Mental Health and Food Insecurity Concerns in Northeast Louisiana

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Our Mission

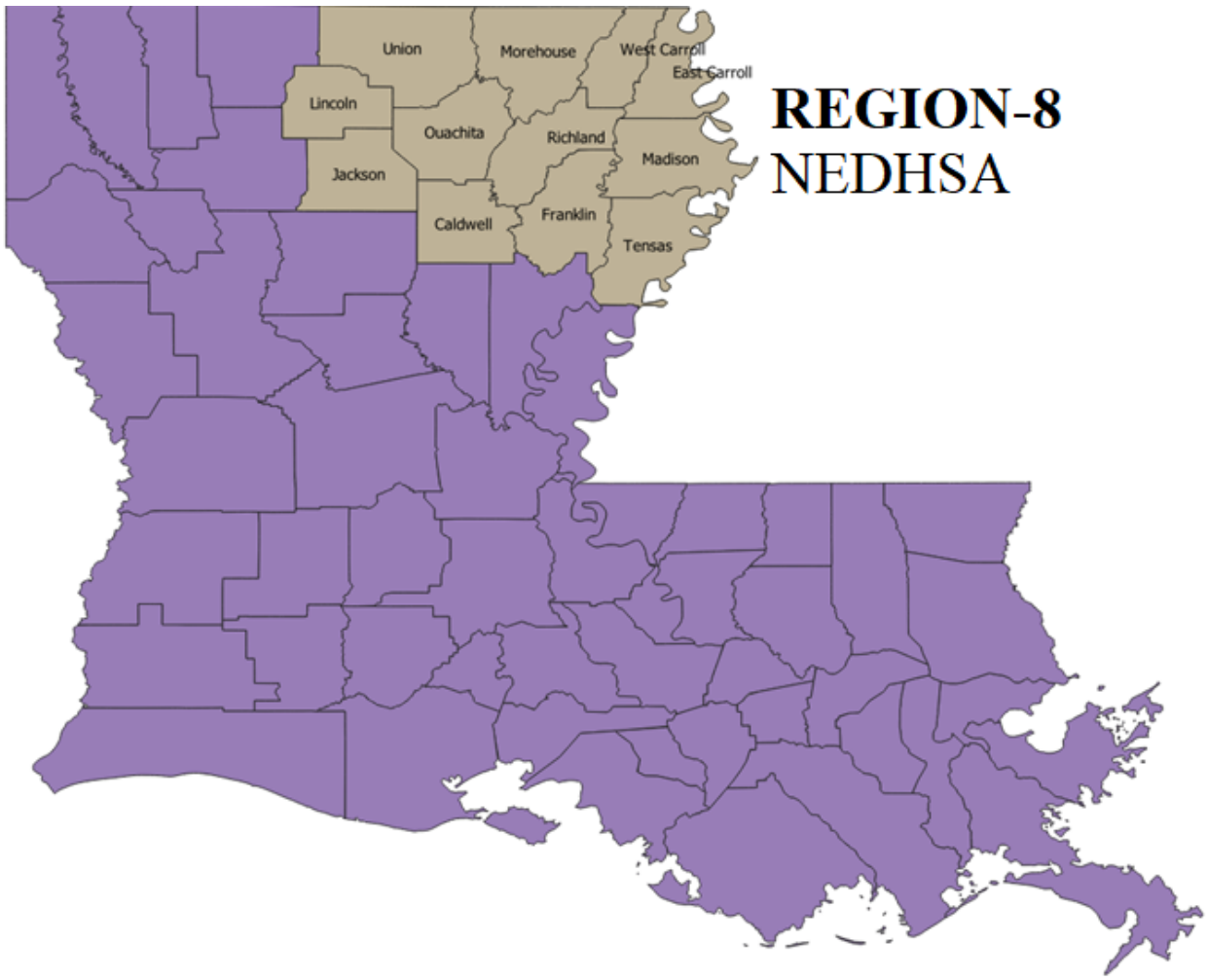
NEDHSA serves as a catalyst for individuals with mental health, developmental disabilities, and addictive disorders to help realize their full human potential by offering quality, excellent care, with greater accessibility.

Our Vision

NEDHSA's vision is to build a unified Northeast Louisiana where individuals are thriving and reaching their full human potential.

Three Tenets Guiding Our Actions

1) Greater access to services
2) Excellent customer service
3) Quality competent care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Message from the Executive Director

Dr. Monteic A. Sizer
Executive Director

At Northeast Delta Human Services Authority (NEDHSA), we understand that individual, family, and community factors interact with regional structural drivers of mental and primary health care challenges. That's why our agency's vision, mission, and tenets were established and are so important to the thousands of vulnerable people we are blessed to care for.

As we seek to improve population health outcomes in Northeast Louisiana, we wanted to gain further insight into the region's needs regarding food insecurity, trauma, mental health, and addiction. The information found within this report will allow us to improve upon our award-winning, integrated care model and provider network.of health.

We learned in 2020 after we conducted our COVID-19 Social Health Impact Assessment that child food insecurity in the state was high, and that the overall food insecurity rate in our region was 19%. We knew the NEDHSA Mental Health and Food Insecurity study would be an extension of our past research and comprehensive annual reports.

Lastly, I established our analytics department to help us measure the outcomes and efficiencies of our internal operations and our patients. The data contained within this report highlights our data-driven, outcomes-based approach to our collective work. With this data focus and our commitment to continuous improvement, we are well on our way to further transforming our region and the lives of those we serve.

Dr. Monteic A. Sizer
Executive Director

Executive Summary

Food insecurity, poor diets, and inadequate nutrition, directly and indirectly, contributed to undermining physical and mental health. NEDHSA led the creation of an analytic tool and methodology to help demonstrate the severity of food insecurity in Northeast Louisiana. The survey tool was developed in partnership with the Food Bank of NELA and distributed throughout the 12-parish region. In particular, the survey instrument asked an array of questions about mental health, primary health, food insecurity, and associated social determinants.

The report contains data from the survey collected from November 4, 2022, to March 2, 2022. All assessments were completed either on paper, by telephone, or online through Google Forms. Individuals over the age of 18 completed the assessment voluntarily responding to areas such as demographics; personal relationships and living situation; employment; resource concerns, including household finances, food security, healthcare, and mental and behavioral health status.

Sample Summary

A total of 304 responses were collected. Of those, 300 responses were usable. The mean age of the respondents was 45.52 years (n=286; SD=14.4; minimum age=18; maximum age=87; missing observations for age=14). Around 68% of the total respondents were female (67.67%; n=203), and 29.67% were male (n=89). African Americans accounted for 59.67% (n=179), while Caucasians accounted for 34% (n=102). Six (2%) respondents reported a race of American Indian, and six respondents (2%) reported a race of "Other." More than 50% of the respondents were single (52.97%; n=158) and 25.67% were married (n=77). The current living situation of the respondents were as follows: homeless (4.67%; n=14), living in their own apartment (68.33%; n=205), living in a residential or group home (6.67%; n=20), and staying with relative or friend (16.33%, n=49). Nearly 48% of the respondents were unemployed (n=143). Of those, 51.05% were disabled (n=73) and 13.29% (n=19) were looking for jobs. The largest proportion of the respondents was high school graduates (40%; n=120), followed by educational attainment of less than 9th grade (21%; n=63). Nearly 45% of the respondents fell below the income level of $1,000 per month (n=134).

<u>Resource and Health Concerns</u>

There were six resource concern-related questionnaires in the survey tool. Respondents were asked to score at the level of 1 to 5 for each question, 1 being least and 5 being most concerned. Analyses of the six-item resource concerns revealed that the top three concerns identified by the respondents include (1) "having enough income/money to pay the household bills" (rent, utilities) (32.65%); (2) "finding work or keeping a job" (22.38%), and (3) "being able to find adequate housing" (23.02%). The top three concerns indicated that respondents are facing employment changes and financial worries. The health concern questionnaires revealed that 15% of the respondents have developed chronic/diet-related diseases. Around 44% of the respondents have experienced violence or trauma in any setting (including community or social violence; domestic violence; physical; psychological; or sexual maltreatment/assault within or outside of the family; natural disaster; terrorism; neglect; or traumatic grief). Of the total respondents who experienced violence or trauma (44%), 87% "feel so frightening," "horrible," or "upsetting" that in the past and/or present and try hard not to think about it.

Depression

Patient Health Questionnaire-9 (PHQ-9) questionnaires were included in the survey instrument to determine the depression severity. For the nine PHQ-9 questions, a respondent had an opportunity to score from 0 to 27 (0 to 3 for each question). Based on the total score, the depression levels were categorized as none (0 to 4), mild (5-9), moderate (10-14), moderately severe (15-19), and severe (20-27). Our analysis showed that 52% of the individuals have depression (mild=22%, moderate=14%, moderately severe=8% and severe=8%). The four levels of depression (mild, moderate, moderately severe, and severe) were highest among females, single, unemployed, individuals with less than $1,000 monthly income, and food insecure individuals. Depression was at "severity" for the 36 to 50 years age group (3.87% of the total population), female (5.12% of the total population), White (5.08% of the total population), single (3.73% of the total population), individuals staying with relative or friend (4.17% of the total population), unemployed (6.46% of the total population), individuals with less than $1,000 monthly income (5.71% of the total population), individuals who experienced violence or trauma (7.36% of the total population), and individuals who were food insecure (5% of the total population).

Anxiety

Seven questions from General Anxiety Disorder-7 (GAD-7) were included in the survey tool to measure the anxiety level of the respondents. The score for each question ranged from 0 to 3. Each respondent scored from 0 to 21 for the seven questions. Following the literature, the anxiety levels were categorized as none (0 to 4), mild (5-9), moderate (10-14), and severe (15-21). Classification of anxiety revealed that 49% of the respondents have anxiety (mild=22%, moderate=13%, severe=14%). The three levels of anxiety (mild, moderate, and severe) were highest among 36 to 50 years age group, female, single, individuals with less than $1,000 monthly income, individuals who experienced violence or trauma, and food insecure population.

Food Insecurity

A standard food insecurity survey, developed by the U.S. Department of Agriculture (USDA), was included in this study to measure the severity of food insecurity among the respondents. Following the USDA's method, we classified food security levels into food insecurity, marginal food security, and high food security. Our analysis showed that 41% of respondents were "food insecure," 49% were "marginal food secure," and 10% were "high food secure." Food insecurity was high among the 36 to 50 years age group (14% of the total population), female (27% of the total population), African American (23% of the total population), single (25% of the total population), unemployed (25% of the total population), individuals with less than $1,000 monthly income (23% of the total population), and individuals who experienced violence or trauma (22% of the total population).

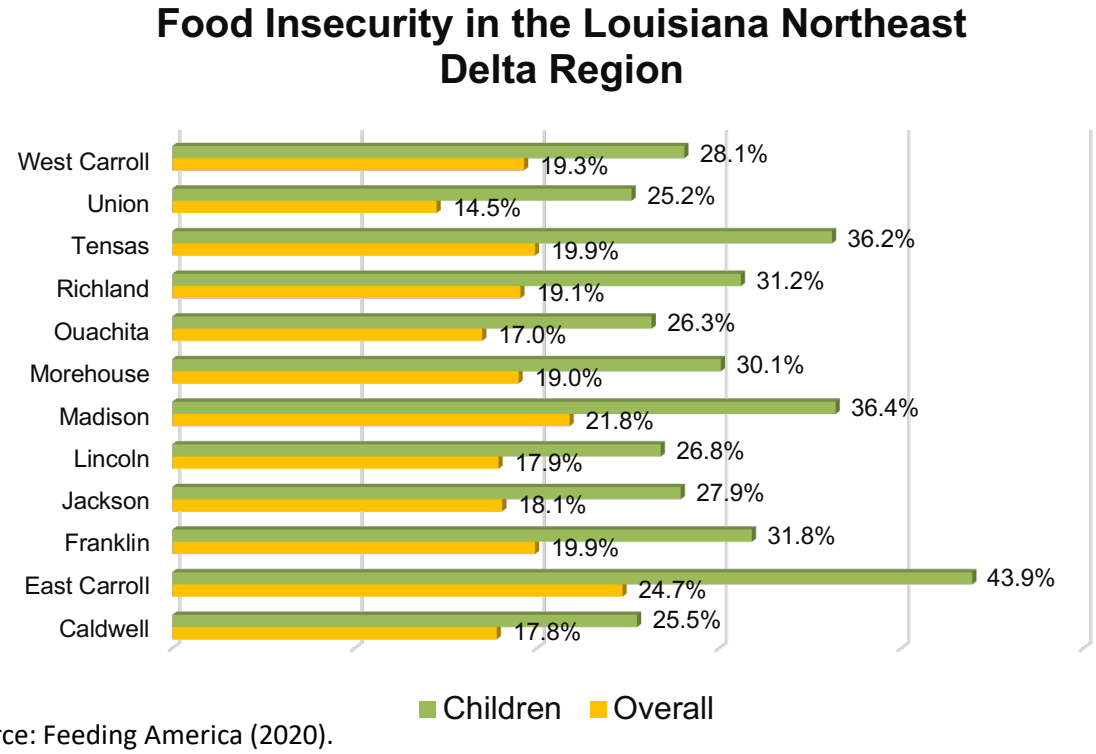
Contents

Message from the Executive Director iv
Executive Summary v
Northeast Delta Human Services Authority (NEDHSA) Food Insecurity and Mental Health Survey 1
Current Mental Health and Food Insecurity Issue 1
Purpose of the Study 2
Area of Assessment 2
Assessment Population 2
Assessment Methods 2
Prospects 3
Social Determinants of Health 4
Resource Concerns 11
Health Concerns 13
Mental Health Concerns 17
Depression 17
Determinants of Depression 20
Anxiety 25
Determinants of Anxiety 28
Food Security Concerns 33
Determinants of Food Insecurity 38
References 43

Northeast Delta Human Services Authority (NEDHSA) Food Insecurity and Mental Health Survey

Current Mental Health and Food Insecurity Issue

Research conducted by NEDHSA in 2020 showed that mental illness and resource concerns, such as health care concerns, financial management concerns, and transportation concerns, were significant challenges in Northeast Louisiana (Sizer & McGee, 2020). The study showed that the COVID-19 pandemic significantly increased the number of individuals experiencing depression and anxiety. In addition to the mental health issue, food insecurity was also one of the ongoing challenges in the region. Louisiana ranked as the second-highest food insecure state in the United States. The child food insecurity in the state was 25%, which was the highest in the nation (Feeding America, 2020). The prevalence of food insecurity in the Northeast region was even higher than the state average. The overall food insecurity rate in the region was 19%, and child food insecurity was 31% before the COVID-19 pandemic (Feeding America, 2020).



