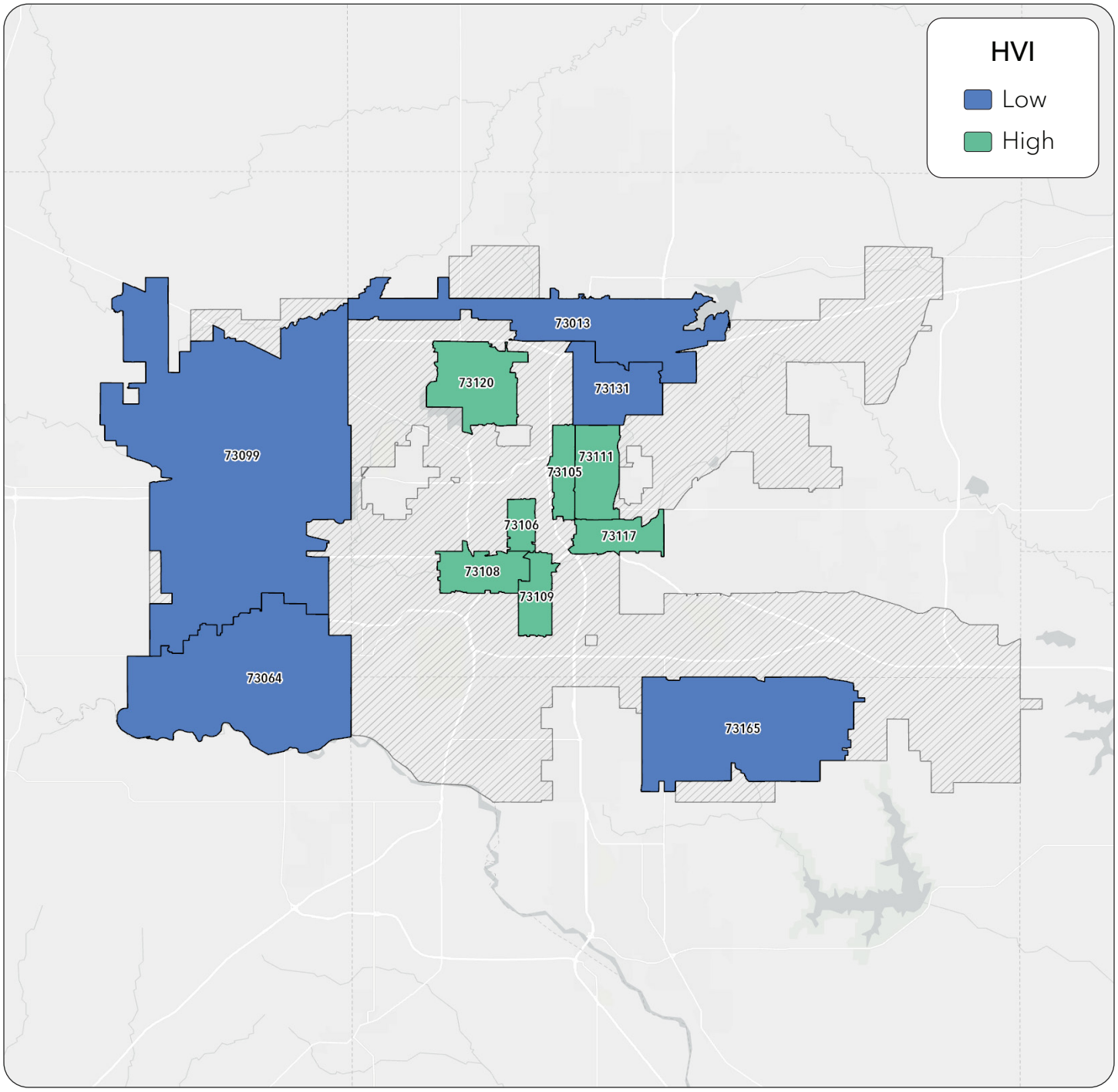
ZIP codes represented in the final dataset

High HVI ZIP codes (n = 96)

73105 (3) | 73106 (15) | 73108 (3) | 73109 (11) | 73111 (2) | 73117 (3) | 73120 (59)

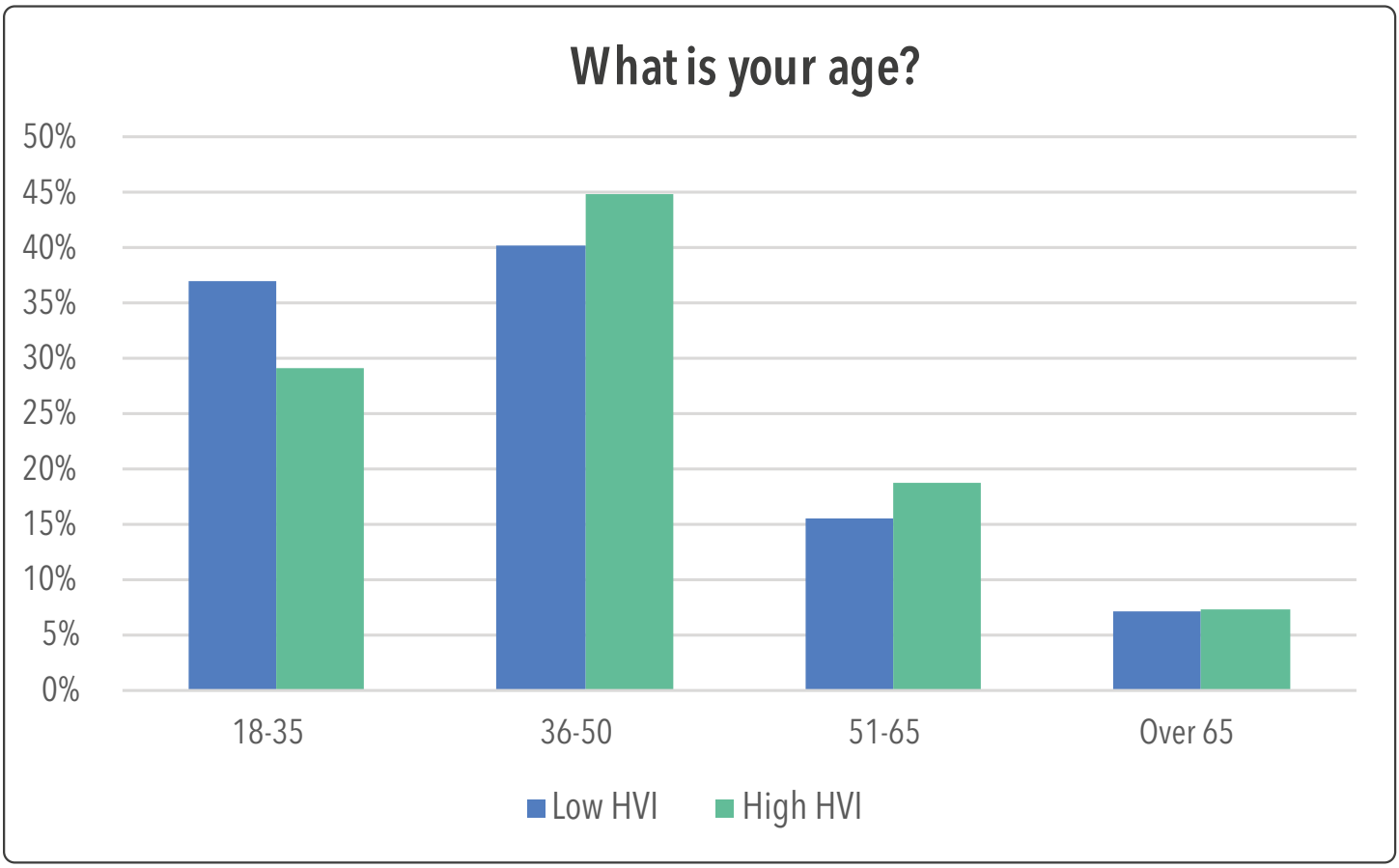
Low HVI ZIP codes (n = 154)

73013 (62) | 73064 (18) | 73099 (64) | 73131 (5) | 73165 (5)



Question 1: What is your age?

Survey respondents represented a range of ages from 18 to 65+ years old. The age group 36-50 was most represented in total and in each HVI category, and the share of adults 65+ was nearly identical (7.2% +/- 0.1%) in all three samples. Members of the 65+ age group were underrepresented compared to their share in the total population of OKC (13.3% in 2022 according to the US Census Bureau[1]), though older adults are considered especially vulnerable to heat related illness and represent a priority population for heat assessments.



What is your age?	18-35	36-50	51-65	Over 65
Low HVI	57	62	24	11
High HVI	28	43	18	7
Total	85	105	42	18

[1] https://www.census.gov/quickfacts/fact/table/oklahomacitycityoklahoma/PST045222

Q2. What ZIP code do you live in?

Thirty-eight percent of survey respondents reside in one of the ZIP codes deemed High HVI, while the remaining 62% reside in Low HVI areas. This is consistent with expectations as higher-income individuals are typically more likely to receive and participate in surveys than those from low-income or otherwise disadvantaged areas.

ZIP code	# of People
73013	62
73064	18
73099	64
73105	3
73106	15
73108	3
73109	11
73111	2
73117	3
73120	59
73131	5
73165	5

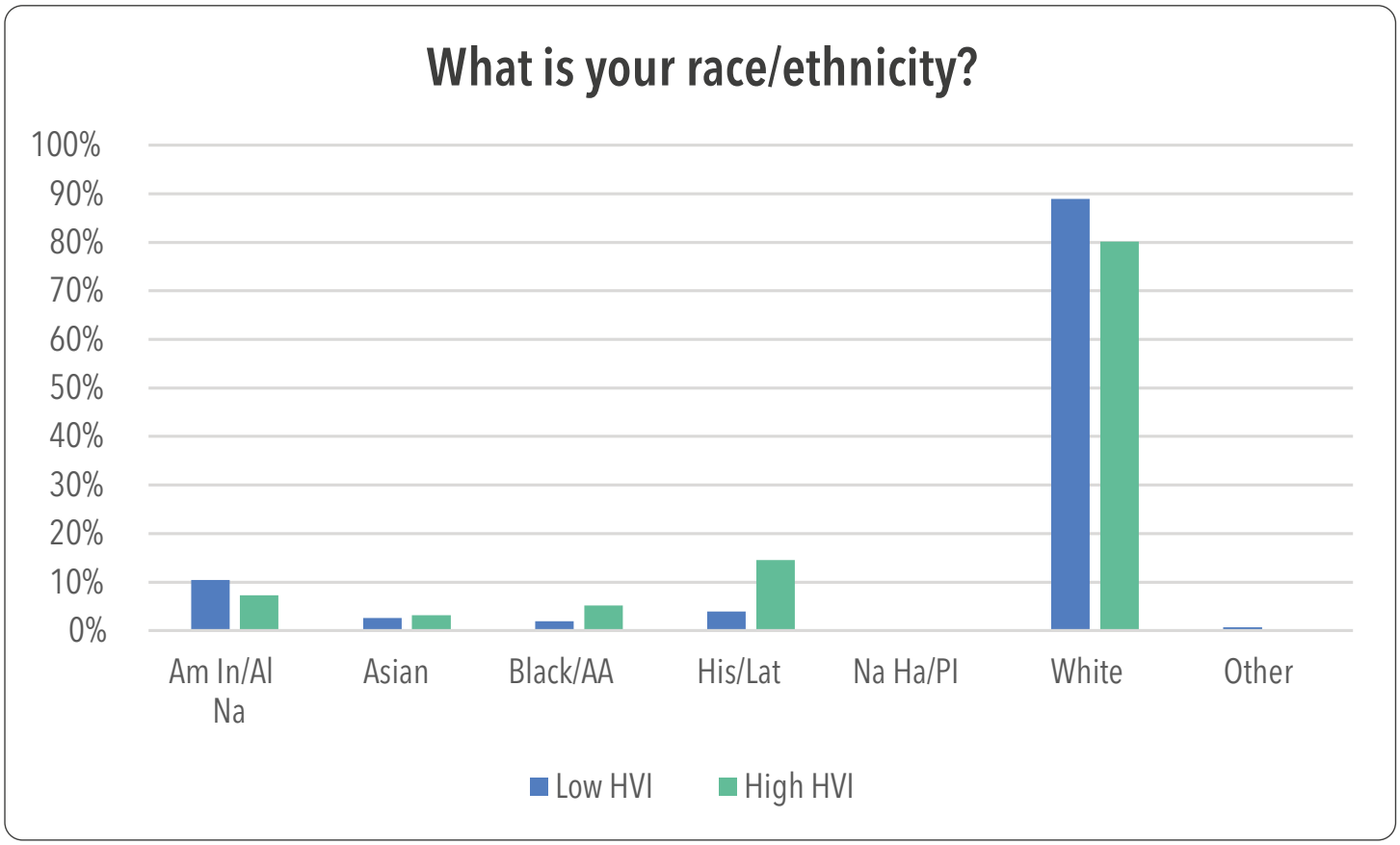
Q3. What ZIP code do you work in?

Participants provided 53 different work ZIP codes across OKC. Eleven individuals (4.4%) indicated that they work in multiple ZIP codes, and 38 (15.2%) indicated that they do not work or are retired. It was slightly more common for residents of Low HVI areas to report working outside of their home ZIP codes (66.9%) than residents of High HVI areas (62.5%). In both cases, around one third of residents work and live in the same ZIP code. Six individuals from High HVI areas (6.2%) and 13 (8.4%) from Low HVI areas reported working remotely or from home.

Q4. What is your race/ethnicity? (select all that apply)

In both HVI sample groups, White was the most represented race/ethnicity, though the share was higher in the Low HVI group. Participants identifying as Black/African American or Hispanic/Latino were significantly more represented in the High HVI sample. The graph reflects the fact that multiple respondents selected more than one race/ethnicity for themselves.

According to figures from the US Census Bureau, respondents identifying as White *alone* (80%) were overrepresented compared to their share of the total population of OKC (61.4%). Black/African American alone (2.4%), Asian alone (2.4%), Native Hawaiian or Pacific Islander alone, and Hispanic/Latino (7.2%) populations were all underrepresented compared to their citywide share (13.3%, 4.5%, 0.1%, and 20.1%, respectively). Those identifying as American Indian or Alaska Native alone accounted for 3.2% of the sample, close to the citywide share of 3.4%.

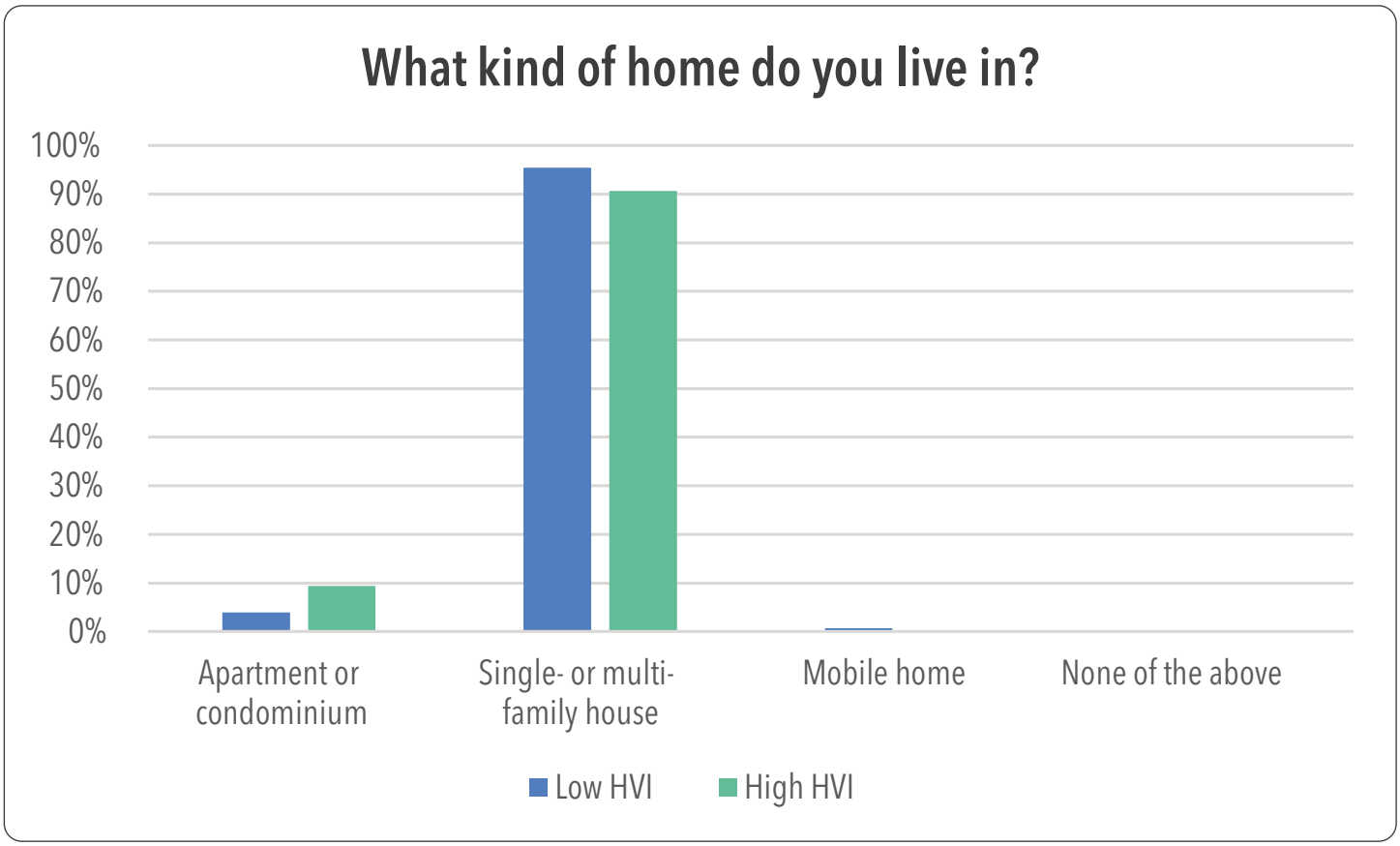


What is your race/ethnicity?	American Indian/ Alaska Native	Asian	Black/African American	Hispanic/Latino	Native Hawaiian/ Pacific Islander	White	Other
Low HVI	16	4	3	6	0	137	1
High HVI	7	3	5	14	0	77	0
Total	23	7	8	20	0	214	1

Q5. What kind of home do you live in?

