

# **2019 Point in Time Plus Survey**

## Part One | Initial Findings

Interagency Council on Homelessness

May 2019

## Background

Every year, the U.S. Department of Housing and Urban Development requires jurisdictions to conduct a census and survey of persons experiencing homelessness. This Point in Time (PIT) count has been conducted locally by The Community Partnership (TCP) each year since 2001. The results of the PIT Count inform communities about the size and scope of the population experiencing homelessness on a given night. It is used locally to help plan for new programming to meet emerging community needs.

However, PIT is limited in the information it provides, so the Point in Time Count Plus (PIT Plus) tool was developed by TCP and the D.C. Department of Human Services (DHS) to inform the Continuum of Care on additional questions to aid in strategic planning efforts. The PIT Plus survey provides a better opportunity to have in-depth conversation about reason(s) behind one's experience of homelessness, their service use histories, and patterns of housing security/insecurity over time.

PIT Plus was designed as a supplemental survey to understand what led to individuals' experience(s) of homelessness and what could have prevented those experience(s). To better understand inflow and causation among individuals experiencing homelessness (and to be able to intervene sooner), it seeks to answer questions such as:

- What caused someone to seek emergency shelter, and what could have altered that path?
- How many people are experiencing homelessness for the first time each year?
- When we see short or long breaks in service patterns, where are people going?
- Where were people living prior to experiencing homelessness in the District?
- When people arrive from outside of the District, what factors influenced their decision to seek services here?

For PIT Plus, TCP, DHS, and other partners surveyed individuals over the course of 10 days –January 22<sup>nd</sup> through 31<sup>st</sup>. This first report summarizes the initial findings. It is essentially an exploratory data analysis of each question independently. A second report will take a deeper look at patterns and trends within the data to reveal more insights based on discernable client groupings.

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## Key Initial Findings

This non-random convenience survey of 1,065 of our unaccompanied adult clients experiencing homelessness provides evidence of trends and patterns that warrant further exploration. It also expands our knowledge about the challenges our clients face and our opportunities to help them. Those challenges and opportunities are summarized below and explored in further detail throughout this report.

**People want a job.** Beating other possible answers by 10-20 percentage points, lack of employment and income were the largest drivers of homelessness cited by respondents. In fact, when asked what might have helped prevent homelessness, employment beat rent/mortgage assistance by 20 percentage points.

**One third were living outside the District.** 33% of respondents were living in Maryland, Virginia, or other states prior to being homeless in the District, which has important implications for our regional system of care.

**People still have supportive networks that can be leveraged for diversion.** Most people have friends, someone who makes them feel comfortable/safe, and someone who will help them out. And for those with children, the overwhelming majority are still in communication with them. In fact, over 30% of clients report staying in a house with friends and/or family when shelter is not an option. This connection to supportive networks is highly valuable for the District's diversion and rapid exit work through Project Reconnect and Rapid Resolutions.

**Perception is Reality.** Two questions revealed opportunities to change client perceptions about bed bugs and benefits eligibility to increase their utilization of shelter (versus outdoors) and increase their application to benefits (particularly SNAP).

**Primary care beat emergency room care.** Chronic health conditions were overrepresented in the PIT Plus population, compared to the PIT Count, but we seem to have made inroads into getting chronic conditions cared for through the primary care system versus emergency rooms.

**What happens after incarceration or treatment?** A majority of respondents were previously incarcerated and most of them became homeless immediately after incarceration. And even though only 30% of respondents had previously been in a residential treatment facility, almost 60% exited that treatment into homelessness.

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## Is the PIT Plus a representative Sample?

As described in the [Methodology](#) section, PIT Plus was a non-random convenience sample of 1,065 unaccompanied individuals from drop-in centers, meal programs, libraries, street outreach networks, shelters, and transitional housing programs who opted to complete the survey. For their time, each participant was compensated with a \$25 gift card. Therefore, PIT Plus results are not generalizable to the District's population of unaccompanied adults experiencing homelessness. However, a comparison of the PIT Plus sample to the PIT population reveals important similarities and differences worth noting:

- **Age:** The PIT Plus population skews slightly younger than the PIT population
- **Gender:** The PIT Plus population is significantly more female than the PIT population
- **Race:** There were no significant differences between the PIT Plus and PIT populations
- **Ethnicity:** The PIT Plus population is slightly more hispanic than the PIT population
- **Sheltered vs. Unsheltered:** There were no differences between the PIT Plus and PIT populations

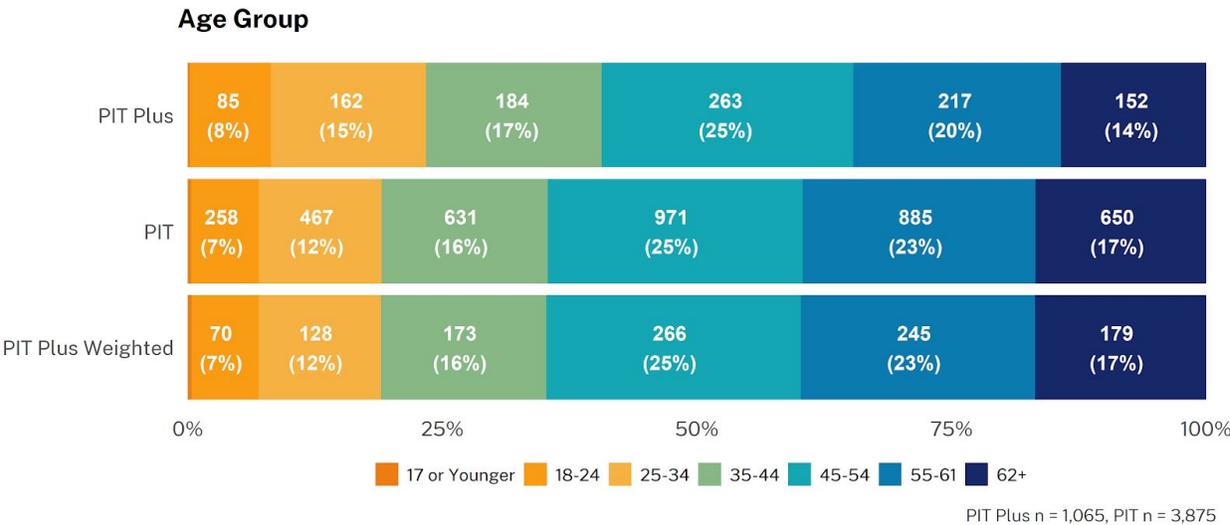
In order to account for the skew brought on by the differences between the PIT Plus survey and the PIT Count, responses were weighted across a number of different demographics, including age, gender, race, and ethnicity. The Demographics section below details these differences and shows the results of the weighting.

# Demographics

Individuals responding to the PIT Plus survey were asked demographic questions, including age, gender, race, ethnicity, and veteran status. These demographics are compared to the general PIT Count for singles to understand how the PIT Plus sample differs from the broader population of individuals experiencing homelessness. The PIT Plus survey responses are then weighted to adjust for the over- and under-representation of demographics, and this weighting is then implemented in the remaining survey responses.

## Age

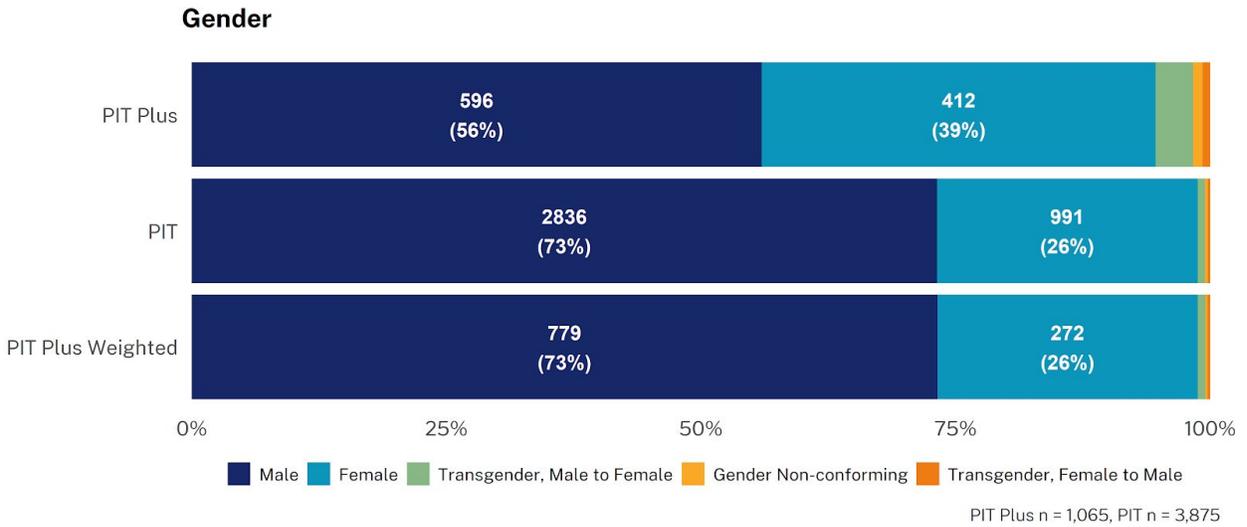
Compared to the PIT Count, the PIT Plus survey skews slightly younger, with more individuals falling in the 18-24 and 25-34 age ranges. Approximately eight percent (8%) of respondents were under the age of 25 at the time of the survey. Thirty-two percent (32%) were between the ages of 25 and 44, 45% were between the ages of 45 and 61, and 14% were 62 years or older.



## Gender

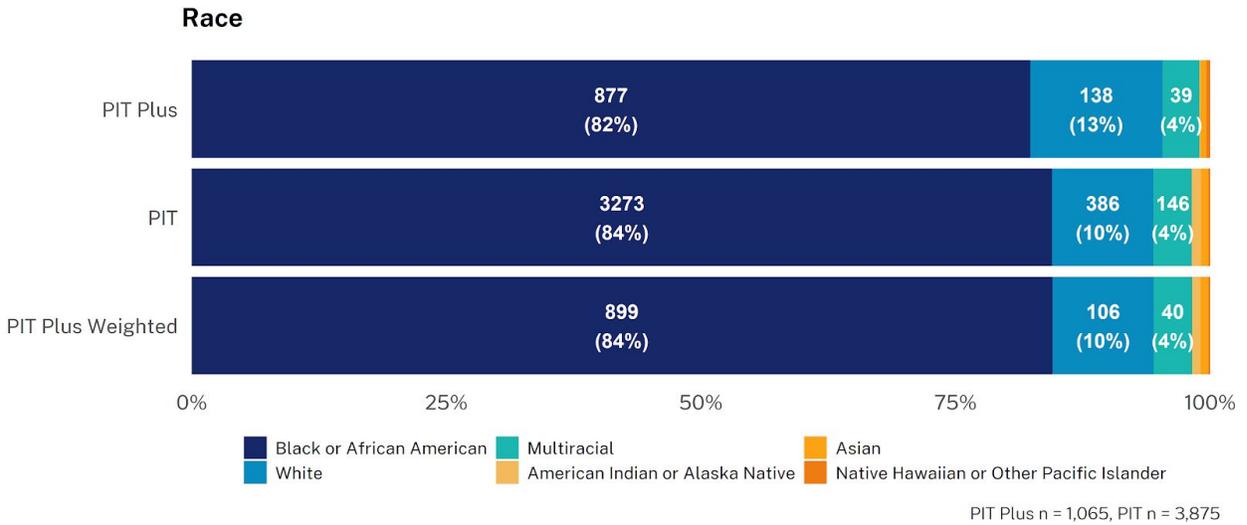
The gender of PIT Plus survey respondents is significantly less male than the PIT Count respondents. While the responses in the PIT Count are 73% male, the responses in the PIT Plus survey are 56% male. More than half of all respondents (56%) identified as male, 39% as female, and 5% as transgender or gender non-conforming. The breakdown of age groups did not significantly differ between males and females.