Source: Feeding America (2020).

Purpose of the Study

The purpose of this study was to help meet the mental health, physical health, and food insecurity needs of vulnerable communities in Northeast Louisiana. This study further advanced NEDHSA's integrated healthcare delivery model and efforts to reduce negative social determinants of health like inadequate housing, unemployment, food insecurity, loneliness, and limited education.

Area of Assessment

NEDHSA's Mental Health and Food Insecurity survey was designed to collect data related to mental health and food insecurity and their association with the social determinants of health. The areas of assessment were:

- Socio-demographic factors including age, gender, race, income, educational attainment, employment status
- Physical health Concern
- Mental health concerns, including depression and anxiety
- Food insecurity concern

Assessment Population

Individuals who can read and write English and are at least 18 years of age were eligible to participate in the survey. We expected the majority of respondents from our 12- parish service area.

Assessment Methods

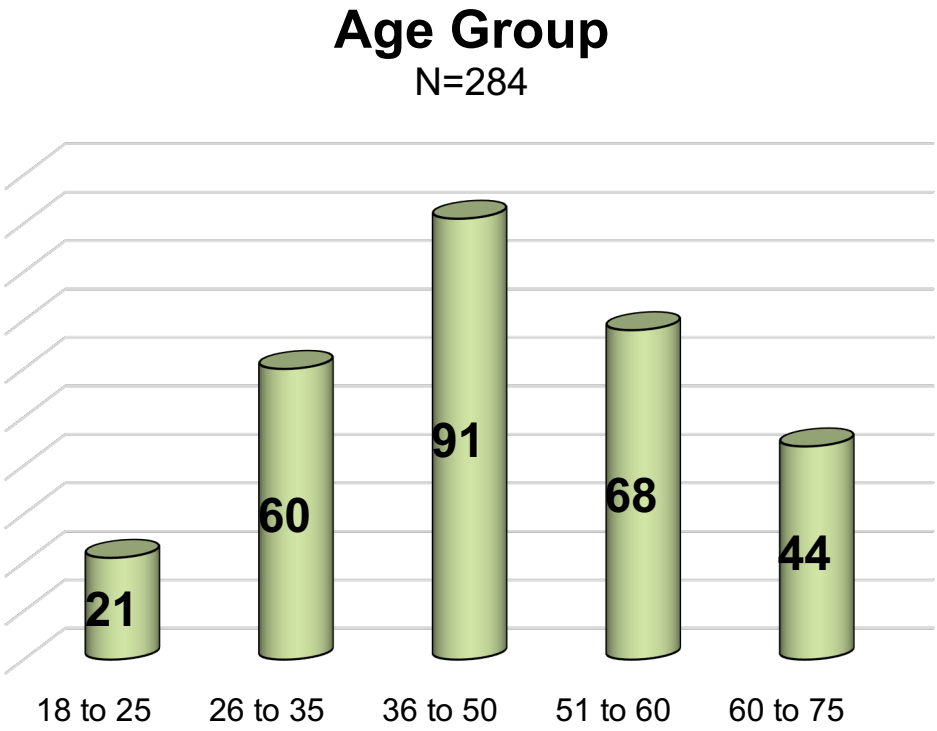
NEDHSA Mental Health and Food Insecurity survey responses were collected on hard copies, over the telephone, and via the internet using Google Forms. Respondents were offered the opportunity to complete the NEDHSA Mental Health and Food Insecurity survey after first being informed that completing the assessment and providing answers to any of the included questions was completely voluntary.

Prospects

This report provides a descriptive overview of the social determinants of health and the association between mental health and food insecurity. The forthcoming reports will be focused on assessing the large, complex, and intertwined problems of mental health and food instabilities with standard statistical tools.

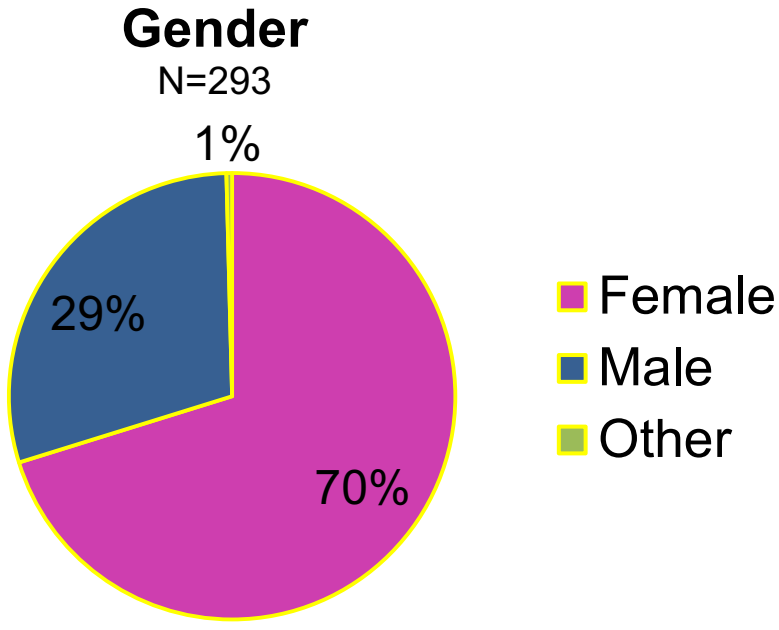
*NOTE – See the following link to participate in the survey as we are continuing to collect data: https://nedeltahsa.org/wp-content/uploads/2022/01/NEDHSA-Survey.pdf

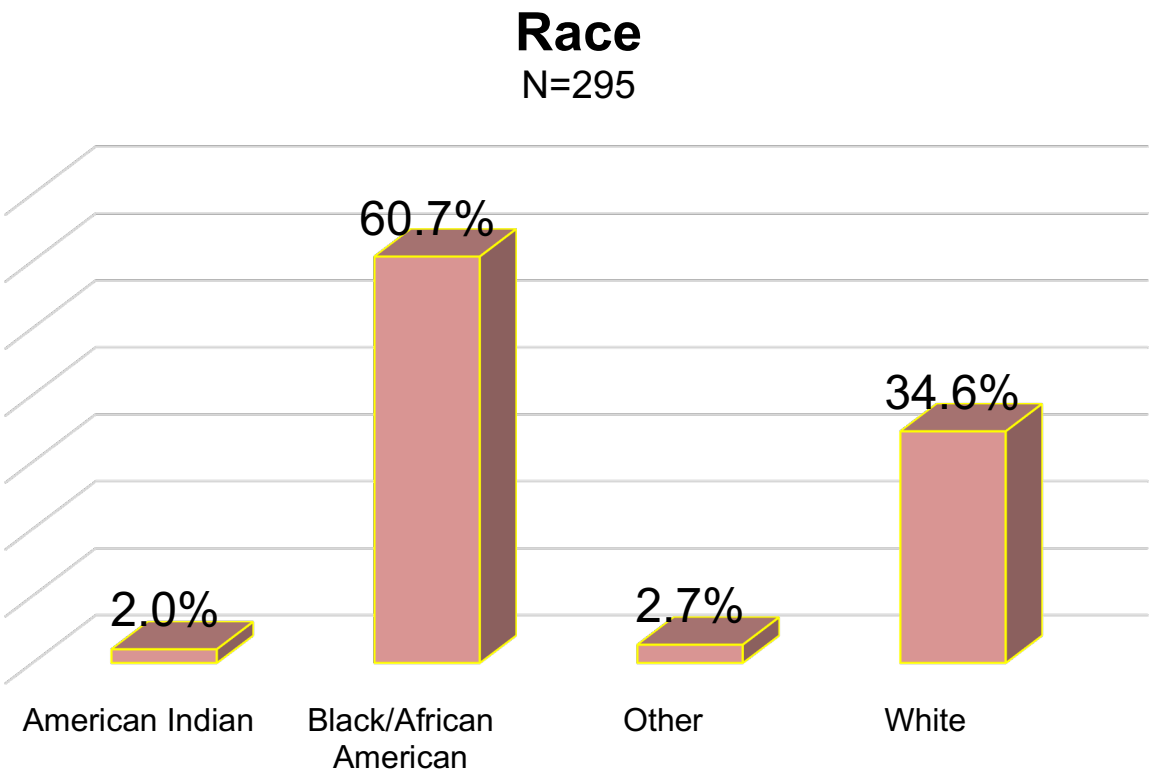
Social Determinants of Health



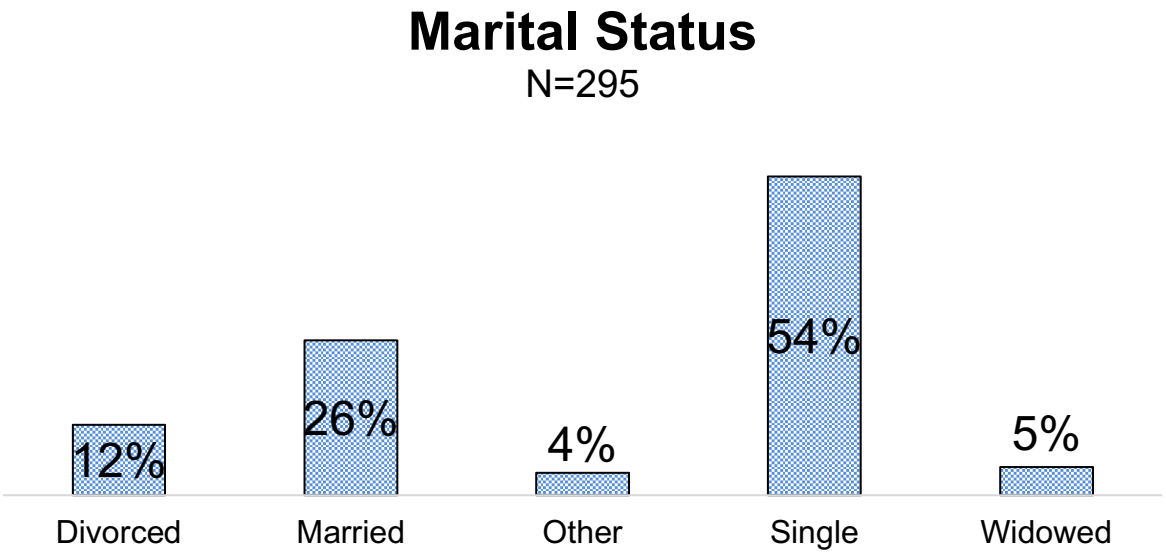
Of 300 respondents, 16 did not respond to age. The majority of the respondents were in the age group of 36 to 50 years old (32%; n=91).

Around 70% of the total respondents were female (n=203). There were 90 male respondents.



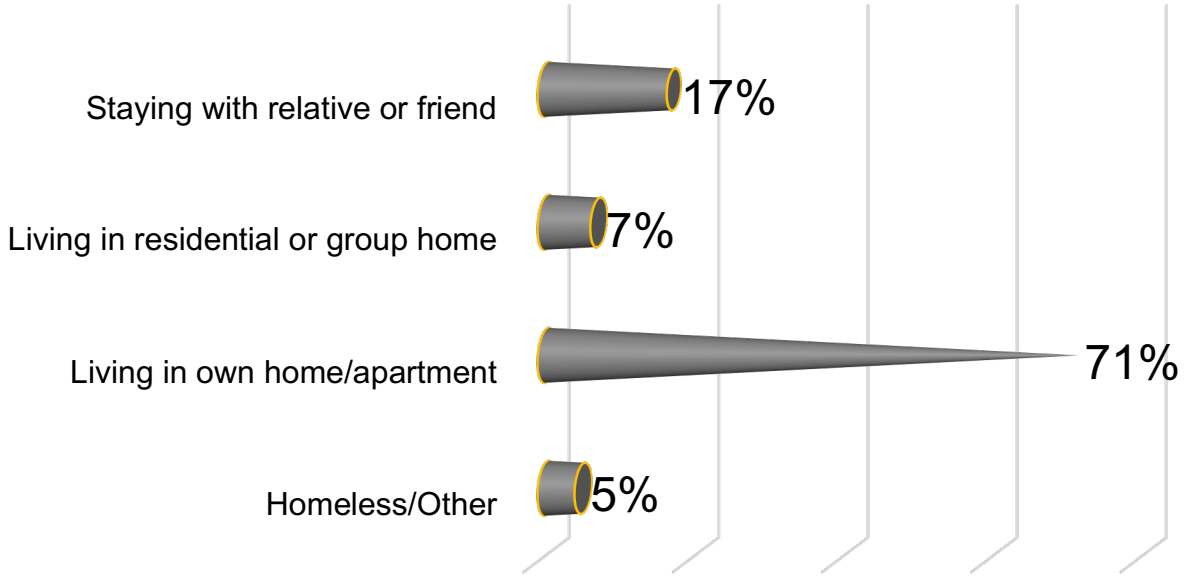


The classification of respondents by race showed American Indian=6; Black/African American=179; White=102; and Other=8 (including Asian=1; Unknown=1; and Other=6).



