

Blindspot—Exposing Disparities in U.S. Care Delivery

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Today's Presenters



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Apollo Intelligence

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therapeutic areas represented



Research Purpose

Over the past year, Apollo's Diversity, Equity, and Inclusion (DEI) Committee has been creating awareness about DEI challenges in the workplace, community, and society at large. As part of this initiative, Apollo sought to examine biases within U.S. healthcare to shed light on this important issue.



Research Context

Research on U.S. healthcare and race has illuminated disparities in care that warrant further investigation and understanding. Notable recent data includes:

- The 2016 *Proceedings of the National Academies of Sciences in the United States of America* study with U.S. medical students on their beliefs regarding the biological difference between races. Among other findings, the data revealed belief in the following myths:
 - “Black people’s **skin is thicker** than white people’s,” was believed by **40%** of first-year medical students and **42%** of second-years.
 - The myth that "black people's **blood coagulates more quickly** than white's," was believed by **29%** of first-year students.
 - The study presented several false beliefs amid some true ones, and **about 50%** of respondents reported at least one of the false belief items was possibly, probably, or definitely true. Those subscribing to false beliefs more often rated black patients’ pain as lower than white patients’ and were less inclined to treat them with the appropriate level of pain medication.
- A 2019 study from the *Journal of Emergency Medicine*, revealed that black patients were **40%** less likely to receive medication for their acute pain, compared to their white counterparts, while Hispanic patients were 25% less likely receive it.



Methodology

METHOD	HCPs: 9-minute survey Patients: 6-minute survey
FIELDING PERIOD	HCPs: May 20-26, 2021 Patients: May 20-30, 2021
CROWDS	HCPs n=350 (50/specialty) Patients: n=200
SCREENING CRITERIA	<p>HCPs respondents:</p> <ul style="list-style-type: none">• 50/50 split of white/people of color (POC)• Must treat an ethnically diverse population• And had to treat both men and women <p>Patient respondents:</p> <ul style="list-style-type: none">• 50/50 split of white/POC• Had to be diagnosed with a medical condition• Had to have seen a doctor within the last year

OBJECTIVES

In researching disparities in U.S. healthcare, Apollo sought to:

- Understand implicit bias among physicians based on gender and race
- Examine how physicians and hospitals are addressing these disparities
- Discern how patients perceive disparities in care and manage them

Apollo's healthcare disparity research explores perceptions and myths among U.S. healthcare providers and patients through quantitative methods. This research includes evaluations of perceptions and practices through image research, personal experiences, and observations of healthcare professionals (HCPs) by their colleagues.

SPECIALTY BREAKDOWN

Primary Care Physicians	50
Nurses	50
Oncologists	50
Cardiologists	50
Neurologists	50
Pulmonologists	50
Rheumatologists	50

PATIENT BREAKDOWN

Asthma or COPD	51
Diabetes	45
High blood pressure, hypertension or high cholesterol	44
Migraine	33
Autoimmune diseases	18
Cancer	8
Multiple Sclerosis	1

Physician Data & Analysis



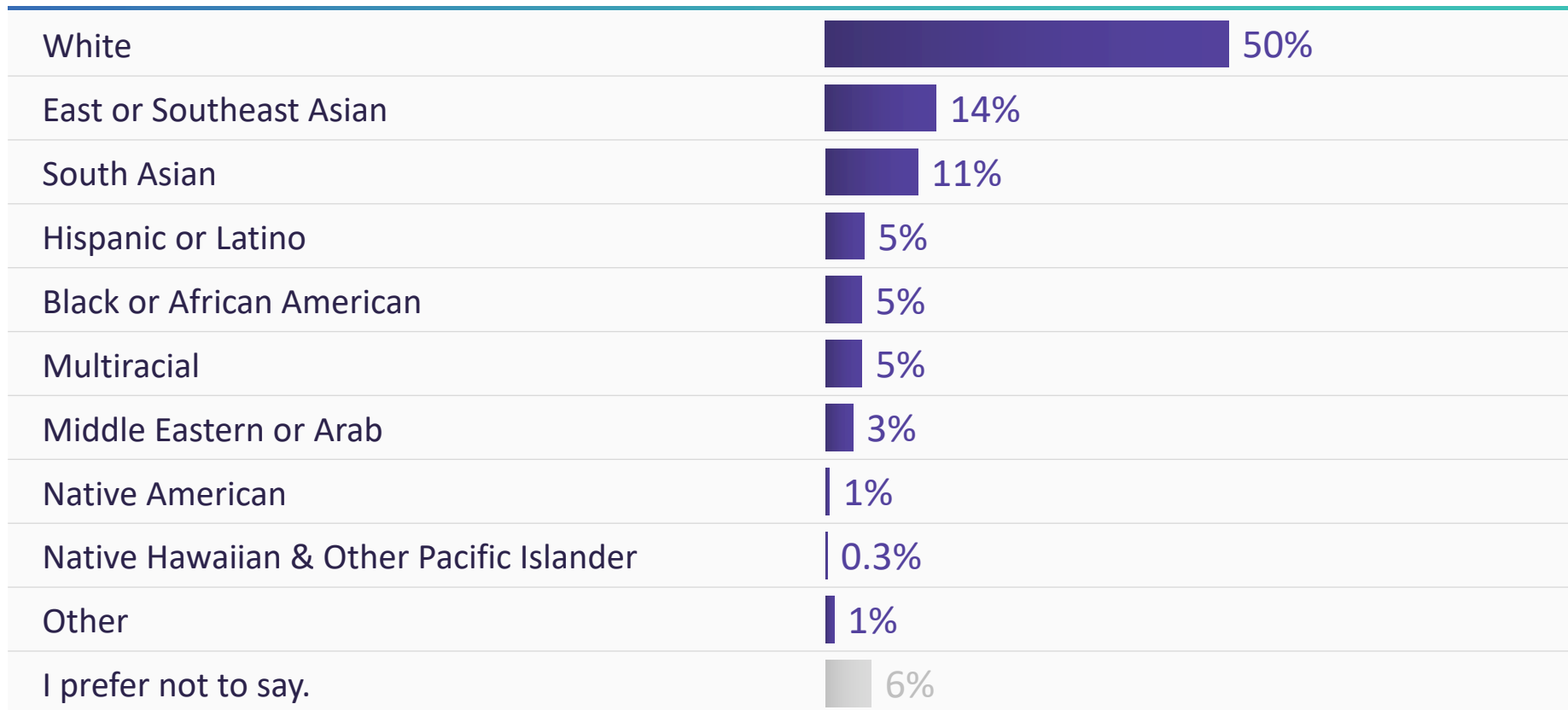
HCPs surveyed are split 50/50 between white and non-white ethnicities.