However, PIT Plus respondents who identified as transgender or gender non-conforming tended to be younger, with 30% between the ages 17 and 25.



### Race and Ethnicity

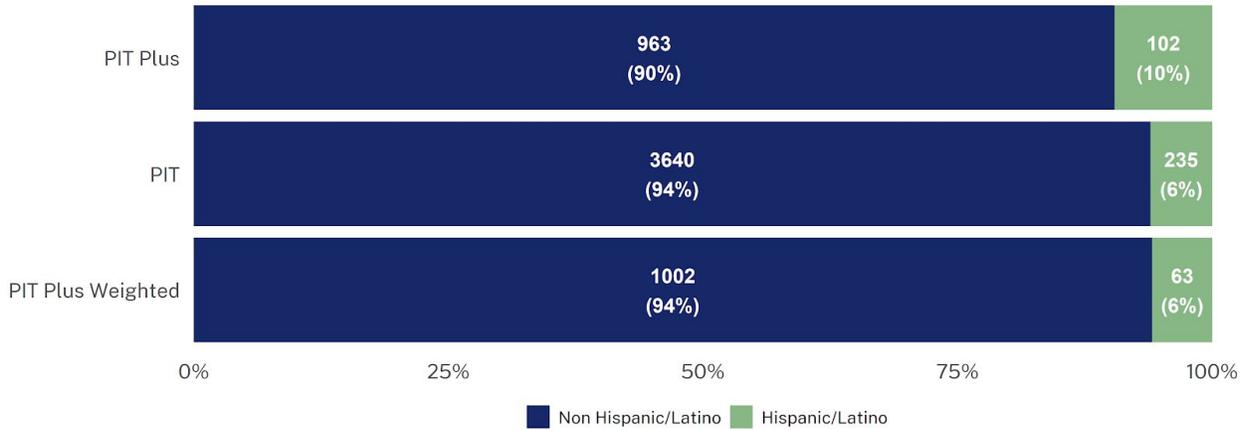
The distribution of racial groups in the PIT Plus is similar to that of the PIT Count. Eighty-three percent (83%) of respondents identified as Black or African American. About one in ten (11.5%) identified as White, 3.7% identified as Multiracial. Other racial groups made up less than 2% of the respondents.



In addition to race, respondents were asked about their ethnicity. Approximately 10% of respondents identify as Hispanic or Latino in the PIT Plus survey. This is somewhat larger than the percentage of those who identified as Hispanic or Latino in the PIT Count (6%).



### Ethnicity



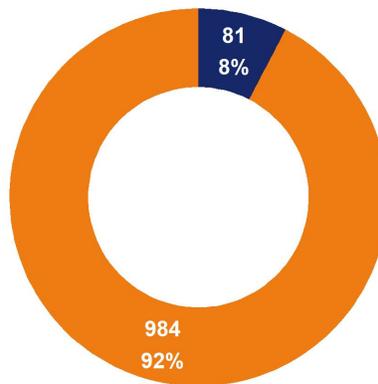
PIT Plus n = 1,065, PIT n = 3,875

### Veteran Status

When asked about whether they served in the Armed Forces or military, 8% of respondents replied that they had a service history.

### Veteran

Have you ever served in the US Armed Forces/Military?



■ Yes ■ No

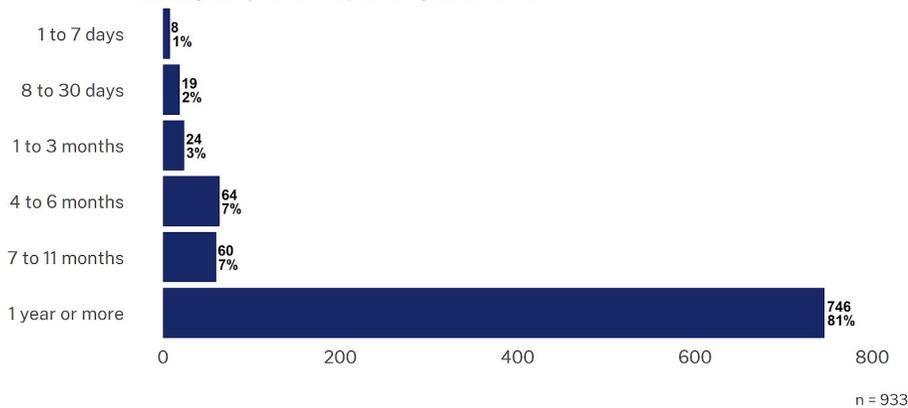
n = 1,065

# Homelessness History

Understanding our clients' history of homelessness can inform how resources are targeted. Those experiencing their first episode may be good candidates for diversion and rapid exit from shelter. Those who have been homeless many times, or for a long time, might need more intensive supports like Permanent Supportive Housing. Among the respondents, just under half (44%) reported this as their first time experiencing homelessness - which may signal a strong opportunity for earlier intervention. Resolving homelessness quickly is especially important because eight out of ten (81%) respondents indicated that their current episode of homelessness lasted beyond one year. If the District can resolve first-timers quickly, we can dramatically improve the system overall.

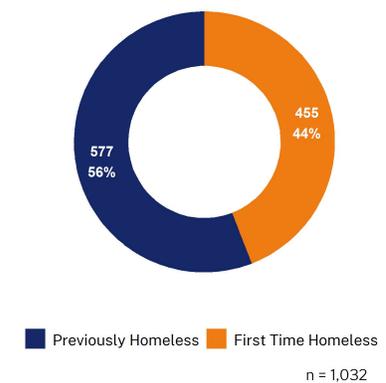
**Length of Current Episode**

'How long have you been experiencing homelessness?'



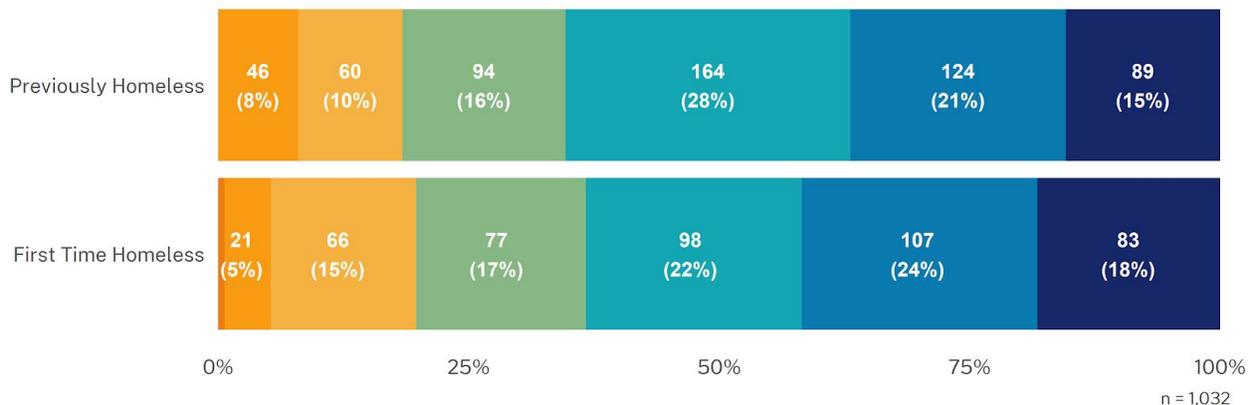
**First Time Homeless**

'Is this your first time experiencing homelessness?'



**First Time Homeless by Age**

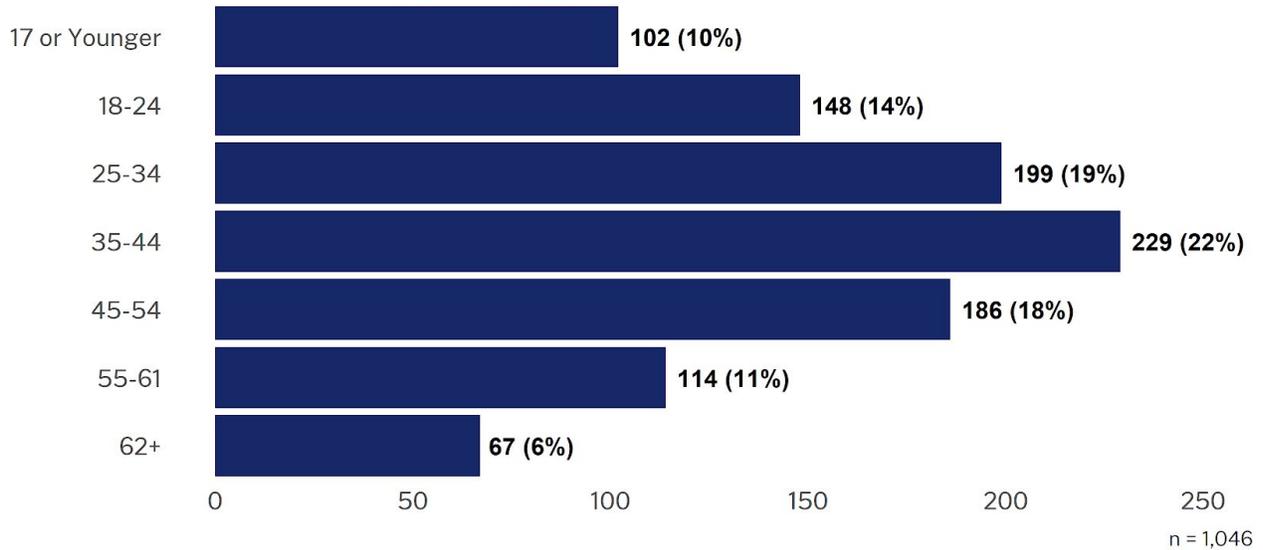
Current Age: 17 or Younger, 18-24, 25-34, 35-44, 45-54, 55-61, 62+



Respondents were also asked how old they were when they first experienced homelessness. In response, approximately 24% of respondents reported they were below the age of 25, 59% reported they were between 25 and 44, 35% reported they were 45 or older.

### Age at First Homeless Episode

'How old were you when you first experienced homelessness'



## Chronic Homelessness

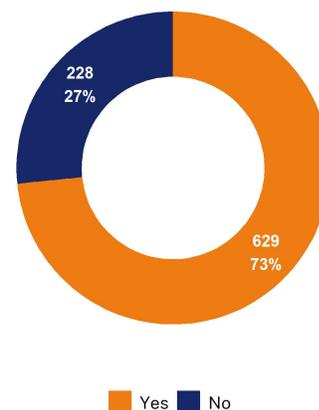
Among the general population of people experiencing homelessness, there exists a category of individuals considered *chronically homeless*. The U.S. Department of Housing and Urban Development (HUD) defines an individual as chronically homeless if they have a diagnosable substance use disorder, serious mental illness, developmental disability, posttraumatic stress disorder, cognitive impairments resulting from a brain injury, or chronic physical illness or disability and either 1) have spent at least one year homeless or 2) have had more than 4 episodes of homelessness in the past three years adding up to a year in total.<sup>1</sup>

In order to understand the extent of chronically homeless individuals in the homeless system, respondents were asked about the number of episodes and total time spent homeless in the past three years. Out of 1,025 individuals, 741 (69%) responded that the combined length of homelessness in HUD-defined time frame was one year or longer, whereas only 284 (28%) responded that they exceeded three episodes of homelessness. Collectively, the distribution of respondents meeting either time-based condition of chronicity was approximately 72%.

Time Homeless	1 to 3 Times	4 or More Times	Total
Less than 1 Year	284	37	321
1 Year or Longer	528	176	704
Total	812	213	1025

When subsetting the above by those with a disabling condition such as a serious mental illness, substance use disorder, or physical disability, 73% of respondents can be classified as chronically homeless.