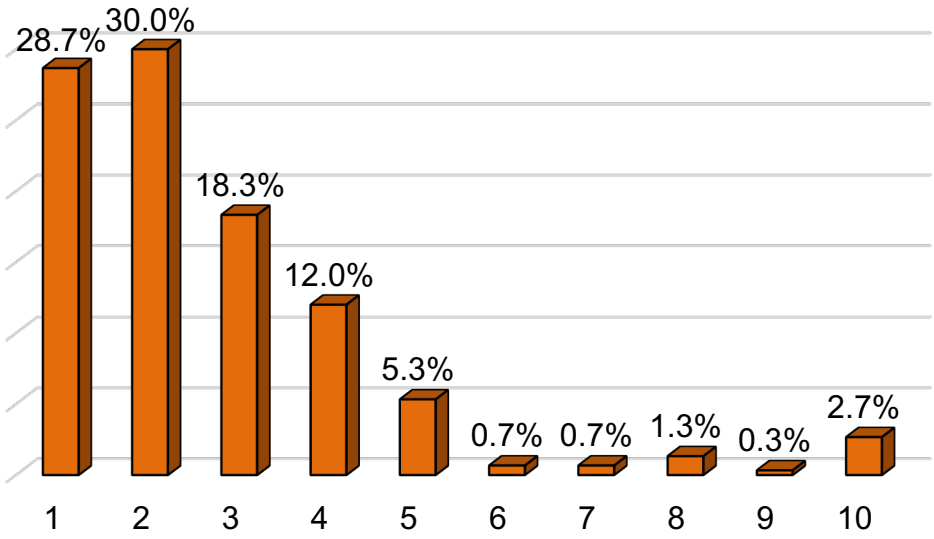
Current Living Situation

N=288



Total Number of People Currently Living in the Household

N=300

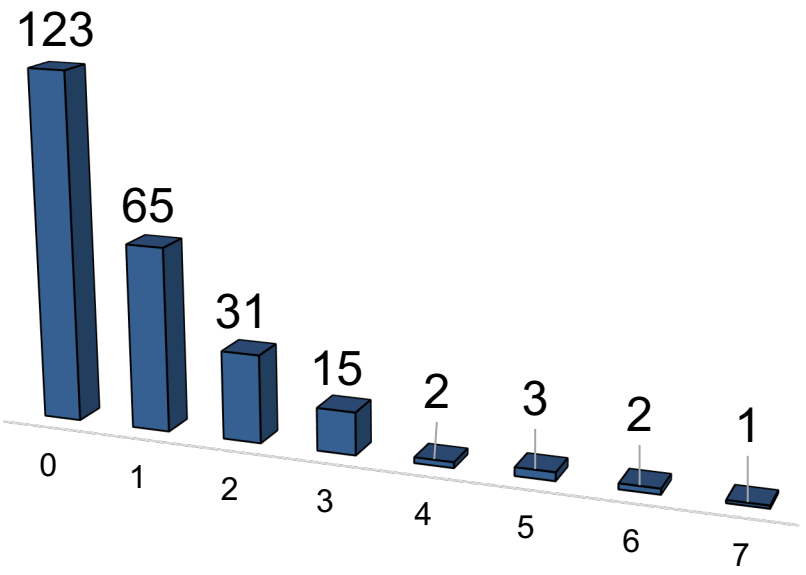


Nearly 29% of the respondents were living by themselves.

Out of 300 respondents, 242 provided information on the number of children in their household. The total number of children in the households ranged from 0 to 7.

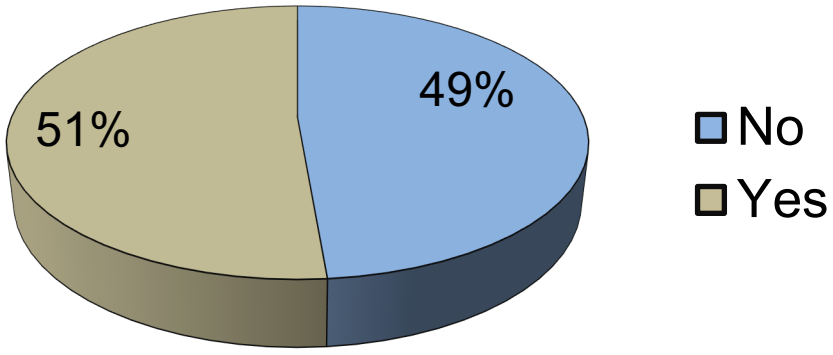
Total Number of Children in the Household

N=242



Employment Status

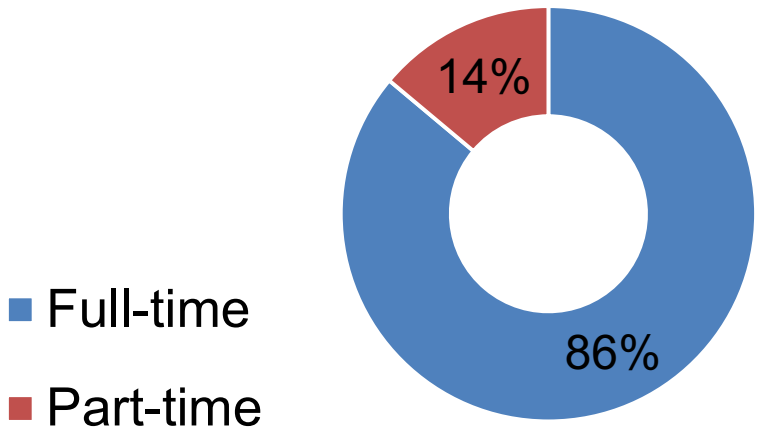
N=294



The proportion of employed and unemployed respondents was almost equal to 1 (1.055) (employed=151; unemployed=143).

Employment Type

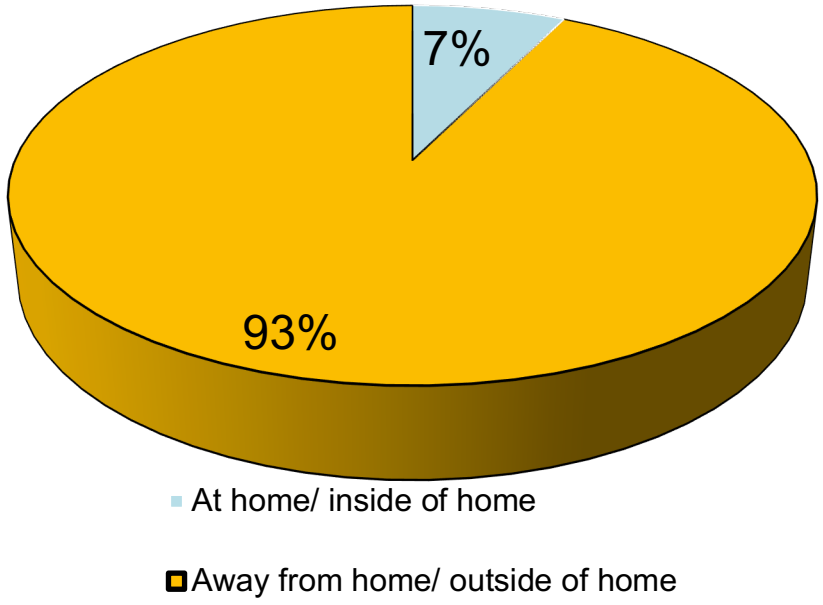
N=151

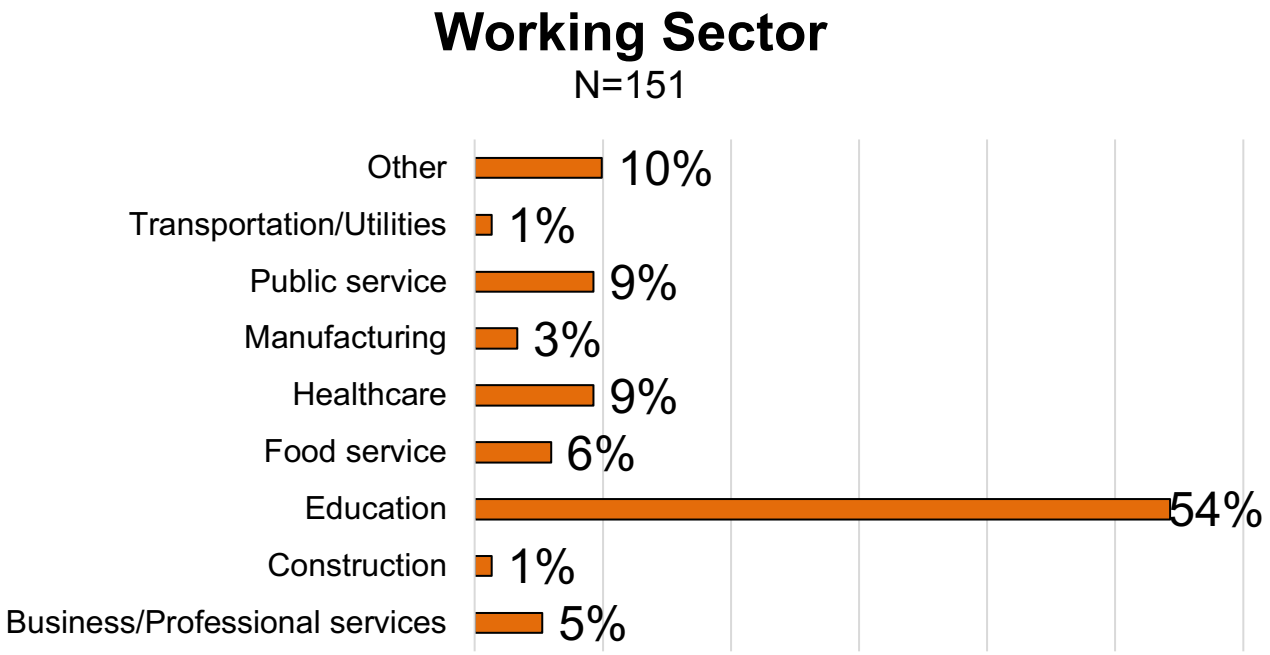


Of 151 employed respondents, 130 were full-time workers, and 21 were part-time.