A majority (over 90% in both HVI groups) of the survey population reportedly lived in single- or multi-family houses. Living in an apartment or condominium was more than twice as common among the High HVI group, though still under 10%.

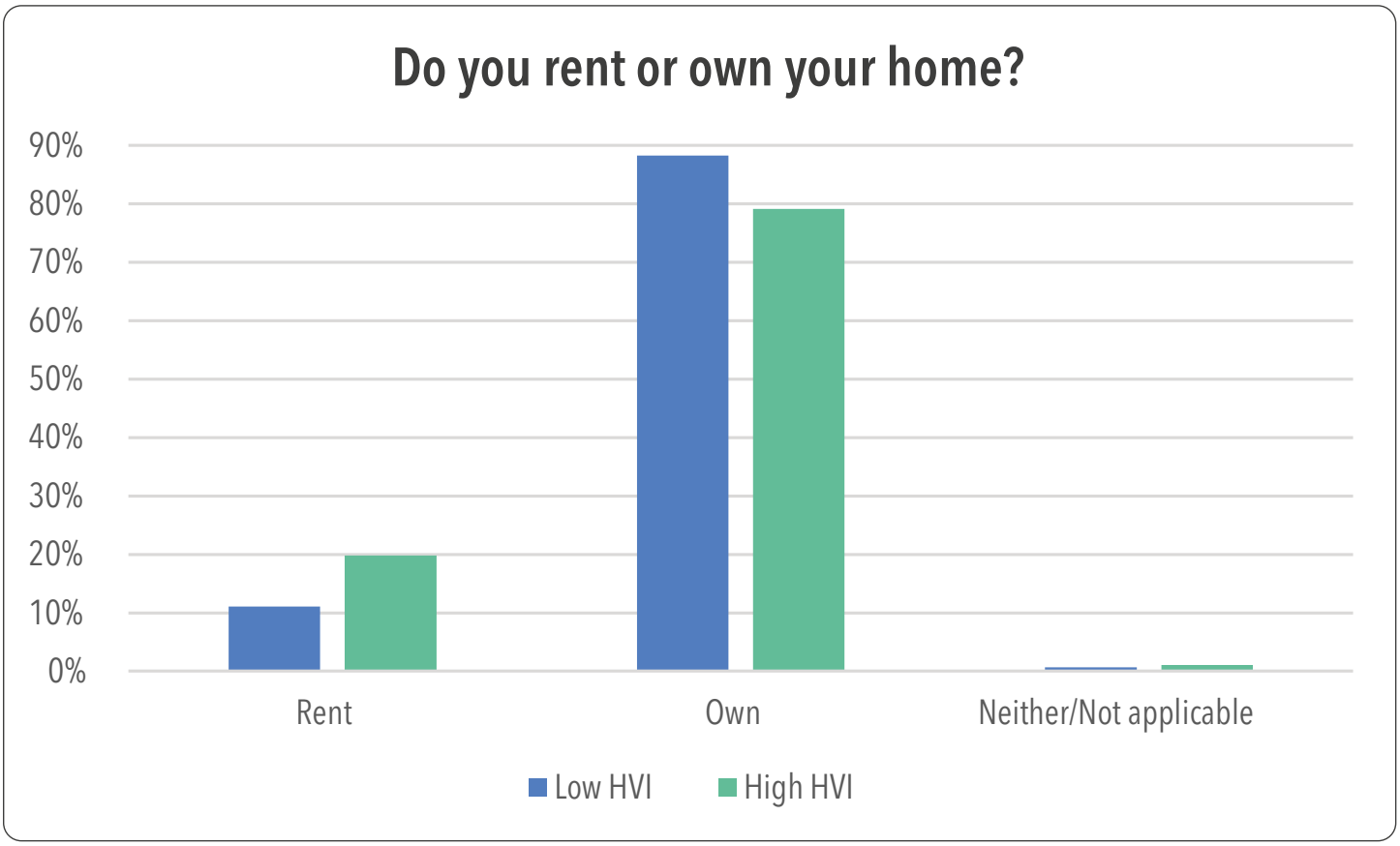
Those living in apartments may be considered more vulnerable to extreme heat. Residence in an apartment implies rentership, and renters typically have lower incomes than homeowners and/or fewer options for adapting their homes to hotter conditions (e.g., installing insulation or central air conditioning). Responses to the next question (Question 6) indicate that most of those living in houses are in fact homeowners. Therefore, the perspective of those living in rental and/or multi-unit housing environments is limited and responses will be skewed toward the experiences of those living in owner-occupied houses; this should be considered during data interpretation.



What kind of home do you live in?	Apartment or condominium	Single- or multi-family house	Mobile home	None of the above
Low HVI	6	147	1	0
High HVI	9	87	0	0
Total	15	234	1	0

Q6. Do you rent or own your home?

The population of survey respondents included a high number of homeowners, more than the citywide percentage of 59.5%. Ownership rate was slightly less in the High HVI group than in Low HVI group, though still above average. As noted above, this should be considered when drawing conclusions from survey data, as a renter population is not strongly represented.

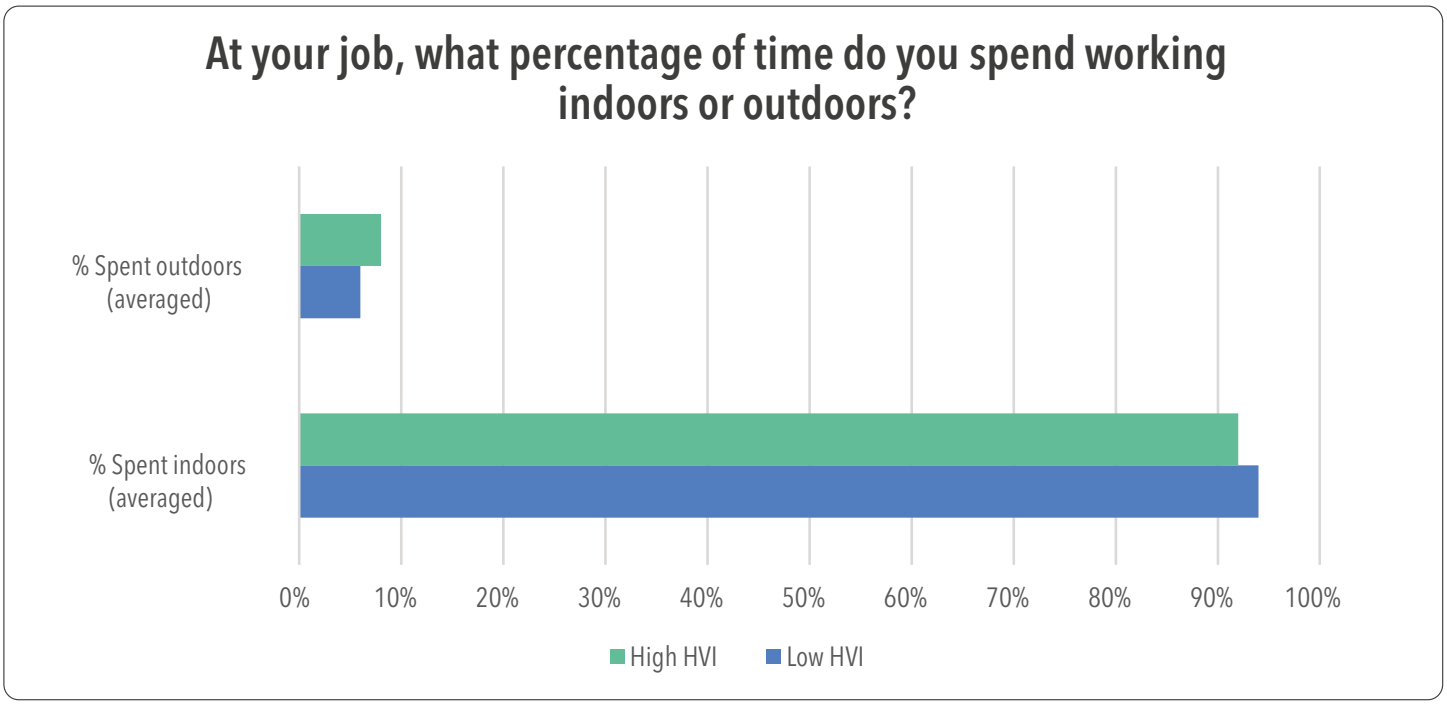


Do you rent or own your home?	Rent	Own	Neither / Not applicable
Low HVI	17	136	1
High HVI	19	76	1
Total	36	212	2

Q7. At your job, what percentage of time do you spend working indoors and outdoors?

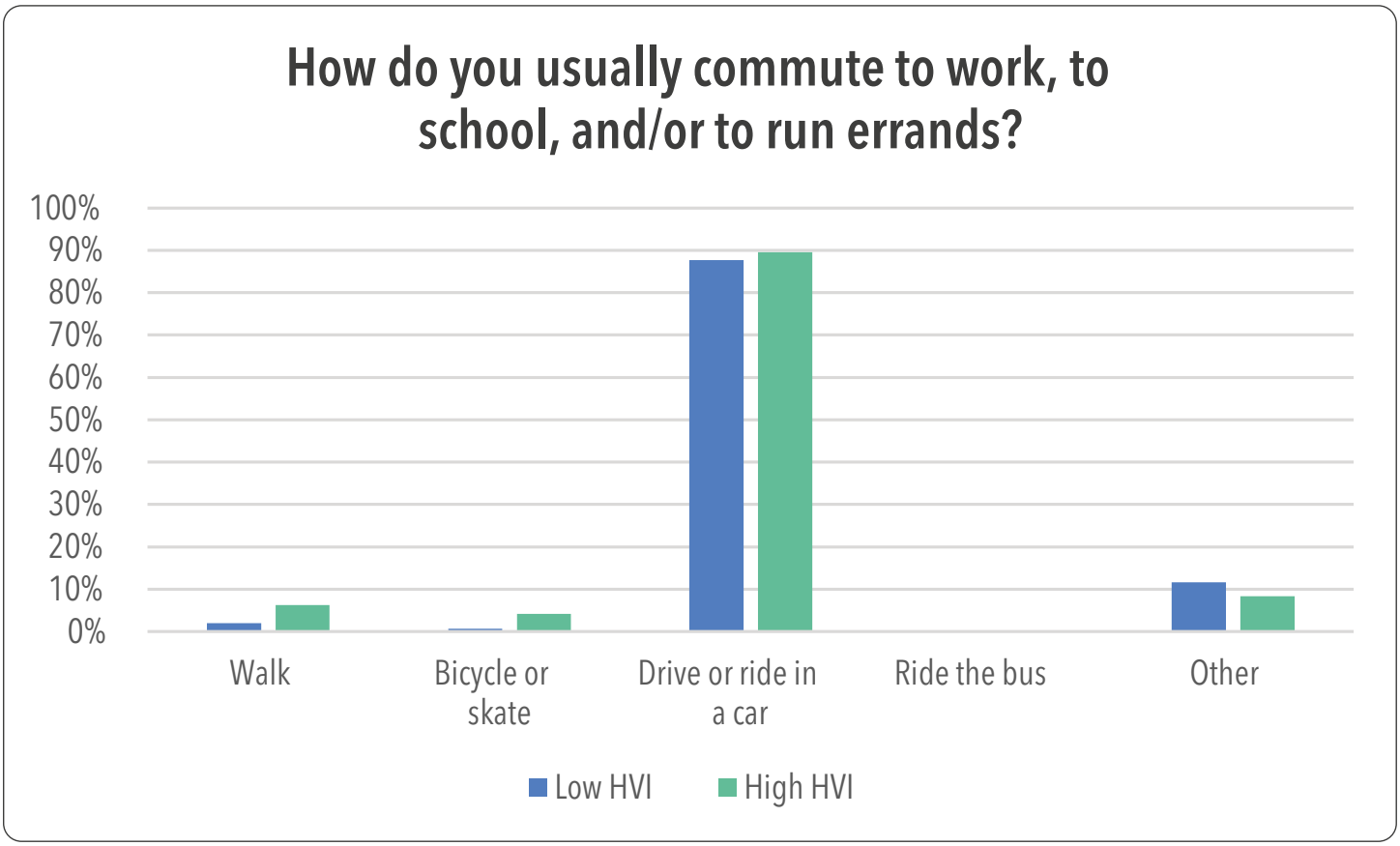
The time spent indoors and outdoors at work was comparable between High and Low HVI groups. Averaging all individual responses, those in the High HVI group spent 92% of working time indoors and 8% outdoors, compared to 94% indoors and 6% outdoors for the Low HVI group.

Among the High HVI group, six respondents spent at least 50% of their time outdoors. In the Low HVI group, five individuals did the same. After removing responses from those who do not work, this amounts to 7.8% of the High HVI survey population and 4.0% of the Low HVI population. The maximum time spent working outdoors was 75% for the High HVI group and 70% for the Low HVI group.



Q8. How do you usually commute to work, to school, and/or to run errands? (select all that apply)

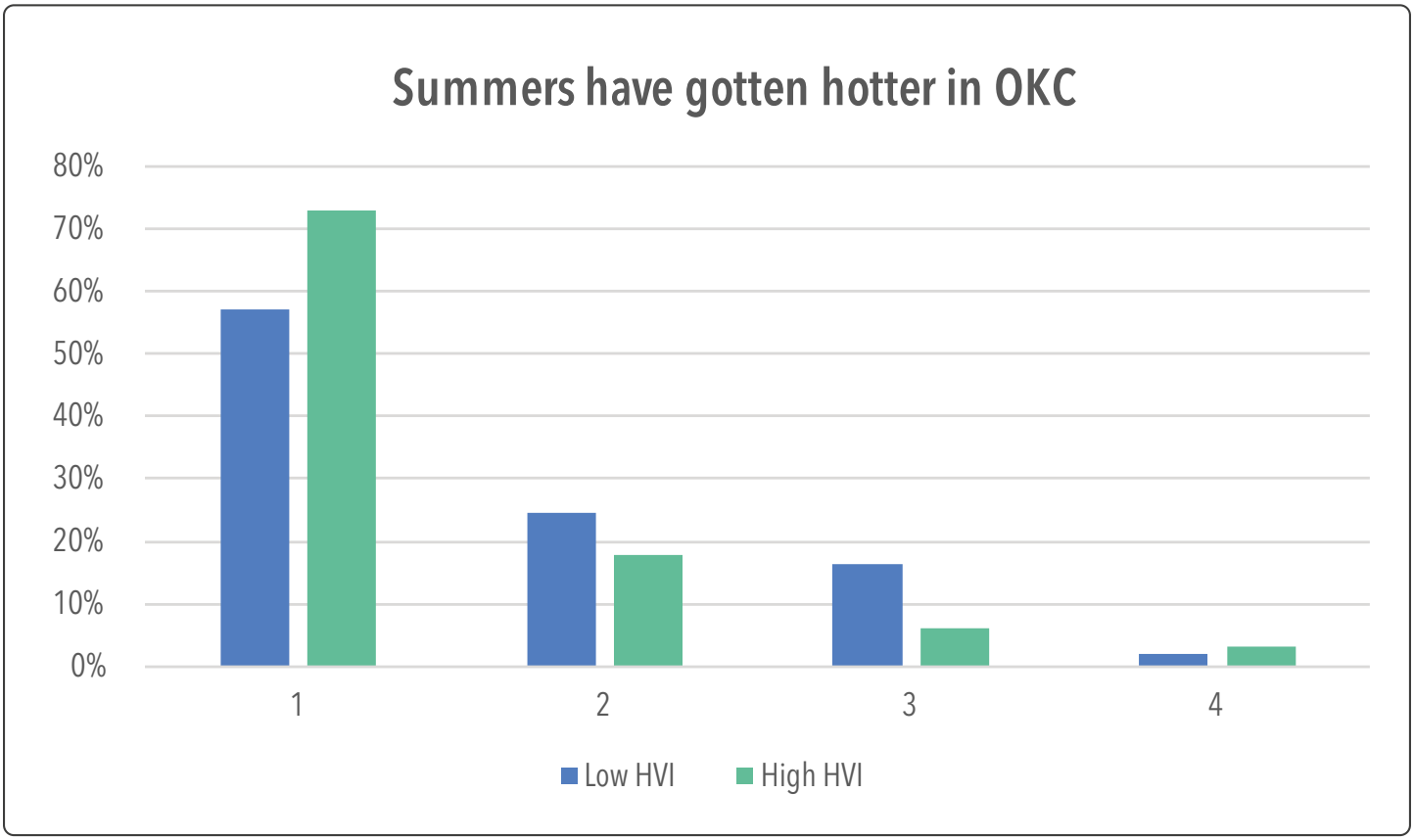
Similar majorities from both groups commute by car, though respondents from High HVI areas were much more likely to commute on foot or by bike as well. Two individuals from High HVI ZIP codes selected 'Walk' only, while one from a Low HVI ZIP code selected 'Bicycle or skate' only. Otherwise, those modes of transportation were selected in combination with 'Drive or ride in a car.' No respondents reported commuting by bus. Those who selected 'Other' specified that they work remotely, work from home, or do not commute ("N/A").