HCPs

Q2

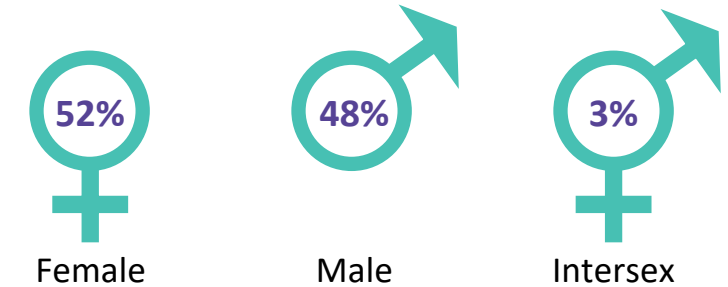
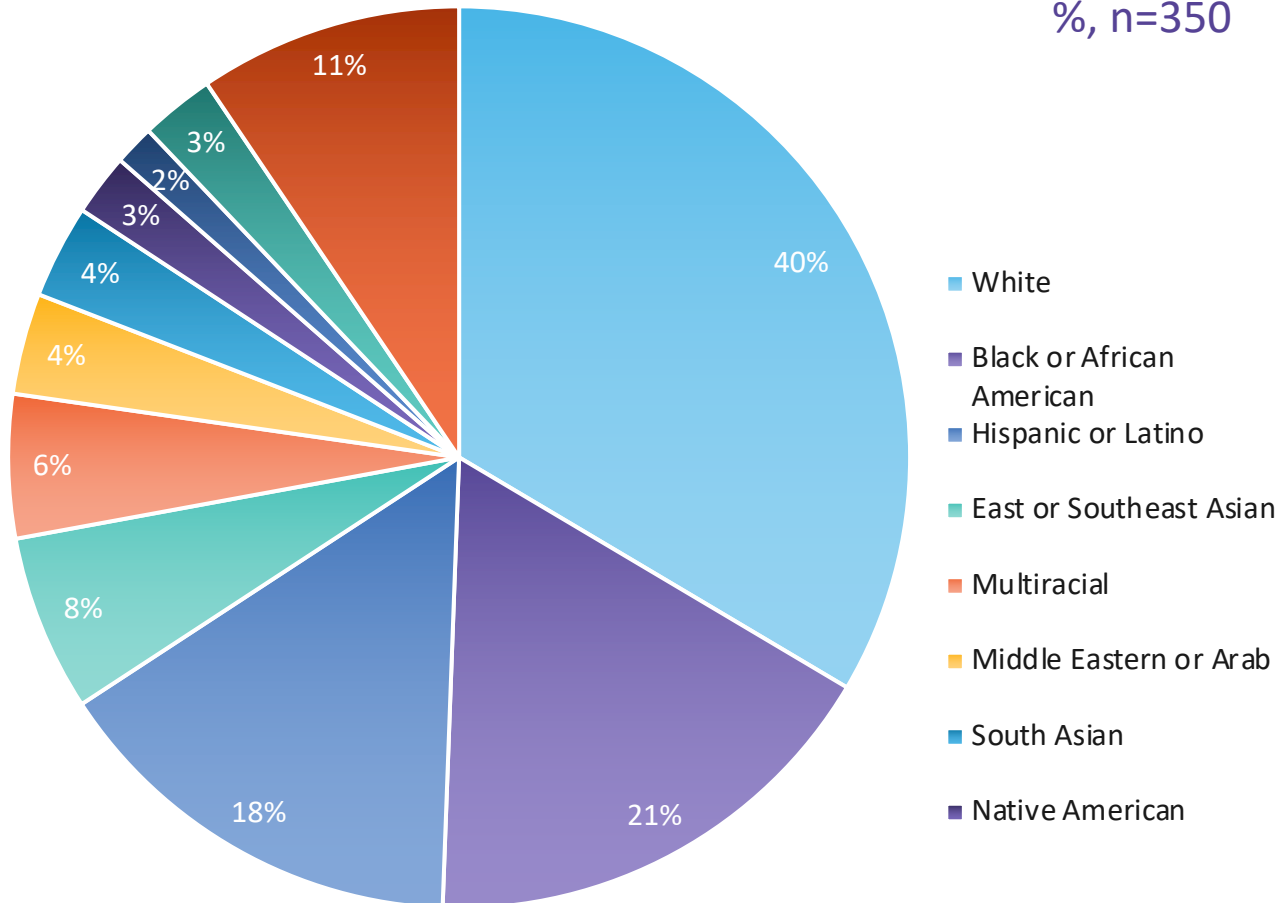
How do you
self-identify?

Breakdown of Physician Ethnicities % of total, n=350



HCPs report that on average, 40% of their patients are white, 21% are black, and 18% are Hispanic. An average of 67% of respondents' patients have a household income below \$75,000. And HCP's have a mostly even split of male to female patients.

Patient Population by Ethnicities, Income, and Gender Average
%, n=350



Patients by Income	
\$12,000 through \$24,999	18%
\$25,000 through \$49,999	24%
\$50,000 through \$74,999	25%
\$75,000 through \$99,999	18%
\$100,000 through \$149,999	13%
\$150,000 or greater	10%
Don't Know	53%

Health Profile Assumptions Images

HCPs

Q6-7

Considering a patient that looks like this person, what do you think might describe this person's health profile?

How long (in years) do you think this patient's life expectancy is?

Concept 1: Overweight Black Woman



Concept 2: Overweight White Man



* Difference between concepts is statistically significant at the 95% CI



HCPs are more likely to assume an overweight black woman is diabetic as compared to an overweight white man which is consistent with clinical outcomes.*

HCPs


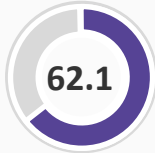

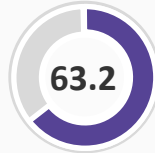
Q6-7

Considering a patient that looks like this person, what do you think might describe this person's health profile?

How long (in years) do you think this patient's life expectancy is?