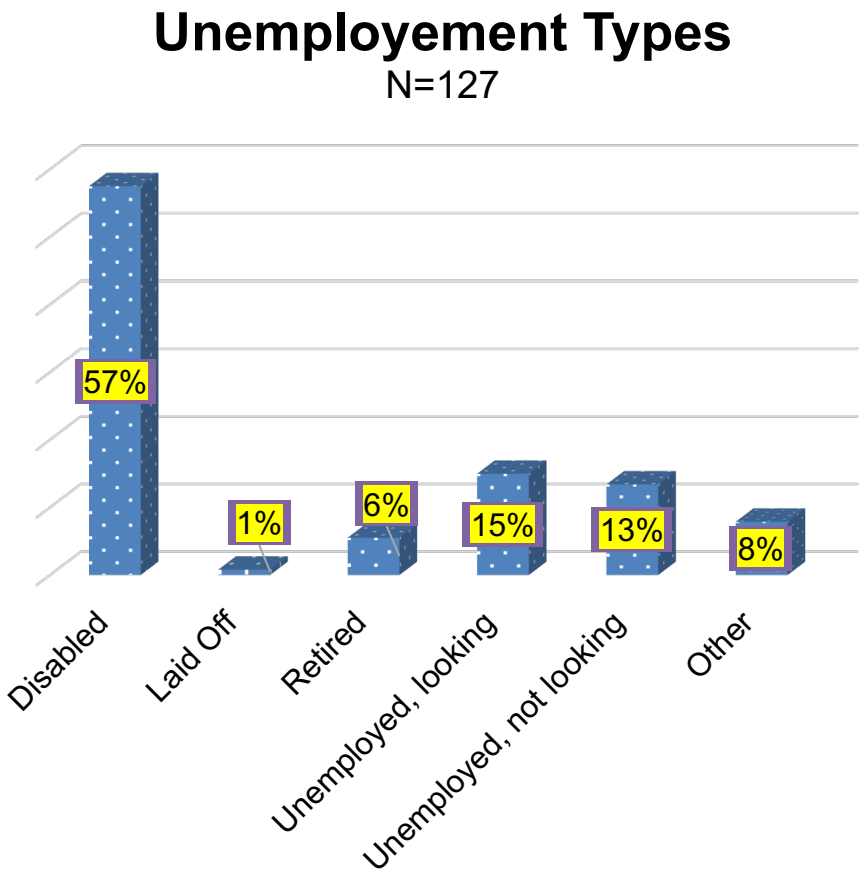
Work Location

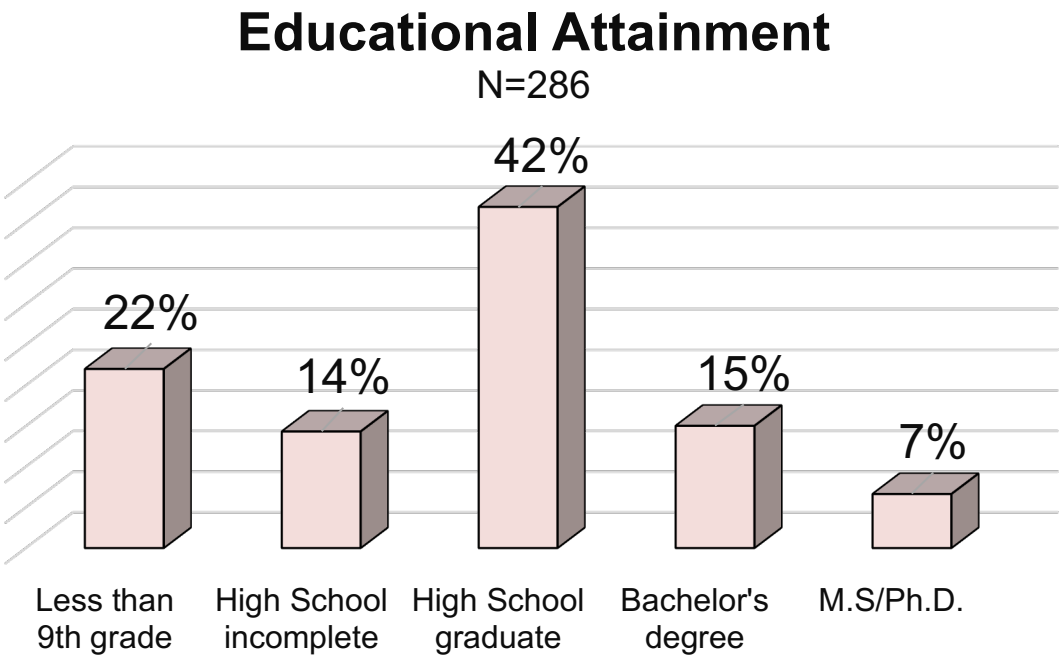
N=150



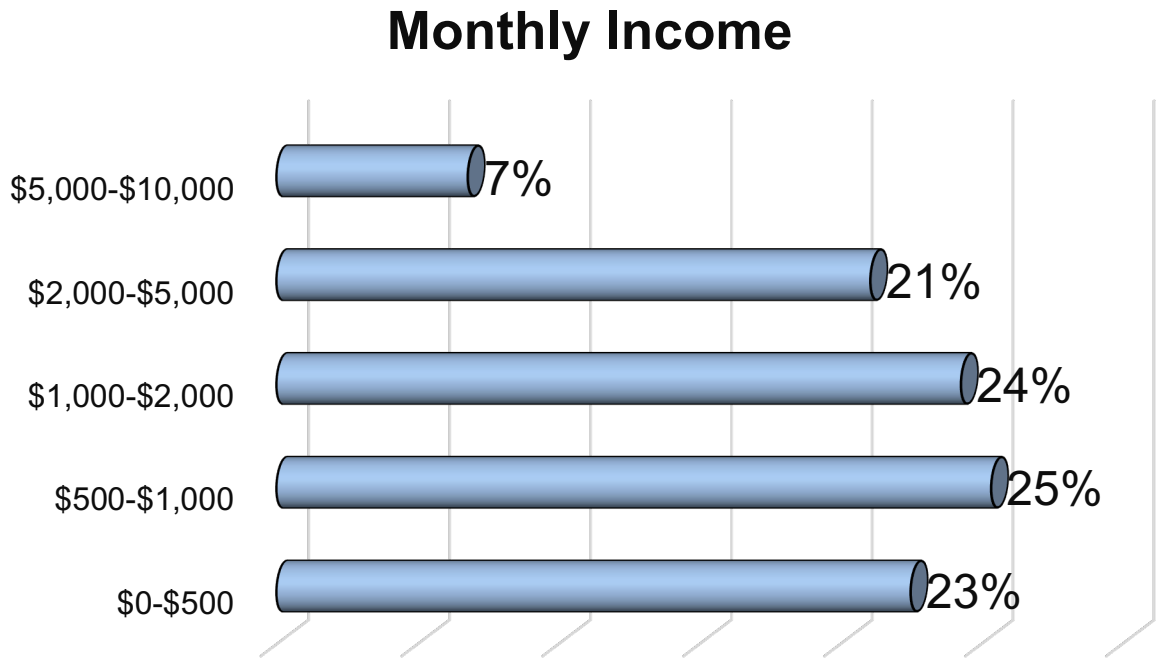


Of 143 unemployed respondents, 127 responded to the type of their unemployment. Of these, 57% (n=73) were disabled.





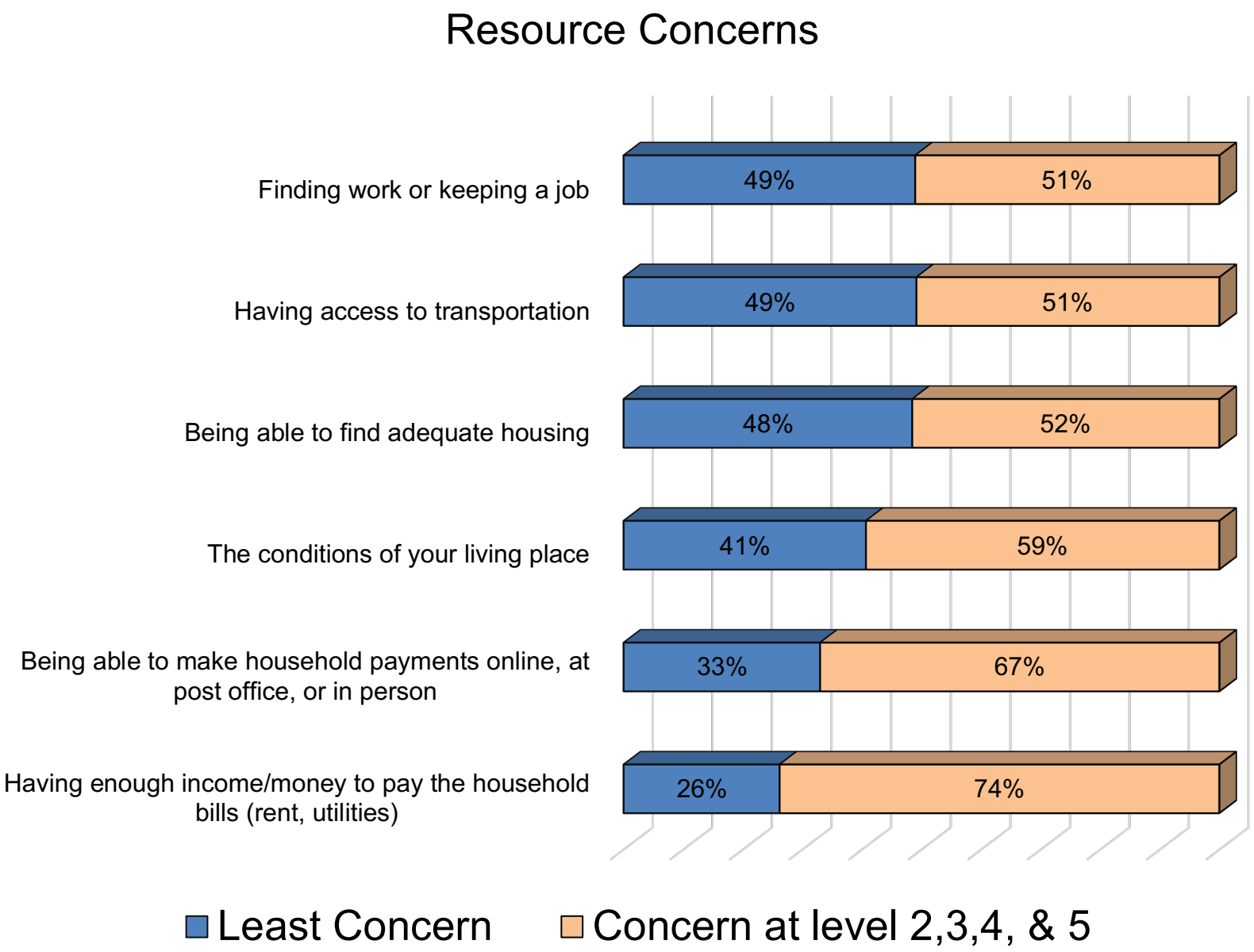
- Nearly 36% of the respondents indicated they did not complete a high school degree (n=104).
- Around 48% of the respondents indicated they earn below $1,000 per month (n=134).



Resource Concerns

		1	2	3	4	5	N=
A.	Having enough income/money to pay the household bills (rent, utilities)	26.19%	7.82%	21.77%	11.56%	32.65%	294
B.	Being able to make household payments online, at post office, or in person	32.99%	11.90%	20.75%	13.27%	21.09%	294
C.	The conditions of your living place	40.68%	11.86%	16.61%	9.15%	21.69%	295
D.	Being able to find adequate housing	48.45%	7.56%	12.71%	8.25%	23.02%	291
E.	Having access to transportation	49.15%	8.19%	13.99%	7.51%	21.16%	293
F.	Finding work or keeping a job	48.95%	9.09%	13.29%	6.29%	22.38%	286

- Respondents were asked to rate their concern on a scale of 1 to 5; 1 being the least and 5 being the most concern.
- The top three most concerns were “having enough income/money to pay the household bills (rent, utilities)” (32.65%), “being able to find adequate housing” (23.02%), and “finding work or keeping a job” (22.38%).

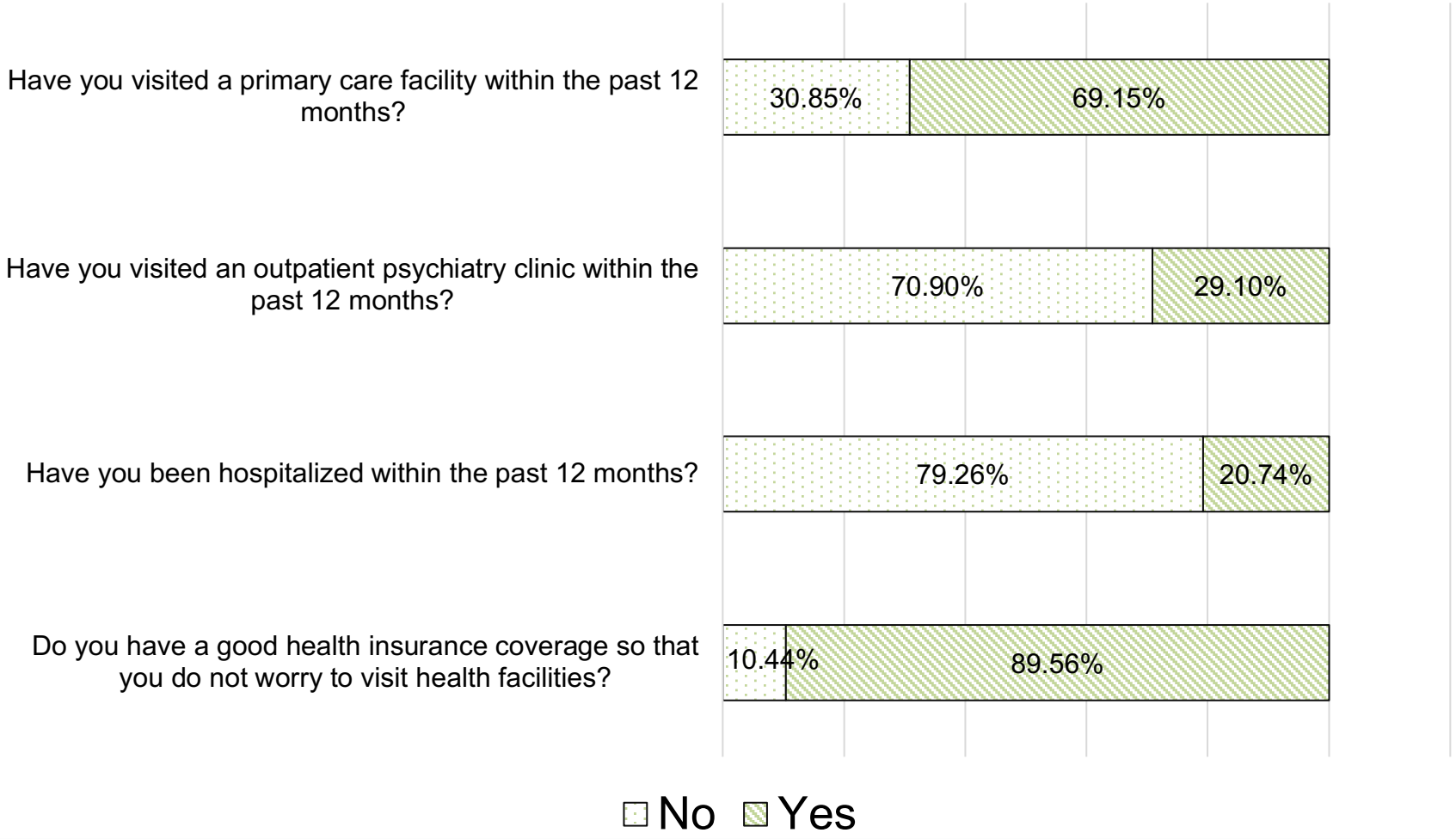

Resource Concerns
Finding work or keeping a job
49%
51%
Having access to transportation
49%
51%
Being able to find adequate housing
48%
52%
The conditions of your living place
41%
59%
Being able to make household payments online, at post office, or in person
33%
67%
Having enough income/money to pay the household bills (rent, utilities)
26%
74%
Least Concern
Concern at level 2,3,4, & 5

Health Concerns

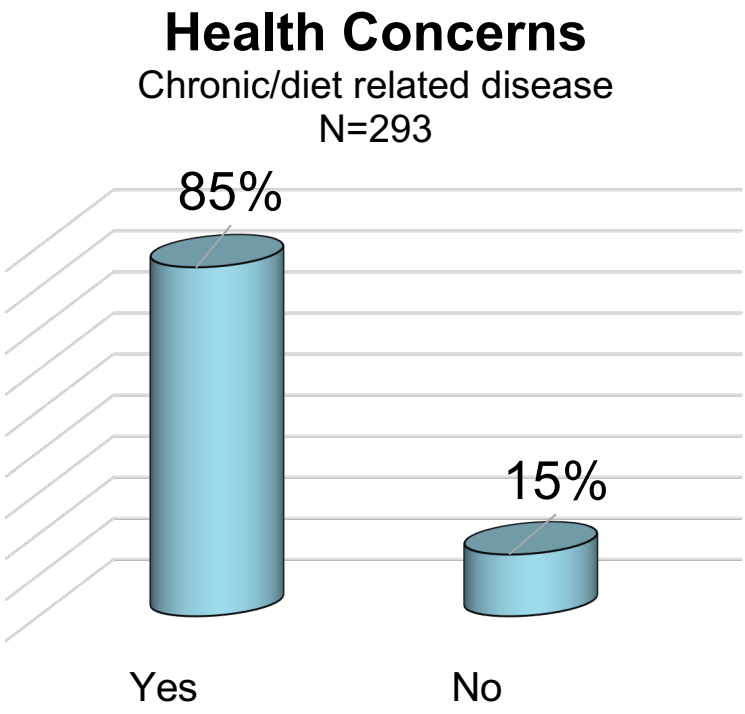
		No	Yes	N=
A.	Do you have a good health insurance coverage so that you do not worry to visit health facilities?	31	266	297
B.	Have you been hospitalized within the past 12 months?	237	62	299
C.	Have you visited an outpatient psychiatry clinic within the past 12 months?	212	87	299
D.	Have you visited a primary care facility within the past 12 months?	91	204	295
E.	Have you developed a chronic/diet-related disease?	299	44	293
F.	Have you ever experienced violence or trauma in any setting (including community or social violence; domestic violence; physical; psychological; or sexual maltreatment/assault within or outside of the family; natural disaster; terrorism; neglect; or traumatic grief?	166	133	299
G.	Did any of these experiences feel so frightening, horrible, or upsetting that in the past and/or present: you tried hard not to think about it or went out of your way to avoid situations that remind you of it?[1]	17	114	131

[1]It is a conditional question depending on the *affirmative* response of the previous question.