### Chronically Homeless



n = 857

<sup>1</sup>Homeless Emergency Assistance and Rapid Transition to Housing: Defining “Chronically Homeless”, 80 Fed. Reg. 233 (December 4, 2015). *Federal Register: The Daily Journal of the United States*.

## Location and Residency

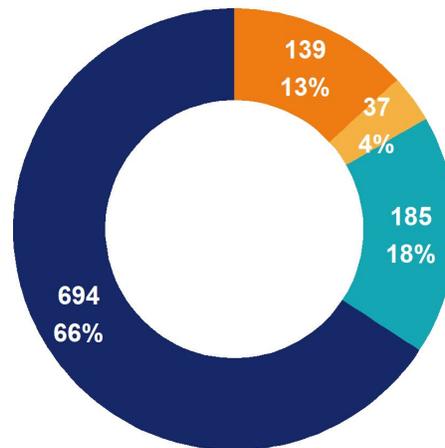
An essential component in understanding the dynamics of the homeless system is the migration of individuals experiencing homelessness into the jurisdiction. Individuals move to the D.C.-Maryland-Virginia region from other states and frequently commute between regional jurisdictions for a number of different reasons, including social and familial ties, shelter and housing availability, economic opportunity.

### Residency

To understand how local the homeless population is to the region, respondents were asked where they last resided prior to experiencing homelessness. Two-thirds (66%) responded that they lived in D.C. prior to the start of their homelessness. About 22% of respondents answered that they lived either in Maryland or Virginia.

### Prior Residency

Where was the last home/apartment where you lived before you started experiencing homelessness?

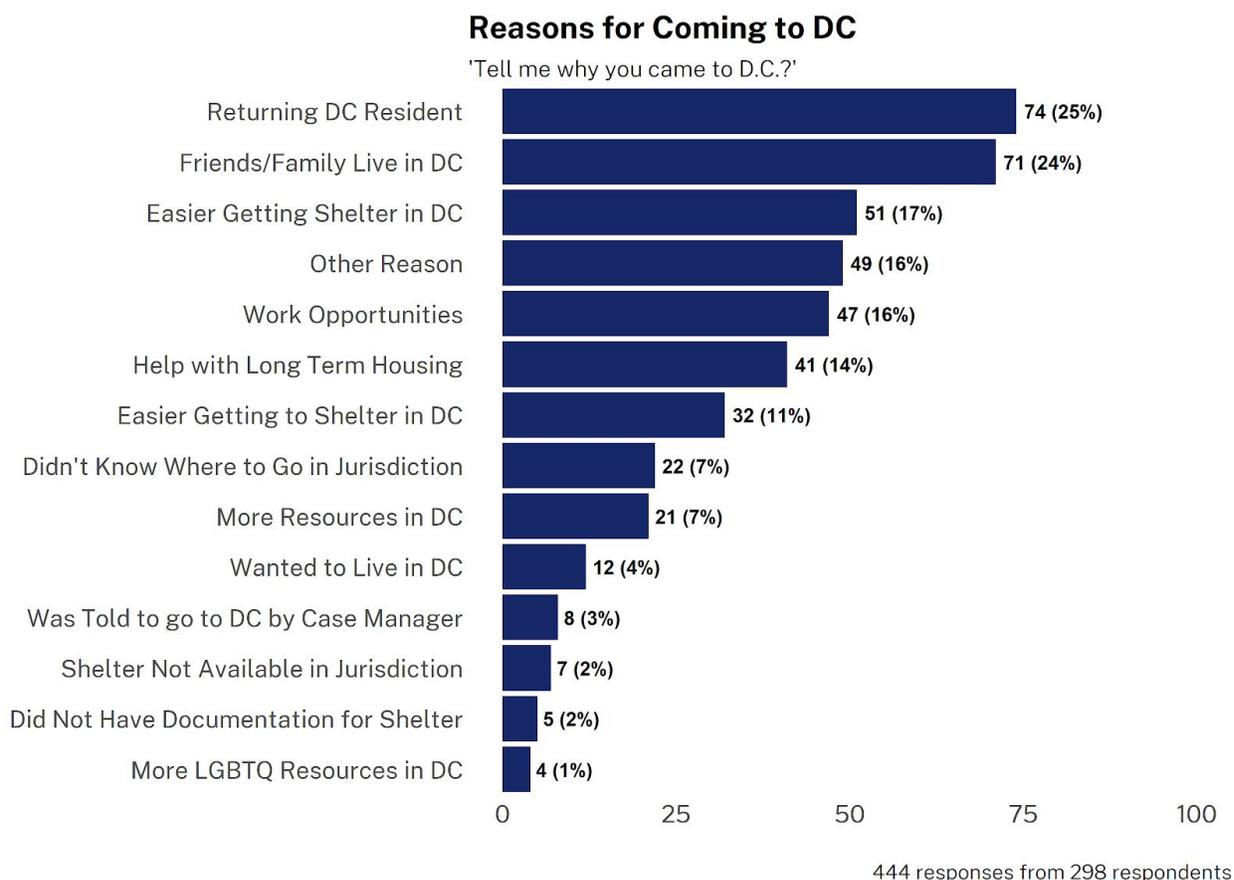


■ D.C. ■ Maryland ■ Virginia ■ Other

n = 1,054

The reasons individuals move to the District may indicate gaps in the system of care, and reveal regional opportunities for systemic improvement and homeless prevention.

When asked about the reason(s) for coming to D.C., one-fourth (25%) answered that they were previously D.C. residents returning to the jurisdiction, 24% said that they came to D.C. join friends or family who already resided in the District, and 17% responded that it is easier to get shelter in D.C. Searching for work opportunities (16%) and receiving help getting long term housing (14%) were also frequent responses.



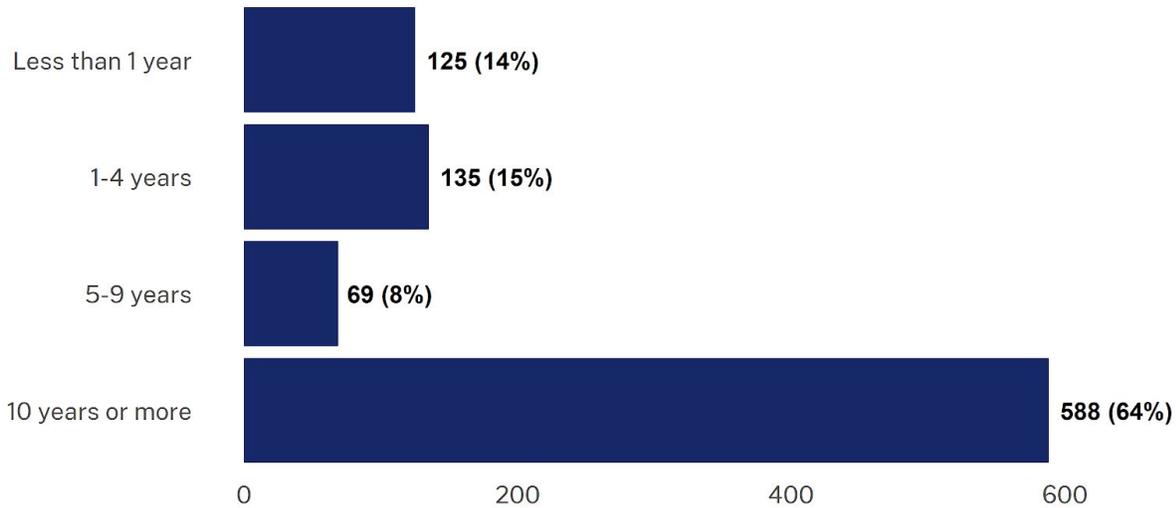
Knowing the length of time individuals have spent in D.C. is consequential in measuring the transience of homelessness. It is reasonable to assume that respondents who have spent a relatively short amount of time in D.C. have a substantial overlap with individuals who regularly move between jurisdictions.

As such, respondents were asked about the length of their residency in D.C. The majority (64%) of respondents reported staying in D.C. 10 years or more. Fifteen percent (14%) of respondents answered that they have been staying in D.C. less than 1 year.



### Length of D.C. Residency

'How long have you been staying in D.C.?'

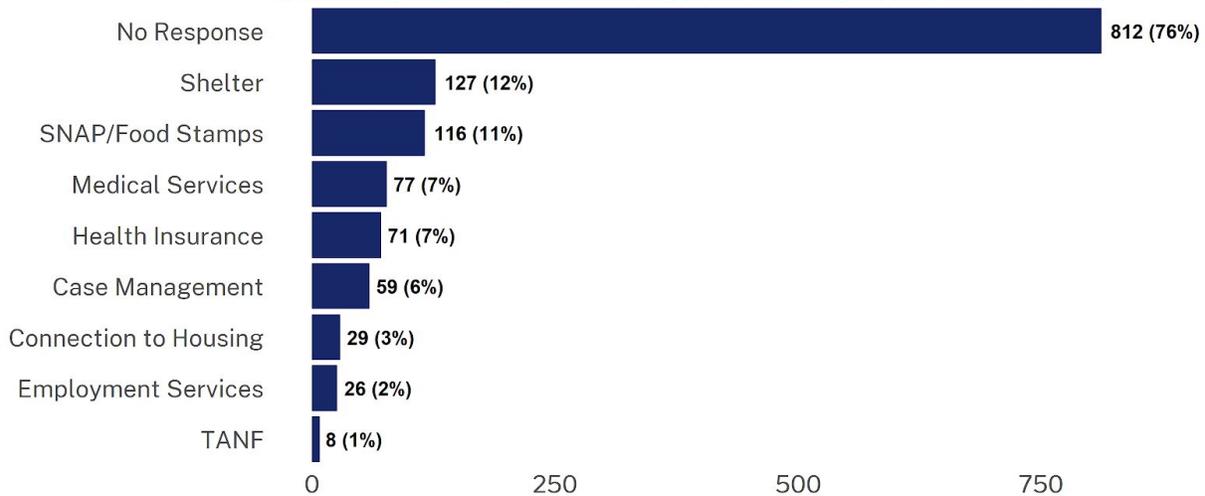


n = 917

For many individuals, the concept of residency is not as simple as asking where you live or previously lived. People often live and work in jurisdictions that they do not consider “home.” So the PIT Plus also asked whether respondents received benefits in another jurisdiction. Most respondents (76%) reported not receiving services or benefits outside D.C. For those who have received services/benefits outside D.C., SNAP/Food Stamps (11%) or Shelter (12%) were the most frequent services/benefits received.

### Services or Benefits Received outside DC

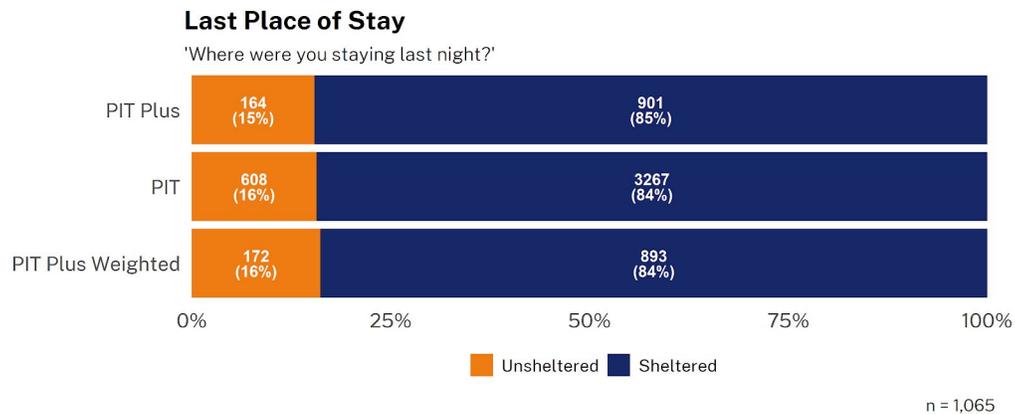
'In the past year, have you received any of the following services outside of D.C.?'