* Difference between concepts is statistically significant at the 95% CI

Health Profile Assumptions Average and % total unaided mentions, n=350

Concept 1: Overweight Black Woman		Concept 2: Overweight White Man
Average Estimate		
Life Expectancy (years)	  62.1 years old	  63.2 years old
% Mentioning		
Obese	52%	45%
Diabetic/ prediabetic	46%*	33%*
Hypertensive/cardiovascular issues	41%	36%
Poor health/at risk for chronic illness	21%	21%
Overweight	14%	18%
Hyperlipidemic/hypercholesterolemic	13%	14%
Dysmetabolic	7%	7%
Sleep apnea	4%*	8%*
Cardiovascular issues/heart failure	4%	3%
Average/Acceptable health	4%	6%



*"African American adults are 60 percent more likely than non-Hispanic white adults to be diagnosed with diabetes by a physician." <https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=18>

Race Disparities Across Sex Images

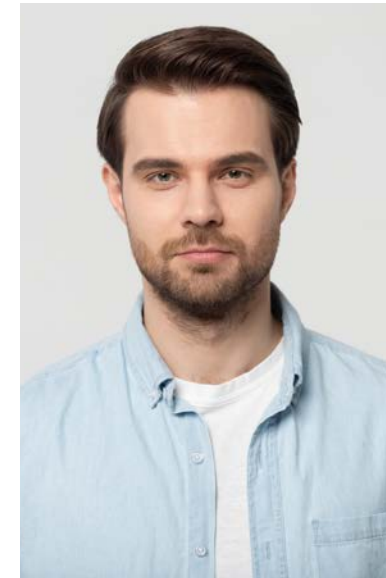
HCPs

Q8

On a scale of 1 - 7,
please rate how
strongly you agree or
disagree with the
following statements
about person A
compared to person
B.

* Difference between
concepts is statistically
significant at the 95% CI

Concept 1		Concept 2	
Person A: Black Woman	Person B: White Woman	Person A: White Man	Person B: Black Man



Respondent data suggests that HCPs are more likely to make health assumptions regarding black patients.

HCPs Q8

On a scale of 1 - 7, please rate how strongly you agree or disagree with the following statements about person A compared to person B.

* Difference between concepts is statistically significant at the 95% CI

Race Biases Across Sex % selecting top three agreement ratings, n=350

	Concept 1		Concept 2	
	Person A: Black Woman	Person B: White Woman	Person A: White Man	Person B: Black Man
Person A has a higher likelihood of developing heart disease than Person B. ¹	<div></div> 44% [*]		<div></div> 12% [*]	
Person A likely has denser, stronger bones than Person B. ¹	<div></div> 36% [*]		<div></div> 8% [*]	
Person A's medical concerns are likely to be the same as Person B's.	<div></div> 26%		<div></div> 27%	
Person A will likely present in the same way as Person B.	<div></div> 25%		<div></div> 29%	



¹ Items that are factual or true. <https://www.pnas.org/content/113/16/4296/tab-figures-data#xref-fn-4-1>

HCPs differ in how greatly they find that race correlates with health outcomes and how much influence they believe race should play in considering their patients' health risks.

HCPs

Q9

Please elaborate on your ratings from the previous question.

“

“There are many factors that influence health, there are also factors such as income, access to health insurance, education level that can affect the willingness to seek medical care. **We need to move away from treating people differently based on ethnicity.**”

— Rheumatologist

“

“Patients are more than just a picture or a race or a sex. And **while things may be more common or less common based on race or sex for example that may not be the case with these two individuals.**”

— Pulmonologist

“

“**Those with different ethnicities do present different risks** -- a person of white or European decent is more prone to osteoporosis and other diseases such as melanoma, and a person of African decent is more likely to have hypertension, sickle cell disease, and all the risks that come with less than adequate healthcare throughout one's life.”

— Oncologist

“

“**There are certain health disparities that exist among different races even at same income level.** In addition, black patients are more likely to have hypertension and diabetes and receive care later therefore ending up with more complications.”

— Cardiologist



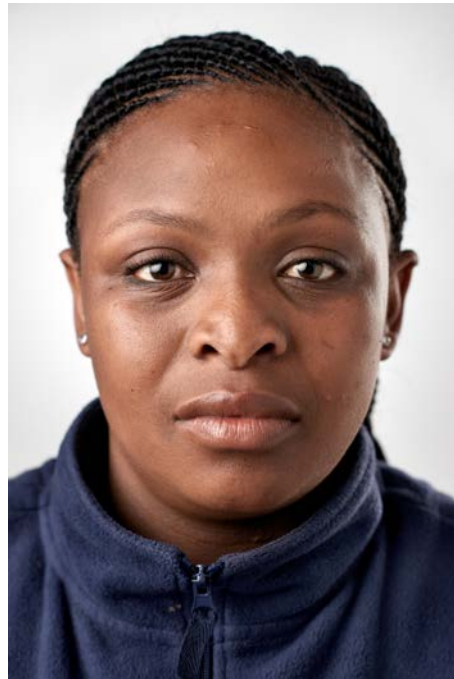
Race and Sex Biases Images

HCPs Q10

On a scale of 1 - 7, please rate how strongly you agree or disagree with the following statements about the person in the image.

* † Difference between concepts is statistically significant at the 95% CI

Concept 1:
Black Woman



Concept 2:
White Man



Concept 3:
Asian Woman



Although agreement among these statements is low, HCPs are still nearly twice as likely to doubt a black woman when prescribing opioids, considering ulterior motives, and questioning if pain is exaggerated as compared to a white man or an Asian woman. HCPs are most likely to trust an Asian woman regarding her health concerns.

HCPs Q10

On a scale of 1 - 7, please rate how strongly you agree or disagree with the following statements about the person in the image.