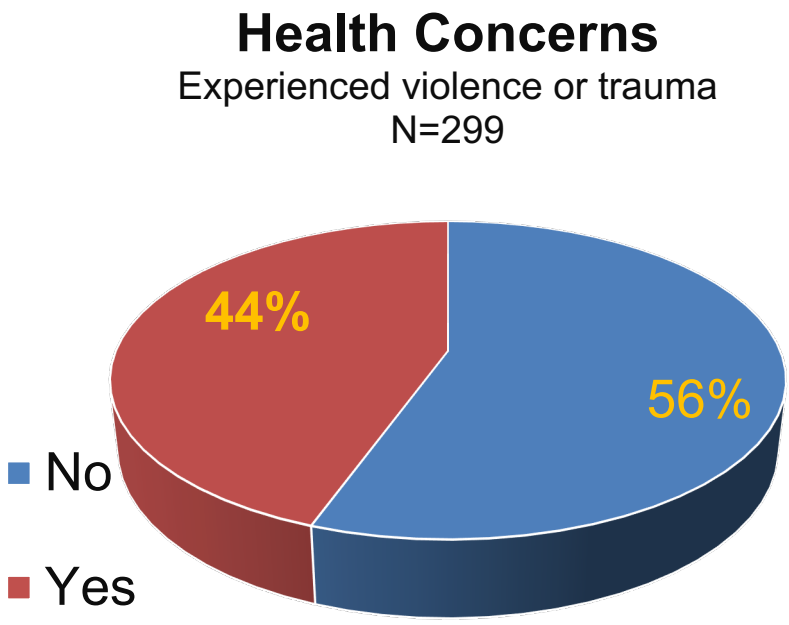
Health Concerns



Nearly 90% of the respondents had good health insurance coverage to not worry about visiting health facilities.



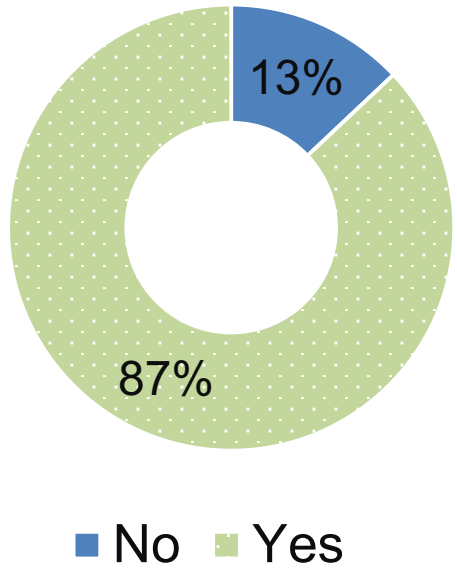
Fifteen percent of the respondents (n=44) reported they developed a chronic/diet-related disease.



Nearly 45% of the respondents (n=133) indicated they had experienced violence or trauma in any setting including community or social violence; domestic violence; physical; psychological; or sexual maltreatment/assault within or outside of the family; natural disaster; terrorism; neglect; or traumatic grief.

Health Concerns

Feel frightening, horrible, or upsetting
N=131



Because of the experience of violence or trauma (in any setting including community or social violence; domestic violence; physical; psychological; or sexual maltreatment/assault within or outside of the family; natural disaster; terrorism; neglect; or traumatic grief), 87% (n=144) feel so “frightening,” “horrible,” or “upsetting” that in the past and/or present they tried hard not to think about it or went out of their way to avoid situations that remind them of it.

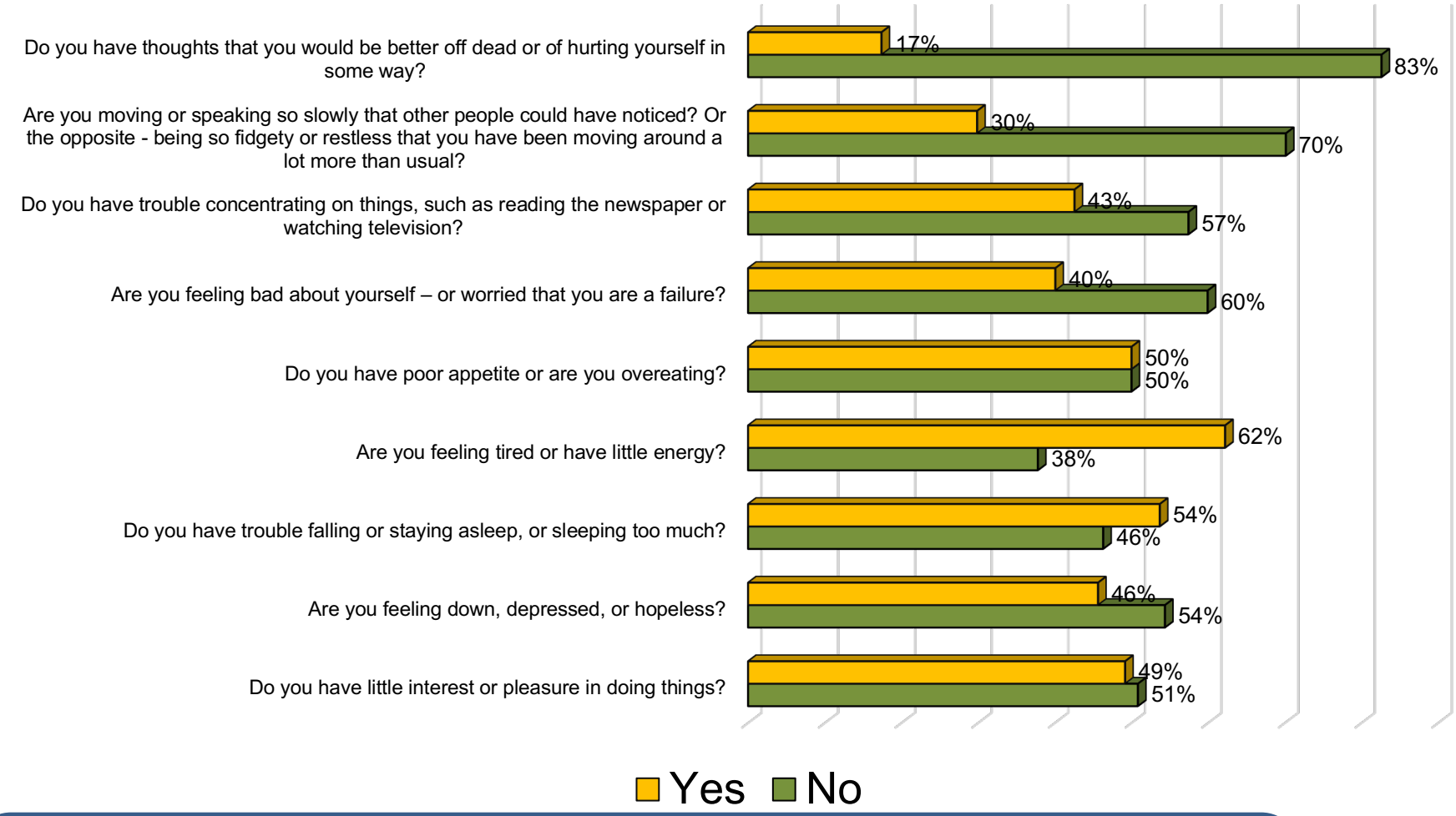
Mental Health Concerns

Depression

Over the last two weeks, how often have you been bothered by the following problems?		0 – Not at all	1 – Several Days	2 – More than half the day	3 – Nearly every day	N=
A.	Do you have little interest or pleasure in doing things?	152	67	43	37	299
B.	Are you feeling down, depressed, or hopeless?	162	76	32	28	298
C.	Do you have trouble falling or staying asleep or sleeping too much?	138	69	35	56	298
D.	Are you feeling tired or have little energy?	113	84	47	55	299
E.	Do you have a poor appetite, or are you overeating?	148	63	39	46	296
F.	Are you feeling bad about yourself – or worried that you are a failure?	178	50	28	41	297
G.	Do you have trouble concentrating on things, such as reading the newspaper or watching television?	170	51	37	38	296
H.	Are you moving or speaking so slowly that other people could have noticed? Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual?	209	40	26	23	298
I.	Do you have thoughts that you would be better off dead or of hurting yourself in some way?	247	26	16	10	299

Patient Health Questionnaire-9 (PHQ-9) was used to measure the depression of the respondents. PHQ-9 is a clinically validated tool to screen, measure, and diagnose depression severity in the general population (Kroenke et al., 2001; Martin et al., 2006). The PHQ-9 questions were listed from A to I in the above table.

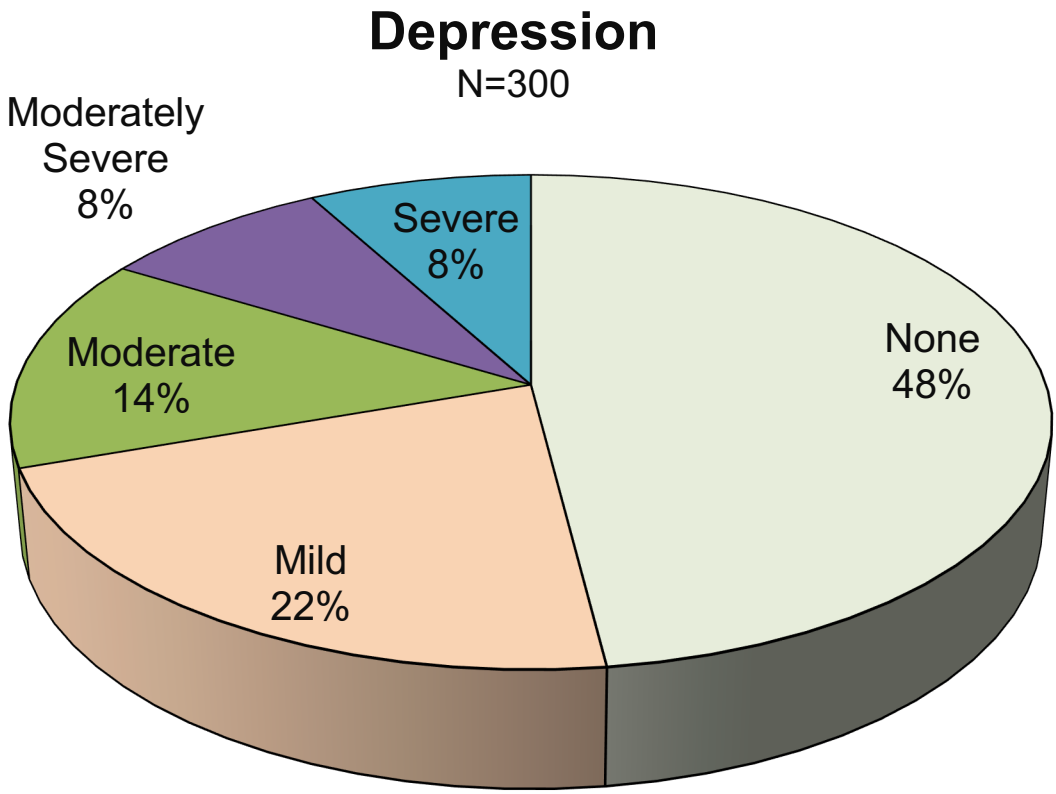
Responses for PHQ-9



Responses to PHQ-9 were categorized as “No” and “Yes” for 0 and 1 to 3, respectively. Around 62% of the respondents felt tired or had little energy over the last two weeks.

In Louisiana, 715,000 adults have diagnosable mental health illnesses. The reported symptoms of anxiety and depression were accounted for 47.5% of adults. It is estimated that 159,000 adults had suicidal thoughts in 2020, and 720 lives were lost to suicide (National Alliance on Mental Illness, 2021).