How do you usually commute to work, to school, and/or to run errands?	Walk	Bicycle or skate	Drive or ride in a car	Ride the bus	Other
Low HVI	3	1	135	0	18
High HVI	6	4	86	0	8
Total	9	5	221	0	26

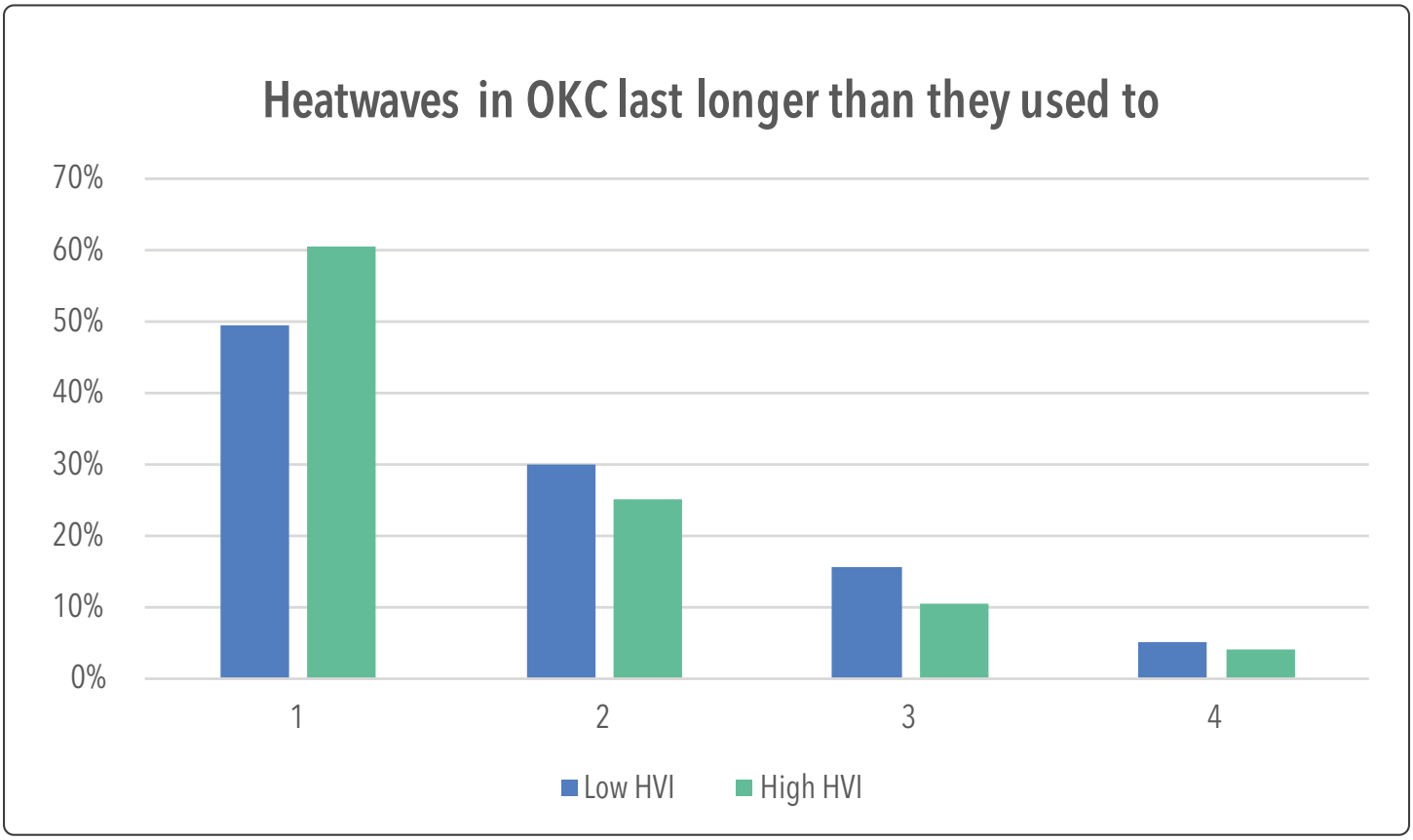
Q9. Please indicate whether you agree or disagree with the following statements.

Summers have gotten hotter in OKC	Agree (1)	Neutral / Neither agree nor disagree (2)	Disagree (3)	I don't know (4)
Low HVI	88	38	25	3
High HVI	70	17	6	3
Total	158	55	31	6



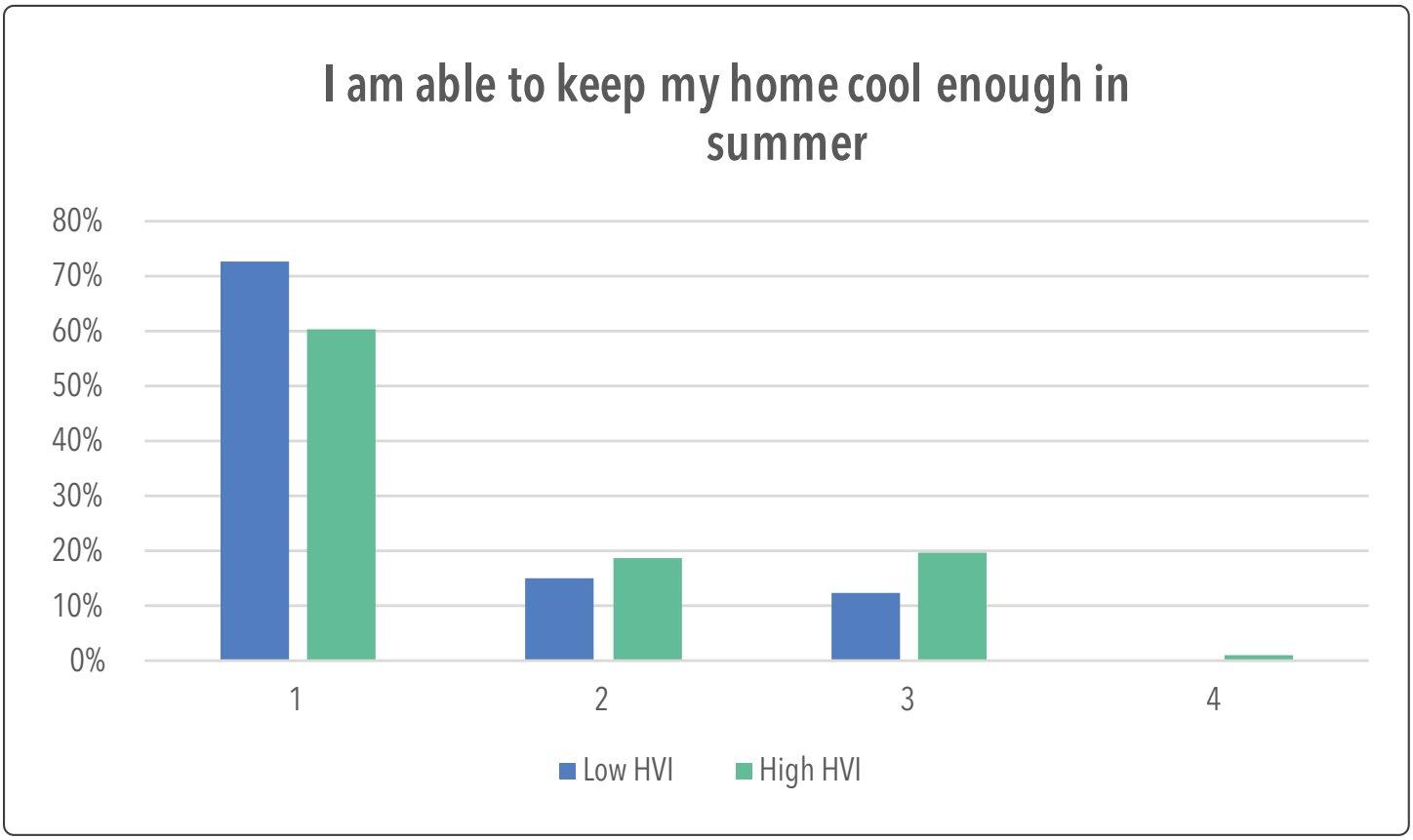
A majority of respondents from both HVI groups agreed with the statement, though respondents from High HVI ZIP codes were more likely to select 'Agree' and less likely to select 'Disagree' than those from Low HVI areas. The nearly 16% difference in agreement between the two groups suggests that those living in High HVI areas are more likely to perceive increases in summer temperatures, perhaps due to greater exposure to heat.

Heatwaves in OKC last longer than they used to	Agree (1)	Neutral / Neither agree nor disagree (2)	Disagree (3)	I don't know (4)
Low HVI	76	46	24	8
High HVI	58	24	10	4
Total	134	70	34	12



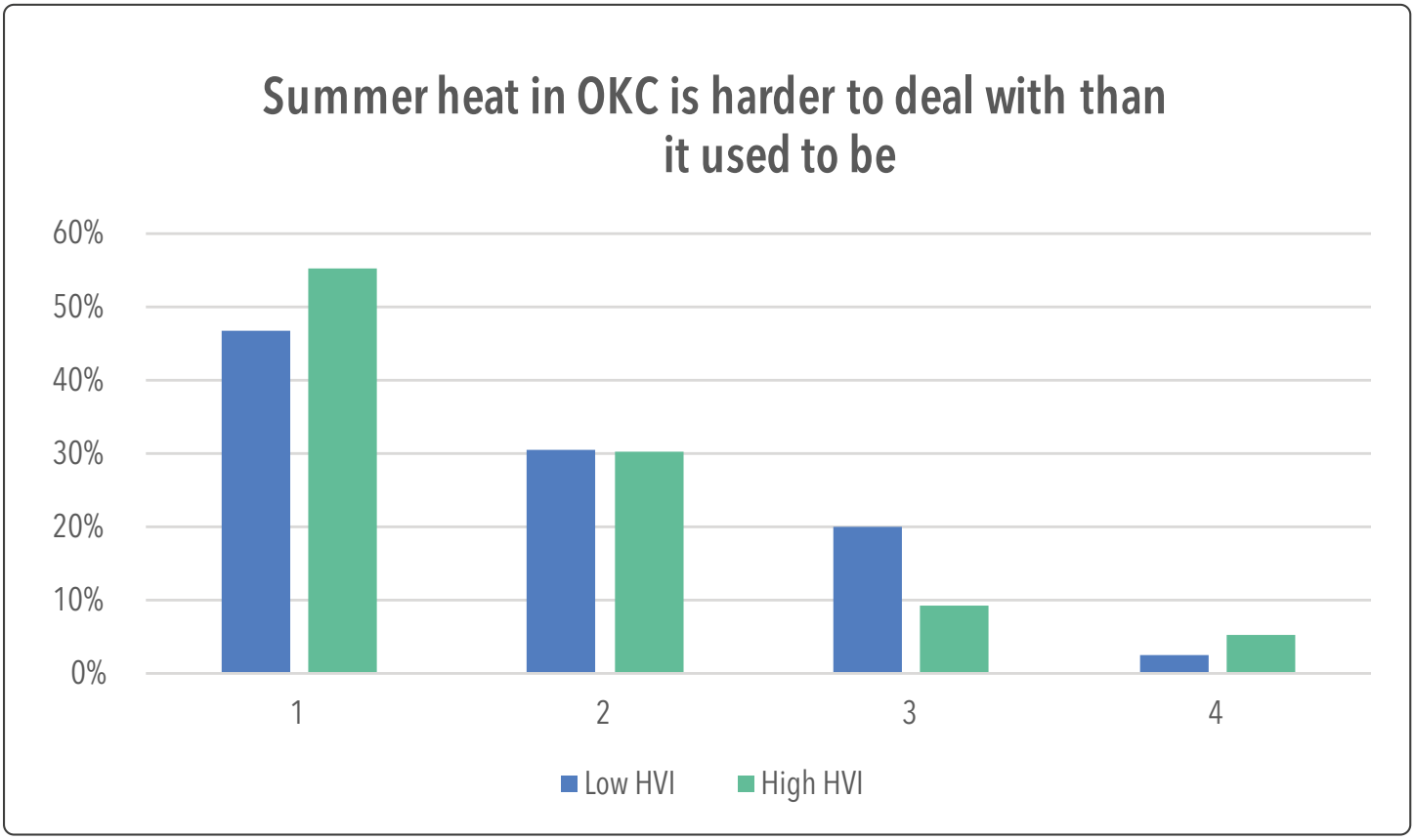
'Agree' was the most selected response to this statement for both groups, though there was slightly less than majority agreement (i.e., less than 50%) from the Low HVI group. As above, the results indicate that those from High HVI areas were more likely to perceive longer heatwaves, which may be informed by the intensity of their exposure to such events.

I am able to keep my home cool enough in summer	Agree (1)	Neutral / Neither agree nor disagree (2)	Disagree (3)	I don't know (4)
Low HVI	112	23	19	0
High HVI	58	18	19	1
Total	170	41	38	1



Majorities from both groups agreed with this statement, though the rate of agreement was notably higher in the Low HVI group. Of the 38 who disagreed, two lived in an apartment or condominium and one lived in a mobile home. Ten of 38 were renters (26.3%). Renters were overrepresented in the 'Disagree' cohort compared to their share of the total survey sample (14.4%). Twenty-seven of 38 (71%) reported that they were negatively impacted by heat inside their homes during the day or night, which is higher than the rate for the total survey population (see Question 13). Thirty-four of 38 (89%) reportedly had central air conditioning or a heat pump; the remaining four had only a portable or window air conditioning unit. The significant presence of mechanical cooling resources among the 'Disagree' cohort suggests that available ACs and heat pumps are not being used to full effect, possibly due to restrictive energy costs or non/semi-operational equipment.

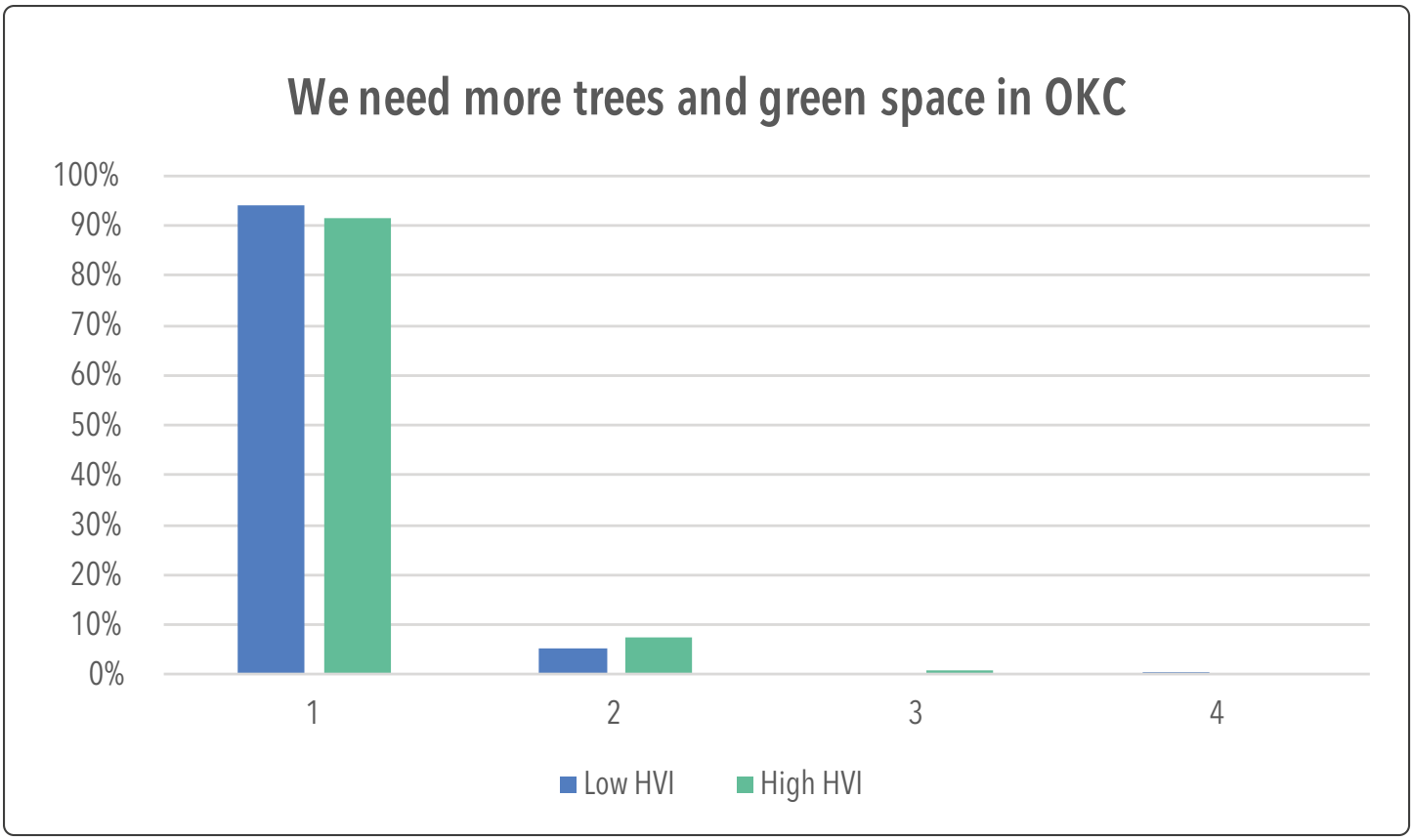
Summer heat in OKC is harder to deal with than it used to be	Agree (1)	Neutral / Neither agree nor disagree (2)	Disagree (3)	I don't know (4)
Low HVI	72	47	31	4
High HVI	53	29	9	5
Total	125	76	40	9



Respondents from High HVI areas were nearly 9% more likely to agree with this statement, and 11% less likely to disagree compared to those from Low HVI areas. As with statements on the intensity and duration of heat in OKC, this result suggests that those in High HVI areas are potentially more exposed to, and struggling more to cope with, summer heat. This is to be expected in locations where heat vulnerability is estimated to be high.