* † Difference between concepts is statistically significant at the 95% CI

Race and Sex Biases % selecting top three agreement ratings, n=350

	Concept 1: Black Woman	Concept 2: White Man	Concept 3: Asian Woman
This person's race will dictate his/her health outcomes.	<div></div> 34% *	<div></div> 25% *	<div></div> 19% *
This patient might cause my colleagues to hesitate when prescribing opioids.	<div></div> 25% *	<div></div> 14% *	<div></div> 7% *
My colleagues will assume that this patient has exaggerated his/her pain level.	<div></div> 18% * †	<div></div> 7% *	<div></div> 4% †
My colleagues would hesitate to believe everything this patient tells them about his/her medical history.	<div></div> 14% *	<div></div> 8% *	<div></div> 4% *
My colleagues would be concerned that this patient has ulterior motives when seeking medical care.	<div></div> 13% * †	<div></div> 7% *	<div></div> 4% †
This patient would likely come to my colleagues seeking medications he/she doesn't necessarily need.	<div></div> 10% *	<div></div> 7% *	<div></div> 3% *

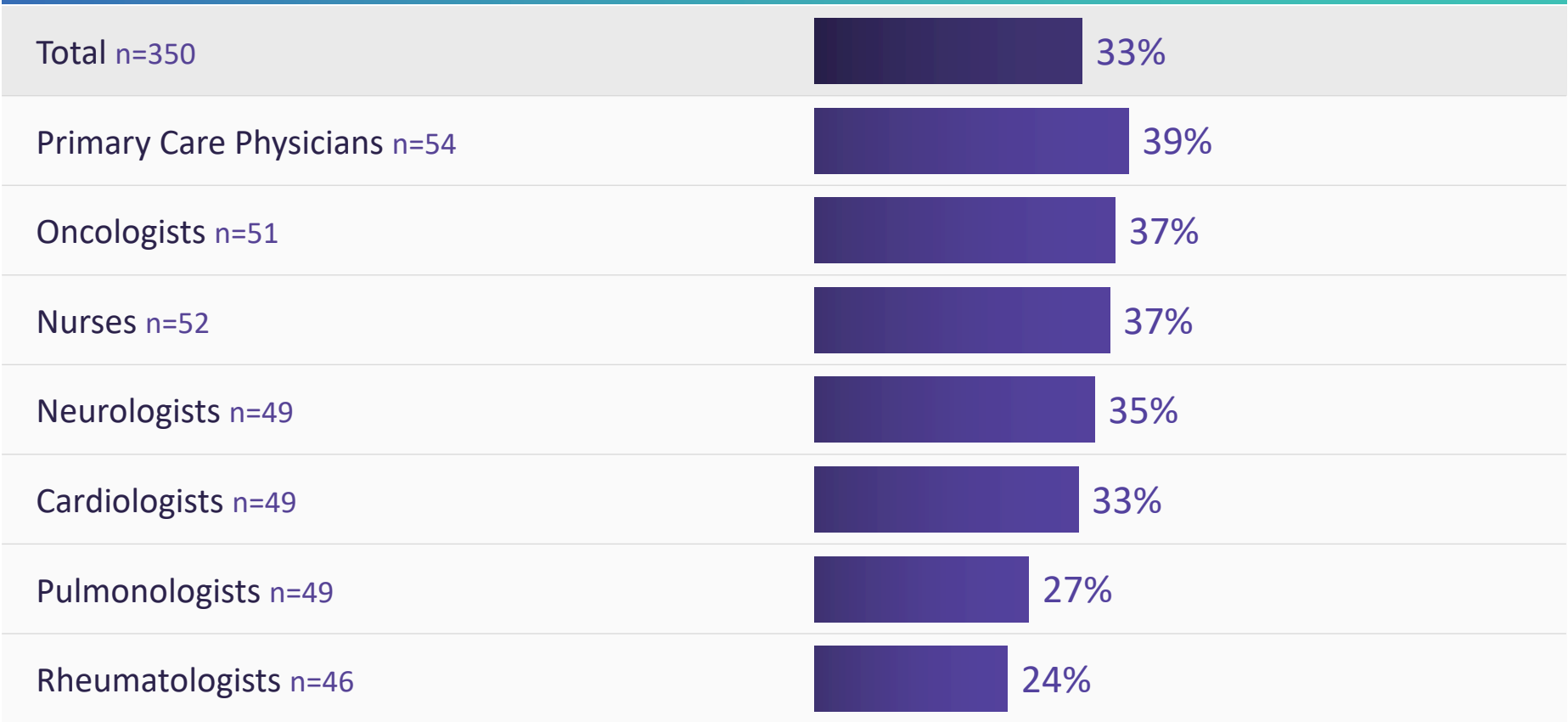


Only a third of HCPs report familiarity with implicit bias.

HCPs Q11

How familiar are you with implicit bias in healthcare delivery?

Familiarity With Implicit Bias % selecting top two familiarity ratings



Close to half of HCPs report that they have witnessed a colleague apply bias to a case based on a patient's sex or race.