- The total score of PHQ-9 ranged from 0 to 27. We categorized the depression symptoms as none (0 to 4), mild (5-9), moderate (10-14), moderately severe (15-19), and severe (20-27) (Kroenke et al., 2001).
- Nearly 52% of the respondents indicate they have depression at some level.



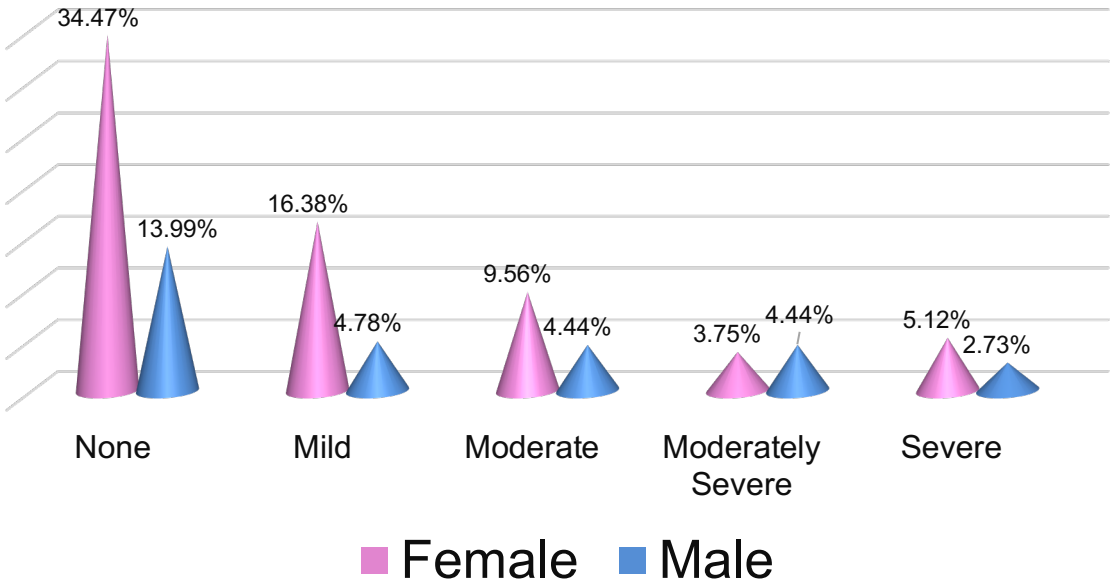
Determinants of Depression

Depression severity by Age group

Depression level	Age group					
	18 to 25	26 to 35	36 to 50	51 to 60	60 to 75	Total
None	1.76%	9.15%	17.96%	11.27%	8.10%	48.24%
Mild	3.52%	3.52%	5.28%	5.63%	3.17%	21.13%
Moderate	0.35%	3.52%	2.46%	4.58%	2.82%	13.73%
Moderately Severe	0.70%	3.17%	2.46%	1.06%	1.06%	8.45%
Severe	1.06%	1.76%	3.87%	1.41%	0.35%	8.45%
Total	7.39%	21.13%	32.04%	23.94%	15.49%	100.00%

- The level of depression varied with age group.
- Overall, the depression level was highest among 26 to 50 years. Individuals aged 26 to 50 years had numerous goals (both short-term and long-term) for family needs, which might have been affected by the pandemic. With the limited resources to deal with the changes, they may develop depression and anxiety (Gambin et al., 2021).

Depression Severity by Gender



Consistent with the literature, the survey showed that depression is higher in females than in males (Eid et al., 2019).

Depression Severity by Race

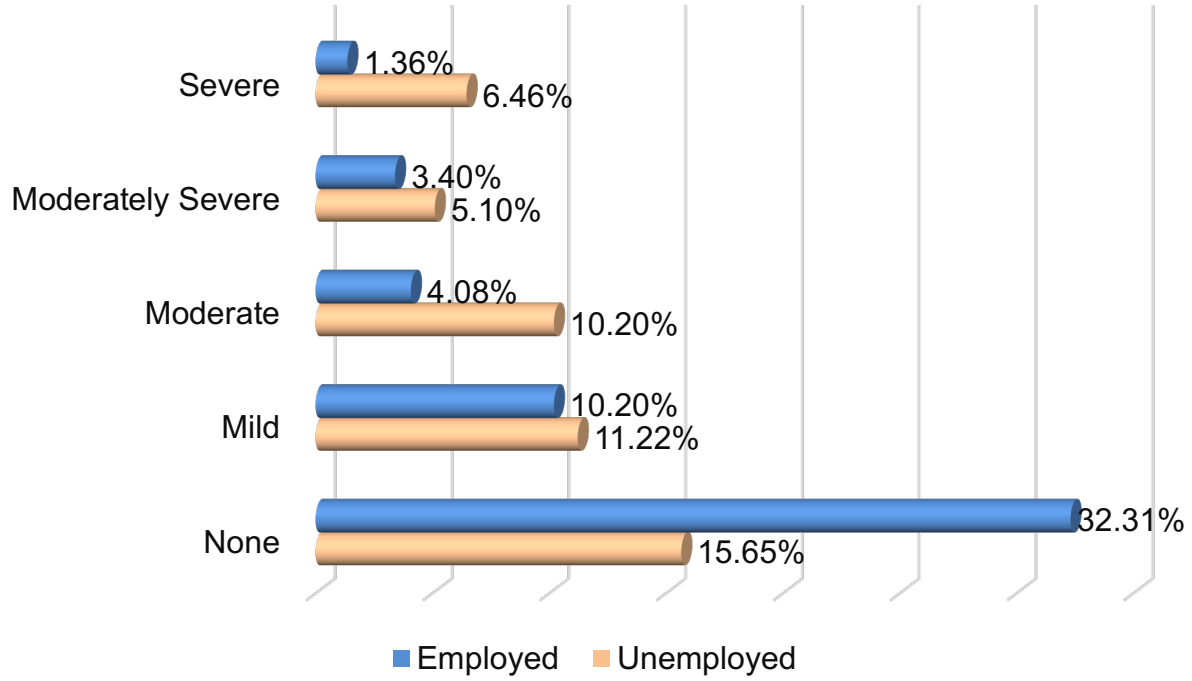
Depression level	Race						
	American Indian	Asian	Black/African American	Other	Unknown	White	Total
None	0.34%	0.34%	34.24%	0.68%	0.00%	12.88%	48.47%
Mild	1.02%	0.00%	11.19%	0.68%	0.34%	8.14%	21.36%
Moderate	0.34%	0.00%	7.46%	0.34%	0.00%	5.76%	13.90%
Moderately Severe	0.34%	0.00%	4.75%	0.34%	0.00%	2.71%	8.14%
Severe	0.00%	0.00%	3.05%	0.00%	0.00%	5.08%	8.14%
Total	2.03%	0.34%	60.68%	2.03%	0.34%	34.58%	100.00%

- The level of depression was severe among White respondents. However, mild, moderate, and moderately severe depression levels were highest among Black/African Americans.
- Single or no longer married individuals are more likely to develop depressive symptoms compared to married (Buckman et al., 2021). Our study revealed that the depression level is highest among single individuals.

Depression Severity by Marital Status

Depression level	Marital status					
	Single	Married	Divorced	Widowed	Other	Total
None	22.37%	15.25%	6.10%	3.05%	1.36%	48.14%
Mild	12.88%	6.44%	1.69%	0.00%	0.34%	21.36%
Moderate	8.81%	2.71%	1.69%	0.34%	0.68%	14.24%
Moderately Severe	5.76%	1.36%	0.68%	0.34%	0.00%	8.14%
Severe	3.73%	0.34%	1.69%	1.02%	1.36%	8.14%
Total	53.56%	26.10%	11.86%	4.75%	3.73%	100.00%

Depression Severity by Employment Status



Depression and anxiety are highly associated with employment and earnings. Unemployment and low earnings increase the likelihood of depression and anxiety (Ford et al., 2010).

Depression Severity by Monthly Income Level

Depression level	Income				
	$0-$1,000	$1,000-$2,000	$2,000-$5,000	$5,000-$10,000	Total
None	18.57%	10.36%	14.29%	3.93%	47.14%
Mild	11.79%	5.71%	3.21%	1.79%	22.50%
Moderate	6.79%	4.29%	2.14%	0.36%	13.57%
Moderately Severe	5.00%	1.43%	1.07%	0.71%	8.21%
Severe	5.71%	2.50%	0.36%	0.00%	8.57%
Total	47.86%	24.29%	21.07%	6.79%	100.00%

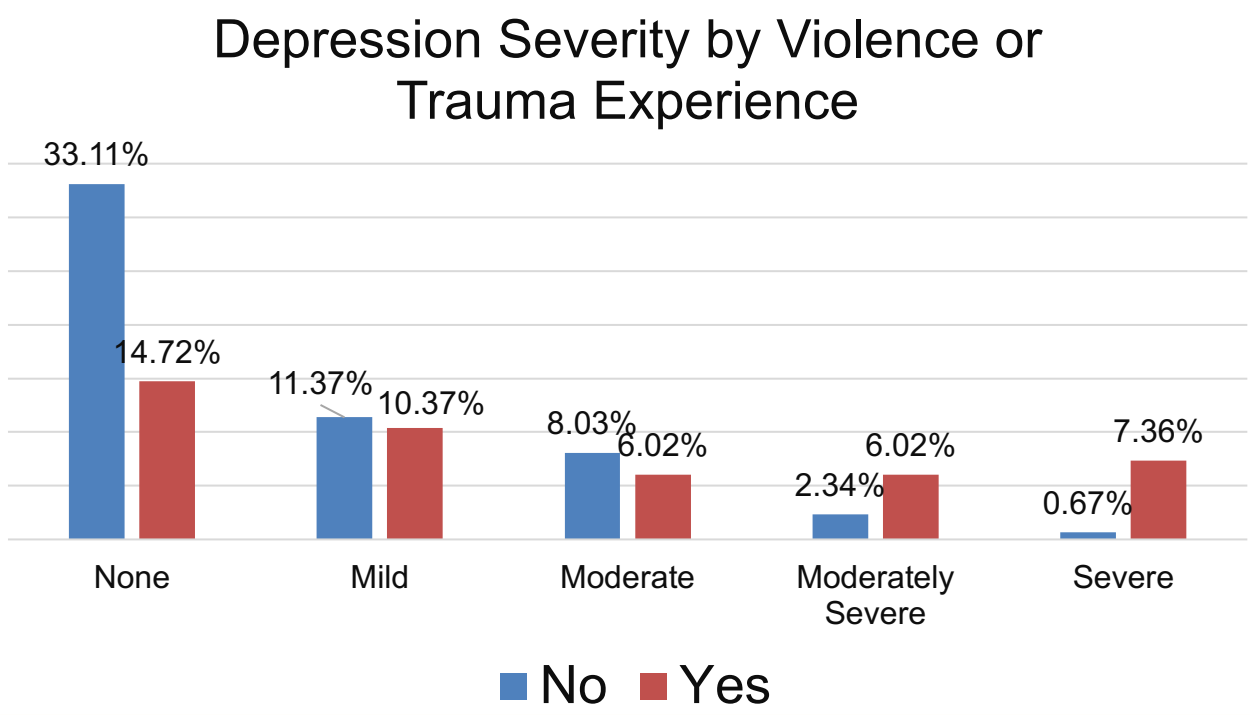
Depression Severity by Living Situation

Depression level	Current living situation				
	Homeless/Other	Living in own home/apartment	Living in residential or group home	Staying with relative or friend	Total
None	1.74%	39.93%	1.39%	5.56%	48.61%
Mild	1.04%	14.93%	1.39%	3.47%	20.83%
Moderate	0.35%	9.38%	1.39%	3.13%	14.24%
Moderately Severe	1.04%	4.51%	1.74%	0.69%	7.99%
Severe	0.69%	2.43%	1.04%	4.17%	8.33%
Total	4.86%	71.18%	6.94%	17.01%	100.00%

The “severe depression” was highest among the respondents staying with relative or friend (4.17% of the total population).

Depression Severity by Educational Attainment

Depression level	Education					
	Less than 9th grade	High School incomplete	High School graduate	Bachelor's degree	M.S./Ph.D.	Total
None	11.19%	6.99%	16.78%	9.09%	4.20%	48.25%
Mild	4.20%	3.50%	8.39%	3.50%	1.40%	20.98%
Moderate	3.50%	2.45%	6.64%	1.05%	0.70%	14.34%
Moderately Severe	1.40%	0.35%	4.90%	1.05%	0.35%	8.04%
Severe	1.75%	1.05%	5.24%	0.35%	0.00%	8.39%
Total	22.03%	14.34%	41.96%	15.03%	6.64%	100.00%



- Our study revealed that the "moderately severe" and "severe" levels of depression were highest for the individuals who experienced violence or trauma.
- Food insecurity is associated with depression and anxiety (Fang et al., 2021). Our results indicated that the depression level is highest among food insecure individuals.