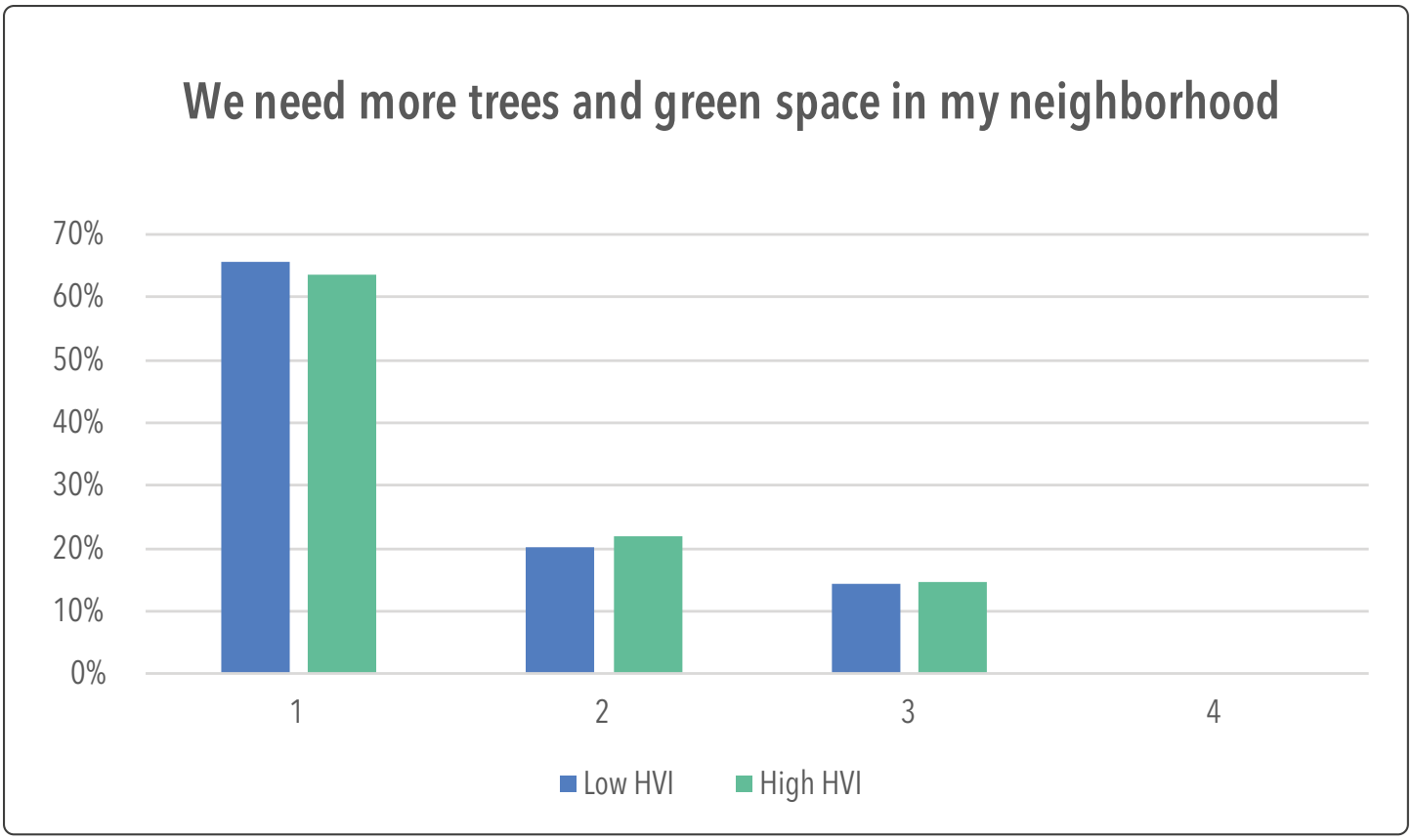
Of the 125 that agreed with this statement, 83.2% later indicated that heat disrupts their daily lives (see Question 15) and 28% indicated that they sometimes cut back on necessities to pay for cooling (see Question 19). Both responses exceed the rates for the total survey population and individual HVI groups, suggesting a connection between disruption and financial hardship caused by summer heat, and perceptions of difficulty in dealing with it.

We need more trees and green space in OKC	Agree (1)	Neutral / Neither agree nor disagree (2)	Disagree (3)	I don't know (4)
Low HVI	145	8	0	1
High HVI	88	7	1	0
Total	233	15	1	1



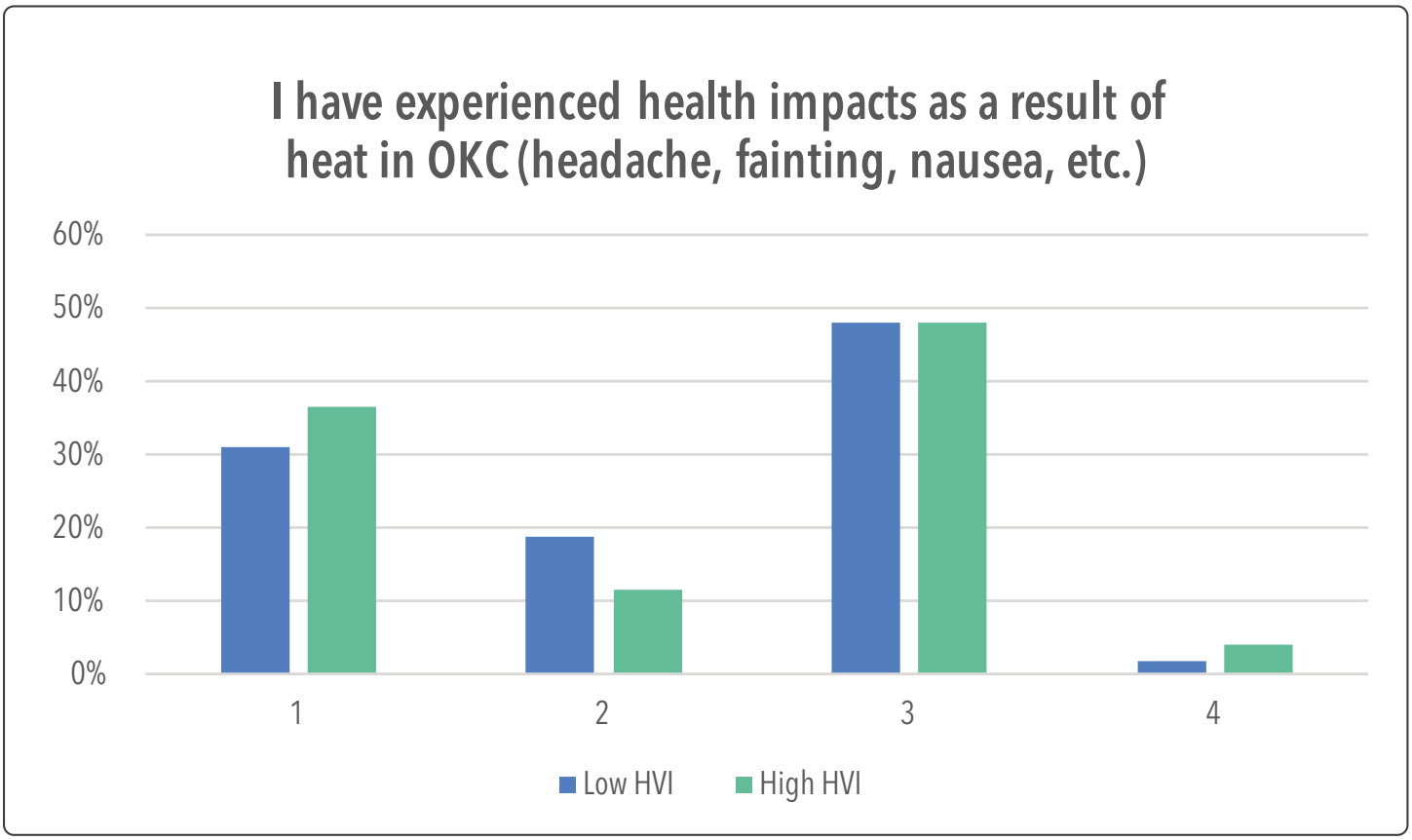
Survey takers from both HVI groups decisively agreed with this statement, revealing a common appreciation for trees and green space. Only a single individual disagreed with this statement outright, while others who were not fully in agreement remained neutral.

We need more trees and green space in my neighborhood	Agree (1)	Neutral / Neither agree nor disagree (2)	Disagree (3)	I don't know (4)
Low HVI	101	31	22	0
High HVI	61	21	14	0
Total	162	52	36	0



Although respondents were overwhelmingly in favor of more trees and green space across OKC, they were far less likely to agree that more vegetation was needed in their own neighborhoods. Disagreement with this statement was similar for High HVI and Low HVI areas, although High HVI typically have relatively low tree canopy coverage. While some respondents could simply be satisfied with current rates of vegetation, others may have common reservations related to the cost of upkeep and watering, maintenance responsibilities, property damage and mess from fallen limbs and leaves, and/or loss of parking or recreational space near home.

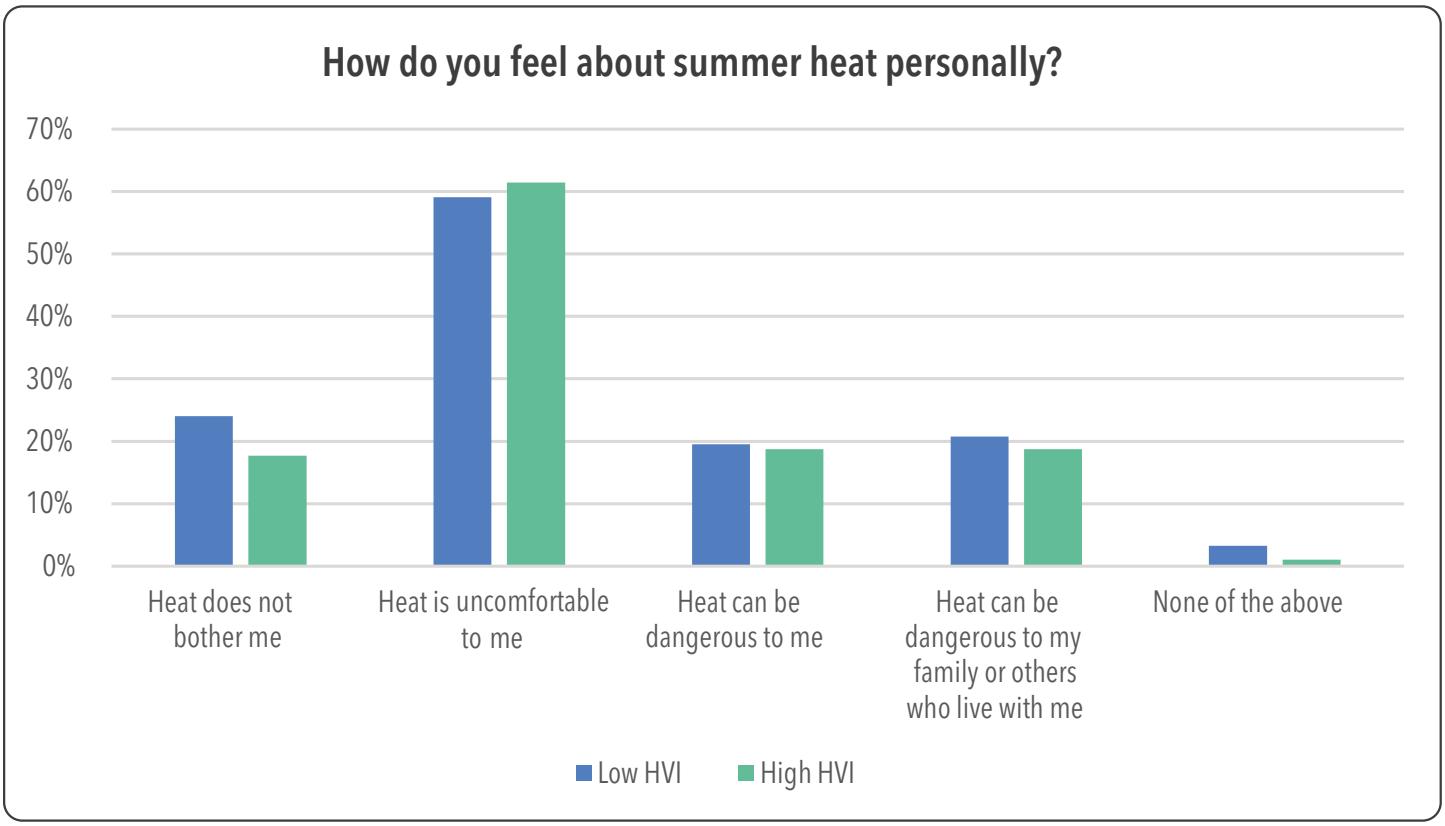
I have experienced health impacts as a result of heat in OKC (headache, fainting, nausea, etc.)	Agree (1)	Neutral / Neither agree nor disagree (2)	Disagree (3)	I don't know (4)
Low HVI	48	29	74	3
High HVI	35	11	46	4
Total	83	40	120	7



Approximately one third of respondents agreed with the statement, with slightly more agreement coming from the High HVI group. Nearly one fifth selected either 'Neutral' or 'I don't know,' both of which may, in this case, indicate uncertainty about heat-related health impacts. Of those who selected 'Disagree,' 'Neutral,' or 'I don't know,' 59.8% later indicated that they 'do not know anything' or 'know something' (rather than knowing a lot) about the signs and symptoms of heat-related illness (see Question 11). Some may have experienced heat-related health impacts without making the association between the symptoms and heat exposure.

Q10. How do you feel about summer heat personally? (select all that apply)

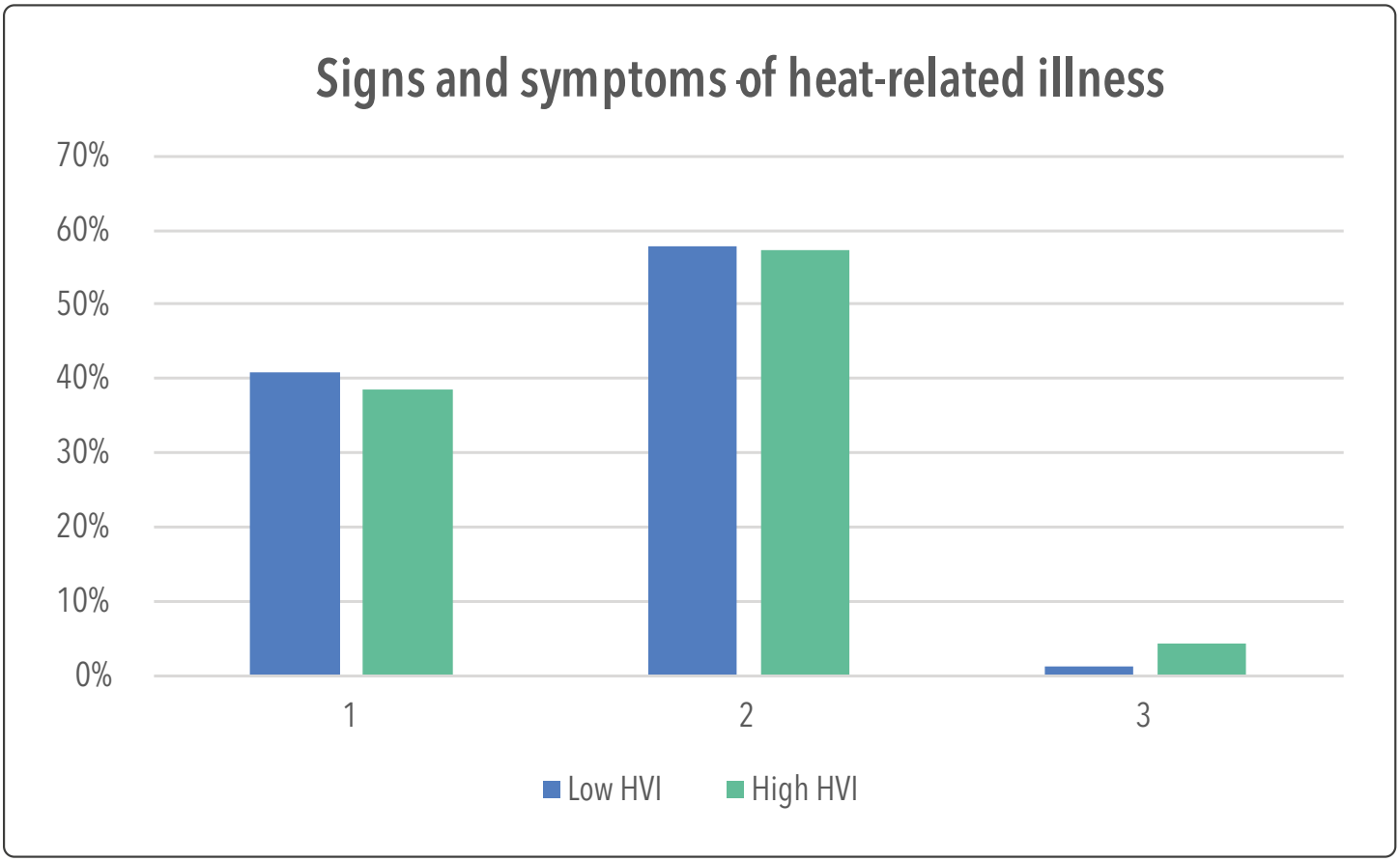
Majorities from both HVI groups were most likely to perceive heat as uncomfortable rather than dangerous. While those in the Low HVI group were more likely to select 'Heat does not bother me,' this group was also slightly more likely to perceive heat as a risk to themselves or others. The relatively low perception of danger is consistent with the fact that many respondents have not experienced heat-related illness, and have high confidence in keeping their homes cool enough (per Question 9). A high proportion (58.3%) of those who selected 'Heat can be dangerous to me' also agreed with the statement *'I have experienced health impacts as a result of heat in OKC,'* connecting personal experience to risk perception.