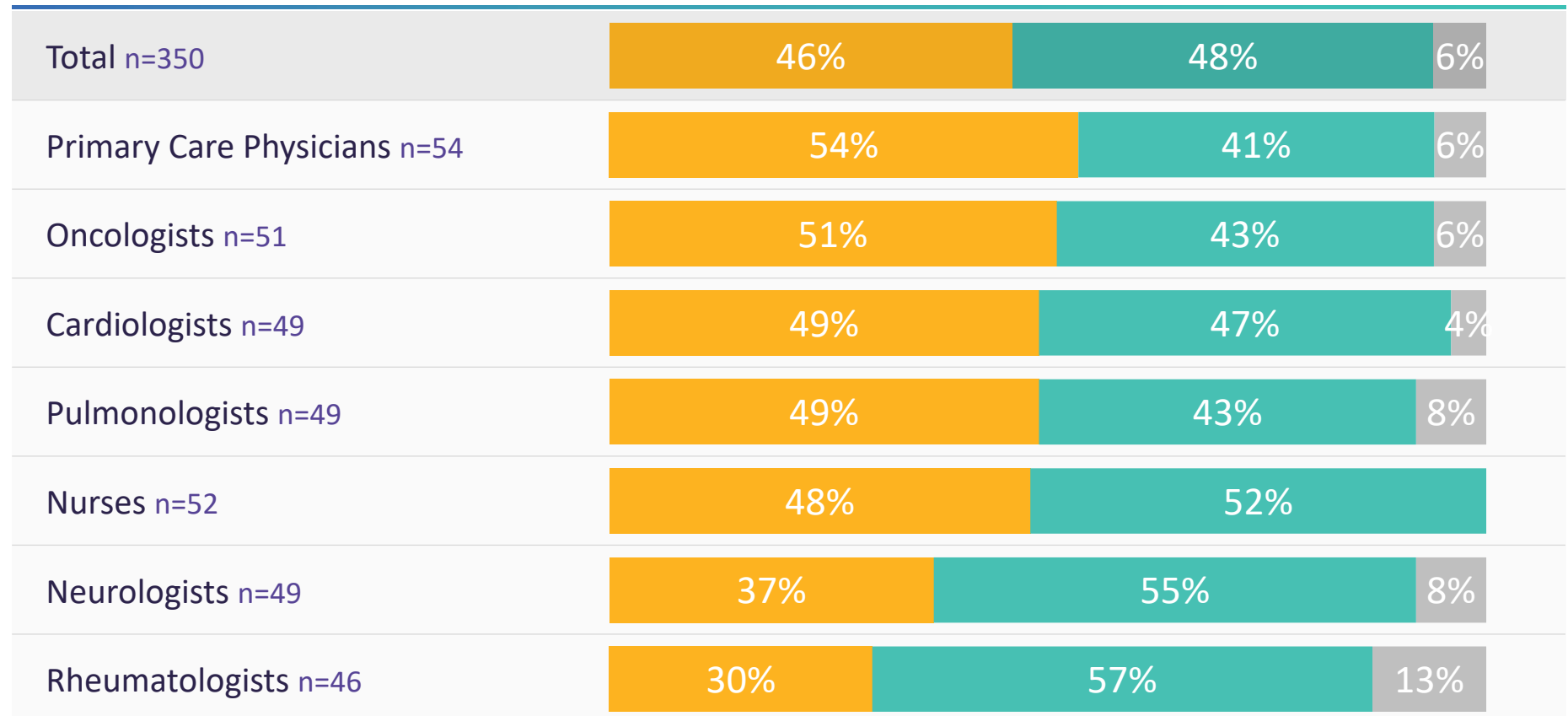
HCPs Q12

Have you ever observed a time when a colleague applied bias to a situation based on a patient's sex or race?

KEY

- Have observed
- Have not observed
- Unclear/ Not sure

Have Observed Colleagues Apply Bias % total unaided mentions, n=350



Most anecdotes of bias regarding colleagues involve dismissing female patients' pain and symptoms as histrionics and not trusting black patients' use of medication.

HCPs

Q12

Have you ever observed a time when a colleague applied bias to a situation based on a patient's sex or race? Please describe the situation.

“

“Colleagues often **consider females to be more histrionic and have psychiatric conditions that contribute to their medical issues** or motives for seeking medical aid. There is quite a bit of eye rolling among my colleagues regarding young female patients.”

— Primary Care Physician

“

“A young lady having a second childbirth had complaints of SOB (shortness of breath) and and was near delivery, and the **OB brushed it off as anxiety attacks and she became anoxic** vegetable from undiagnosed cardiomyopathy.”

— Neurologist

“

“I have seen countless times where **assumptions were made about socioeconomic status, likelihood of drug abuse, and likelihood of medication compliance due to race**, most often directed towards black patients”.

— Neurologist

“

“Based on reports of pain or controlled substance seeking, they are **less apt to believe the story or trust a patient to appropriately use medications based on their ethnicity** (for example, less trust placed in black patients).”

— Pulmonologist



Less than a third report that they have recognized any instances of bias playing out in their own behavior towards patients.

HCPs

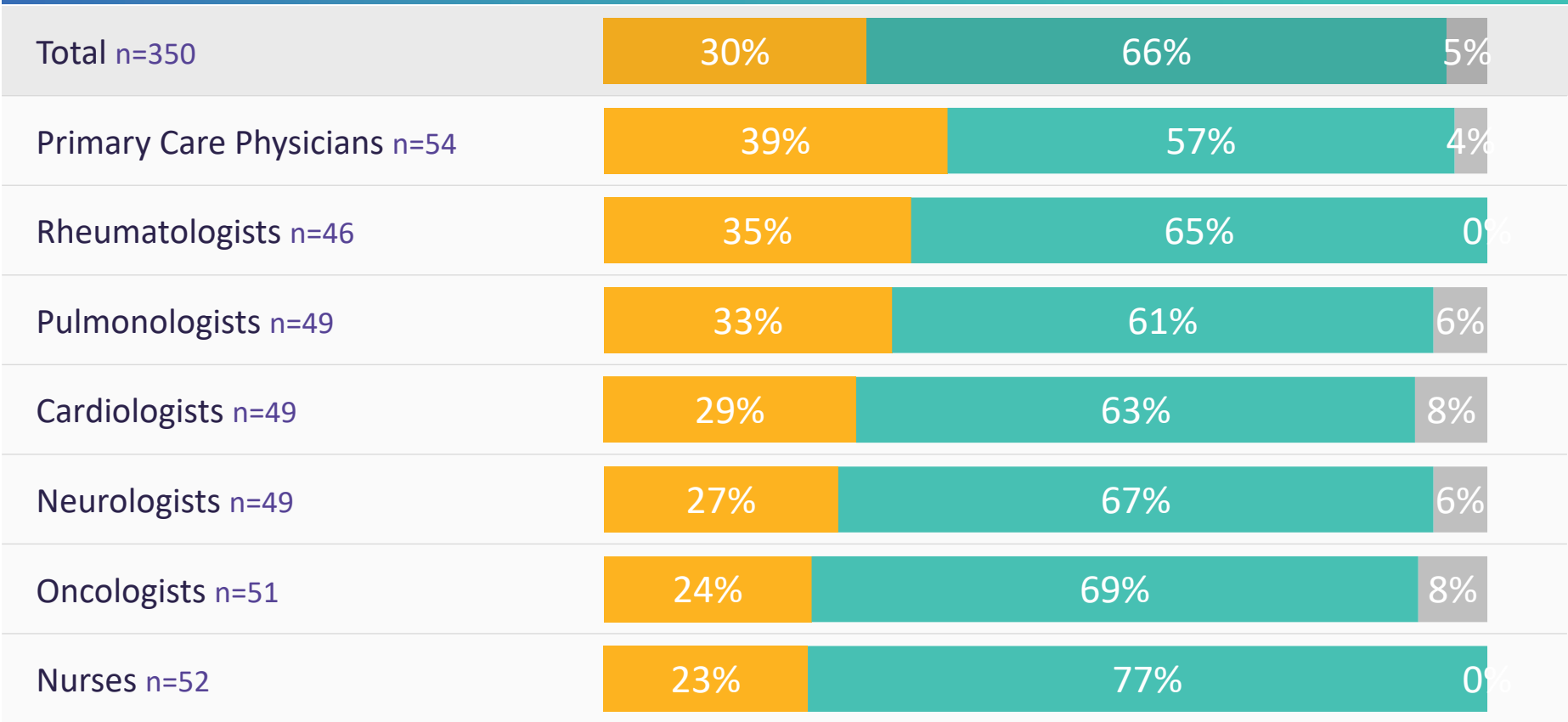
Q12

Have you ever caught yourself applying bias to a situation based on a patient’s sex or race?