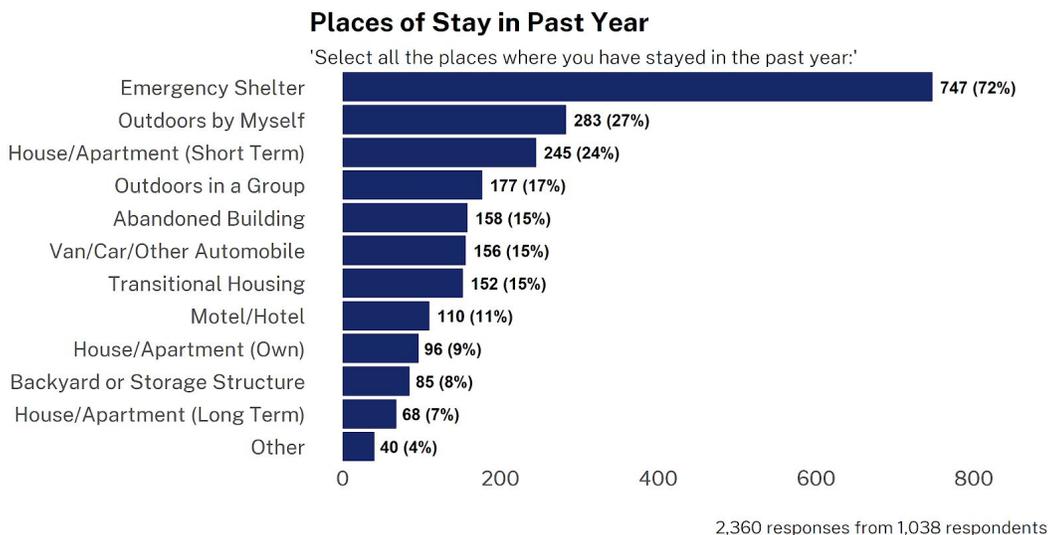
1,325 responses from 1,065 respondents

## Accommodations and Shelter Usage

As a *right to shelter* jurisdiction, the District is continuously improving our service-delivery system to make shelter a better choice than sleeping on the streets or other locations unfit for human habitation.<sup>2</sup> So PIT Plus asked information on nighttime accommodations, shelter usage patterns, and daytime service engagement to learn more about opportunities to improve the system.

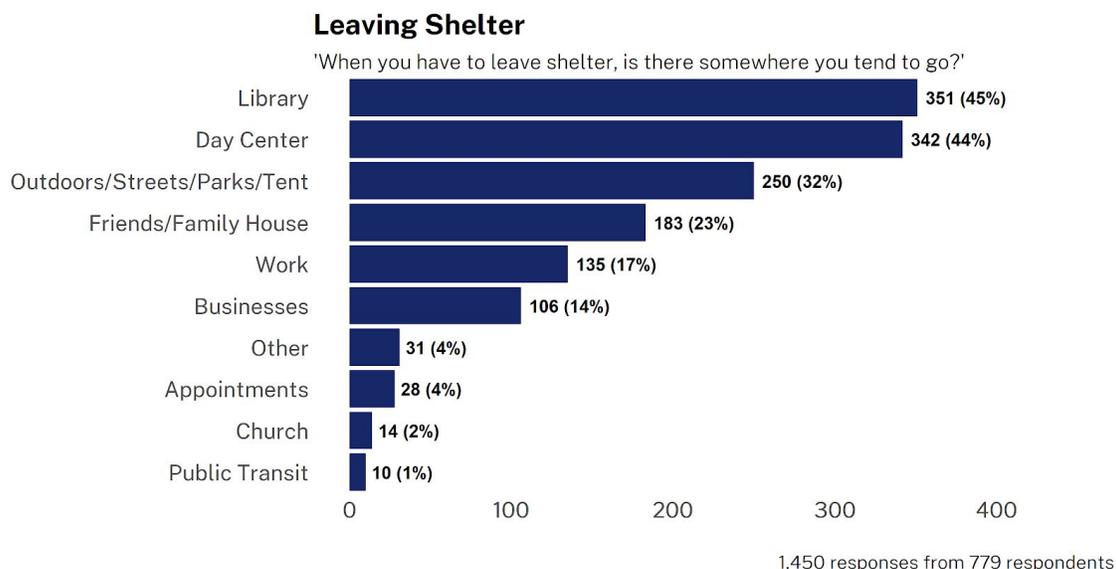


Respondents were asked to list all of the various places they have stayed in the past year. Almost one-fourth (72%) of respondents answered that they have stayed in an emergency shelter. There were also individuals who reported they stayed outdoors alone (27%), in a house/apartment temporarily (24%), outdoors in a group (17%), in abandoned buildings (15%), in a van/car/other automobile (15%), transitional housing (15%), motel/hotel (11%), house/apartment (own) (9%), backyard or storage structure (8%), house/apartment (long term) (7%), or other (4%).

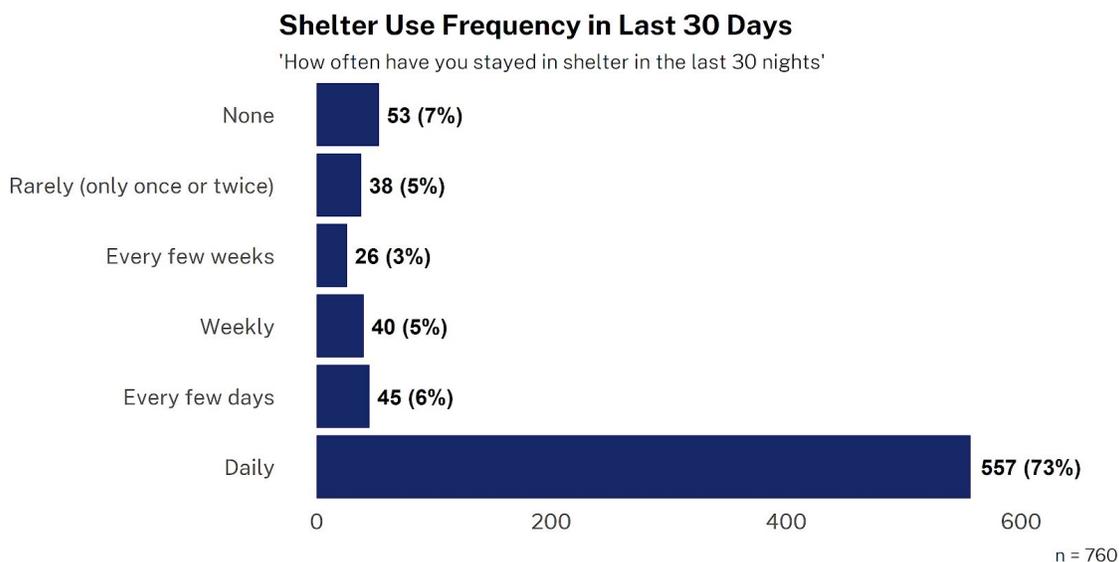


<sup>2</sup> In compliance with the Homeless Services Reform Act (HSRA), the District of Columbia is one of just three jurisdictions in the country that provides a legal right to shelter for individuals during hypothermic weather conditions. For planning purposes, it is anticipated that the period between November 1st and March 31st each year is considered “hypothermia season,” but weather conditions dictate the right to shelter, not the calendar. See [D.C. Code § 4-753.02\(a\)\(2\)](#).

For those who reported to have stayed in shelter, almost half (45%) reported going to a library when they leave shelter. Respondents also reported going to a day center almost as often (44%).



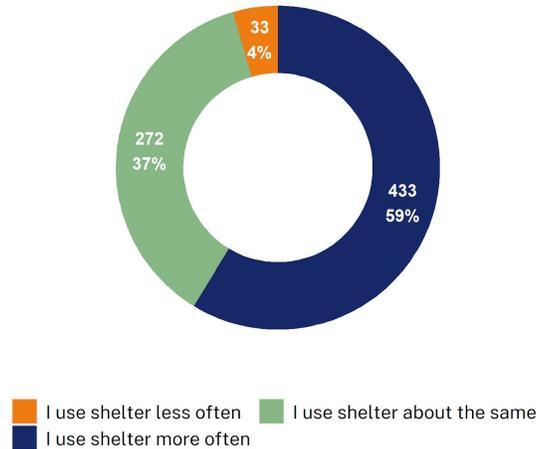
Survey respondents were further asked about the frequency of their shelter use in the last 30 days. About 73% of respondents reported staying in shelter daily, while only seven percent (7%) reported not using shelter.



Among those who use shelter, about 59% reported using shelter more often with extreme or severe weather conditions. Thirty eight percent (37%) answered that they use shelter about the same regardless of severe weather conditions. A small number of respondents (4%) answered that they use shelter less often.

## Shelter Use During Extreme Weather

'How does your shelter usage vary with extreme/severe weather conditions?'

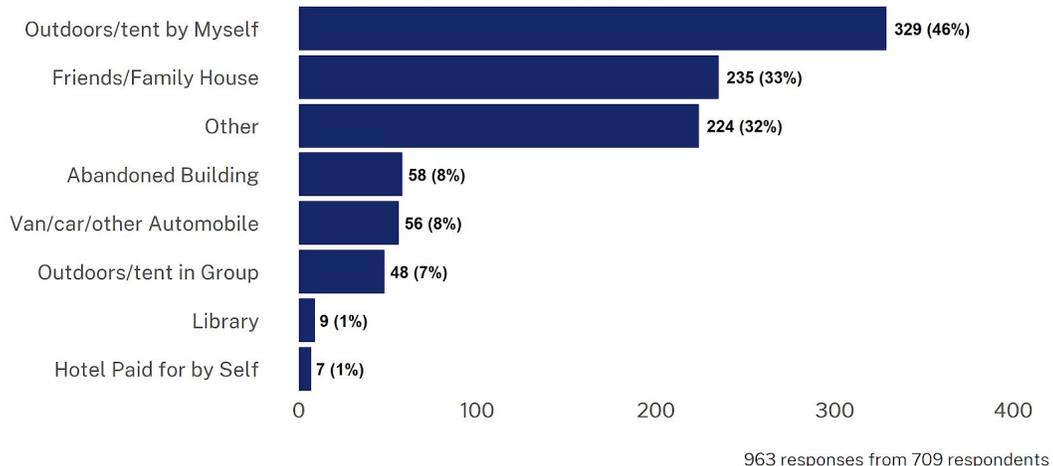


n = 738

There are also circumstances in which individuals may not receive shelter or choose not to use shelter services. Those who reported using shelter were asked to list their nighttime accommodations when shelter beds were not available. About 46% of respondents reported staying outdoors or in a tent by themselves and 33% answered that they stay at a friends or family house. Less common responses included car or other automobile (8%), abandoned building (8%), and outdoors tent in group (7%).