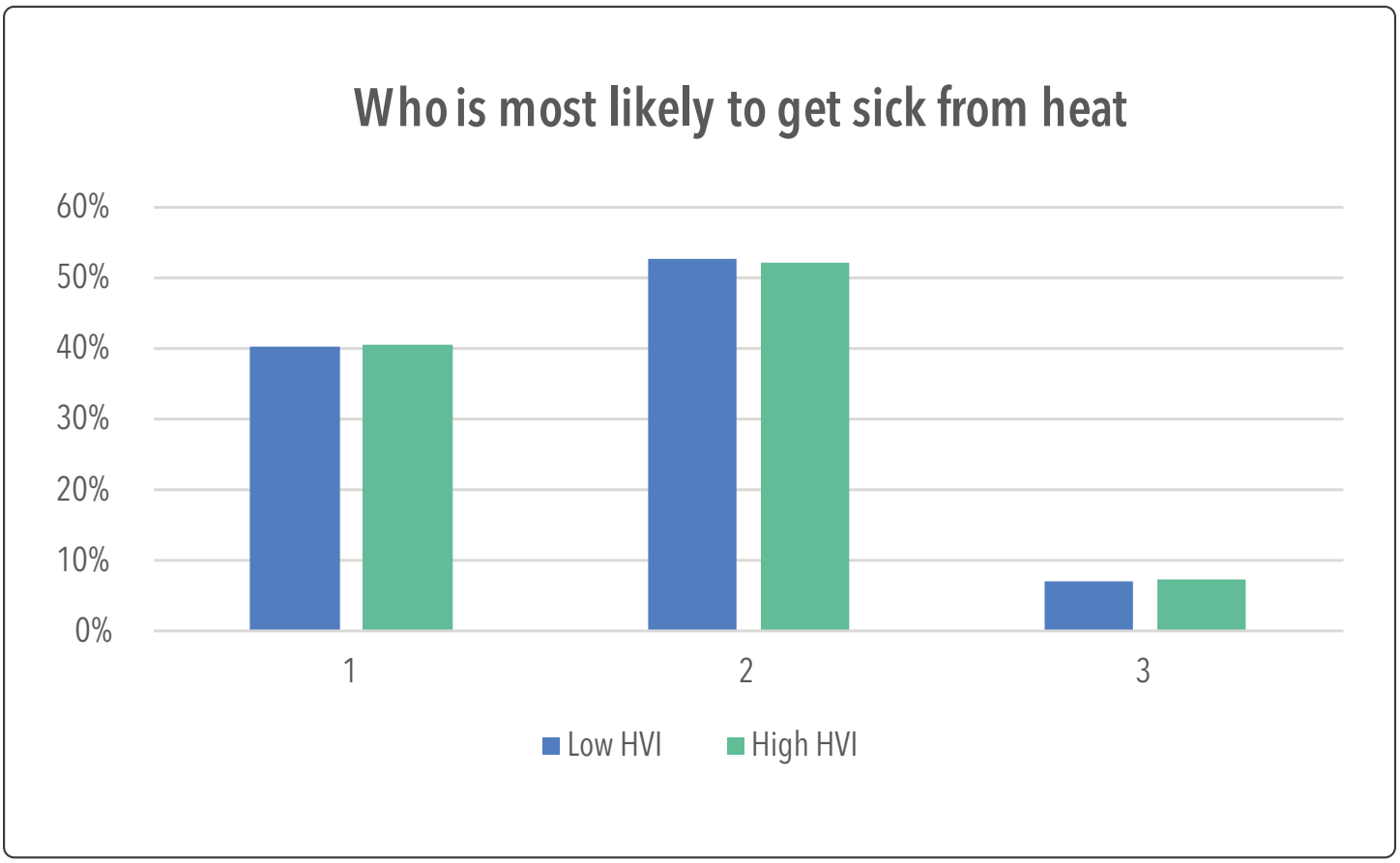
How do you feel about summer heat personally?	Heat does not bother me	Heat is uncomfortable to me	Heat can be dangerous to me	Heat can be dangerous to my family or others who live with me	None of the above
Low HVI	37	91	30	32	5
High HVI	17	59	18	18	1
Total	54	150	48	50	6

Q11. How much do you know about the following topics?

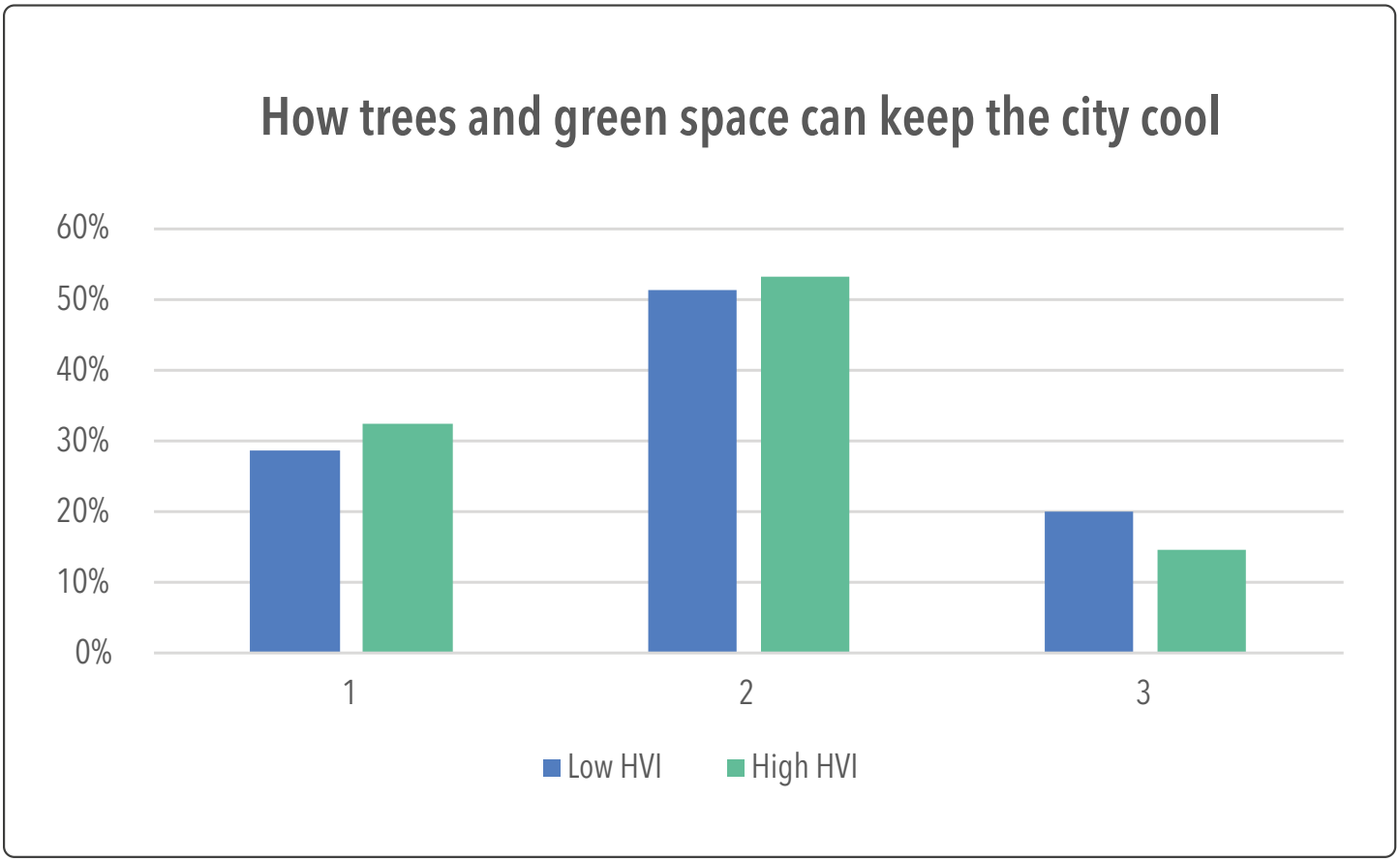
Signs and symptoms of heat-related illness	I know a lot about this (1)	I know something about this (2)	I do not know anything about this (3)
Low HVI	63	89	2
High HVI	37	55	4
Total	100	144	6



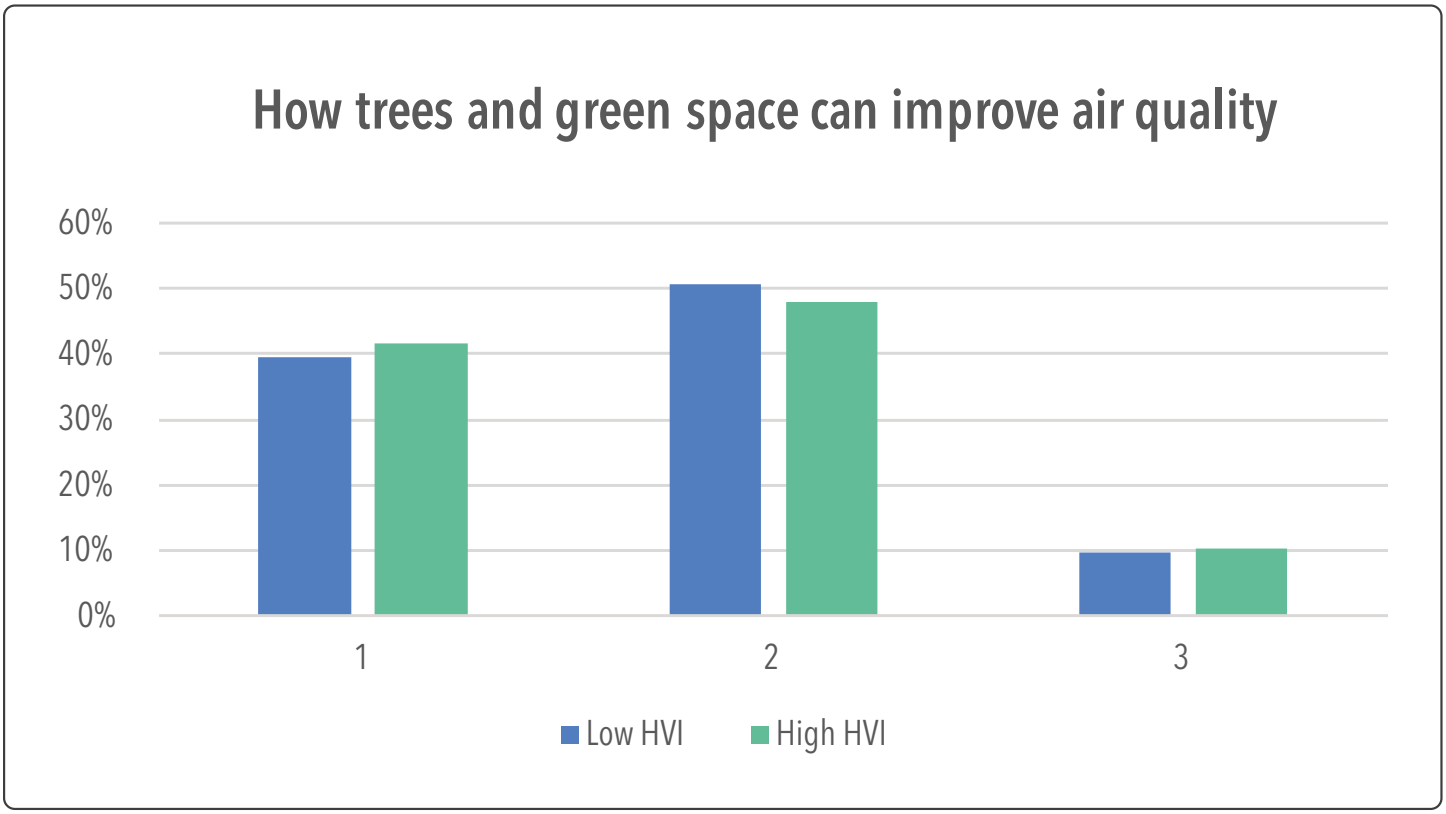
Who is most likely to get sick from heat	I know a lot about this (1)	I know something about this (2)	I do not know anything about this (3)
Low HVI	62	81	11
High HVI	39	50	7
Total	101	131	18



How trees and green space can keep the city cool	I know a lot about this (1)	I know something about this (2)	I do not know anything about this (3)
Low HVI	44	79	31
High HVI	31	51	14
Total	75	130	45



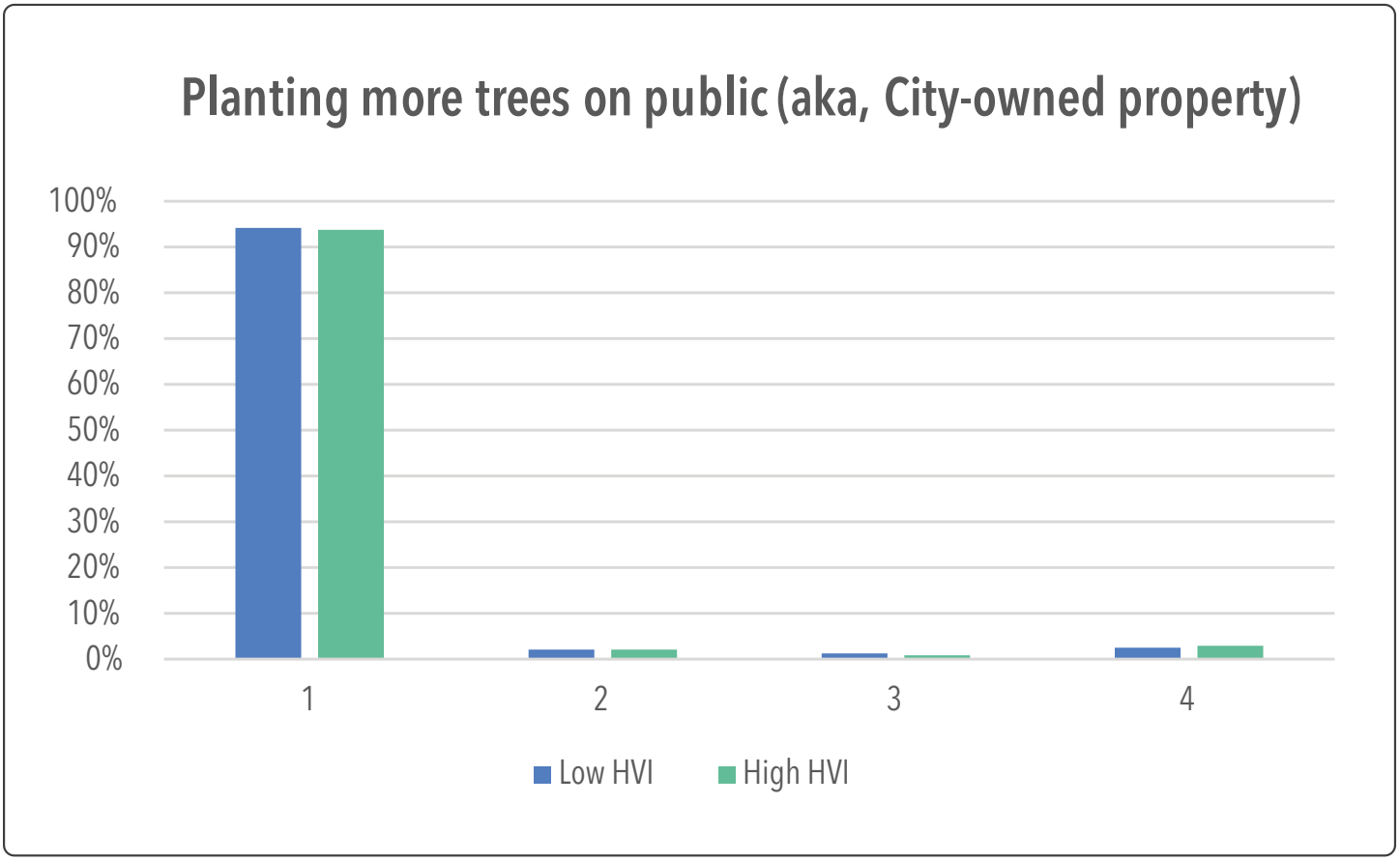
How trees and green space can improve air quality	I know a lot about this (1)	I know something about this (2)	I do not know anything about this (3)
Low HVI	61	78	15
High HVI	40	46	10
Total	101	124	25