KEY

- Have observed
- Have not observed
- Unclear/ Not sure

Have Applied Bias Themselves % total unaided mentions, n=350



Reports of personal bias are similar to that of colleagues—most involve mistrust of minorities and females when it comes to accurately reporting symptoms and procuring pain medication.

HCPs

Q13

Have you ever caught yourself applying bias to a situation based on a patient’s sex or race? Please describe the situation.

“

*“I would be ignorant and disingenuous to say I haven't, as we all have our biases we must combat in order to treat everyone fairly. A particular situation is when **I assumed a young white woman was feigning abdominal pain for opiates, only to discover later she had PID.**”*

— Primary Care Physician

“

*“Admittedly **I have done so with women who have presented with pain and because they may insert more emotional content into their symptoms** I have presumed their complaints to be functional in nature..”*

— Rheumatologist

“

*“I have noticed that I have a higher **suspicion that my young, African American female patients are likely not compliant** with their medications or prescribed diets.”*

— Rheumatologist

“

*“There’s been times where **I’ve thought my Hispanic patients were exaggerating their pain level.**”*

— Rheumatologist

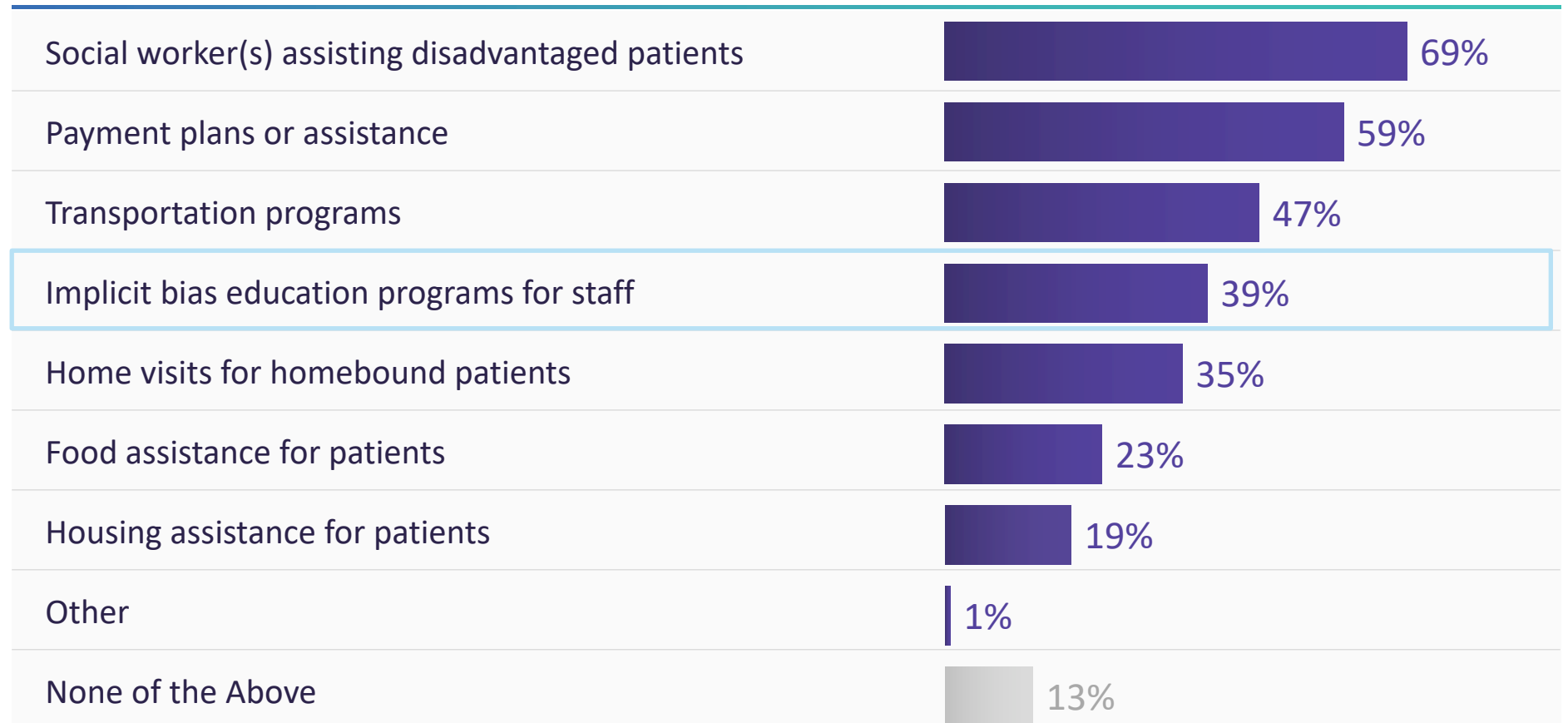


Over half of HCPs report that their facilities offer social worker support and payment assistance to help address health disparities.

HCPs Q14

What kinds of programs does your hospital or institution provide to help address health disparities among patients?