Depression Severity by Food Security Level

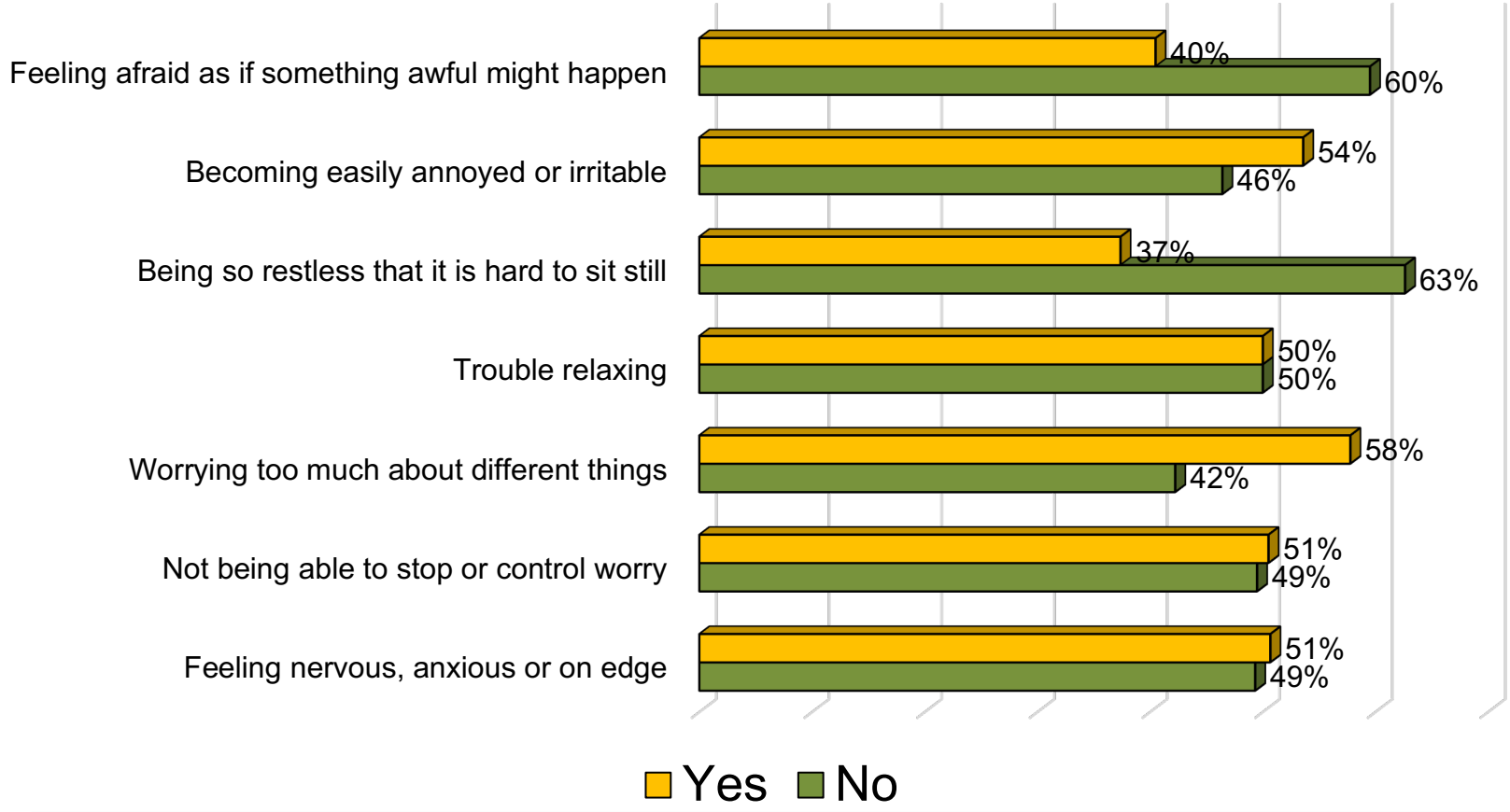
Depression level	Food security level			
	Food insecure	Marginal food secure	High food secure	Total
None	11.67%	29.67%	6.67%	48.00%
Mild	10.67%	9.33%	1.67%	21.67%
Moderate	8.67%	4.67%	0.67%	14.00%
Moderately Severe	4.67%	3.00%	0.67%	8.33%
Severe	5.00%	2.33%	0.67%	8.00%
Total	40.67%	49.00%	10.33%	100.00%

Anxiety

General Anxiety Disorder-7 (GAD-7) questionnaires were included in the survey tool to measure anxiety. GAD-7 is a clinically validated tool disseminated in psychiatric clinics and adult primary care to evaluate anxiety severity (Mossman et al., 2017). The GAD-7 questions were listed from A to G in the table below.

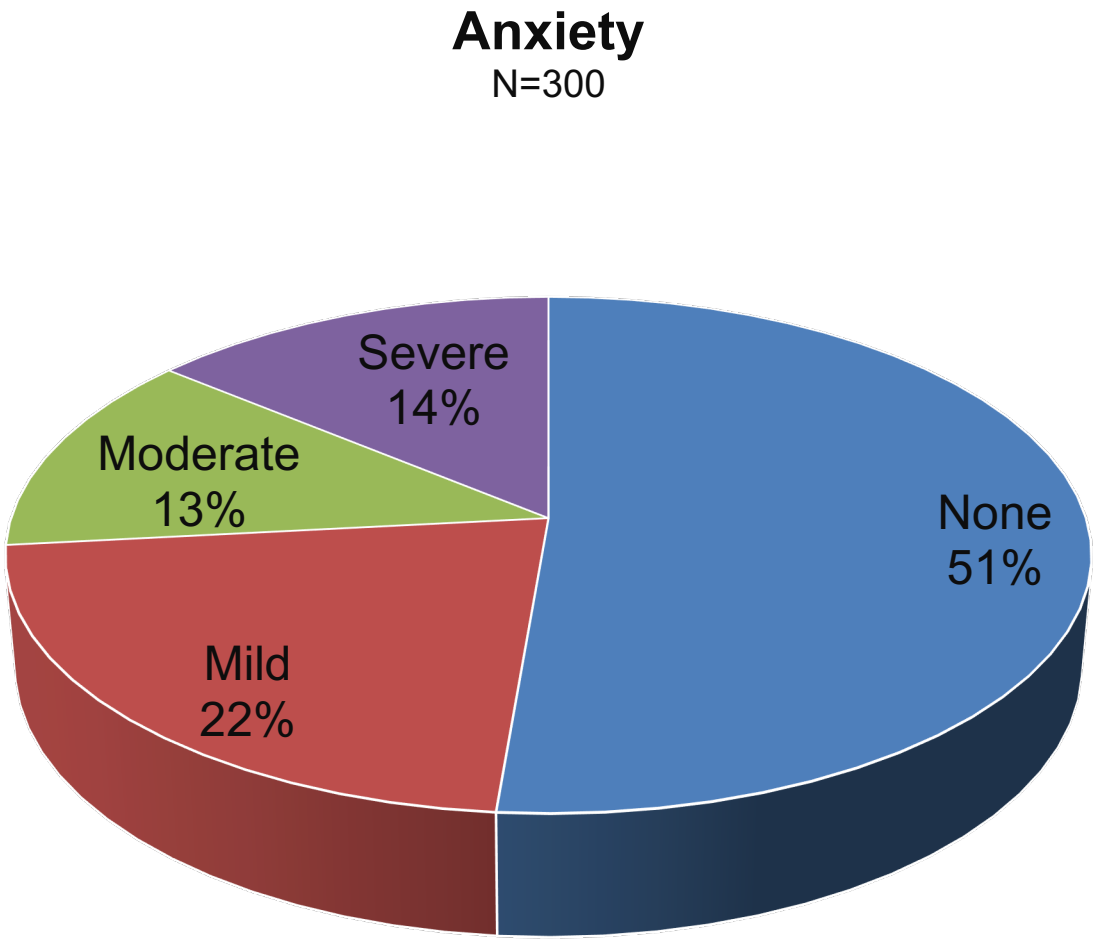
Over the last two weeks, how often have you been bothered by the following problems?		0 – Not at all	1 – Several Days	2 – More than half the day	3 – Nearly every day	N=
A.	Feeling nervous, anxious, or on edge	147	80	33	38	298
B.	Not being able to stop or control worry	147	68	36	46	297
C.	Worrying too much about different things	125	81	39	51	296
D.	Trouble relaxing	148	69	40	39	296
E.	Being so restless that it is hard to sit still	186	51	26	34	297
F.	Becoming easily annoyed or irritable	136	87	29	41	293
G.	Feeling afraid as if something awful might happen	172	60	18	39	289

Responses for GAD-7



Responses to GAD-7 were categorized as “No” and “Yes” for 0 and 1 to 3, respectively. Around 58% of the respondents reported that they worry too much about different things over the last two weeks.

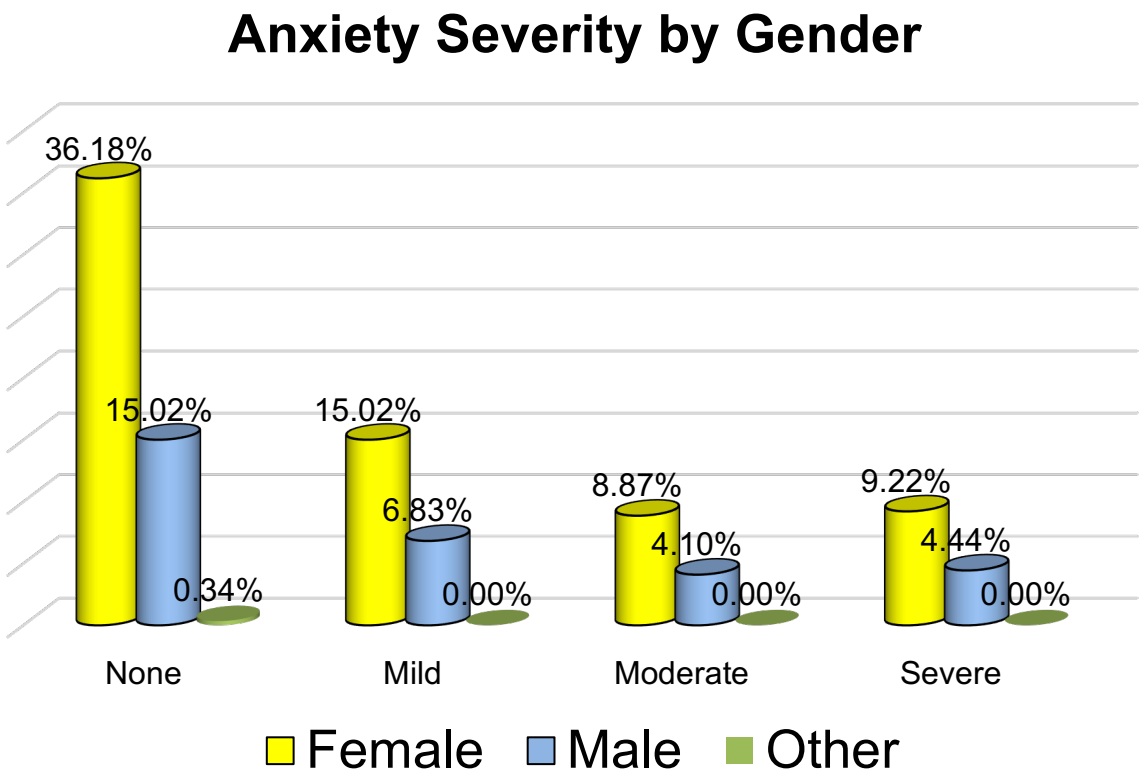
The total score for GAD-7 ranged from 0 to 21. We categorized the anxiety level as none (0 to 4), mild (5-9), moderate (10-14), and severe (15-21), following Fang et al. (2021).



The analysis showed that 49% of the total respondents have some level of anxiety.

Determinants of Anxiety

Anxiety Severity by Age Group						
Anxiety level	Age group					
	18 to 25	26 to 35	36 to 50	51 to 60	60 to 75	Total
None	1.76%	10.56%	16.90%	12.68%	9.15%	51.06%
Mild	2.46%	4.93%	6.34%	5.63%	2.82%	22.18%
Moderate	1.76%	1.41%	4.93%	2.82%	2.11%	13.03%
Severe	1.41%	4.23%	3.87%	2.82%	1.41%	13.73%
Total	7.39%	21.13%	32.04%	23.94%	15.49%	100.00%



Anxiety Severity by Race

Anxiety level	Race						
	American Indian	Asian	Black/African American	Other	Unknown	White	Total
None	0.34%	0.34%	35.25%	1.02%	0.34%	13.56%	50.85%
Mild	0.68%	0.00%	12.88%	0.68%	0.00%	8.14%	22.37%
Moderate	1.02%	0.00%	6.44%	0.00%	0.00%	5.08%	12.54%
Severe	0.00%	0.00%	6.10%	0.34%	0.00%	7.80%	14.24%
Total	2.03%	0.34%	60.68%	2.03%	0.34%	34.58%	100.00%

As in the case of depression, anxiety was severe in the White respondents. However, the mild and moderate level of anxiety was highest among Black/African Americans.

Anxiety Severity by Marital Status

Anxiety level	Marital status					
	Single	Married	Divorced	Widowed	Other	Total
None	23.39%	16.95%	6.44%	2.37%	1.36%	50.51%
Mild	13.56%	6.10%	1.02%	1.02%	0.68%	22.37%
Moderate	8.81%	1.69%	2.03%	0.34%	0.00%	12.88%
Severe	7.80%	1.36%	2.37%	1.02%	1.69%	14.24%
Total	53.56%	26.10%	11.86%	4.75%	3.73%	100.00%

Anxiety Severity by Employment Status

Anxiety Level	Employment status		
	No	Yes	Total
None	16.67%	34.01%	50.68%
Mild	13.61%	8.84%	22.45%
Moderate	8.50%	4.42%	12.93%
Severe	9.86%	4.08%	13.95%
Total	48.64	51.36	100.00

Depression and anxiety are highly associated with employment and earnings. Unemployment and low earnings increase the likelihood of depression and anxiety (Ford et al., 2010).