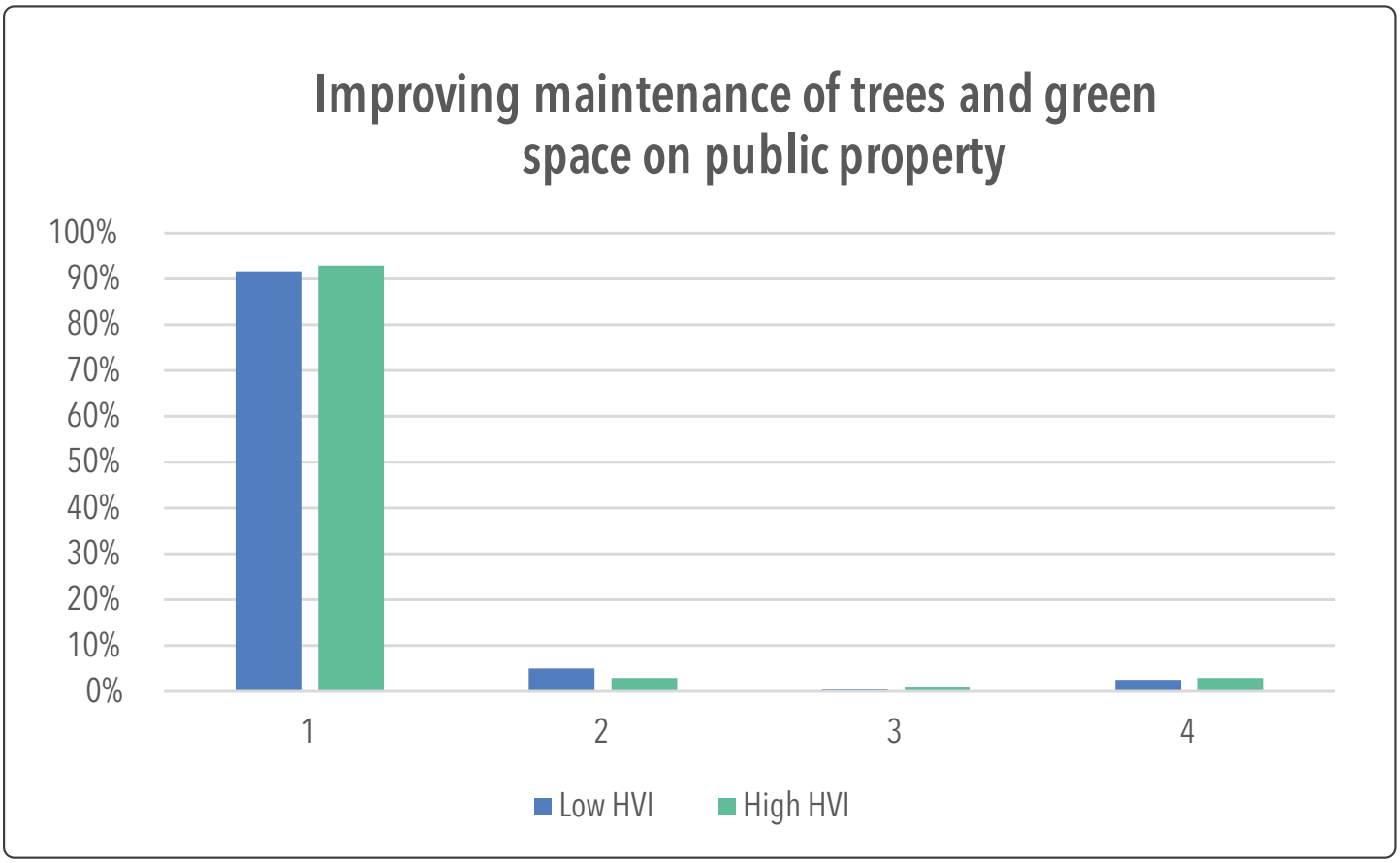
In response to all Q11 statements, participants from both HVI groups were most likely to select 'I know something about this,' indicating the presence of some basic knowledge or awareness but also an opportunity for further education. Collective high knowledge ('I know a lot about this') of the signs and symptoms of heat-related illness, heat-vulnerable populations, and the relationship between vegetation and air quality were consistently around 40%. High knowledge of the relationship between vegetation and urban heat was markedly lower, at 30%. This reveals a clear opportunity in both High and Low HVI areas to provide education on the urban heat island effect and nature-based remedies such as trees and green space.

Q12. There are different strategies the City of OKC could use to reduce heat and improve air quality. Would you support the use of public funds/resources for any of the following.

Planting more trees on public (aka, City-owned) property	I would support this (1)	Neutral / No opinion (2)	I would not support this (3)	I don't know/ Need more info (4)
Low HVI	145	3	2	4
High HVI	90	2	1	3
Total	235	5	3	7

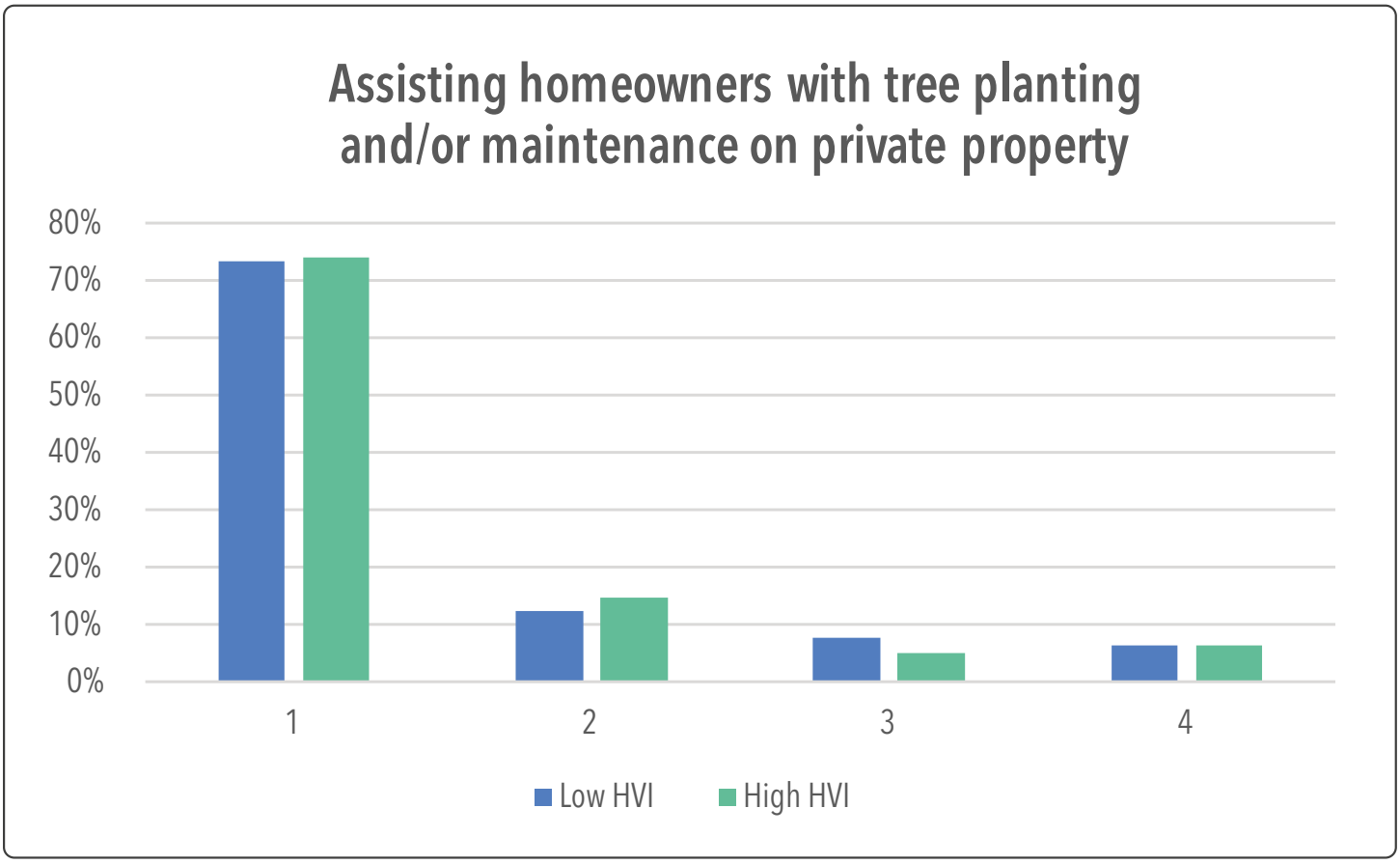


Improving maintenance of trees and green space on public property	I would support this (1)	Neutral / No opinion (2)	I would not support this (3)	I don't know/ Need more info (4)
Low HVI	141	8	1	4
High HVI	89	3	1	3
Total	230	11	2	7



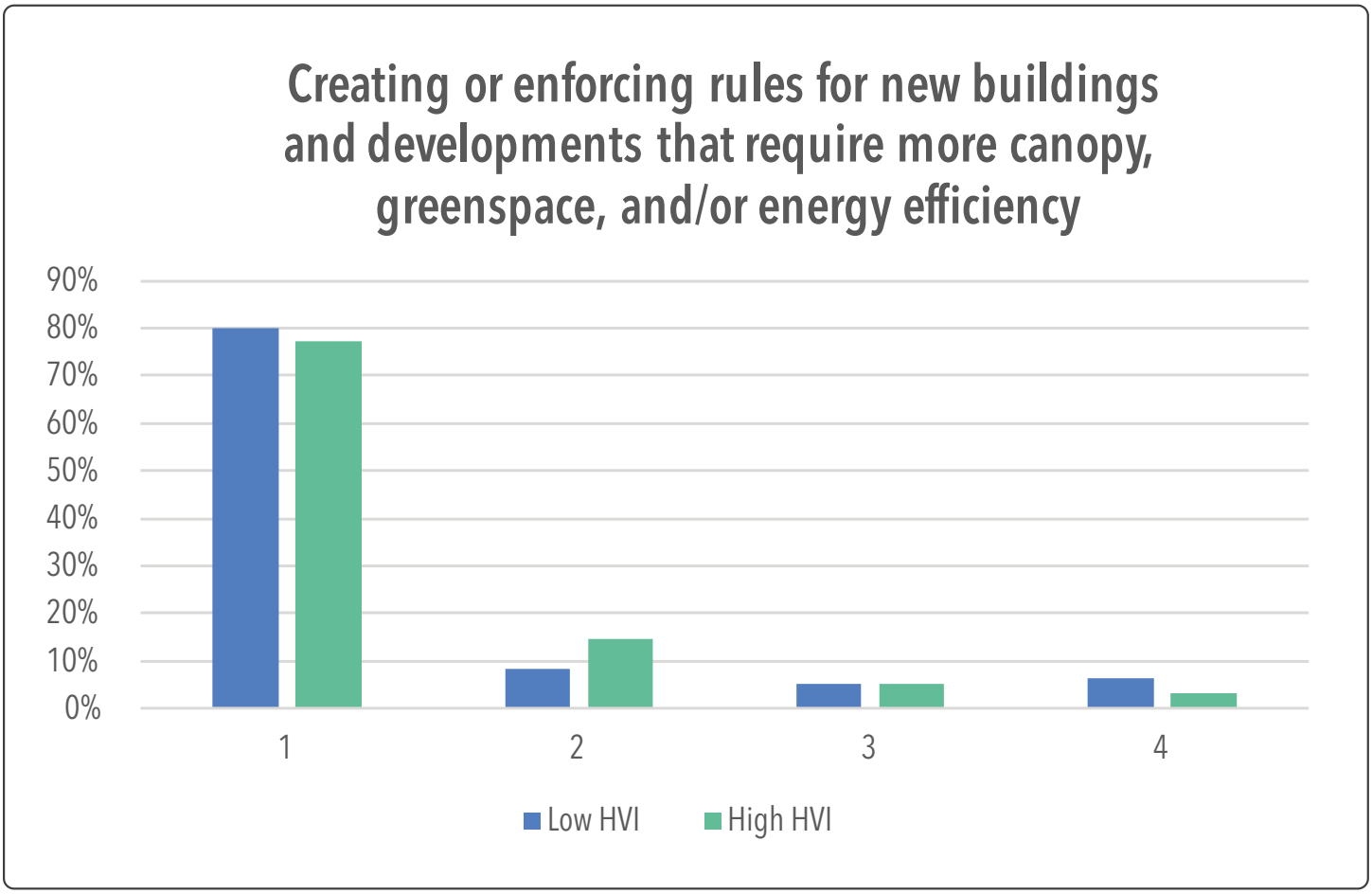
Significant majorities, over 90%, indicated that they would support planting more trees and improving maintenance of vegetation on public property. This is consistent with strong agreement about increasing the amount of trees and green space in OKC (per Question 9).

Assisting homeowners with tree planting and/or maintenance on private property	I would support this (1)	Neutral / No opinion (2)	I would not support this (3)	I don't know/ Need more info (4)
Low HVI	113	19	12	10
High HVI	71	14	5	6
Total	184	33	17	16

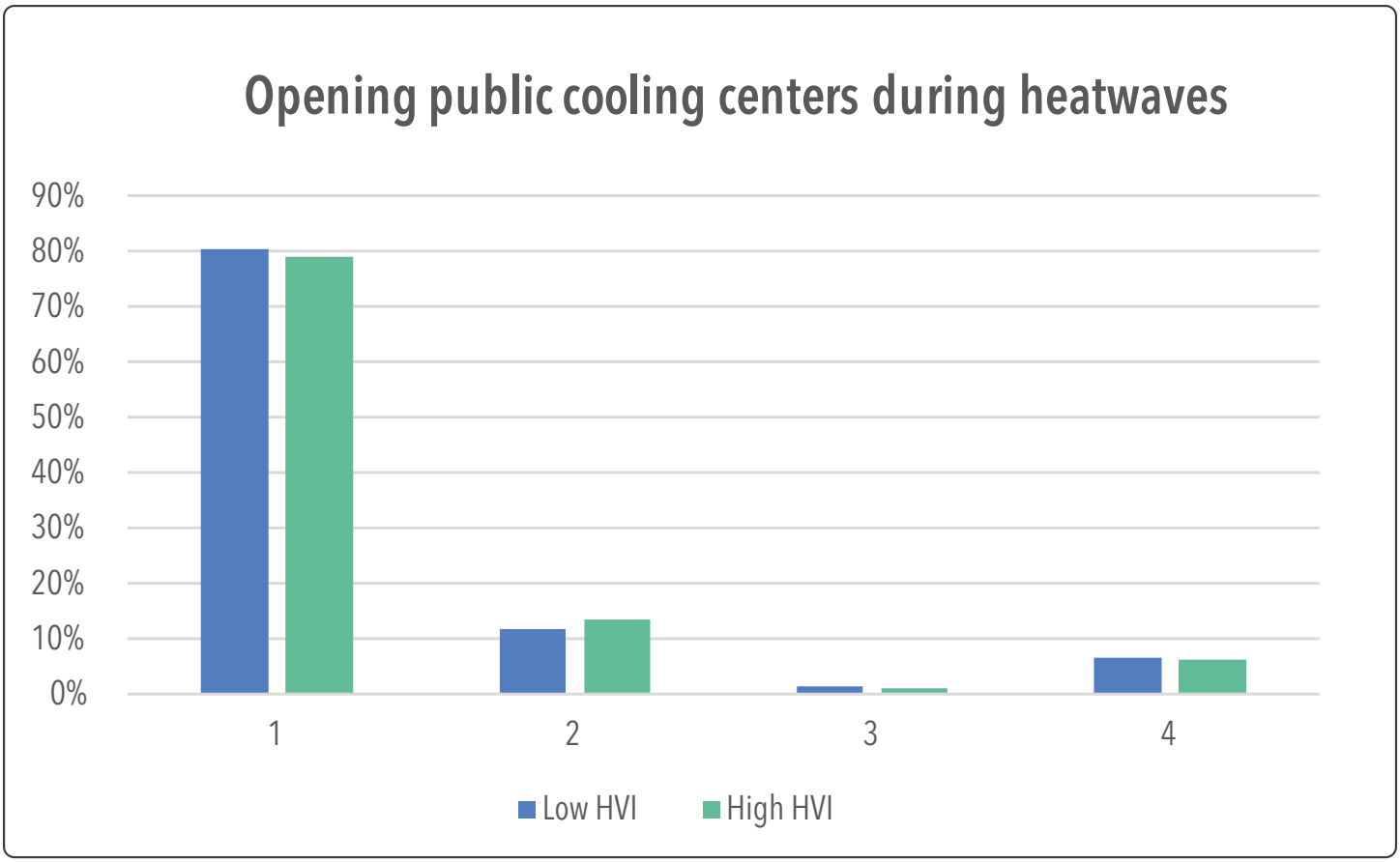


Nearly two thirds of respondents would support homeowner assistance for private tree planting and care. Though still a significant majority, this result is markedly less than the support expressed for *public* tree planting and maintenance. Likewise, respondents were more likely to say 'I would not support this' than with the previous two strategies. There was no significant difference in the responses from High and Low HVI groups. This result mirrors the less enthusiastic response to *'We need more trees and green space in my neighborhood'* seen in Question 9. Taken together, the results give the impression that survey respondents are open to trees in general, especially on public property, but may be less interested in private, residential trees. However, a relatively high percentage of respondents also selected 'Neutral' or 'I don't know / Need more information' when asked about homeowner assistance for trees. This means that support for the strategy could increase with some outreach and more information given to residents.

Creating or enforcing rules for new buildings and developments that require more canopy, greenspace, and/or energy efficiency	I would support this (1)	Neutral / No opinion (2)	I would not support this (3)	I don't know/ Need more info (4)
Low HVI	123	13	8	10
High HVI	74	14	5	3
Total	197	27	13	13



Opening public cooling centers during heatwaves	I would support this (1)	Neutral / No opinion (2)	I would not support this (3)	I don't know/ Need more info (4)
Low HVI	124	18	2	10
High HVI	76	13	1	6
Total	200	31	3	16



Both development rules and cooling centers would be supported by a majority of respondents. However, these two options also received a relatively high number of individuals selecting 'I don't know / Need more information.' As with residential tree planting, additional public education around these topics may be required to help people understand what the City would do and why it is important.