Current Facility Programs for Addressing Disparities % selecting, n=350

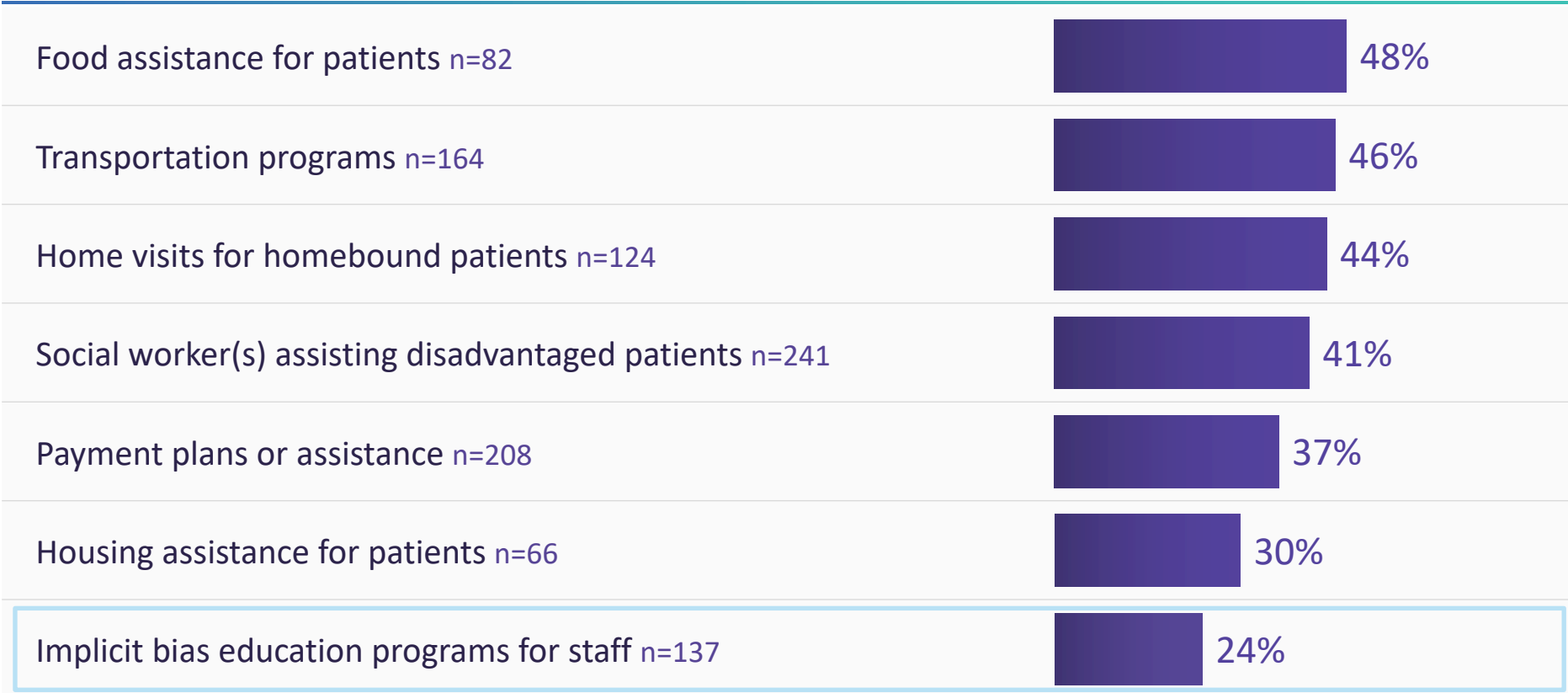


Food assistance, transportation programs, and home visits were rated as the top three most successful programs at offsetting disparities, where as staff educational programs were rated least successful.

HCPs Q15

Please rate the success of each of these programs.

Success of Current Facility Programs for Addressing Disparities % selecting top two success ratings among those who indicated program implementation in their facilities



HCPs share that although education and financing are crucial to help bridge the health gap for marginalized populations, dealing with disparities in healthcare is a complex and nuanced issue.

HCPs Q16

How do you think programs that address health disparities among patients could be improved?

“

“Continued training for HCPs about implicit bias - I am concerned that the way this training is often delivered now is a "check the box" sort of situation with online videos to skip through and a perfunctory quiz at the end. This doesn't send the message that the institution takes this seriously, and better quality training about recognizing these disparities would be more valuable.”

— Neurologist

“

“What's needed is more funding so that we can provide high pay for those persons dedicated to this line of work, as well as promoting greater awareness to those in need, making services more widely available.”

— Pulmonologist

“

“This is a simple question to a complex answer. Health disparities are affected by trust in the healthcare system, health education among the patients, economic status and access to different parts of the healthcare system, work status and its impact on the ability to have a safe environment or to have time to obtain medical care, language barriers and a lot more.”

— Pulmonologist

“

“I truly feel that health disparities have more to do with access to care and socioeconomic factors than race or culture. As a profession, if we devote a proportion of our time to serving the underserved and accepting little or no remuneration for it, we can minimize this problem.”

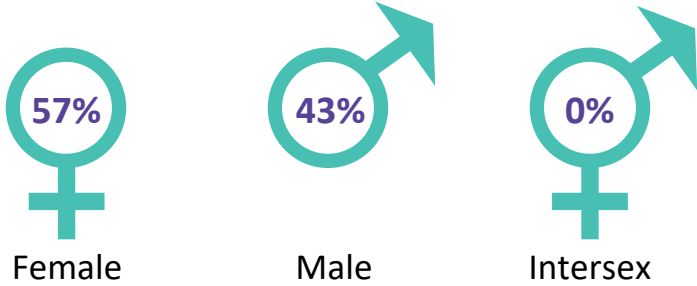
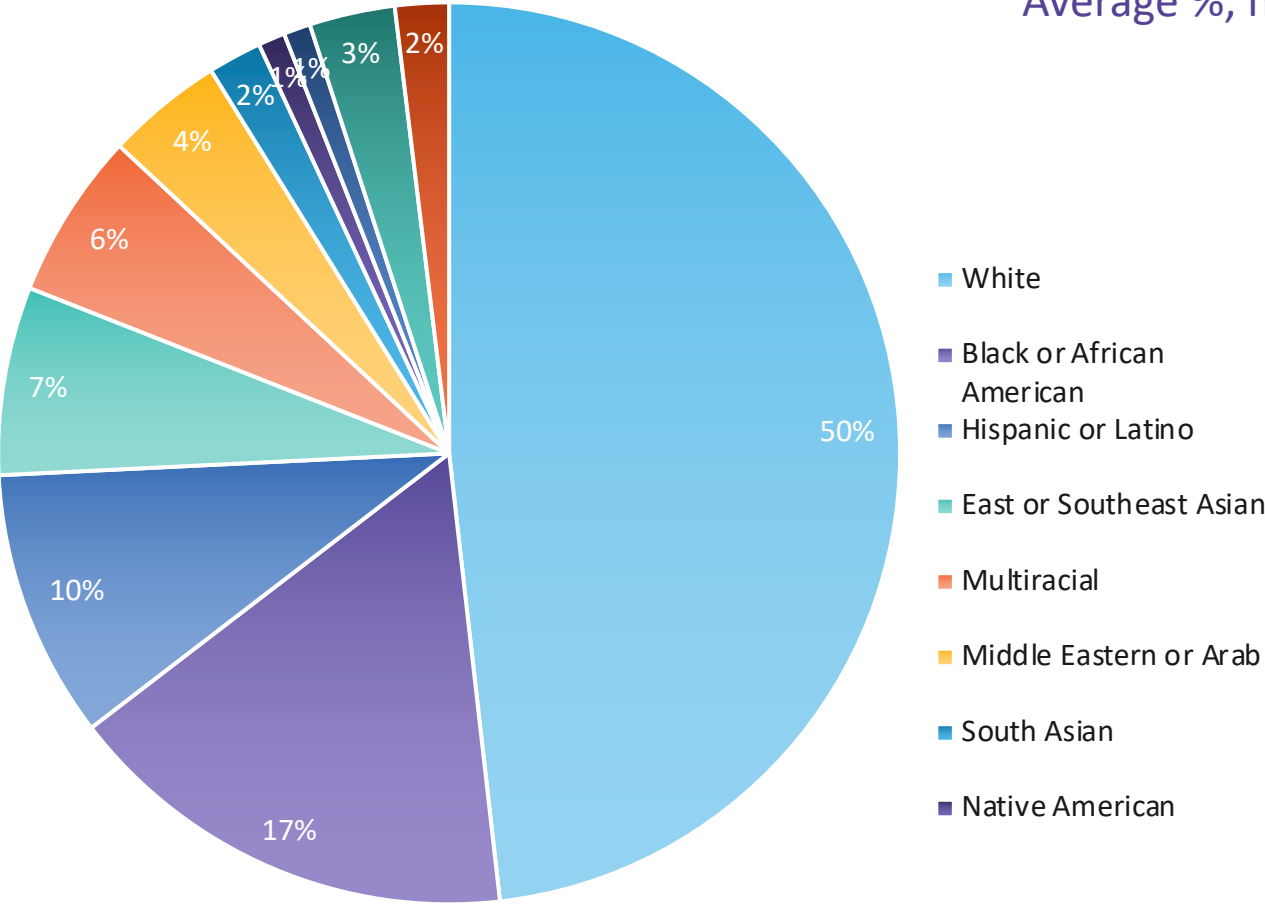
— Rheumatologist