Anxiety Severity by Monthly Income

Anxiety level	Income level				
	$0-$1,000	$1,000-$2,000	$2,000-$5,000	$5,000-$10,000	Total
None	18.93%	11.43%	16.43%	3.21%	50.00%
Mild	12.14%	5.71%	2.50%	2.50%	22.86%
Moderate	7.14%	2.86%	1.79%	1.07%	12.86%
Severe	9.64%	4.29%	0.36%	0.00%	14.29%
Total	47.86%	24.29%	21.07%	6.79%	100.00%

Anxiety Severity by Current Living Situation

Anxiety Level	Current living situation				
	Homeless/Other	Living in own home/apartment	Living in residential or group home	Staying with relative or friend	Total
None	1.04%	42.36%	2.08%	5.90%	51.39%
Mild	2.08%	14.58%	1.39%	3.13%	21.18%
Moderate	0.35%	6.94%	2.08%	3.47%	12.85%
Severe	1.39%	7.29%	1.39%	4.51%	14.58%
Total	4.86%	71.18%	6.94%	17.01%	100.00%

Anxiety Severity by Educational Attainment

Anxiety level	Educational attainment					
	Less than 9th grade	High School incomplete	High School graduate	Bachelor's degree	M.S./Ph.D.	Total
None	11.54%	6.29%	17.48%	9.79%	4.90%	50.00%
Mild	3.85%	3.85%	9.79%	3.15%	1.40%	22.03%
Moderate	3.15%	2.10%	6.64%	1.40%	0.00%	13.29%
Severe	3.50%	2.10%	8.04%	0.70%	0.35%	14.69%
Total	22.03%	14.34%	41.96%	15.03%	6.64%	100.00%

Anxiety Severity by Violence or Trauma Experience

Anxiety level	Experience of violence or trauma in any setting		
	No	Yes	Total
None	35.79%	15.38%	51.17%
Mild	11.37%	10.70%	22.07%
Moderate	4.68%	8.03%	12.71%
Severe	3.68%	10.37%	14.05%
Total	55.52%	44.48%	100.00%

- Our study revealed that the “moderate” and “severe” anxiety levels are highest for the individuals who experienced violence or trauma.
- Food insecurity is associated with depression and anxiety (Fang et al., 2021). Our results indicated that the anxiety level is highest among food insecure individuals.

Anxiety Severity by Food Security Level

Anxiety level	Food security level			
	Food insecure	Marginal food secure	High food secure	Total
None	12.00%	32.00%	7.33%	51.33%
Mild	13.33%	8.00%	0.67%	22.00%
Moderate	6.67%	5.33%	0.67%	12.67%
Severe	8.67%	3.67%	1.67%	14.00%
Total	40.67%	49.00%	10.33%	100.00%

Food Security Concerns

- We used a standard food insecurity survey developed by the United States Department of Agriculture (USDA) to measure the food security status of the respondents (Coleman-Jensen et al., 2021). The survey had 18 questions. The first ten questions were asked to access the food security status of adults (A to J in the table below). The remaining questions, K to R, were asked only if the household included children aged 0-17 years.
- Following Coleman-Jensen et al. (2021), questions A-C and K-M were coded as affirmative (indicating food insecurity) if the response was “often” or “sometimes.” Questions E, J, Q were coded as affirmative if the response was “almost every month” or “some months but not every month.”

		Often	Sometimes	Never	N=
A.	In the last 12 months, have you worried whether your food would run out before you got money to buy more?	17.41%	26.96%	55.63%	293
B.	In the last 12 months, did the food you buy not last long, and you didn't have money to get more?	12.41%	30.69%	56.90%	290
C.	In the last 12 months, could you afford to eat balanced meals?	51.51%	32.76%	15.70%	293

		No	Yes	N=
D.	In the last 12 months, did you or other adults in the household ever cut the size of your meals, eat less than you ought to, or skip meals because there wasn't enough money for food?	77.13%	22.87%	293

		Almost every month	Some months but not every month	Only 1 or 2 months	N=
E.	(If yes to question D) How often did this happen?[2]	40.91%	43.94%	15.15%	66

		No	Yes	N=
F.	In the last 12 months, did you or other adults ever eat less than you or they ought (to eat less) because there wasn't enough money for food?	78.69%	21.31%	291
G.	In the last 12 months, were you or other adults ever hungry, but didn't eat, because there wasn't enough money for food?	81.16%	18.84%	292
H.	In the last 12 months, did you or other adults lose weight because there wasn't enough money for food?	85.57%	14.43%	291
I.	In the last 12 months, did you or other adults in your household ever not eat for a whole day because there wasn't enough money for food?	89.62%	10.38%	289

[2] It is a conditional question depending on the affirmative response of the previous question.

		Almost every month	Some months but not every month	Only 1 or 2 months	N=
J.	(If yes to question I) How often did this happen?[3]	13.33%	73.33%	13.33%	30

Food security concerns if the household includes children 0-17 years[4]

		Often	Sometimes	Never	N=
K.	In the last 12 months, did you rely on only a few kinds of low-cost food to feed your children because you were running out of money to buy food?	4.55%	12.34%	83.12%	154
L.	In the last 12 months, were you unable to feed your children a balanced meal, because you couldn't afford to?	4.70%	7.38%	87.92%	149
M.	In the last 12 months, were your children not eating enough because you just couldn't afford enough food?	3.97%	9.27%	86.75%	151

[3] It is a conditional question depending on the affirmative response of the previous question.
[4] Responses are recorded only if the number of children in a household is not 0 (zero).

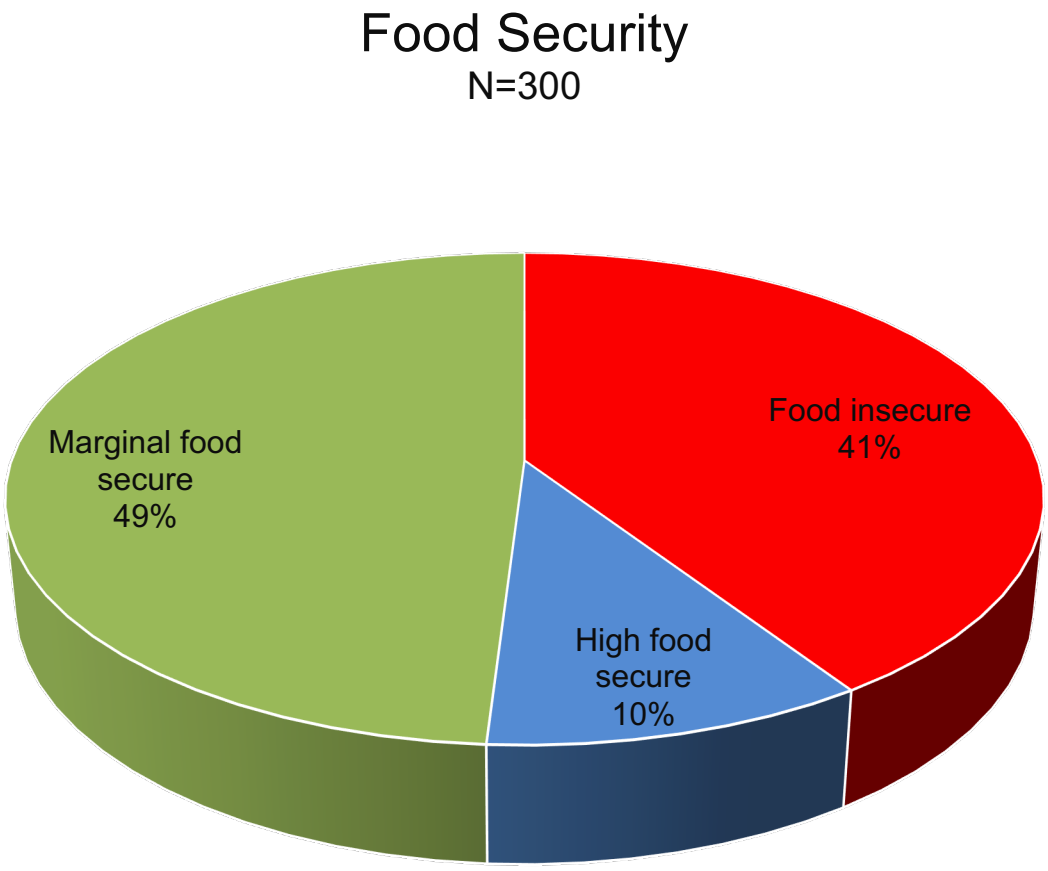
		No	Yes	N=
N.	In the last 12 months, were the children ever hungry but you just couldn't afford more food?	93.20%	6.80%	147
O.	In the last 12 months, did you ever cut the size of any of the children's meals because there wasn't enough money for food?	91.22%	8.78%	148
P.	In the last 12 months, did any of the children ever skip a meal because there wasn't enough money for food?	92.57%	7.43%	148

		Almost every month	Some months but not every month	Only 1 or 2 months	N=
Q.	(If yes to question P) How often did this happen?[5]	45.45%	45.45%	9.09	11

		No	Yes	
R.	In the last 12 months, did any of the children ever not eat for a whole day because there wasn't enough money for food?	94.56%	5.44%	147

[5] It is a conditional question depending on the affirmative response of the previous question.

We categorized food security as “high food secure,” “marginal food secure,” and “food insecure” following (USDA, 2021). “High food” secure individuals have access to enough food at all times. “Marginal food” secure means the individual reported food shortage and insufficiency in the household. “Food insecure” individuals had the experience of reducing their food intake and disrupting eating patterns due to food inaccessibility (Gundersen & Ziliak, 2015).



The survey results indicated that 90% of the respondents were food insecure at some level.

Determinants of Food Insecurity

Food Security Level by Age Group

Food security level	Age group					
	18 to 25	26 to 35	36 to 50	51 to 60	60 to 75	Total
High food secure	0.35%	3.52%	3.17%	0.70%	1.41%	9.15%
Marginal food secure	3.17%	7.75%	14.79%	14.79%	9.86%	50.35%
Food insecure	3.87%	9.86%	14.08%	8.45%	4.23%	40.49%
Total	7.39%	21.13%	32.04%	23.94%	15.49%	100.00%

- Food insecurity was higher among the age group of 36 to 50 years old.
- Females were more food insecure compared to males.

Food Security Level by Gender

Food security level	Gender			
	Female	Male	Other	Total
High food secure	6.48%	3.75%	0.00%	10.24%
Marginal food secure	35.84%	13.99%	0.00%	49.83%
Food insecure	26.96%	12.63%	0.34%	39.93%
Total	69.28%	30.38%	0.34%	100.00%

Food Security Level by Race

Food security level	Race						
	American Indian	Asian	Black/African American	Other	Unknown	White	Total
High food secure	0.00%	0.34%	6.44%	0.00%	0.00%	2.71%	9.49%
Marginal food secure	0.68%	0.00%	31.53%	1.02%	0.00%	16.61%	49.83%
Food insecure	1.36%	0.00%	22.71%	1.02%	0.34%	15.25%	40.68%
Total	2.03%	0.34%	60.68%	2.03%	0.34%	34.58%	100.00%

- Food insecurity was high among African American respondents.
- Single (never married) individuals were more food insecure.

Food Security Level by Marital Status

Food security level	Marital status					
	Single	Married	Divorced	Widowed	Other	Total
High food secure	6.78%	2.03%	1.02%	0.00%	0.00%	9.83%
Marginal food secure	22.03%	17.63%	5.42%	3.05%	1.36%	49.49%
Food insecure	24.75%	6.44%	5.42%	1.69%	2.37%	40.68%
Total	53.56%	26.10%	11.86%	4.75%	3.73%	100.00%

Food Security Level by Employment Status

Food security level	Employment Status		
	Unemployed	Employed	Total
High food secure	4.76%	5.44%	10.20%
Marginal food secure	18.71%	30.95%	49.66%
Food insecure	25.17%	14.97%	40.14%
Total	48.64%	51.36%	100.00%

- Food security was directly associated with income and employment.
- Our results revealed that unemployed respondents and individuals below $1,000 per month were food insecure.

Food Security Level by Monthly Income Level

Food security level	Income level				
	$0-$1,000	$1,000-$2,000	$2,000-$5,000	$5,000-$10,000	Total
High food secure	5.00%	2.14%	2.50%	0.36%	10.00%
Marginal food secure	19.64%	11.79%	13.93%	4.29%	49.64%
Food insecure	23.21%	10.36%	4.64%	2.14%	40.36%
Total	47.86%	24.29%	21.07%	6.79%	100.00%

Food Security Level by Current Living Situation

Food security level	Current living situation				
	Homeless/Other	Living in own home/apartment	Living in residential or group home	Staying with relative or friend	Total
High food secure	0.35%	7.29%	0.35%	2.08%	10.07%
Marginal food secure	1.39%	40.63%	1.39%	6.60%	50.00%
Food insecure	3.13%	23.26%	5.21%	8.33%	39.93%
Total	4.86%	71.18%	6.94%	17.01%	100.00%

Food Security Level by Educational Attainment

Food security level	Educational attainment					
	Less than 9th grade	High School incomplete	High School graduate	Bachelor's degree	M.S./Ph.D.	Total
High food secure	4.20%	1.40%	2.45%	1.05%	0.35%	9.44%
Marginal food secure	10.49%	4.90%	20.63%	8.39%	4.55%	48.95%
Food insecure	7.34%	8.04%	18.88%	5.59%	1.75%	41.61%
Total	22.03%	14.34%	41.96%	15.03%	6.64%	100.00%

Food Security Level by Violence or Trauma Experience

Food security level	Experienced violence or trauma in any setting		
	No	Yes	Total
A.High food secure	8.03%	2.34%	10.37%
B.Marginal food secure	29.10%	20.07%	49.16%
C.Food insecure	18.39%	22.07%	40.47%
Total	55.52%	44.48%	100.00%

Food insecurity was severe for individuals suffering from mental health problems. Experience of violence and trauma are positively associated with depression and anxiety(Wang et al., 2020). Therefore, it is more likely that the individuals who experienced violence or trauma were food insecure.

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