Q13. Where do you feel negatively affected by summer heat? (select all that apply)

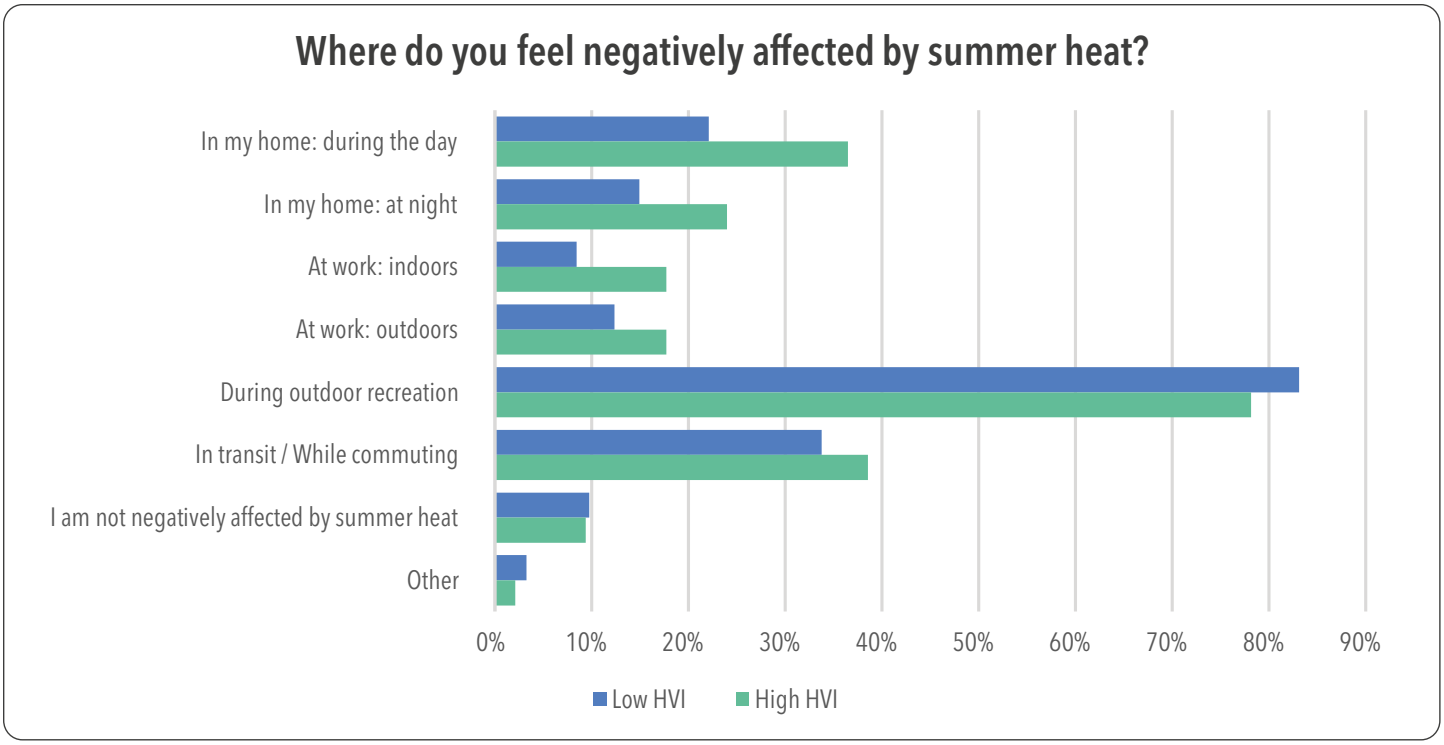
In both the High and Low HVI groups, 'outdoor recreation' was the most commonly selected pathway for negative heat exposure. Since outdoor recreation is typically optional, exposure can be avoided through personal decision making. Heat exposure in the home or at work cannot be easily avoided, especially when individuals experience financial barriers or a lack of agency to make changes to their environment (e.g., running AC at home or weatherizing a workspace). Residents of High HVI areas were approximately 14% more likely to experience heat at home during the day, and 10% more likely at night, compared to the Low HVI group. This reflects differences seen between the two groups in response to the statement *'I am able to keep my home cool enough in summer'* (per Question 9).

The High HVI group is also more likely to experience heat at work indoors, which may have to do with differences in the types of jobs held by lower-income and higher-income residents of OKC. Notably, a quarter of respondents who selected 'At work: outdoors' here previously answered that they did not work at all, or did not spend any percentage of their work time outdoors (per Question 7). Response to the present question could be in reference to unpaid outdoor work, such as gardening, which was also noted in some write-in 'Other' responses. Write-in responses are as follows:

- I struggle to sleep at night now because of the heat and hot flashes (Low HVI)
- I worry about my employees that work outside and try hard to keep them cool (Low HVI)
- My old house; my new one is better for cooling (Low HVI)
- Parks and extra curriculars (Low HVI)
- Yard work, planting native plants (Low HVI)
- Gardening (High HVI)
- Heat can be uncomfortable but I just make it work; take my kids out earlier or when the sun is going down; to me all seasons are purposeful and we just plan accordingly (High HVI)

Around one third of respondents from both HVI groups reported that they were exposed to heat in transit or while commuting; this was the second-most selected response for both groups. Given the high rate of car commuting (per Question 8) this result is somewhat unexpected. A possible explanation is that individuals spend much of the summer in air conditioned or indoor spaces such as the home or office. Going to and from the car is a singular time that heat and sun exposure cannot be avoided. Additionally, the urban heat island effect is typically pronounced on major roadways, in parking lots, and in paved spaces that surround many workplaces, shopping sites, and other destinations in the city.

While responses from the High and Low HVI groups were similar for 'During outdoor recreation,' 'In transit / while commuting,' and 'I am not negatively affected by summer heat,' effects on High HVI respondents were more pronounced in home and work environments.



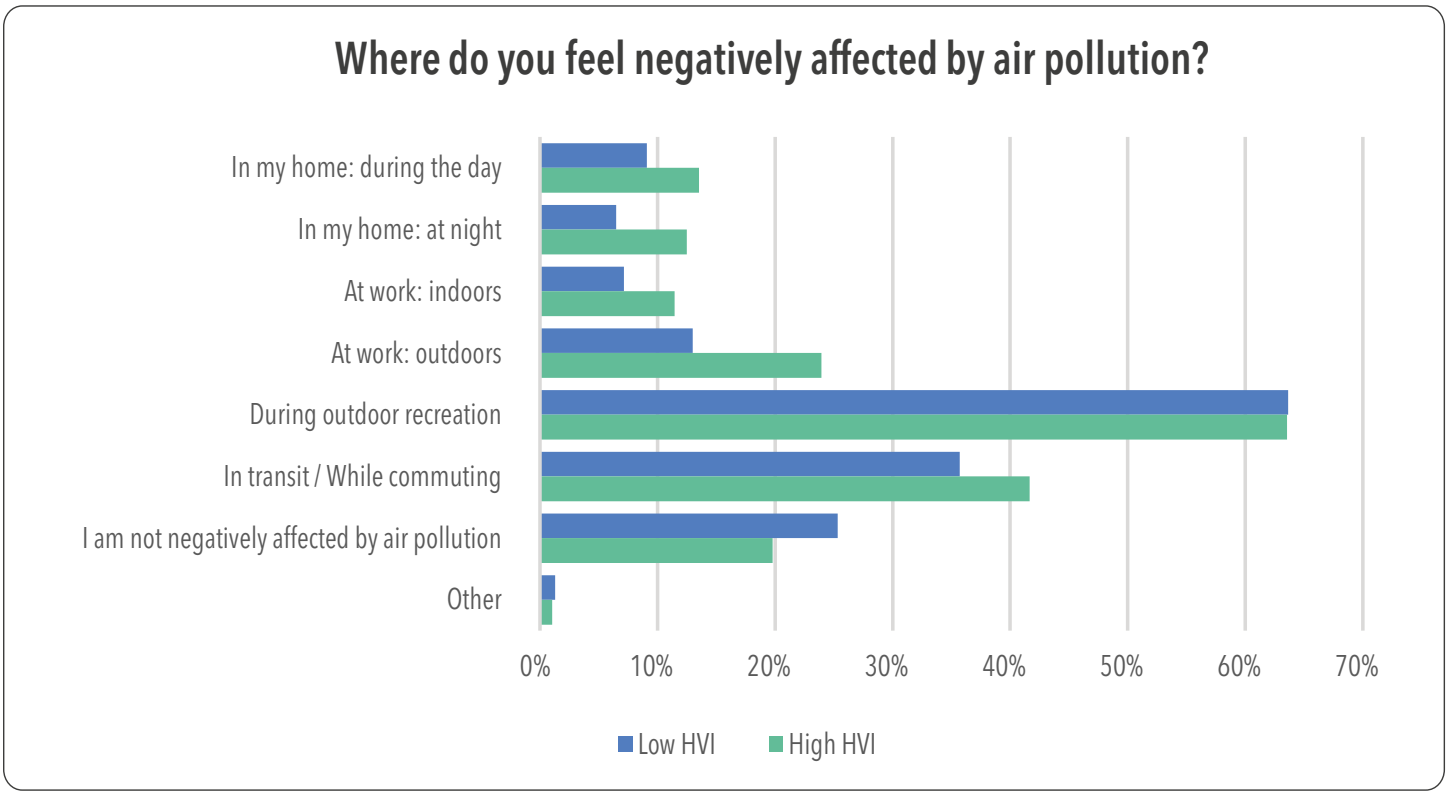
Where do you feel negatively affected by summer heat?	In my home: during the day	In my home: at night	At work: indoors	At work: outdoors	During outdoor recreation	In transit / While commuting	I am not negatively affected by summer heat	Other
Low HVI	34	23	13	19	128	52	15	5
High HVI	35	23	17	17	75	37	9	2
Total	69	46	30	36	203	89	24	7

Q14. Where do you feel negatively affected by air pollution? (select all that apply)

Similar to heat exposure, the most-selected response to this question for both HVI groups was 'During outdoor recreation,' followed by 'In transit / while commuting.' As with heat, the High HVI group reported greater effects than the Low HVI group in nearly all situations. Unlike with heat, respondents from Low HVI ZIP codes were over 5% more likely to select 'I am not negatively affected by air pollution,' and more individuals chose this response overall (9.6% for heat compared to 23.2% for air pollution). This suggests that heat may be a more widespread stressor while air pollution is limited to specific parts of the city, likely affected by the concentrations of roadways, industrial activity, or other pollution sources which tend to be sited in low-income areas.

Write-in 'Other' responses to this question were as follows:

- Allergies mainly (Low HVI)
- In my yard when people are using leaf blowers and mowers (Low HVI)
- We are impacted everywhere from air pollution - even indoors [because] it can raise the cost for heating & cooling homes for example (High HVI)

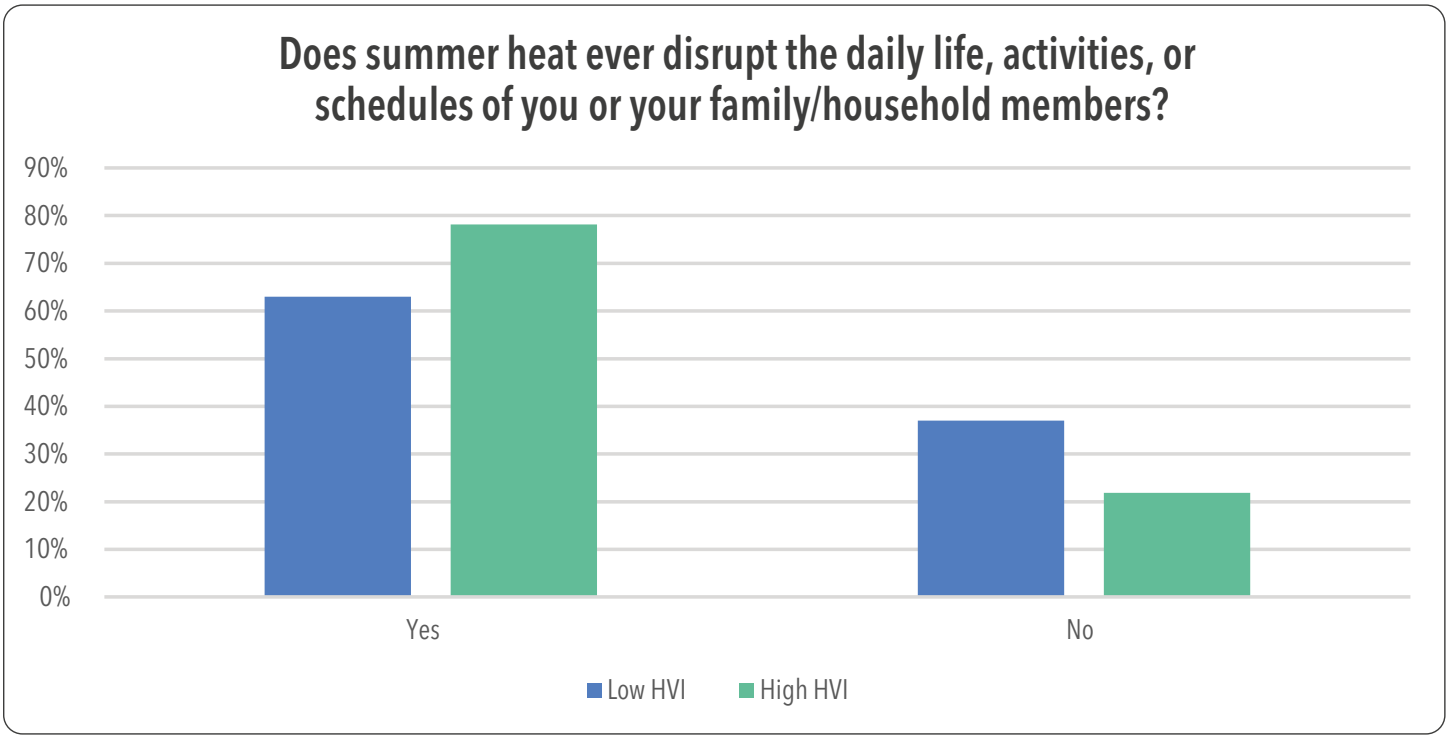


Where do you feel negatively affected by air pollution?	In my home: during the day	In my home: at night	At work: indoors	At work: outdoors	During outdoor recreation	In transit / While commuting	I am not negatively affected by air pollution	Other
Low HVI	14	10	11	20	98	55	39	2
High HVI	13	12	11	23	61	40	19	1
Total	27	22	22	43	159	95	58	3

Q15. Does summer heat ever disrupt the daily life, activities, or schedules of you or your family/household members? (for example, if heat keeps you from outdoor activities, from running errands, or from working)

If "Yes,"please explain how heat is disruptive.

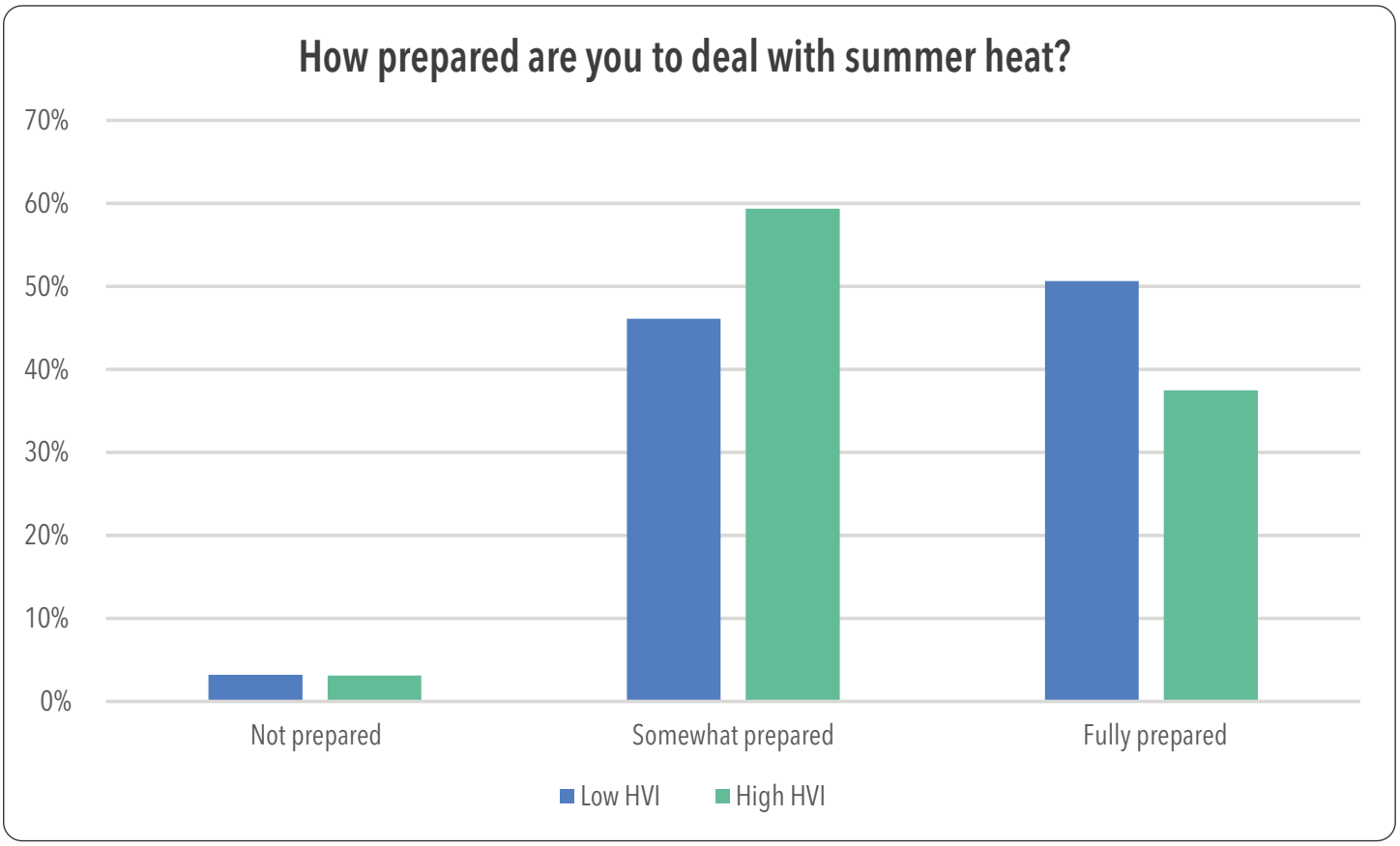
A majority of survey takers responded 'Yes' to this question, with a stronger affirmative response from the High HVI group. Of the 172 that said yes, 141 provided a write-in response to elaborate. Nearly 90% of those responses referred to disruptions in scheduling and reductions in outdoor activities. For example, many people limit time outdoors for exercise and recreation, cancel outdoor events, walk dogs less often, or rearrange schedules so that they run errands or spend time outside during cooler parts of the morning and evening. Several responses referred specially to young children or babies and their low tolerance for heat, meaning that outdoor family playtime is limited in summer. Approximately 11% of respondents, representing both High and Low HVI groups, referred to health impacts of heat which concerned them, such as heat stroke, headache, lethargy, difficulty breathing, fatigue and headaches. Others noted conditions which make themself or a family member more sensitive to heat including diabetes and epilepsy.