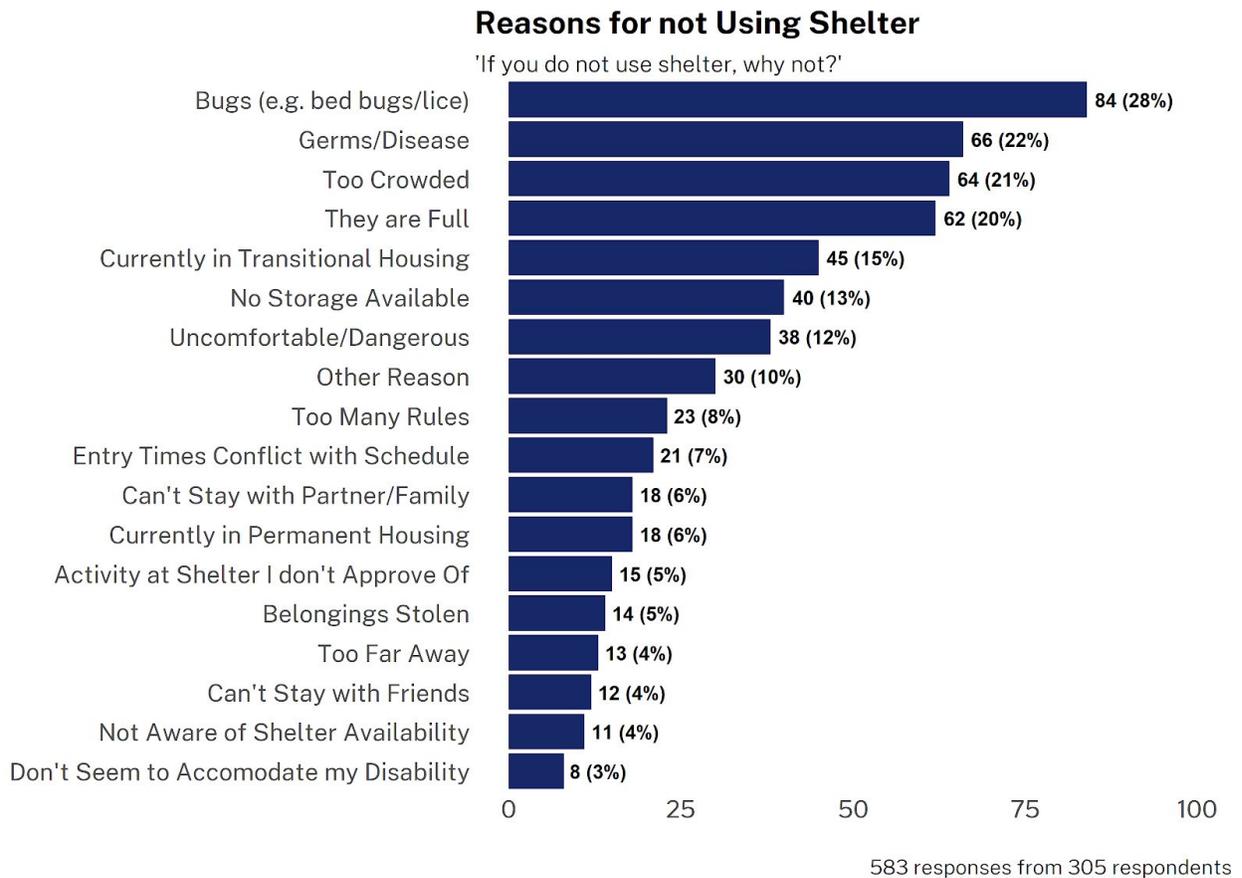
## Shelter Alternatives

'Where do you stay if shelter is not an option?'



While D.C. has a right to shelter for individuals during extreme weather, some choose not to use shelter beds. Survey respondents who reported to have not used shelter in the past year were asked to list the reasons why they did not use shelter.

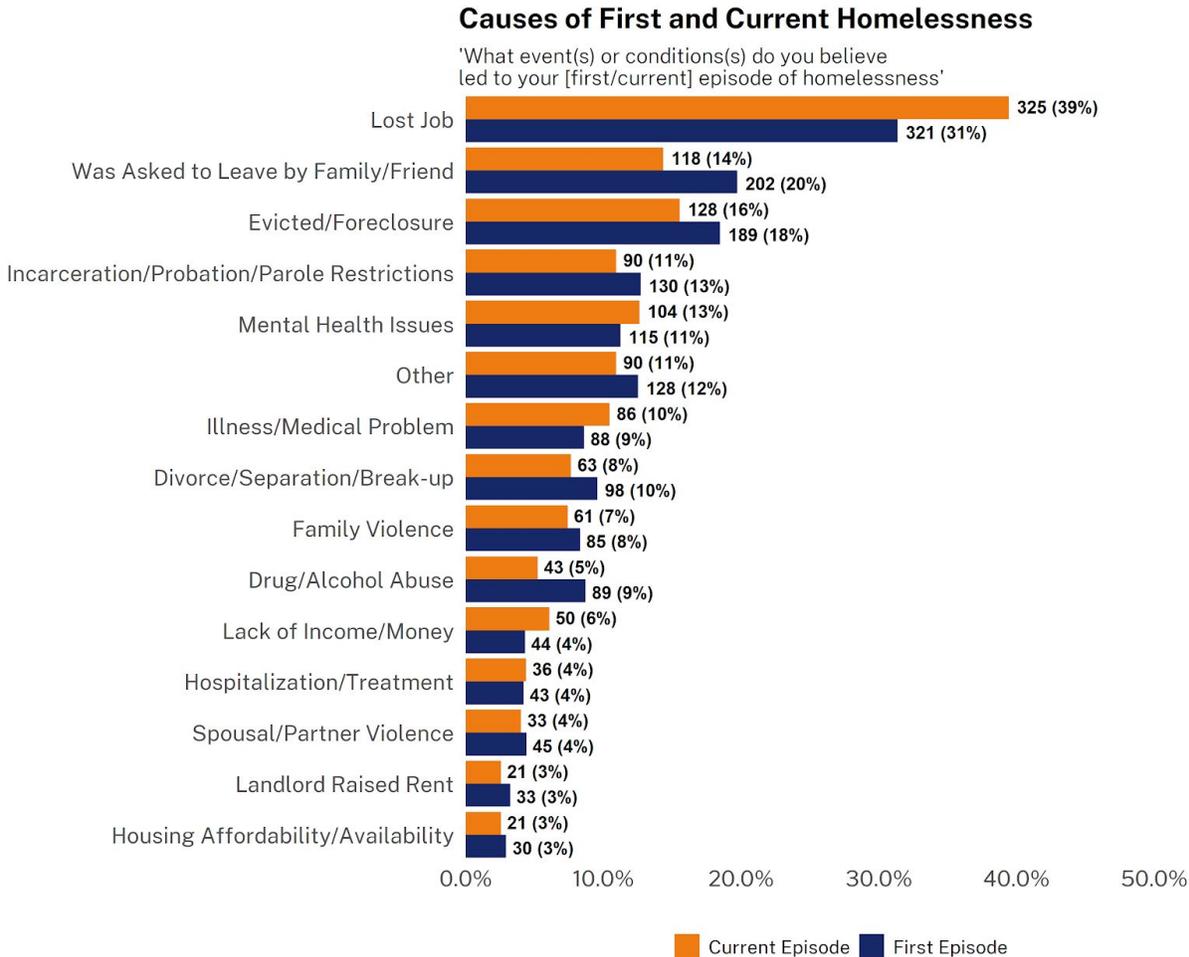
Twenty-eight percent (28%) of respondents reported avoiding shelter because of bed bugs or lice. Other reasons reported for not using shelter include: germs or disease (22%), shelters are too crowded (21%), and shelters are full (21%).



# Causes and Prevention

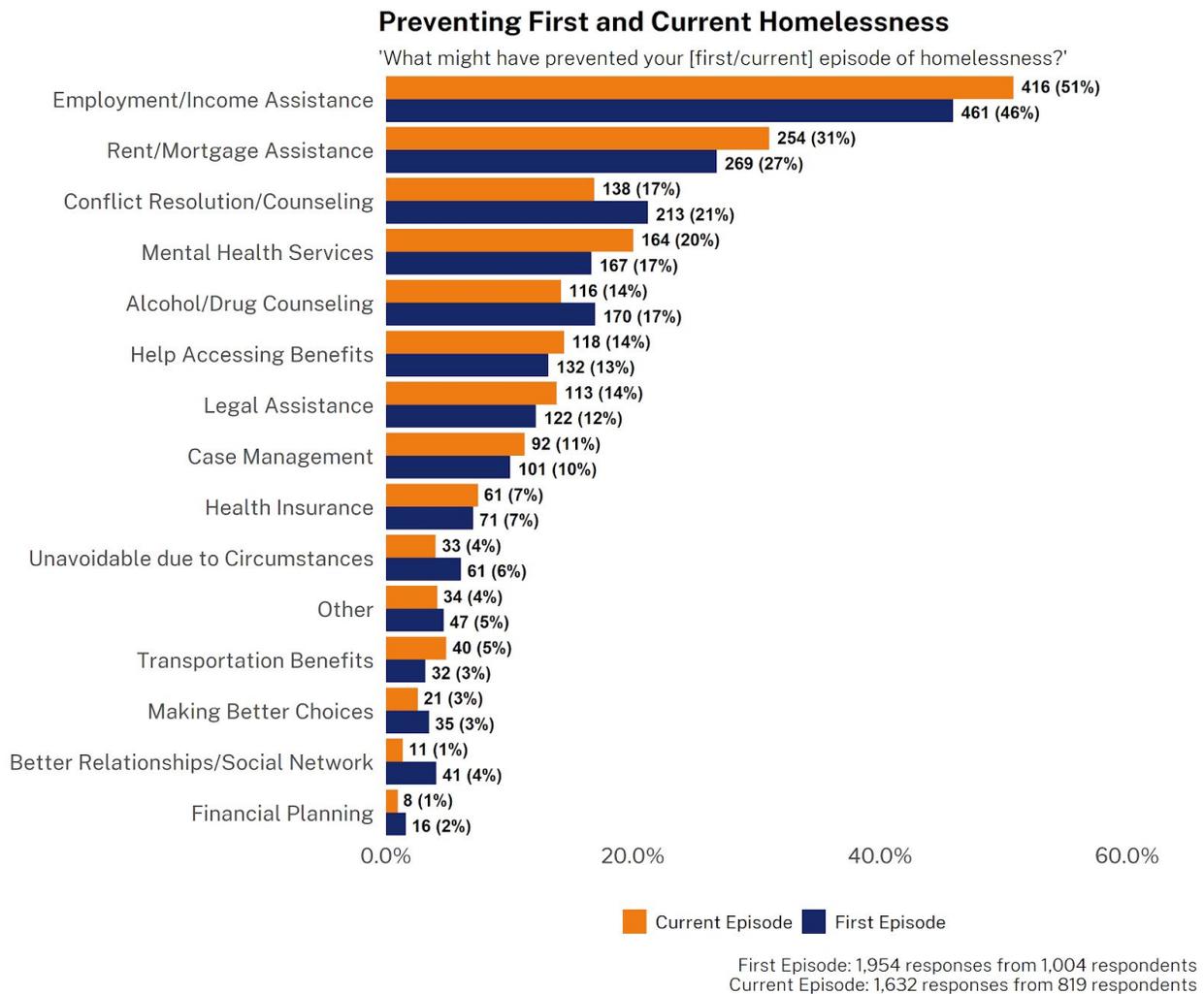
The primary barrier to stable housing is difficult to identify. Often, there are combinations of socioeconomic, systematic, or wellness-related issues that lead individuals to experiencing — or returning to — homelessness. To better understand the extent of these factors and how they change over time, survey respondents were asked to identify these causes, both in their current episode and in their first episode of homelessness.

Factors related to employment were the most prevalent responses across both the first and current causes of homelessness, making up 39% and 31% of responses, respectively. Respondents being asked to leave home or being evicted were significantly more common causes for first episodes of homelessness than for the current episode of homelessness.