Does summer heat ever disrupt the daily life, activities, or schedules of you or your family/household members?	Yes	No
Low HVI	97	57
High HVI	75	21
Total	172	78

Q16. How prepared are you to deal with summer heat?

Most survey takers expressed at least moderate confidence in their preparedness for summer heat. Those in High HVI areas were about 13% more likely to feel 'somewhat prepared' while those in Low HVI areas were equally more likely to feel 'fully prepared.' Feelings of preparedness may be due, in part, to the widespread availability of home air conditioning among the survey population (see Question 17); though differences between the two groups mirror differences in stated ability to keep one's home cool enough in summer and to deal with summer heat overall (per Question 9).

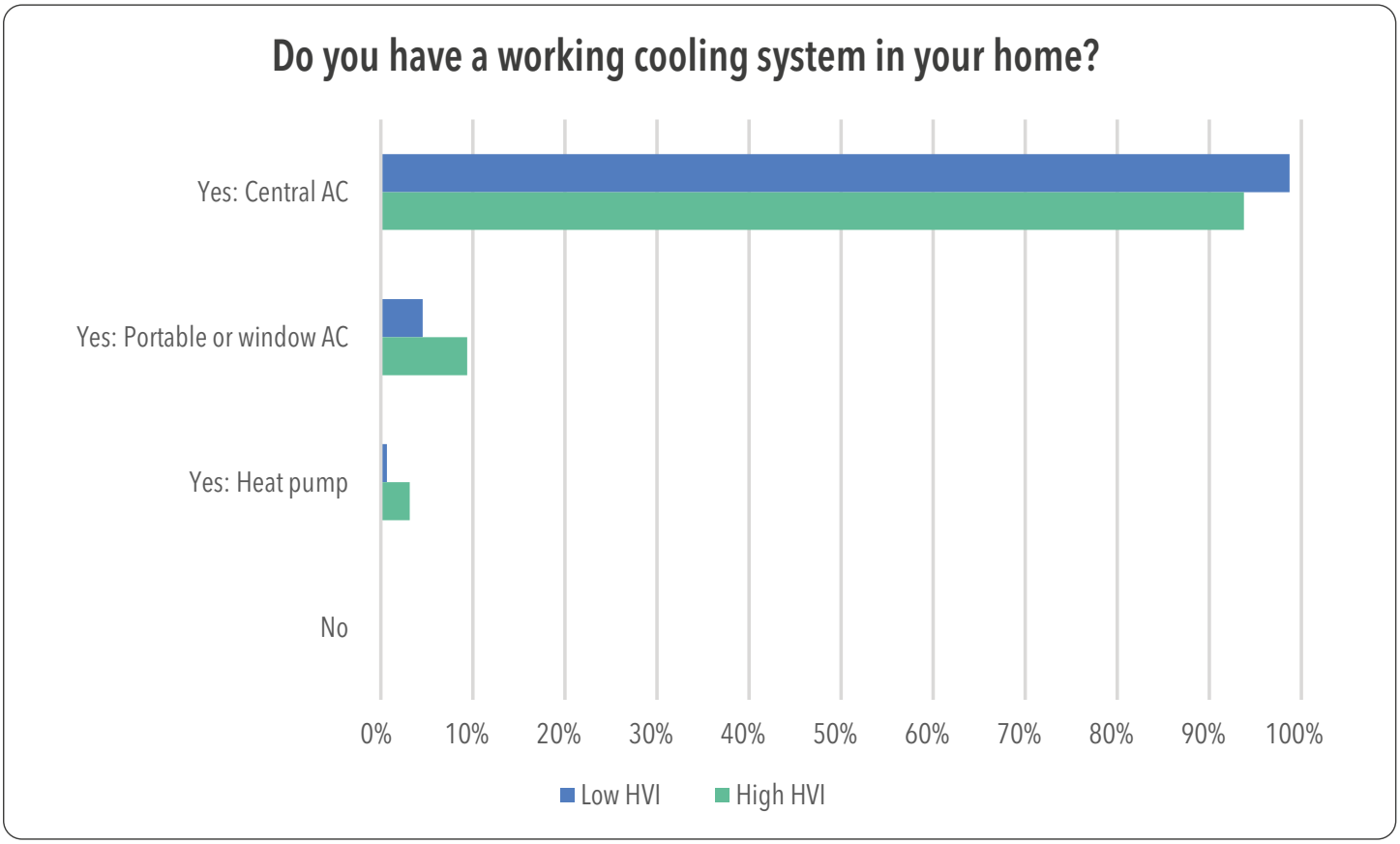


How prepared are you to deal with summer heat?	Not prepared	Somewhat prepared	Fully prepared
Low HVI	5	71	78
High HVI	3	57	36
Total	8	128	114

Q17. Do you have a working cooling system in your home? (select all that apply)

All respondents (100%) have some form of mechanical cooling in their homes. In the Low HVI group, 152 out of 154 had at least central AC, and several of those had portable or window units as well. One home used a heat pump only, and one used a portable or window AC unit only. In the High HVI group, 91 out of 96 had at least central AC or a heat pump. It was more common in this group that residences had only a portable or window AC, though that was only the case for 5 of 96 respondents.

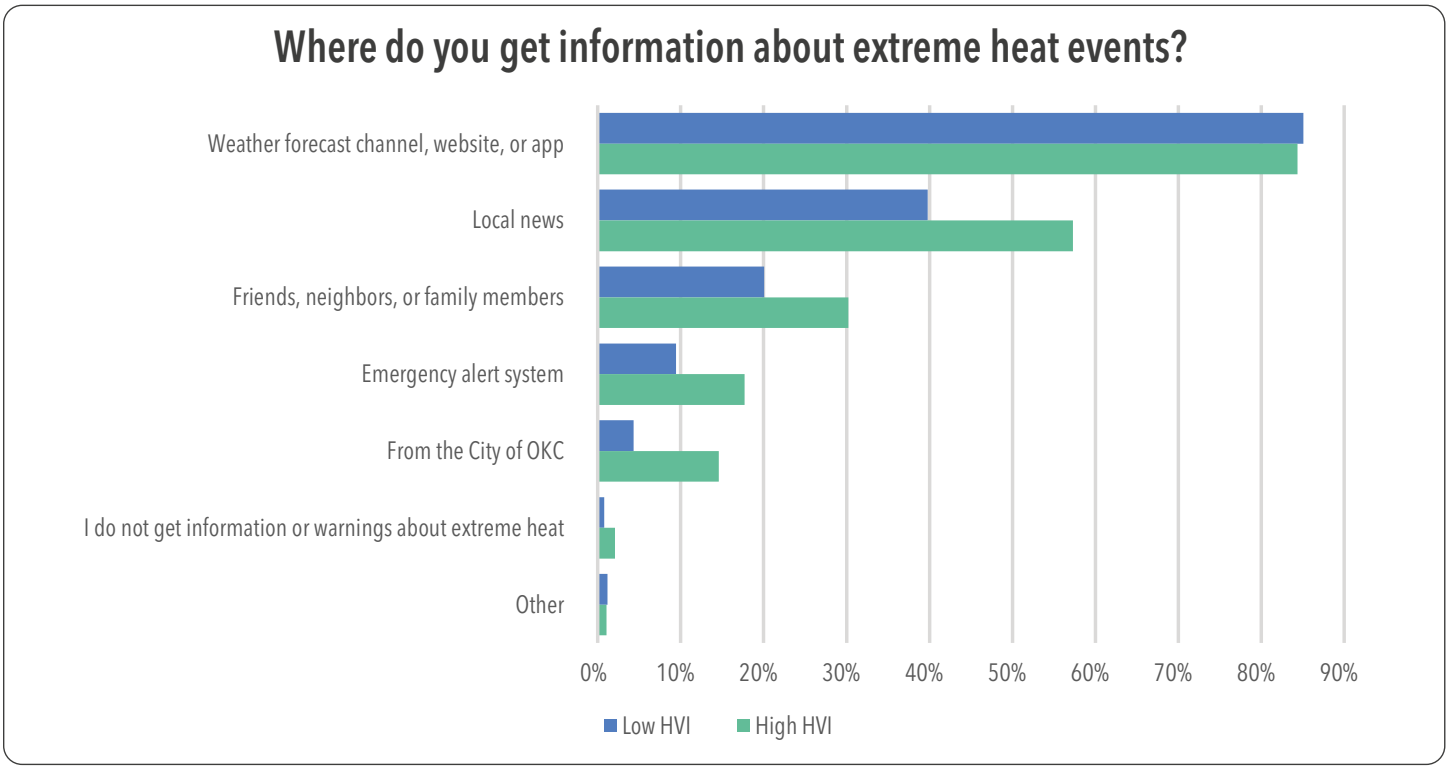
The availability of mechanical cooling among this survey population is extremely high, and may not reflect the actual availability of such systems in households across the city. Additionally, as noted in Question 9, the availability of a working system does not guarantee that a home is effectively or efficiently cooled, or that the owner can afford to run the system when needed.



Do you have a working cooling system in your home?	Yes: Central AC	Yes: Portable or window AC	Yes: Heat pump	No
Low HVI	152	7	1	0
High HVI	90	9	3	0
Total	242	16	4	0

Q18. Where do you get information about extreme heat events? (select all that apply)

Most respondents get their information from a weather forecast, channel, or app, with similar numbers between both HVI groups. However, those in the High HVI were more likely to use two or more sources and reported higher use of friends and neighbors, emergency alert systems, and the City of OKC for information on heat events. Write-in responses included two references to social media, one to NPR news, and one to "look outside."

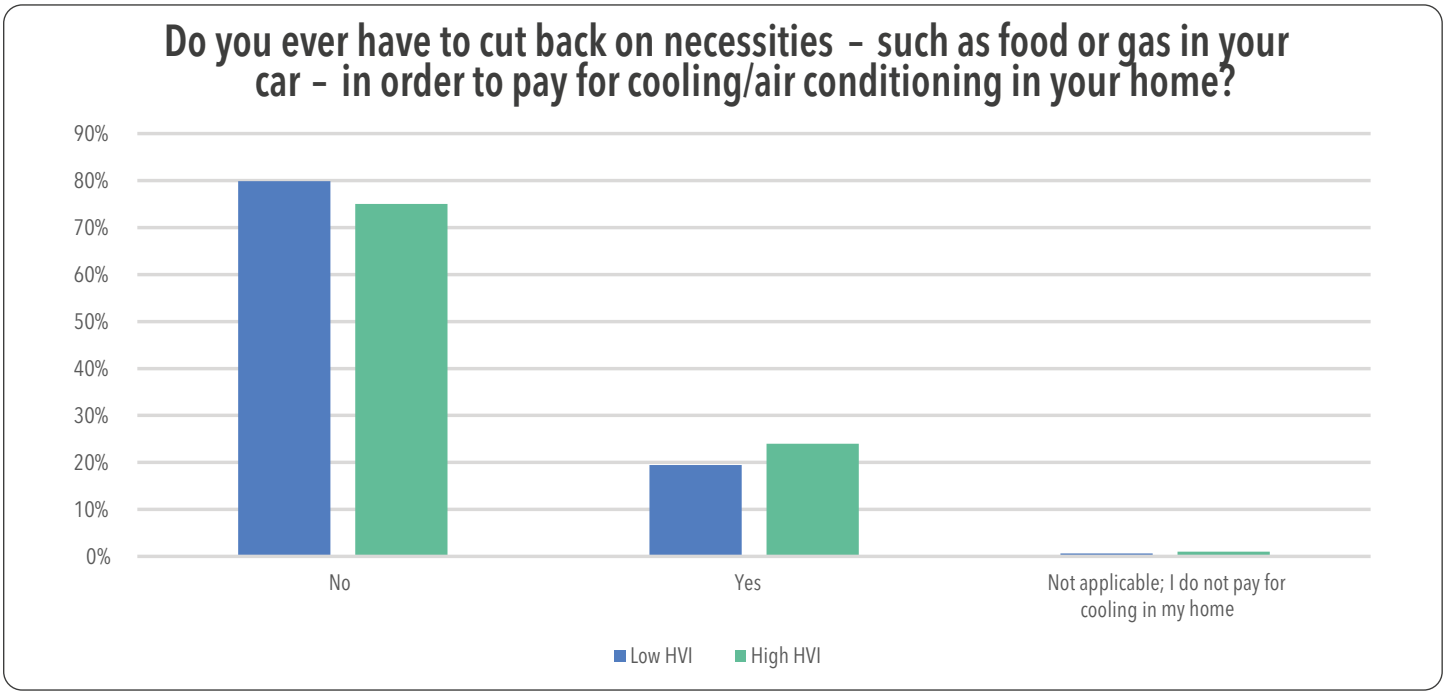


Where do you get information about extreme heat events?	Weather forecast channel, website, or app	Local news	Friends, neighbors, or family members	Emergency alert system	From the City of OKC	I do not get information or warnings about extreme heat	Other
Low HVI	131	101	51	24	11	2	3
High HVI	81	55	29	17	14	2	1
Total	212	156	80	41	25	4	4

Q19. Do you ever have to cut back on necessities – such as food or gas in your car – in order to pay for cooling/air conditioning in your home?

If "Yes," please explain which necessities you cut back on.

Over three quarters of respondents answered 'No' to this question. The issue appears to affect those in the High HVI group more, at about one quarter, compared to those in the Low HVI group, at about one fifth. Of those who answered 'Yes,' 35 individuals provided additional information about the necessities they cut back on. Twenty-four (68.5%) of those who provided a write-in response referred to cutting back on food and/or groceries; three of those referred to "eating out" without mentioning groceries or food overall. Others reported that they cut back on gas for the car (14.3%), or cut back on all expenses (17.1%). While not "essentials," others reported cutting back on extra curricular activities, fun activities and outings, streaming services, and retirement savings to pay electric bills. Another "pay[s] bills late," and two "cut back on cooling" if bills become too expensive. Cutbacks on essentials like food and gas appear to affect those in both High and Low HVI groups, suggesting an area for future investigation.



Do you ever have to cut back on necessities – such as food or gas in your car – in order to pay for cooling/air conditioning in your home?	No	Yes	Not applicable; I do not pay for cooling in my home
Low HVI	123	30	1
High HVI	72	23	1
Total	195	53	2

Q20. Please tell us about any resources or information that would help you and your family deal with summer heat. (optional)

Fifty-one respondents provided an answer to this question, not including those who wrote some variation of "N/A" or "I don't know." They have been paraphrased or recorded in full below and summarized by theme. In instances where a respondent made suggestions in two thematic categories, the response has been split.

<u>Energy bill or home cooling assistance (15)</u>

Lower energy costs / reducing OG&E prices / stopping energy rate increases (9)

Free Electricity

Resources to save on energy and keep electric bills down

Low Income Home Energy Assistance Program (LIHEAP)

Fans or air conditioners for homes (2)

"Any type of help, we don't have too much support for any help with our bills let alone with staying [home] and keeping cool."

<u>Home insulation or weatherization (6)</u>

Affordable home insulation (3)

Affordable / subsidized window replacements or screens (2)

Weatherization of older homes

<u>Trees and green space (7)</u>

(Free) trees for planting in residential yards (2)

More trees planted overall / in a specific neighborhood (5)

<u>Information and education (13)</u>

General information provided via a website / pamphlet / podcast (4)

Information on heat safety and self-protection measures that can be easily shared

Information on how to deal with allergies

Information about how green spaces reduce summer heat

Information about parks, community swimming areas, and splash pads (2)

More weather forecasts and alerts (2)

"Wet bulb resources readings"

Education on how to plant residential yard trees

Cool places to recreate (7)

Inexpensive / family-friendly indoor spaces and activities (6)

"Earlier or later summer hours at places like the OKC zoo, water park, local splash pads, the ballpark, etc. (Free) water bottle refill stations in public areas and popular daytime venues."

Miscellaneous (7)

"Anything and everything!"

"I just think it should be talked about more. Especially in Oklahoma it's so humid and hot and there is very little shade. Very hard to go do things. And utilities are so high during extreme heat and extreme cold."

"Mandatory days off to swim."

"New developments on clothing etc. that could help dissipate heat."

"For unhoused populations [it] needs to be easier to get to cooling stations."

"Free water stations and fountains, free bus routes, painting the roads/using non black asphalt, more trees."

"The real problem is at a macro level, getting the huge corporations who drive climate change to move the needle there. Individual actions are a drop in the bucket. So elect people who will make changes to the way corporations disrupt the environment. At a micro level, planting some trees in our city may have a positive effect on a small population, which is better than a poke in the eye with a sharp stick but not addressing the root of our heat issues. And with climate change, new trees will continue to be a struggle to establish and grow to an impactful canopy. A REAL impact would be the corporation commission restraining the greedy energy companies who are profiteers during this time of crisis, [making] energy cooling costs affordable for all."