First Episode: 1,720 responses from 1,024 respondents  
 Current Episode: 1,282 responses from 824 respondents

As a follow up to the causes of their homelessness, respondents were asked to identify potential interventions that may have prevented homelessness in the first place. A plurality of respondents answered that employment or income assistance may have prevented either their first or current episode of homelessness (51% and 46%, respectively). A greater percentage of respondents answered that conflict resolution or counseling may have prevented their first homeless episode (21%) than their current homeless (17%). Similarly, 17% responded that drug and alcohol counseling may have prevented their first episode of homelessness, while 14% responded it may have prevented their current episode of homelessness.

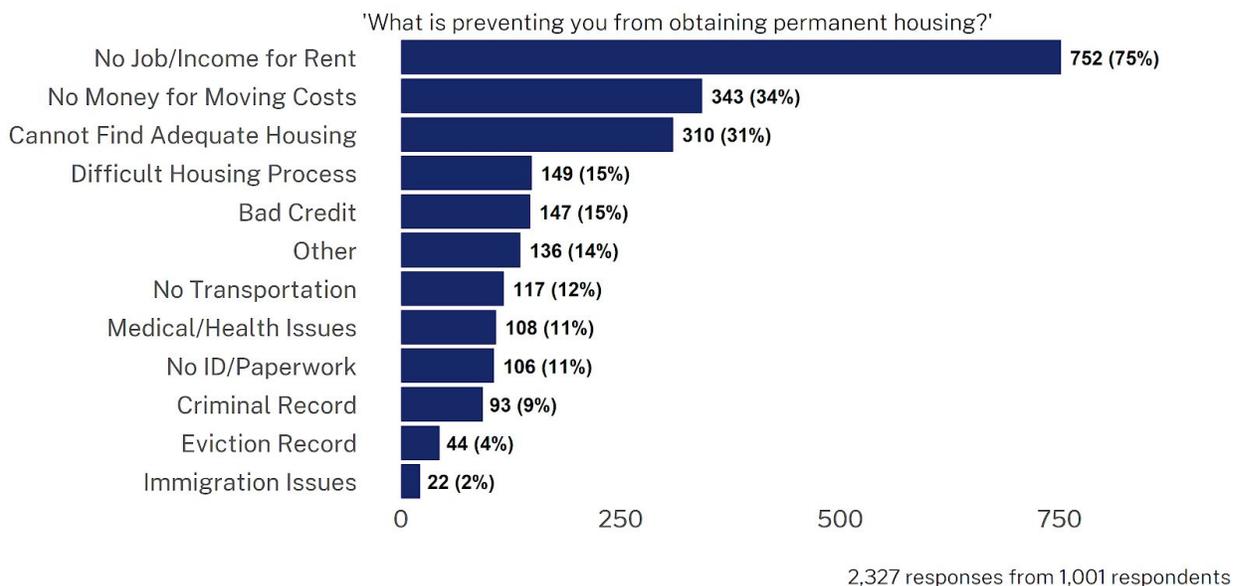


Finally, respondents were asked to identify barriers to their achieving permanent housing and potential remedies that would help them obtain permanent housing. Respondents indicated that economic factors were the greatest barriers to obtaining permanent housing, with 75% citing lack of employment and income and 34% citing lack of money for relocation as the most prominent

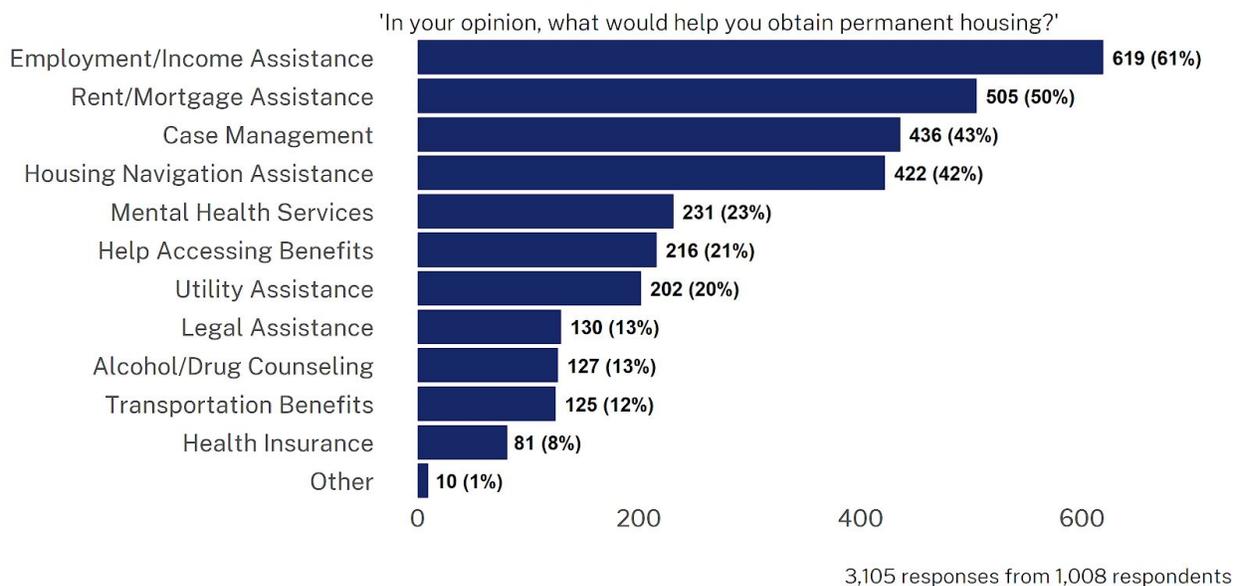
factors. Individuals also responded that employment/income assistance and rent/mortgage assistance would help obtain permanent housing (62% and 50%, respectively).

Respondents identified not being able to find adequate housing (31%), a difficult housing process (15%), and having inadequate credit (15%) as additional barriers to permanent housing. Among non-monetary assistance, respondents identified case management (43%) and housing navigation assistance (42%) as resources that would help them obtain permanent housing.

### Barriers to Permanent Housing



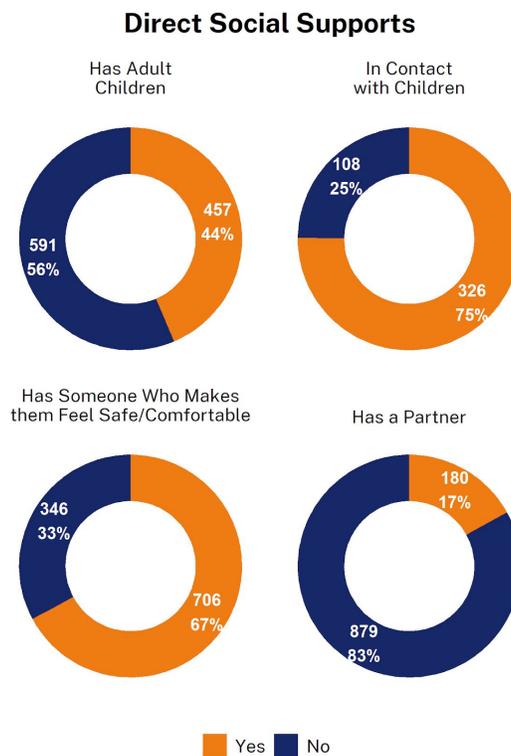
### Help Obtaining Permanent Housing



## Social Networks

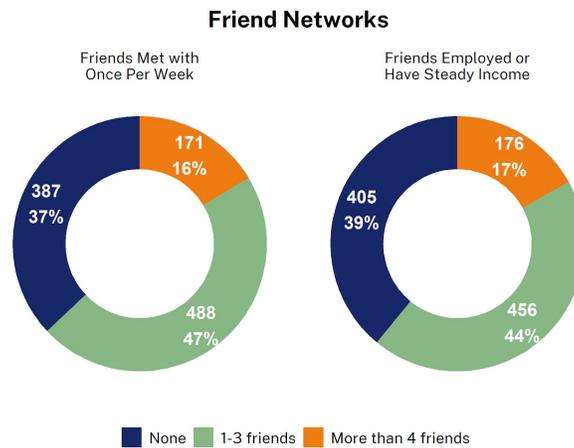
The perception about unaccompanied individuals experiencing homelessness is that they are frequently isolated, disconnected from supportive organizations or individuals. Questions about social networks were included in PIT Plus to investigate the structure and composition of their social networks in regard to short- and long-term homelessness. Response patterns on these questions would help to further examine mechanisms for accessing their social support networks.

Respondents were asked about their direct social support structure, including whether or not they have children, and are in direct contact with them. Additionally, respondents were asked about whether or not they have someone that makes them feel safe or comfortable, and whether they have a partner. About 44% of the homeless singles answered that they have adult children. Three-fourths (75%) of those who have adult children, reported they are in contact with them. About 67% of homeless singles answered that they have someone who makes them feel safe or comfortable. Only 17% reported that they have a partner.

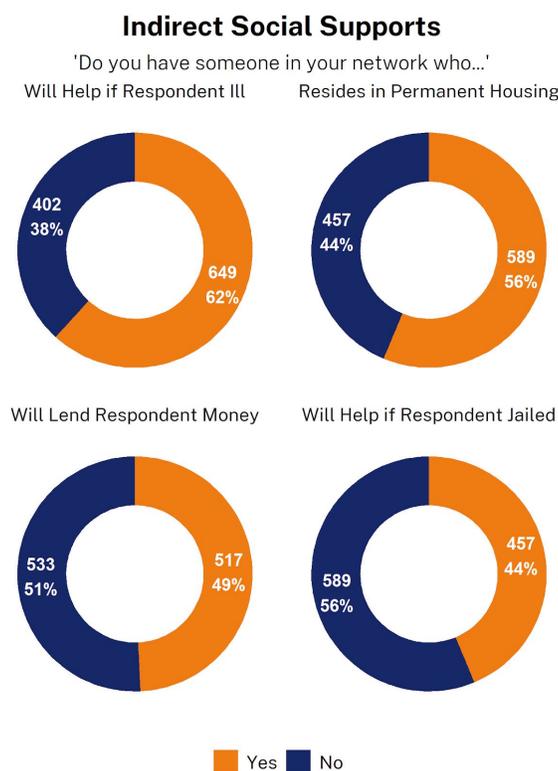


Respondents were also asked about the characteristics of their friend networks. Forty-seven percent (47%) reported that they have between one and three friends that they meet with regularly, 37% reported having no friends, and 16% said they have more than four friends. For those with friends, 44% reported having between one and three friends who are currently

employed or have a steady income. Seventeen percent (17%) reporting having more than four friends with jobs and/or steady incomes, and the remaining 39% answered that their friends have no job or a steady income.



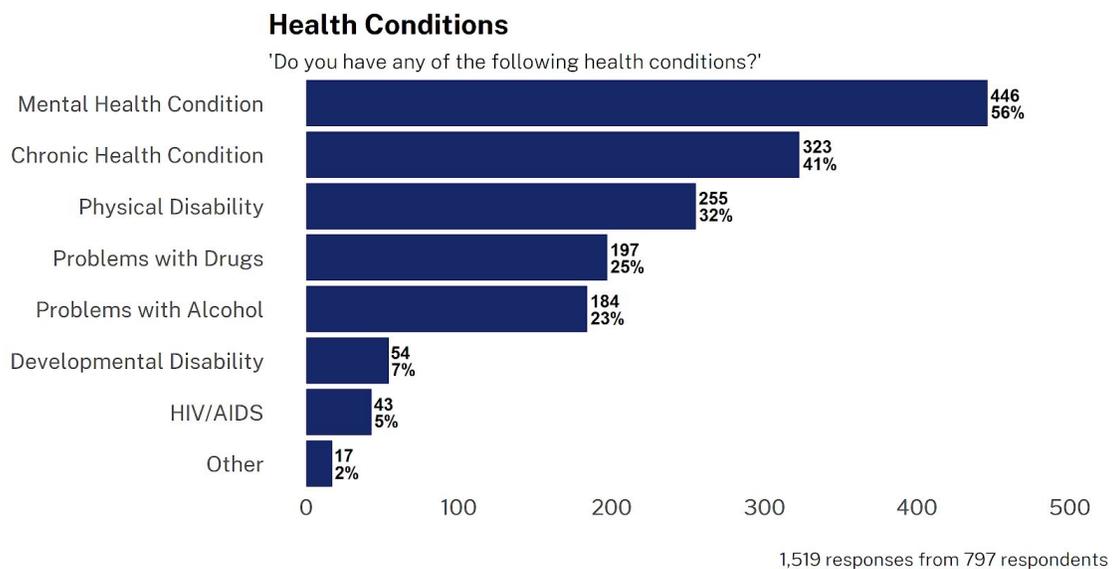
The PIT Plus also asked if respondents have someone in network when they are in need of help. 62% of respondents have someone in their social network who can help if they are ill, 56% know someone who resides in permanent housing, and almost half (49%) have someone who will loan them money. However, the majority of respondents (56%) did not have someone who could bail them out of jail.



## Health

Homelessness has a negative effect on mortality, physical health, mental well-being, and substance use. Individuals facing homelessness also experience preventable and chronic illnesses at greater rates. Understanding the extent to which individuals have adverse health conditions and the manner in which they receive medical care gives insight into how vulnerable individuals are.

Respondents answered most frequently that they experienced mental health conditions (56%) and chronic health conditions (41%). Less frequent responses included physical disability (32%), problems with drugs (25%), and problems with alcohol (23%).

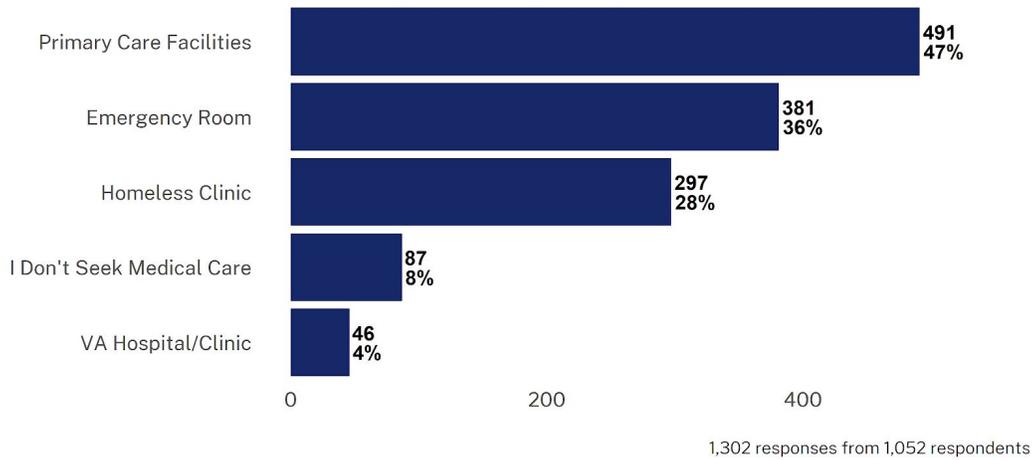


When asked about where they go to receive medical care, a plurality of respondents (43%) answered using primary care facilities. Less frequent responses included the emergency room (38%), homeless clinic (28%) and veterans medical center (6%). Only 8% stated that they did not seek medical care.



### Medical Care Provider

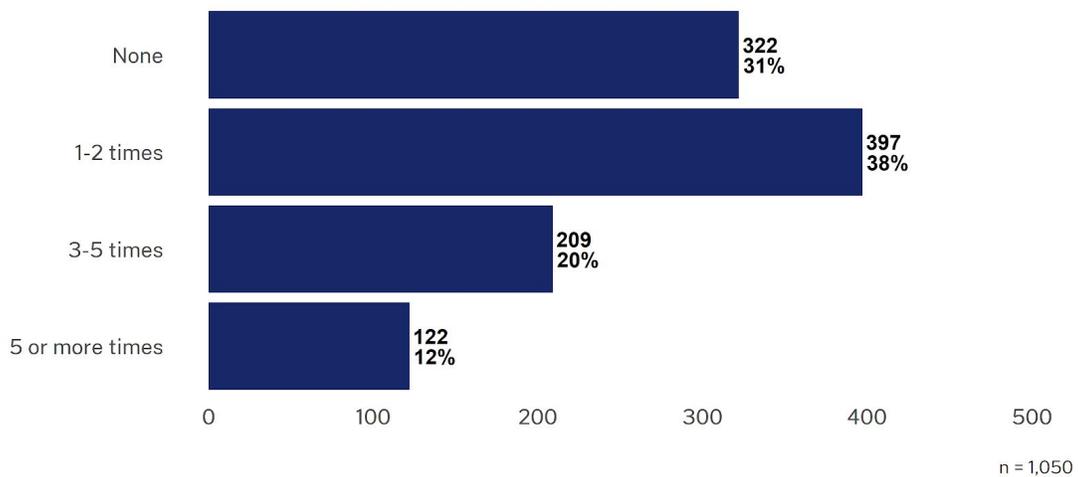
'Where do you usually go for medical care?'



Thirty-seven percent (37%) of respondents reported seeing a medical provider one or two times in the last three months. Thirty-one percent (31%) of respondents sought care more frequently, while 30% sought care less frequently.

### Medical Provider Vists in Last 3 Months

'How many times have you seen a medical provider in the last 3 months?'

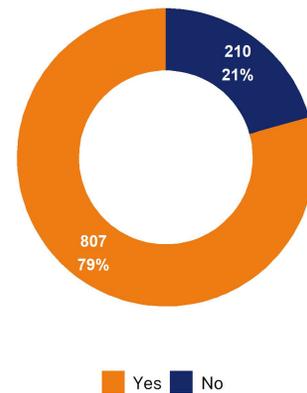


## System Involvement

Through both federally and locally funded programs, the District of Columbia provides services to those experiencing homelessness, enabling them to obtain income and support. However, many eligible individuals often do not apply for these programs or do not believe that they qualify for assistance. Understanding the usage patterns between homeless services and supporting programs may identify opportunities for collaboration.

Survey respondents were asked about whether they receive any government benefits. More than three-fourths (79%) responded that they did receive benefits. Respondents were further asked about the types of benefits they received. Three-fourths (75%) answered that they received medicare, medicaid, or other health insurance benefits. Forty-one percent (41%) responded saying they were receiving social security or disability benefits. Respondents also indicated receiving public assistance or Supplemental Nutrition Assistance Program (SNAP) (35%), and employment benefits (21%).

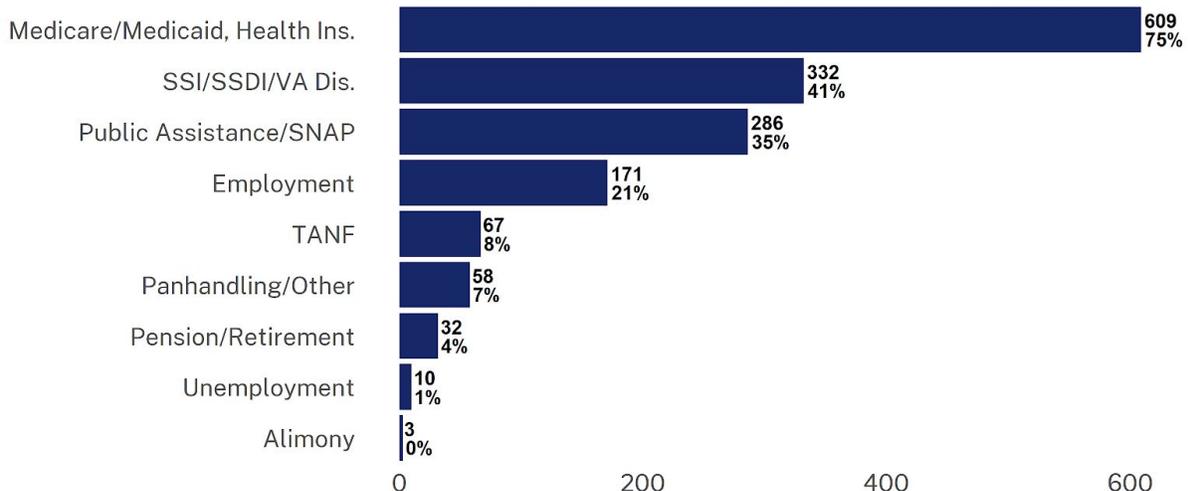
**Benefits**  
'Do you receive government benefits?'



n = 1,017

### Benefits Type

'Do you currently receive income/benefits from any of the following?'



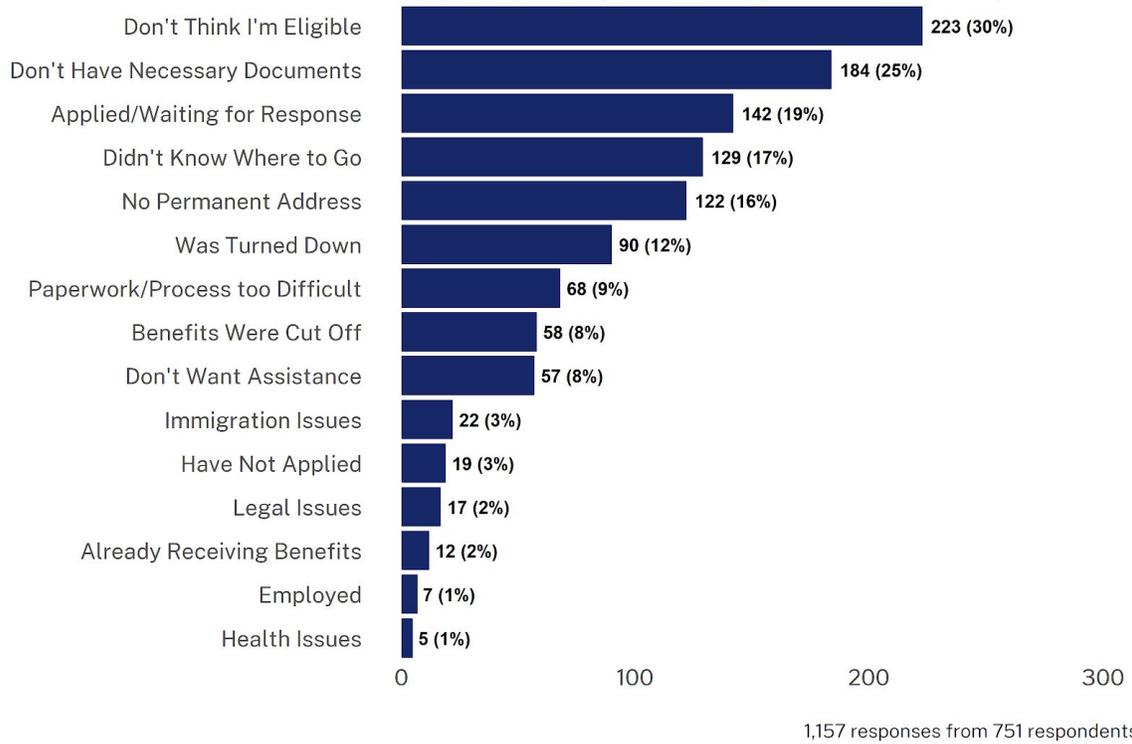
1,568 responses from 816 respondents

When asked about what might have prevented them from receiving benefits at any point, 30% of respondents answered that they did not think they were eligible to receive benefits. Twenty-five percent (25%) answered that they did not have the necessary documents, 19% had applied and

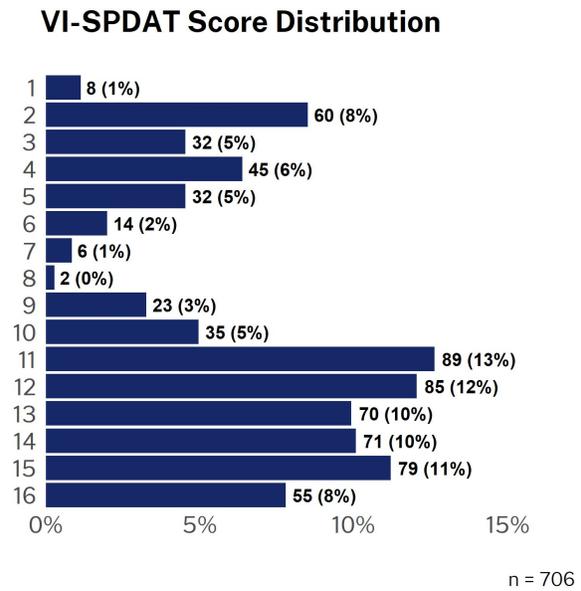
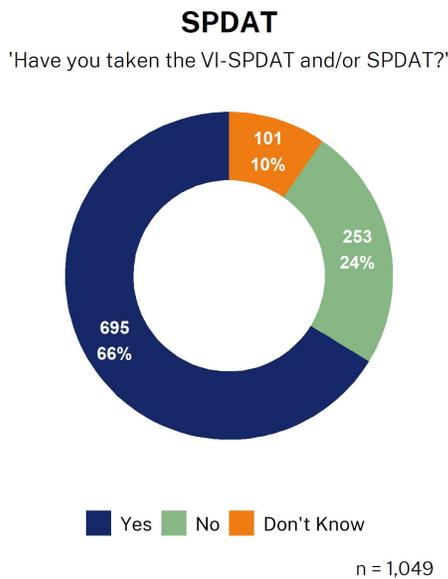
were waiting for a response, 17% did not know where to go to apply for benefits, and 16% did not have a permanent address.

### Barriers to Government Assistance

'What might have prevented you from receiving government assistance at any time?'



In order for individuals to receive supportive housing, they must first have taken the Vulnerability Index - Service Prioritization Decision Assistance Tool (VI-SPDAT) assessment. When asked whether they have taken the SPDAT assessment, two-thirds (66%) of respondents responded positively. Almost one-fourth (24%) answered that they had not taken the SPDAT, while 10% answered that they did not know if they had.

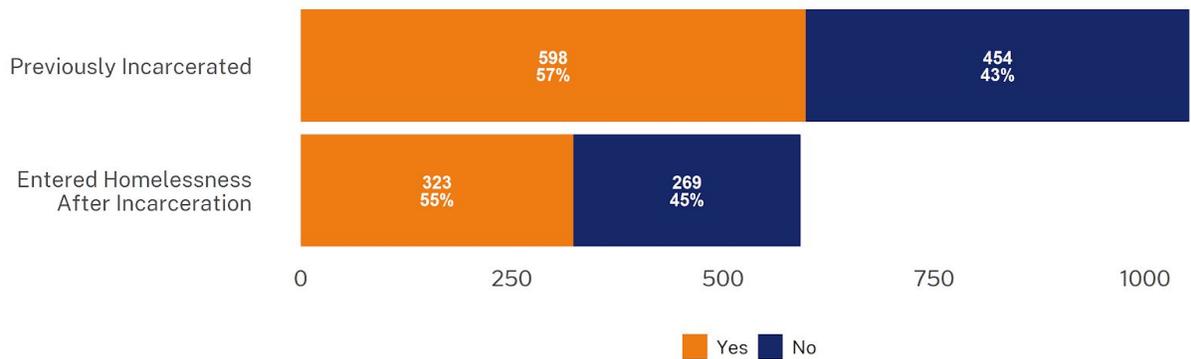


## Additional Systems

Homelessness, incarceration, and rehabilitation are highly interrelated. Individuals experiencing homelessness may be more likely to experience substance abuse, which is often associated with involvement in the criminal justice system. Mental illness tends to be more prevalent among this population, and has been associated with increased risk of involvement with the criminal justice system. Individuals exiting treatment, the juvenile justice system, the child welfare system, or incarceration may also face significant barriers to stable housing.

Respondents were asked whether they were ever incarcerated in jail or prison. The majority (57%) answered that they had, and of those that had been previously incarcerated, 55% experienced homelessness following their release.

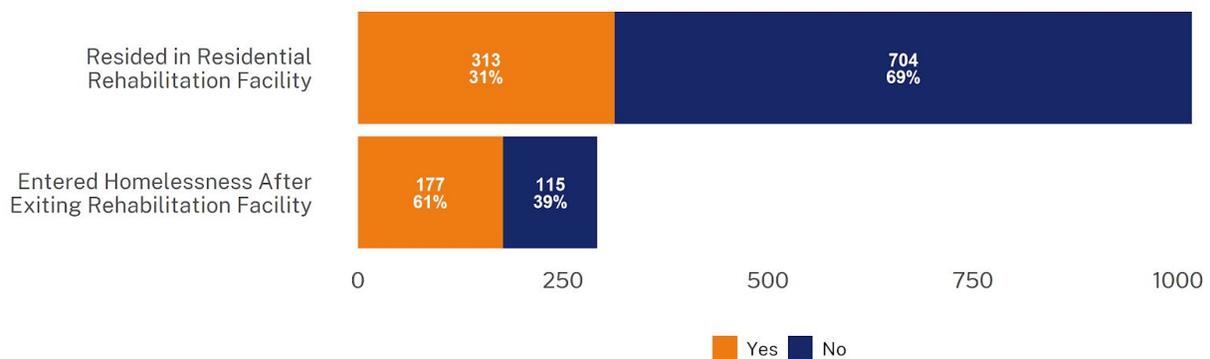
### Incarceration and Homelessness



n = 1,052

Thirty-one percent (31%) of respondents answered that they had resided in a rehabilitation or treatment facility, with 61% experiencing homelessness immediately after exiting.

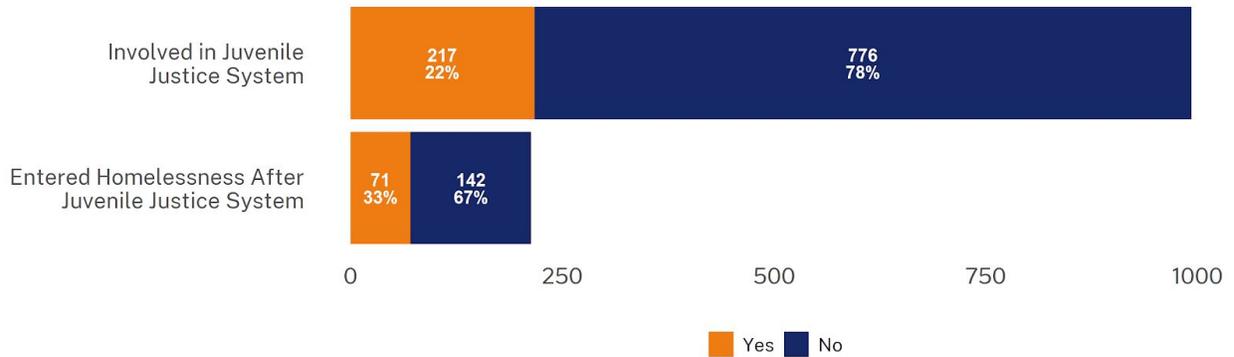
### Rehabilitation/Treatment Facility



n = 1,017

Respondents were also asked about previous involvement in the juvenile justice and child welfare systems. About one in five (22%) responded that they were incarcerated or involved with the juvenile justice system, with 33% experiencing homelessness after exiting. Fifteen percent (15%) responded that they had been involved in the child welfare system, with 38% experiencing homelessness after exiting.

### Juvenile Justice System



n = 993

### Child Welfare System Involvement



n = 1,057

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## Conclusion

The 2019 PIT Plus survey sought to gain a more comprehensive understanding of homelessness from a systematic perspective. While the PIT Count gathers many key indicators and identifies subpopulations experiencing homelessness, there are many aspects of homelessness not broached by the traditional PIT Count census of homelessness in D.C. The PIT Plus survey asked individuals about the nature of their homeless experience, their health and wellness, their existing social supports, the causes of - and potential interventions - to their homelessness, and their involvement with systems outside of homeless services. Patterns of system usage, transience of homelessness, and proposed homeless prevention interventions identified in this analysis present opportunities for allocating services and resources accordingly.

The analysis detailed here is a step into expanding the knowledge of homelessness in D.C. The data collected through the PIT Plus survey tool needs to be further explored in subsequent analyses. Once completed, the analysis from this survey data can help educate the public, service providers, and policymakers on how to best serve the homeless population and help ensure that homelessness is a rare, brief, and non-recurring.

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## Methodology

### **When was it administered?**

The traditional PIT survey is limiting in that it must be conducted on a single night, with goal of counting every person experiencing homelessness. For PIT Plus, service providers and volunteers surveyed individuals over the course of 10 days -- January 22nd through 31st -- with the goal of surveying as many people with histories of homelessness as possible during that time period.

### **Who were surveyed?**

PIT Plus surveys were limited to single individuals because much of the information is collected in this survey for families is done so separately at a centralized family site at time of intake, but there are no similar mechanisms to get information for unaccompanied individuals.

### **Where was it administered?**

To ensure that there was adequate representation among unaccompanied people who are currently experiencing homelessness regardless of whether or not they regularly enter shelter, surveyors primarily targeted day or drop-in centers, meal programs, and libraries. However, outreach, shelter, and transitional housing programs also participated along with their typical PIT survey work.

### **How was it administered? What was supplied as compensation?**

Surveyors met one on one with participants completing the PIT Plus for about 25 minutes. However, due to the approach for PIT Plus where respondents give information in narrative format, the amount of history a person is willing to share impacted the time it took to complete the survey.

TCP supplied a \$25 gift card for each person who participated. TCP/DHS staff periodically was on hand wherever PIT Plus surveys were being conducted to answer questions or to be of help as necessary between the 10 days of administration.

Respondents were not required to complete all survey questions. Missing values are omitted from the analysis above. As such, the total number of respondents for each question will not always equal the total number of surveys conducted.

### **How was the survey weighted?**

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The weighting method applied in this analysis is iterative proportional fitting, also known as *raking*. Survey raking is widely used to weight a sample according to characteristics of a known population.<sup>3</sup> The survey raking procedure assumes that the demographic characteristics of those that did not respond to the PIT Plus survey is the same as the PIT Count. Survey raking was implemented in R using the `rake` function from the `survey` R package.<sup>4,5</sup>

Implementing survey raking in the PIT Plus sample involved iteratively adjusting the weights of the sample, using the distributions of the following variables from the PIT Count: gender, age group, race, and ethnicity. For example, the gender distribution of the PIT Plus Survey is 56% male and 39% female, while the PIT Count is 73% male and 26% female. The raking process involves weighting responses from males by a factor of 1.3 and responses from females by a factor of .66, so that the gender proportions of the PIT Plus match the PIT Count. Starting with these weights, they are then adjusted in the same manner so that the age groups of the PIT Plus match the PIT Count. If the adjustment for the age group pushes the gender distribution out of alignment, the weights are re-adjusted so that the distribution of males and females still matches those in the PIT Count. This process is repeated until the weighted distribution of all the weighting variables matches those of the PIT Count variables.

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<sup>3</sup> <https://www.abtassociates.com/raking-survey-data-aka-sample-balancing>

<sup>4</sup> R Core Team (2019). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. <https://www.R-project.org/>.

<sup>5</sup> T. Lumley (2018) "survey: Analysis of Complex Survey Samples". R package version 3.34.