Patient Data & Analysis

Surveyed patients are split 50/50 between white and non-white ethnicities with slightly more female patients compared to male. They include those with asthma/COPD, diabetes, hypertension, migraines, AI conditions, and MS. No significant differences are present related to race and health condition.

Breakdown of Patients by Ethnicities, Condition, and Gender
Average %, n=200



Condition	Total n=200	White n=100	Non-White n=97
Asthma or COPD	26%	24%	28%
Diabetes	23%	18%	27%
High blood pressure, hypertension or high cholesterol	22%	21%	23%
Migraine	17%	21%	12%
Autoimmune diseases (e.g., rheumatoid arthritis, lupus, IBS, psoriasis, vasculitis, myasthenia gravis, etc.)	9%	11%	6%
Cancer	4%	4%	4%
Multiple Sclerosis	1%	1%	0%



Most surveyed patients have been to four or fewer doctors' appointments this year.

Patients

Q4

How many times have you visited with a physician (either in-person or via telehealth) or gone to the hospital to receive healthcare services in the past year?

Appointments Since 2021 % of total

	Total n=200	White n=100	Non-White n=97
None	0%	0%	0%
1-4	<div><div></div></div> 67%	<div><div></div></div> 70%	<div><div></div></div> 63%
5-9	<div><div></div></div> 27%	<div><div></div></div> 25%	<div><div></div></div> 30%
10+	<div><div></div></div> 6%	<div><div></div></div> 5%	<div><div></div></div> 7%

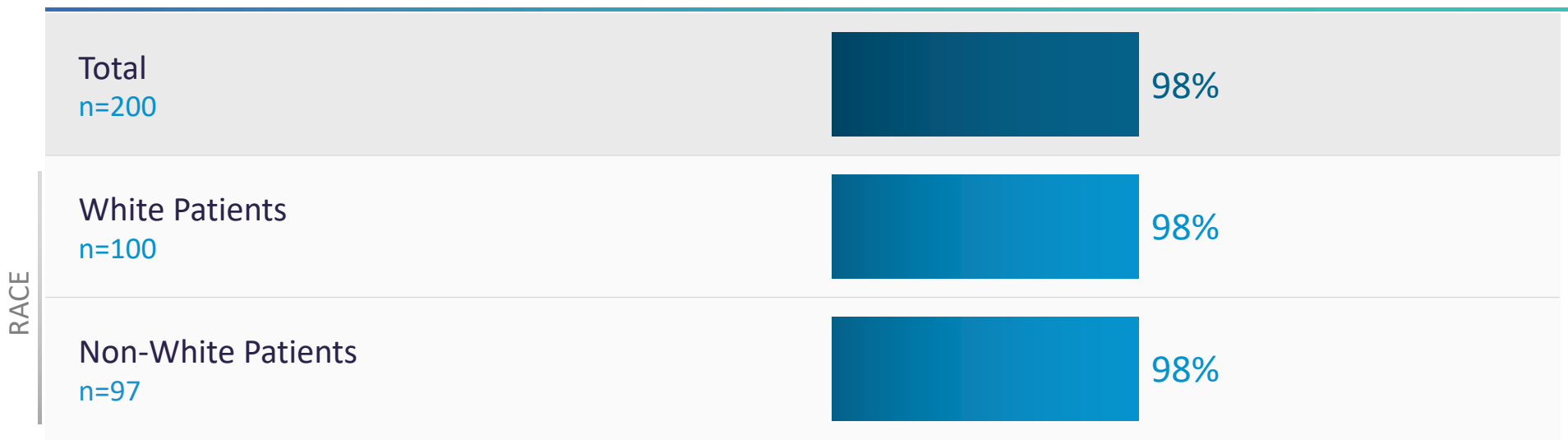


Nearly all surveyed patients have access to a primary care physician.

Patients Q5

Do you have a
primary care
doctor?

Access to Primary Care Doctor % of total



Most patients attend between 2-5 visits before receiving a diagnosis, receive 2-4 tests, and wait 1-4 months before seeing a specialist. No significant difference is noted between ethnicities.

Patients

Q6-8

Metrics for Receiving Care Mean input

	Total n=200	White n=100	Non-White n=97
# Visits before receiving diagnosis	4.4 Median: 2	4.9 Median: 2	4.0 Median: 2
# Tests before receiving diagnosis	3.4 Median: 2	4.0 Median: 2	2.8 Median: 2
# Months before meeting with a specialist	3.4 Median: 1	3.7 Median: 1	3.2 Median: 1

How many visits did it take for you to get diagnosed?

How many tests did your doctor run before you received your diagnosis?

How many months did it take before you could meet with a specialist for treatment



Fifty-six percent of non-white patients and 58% of female patients report instances of feeling like an HCP had not taking their concerns seriously.

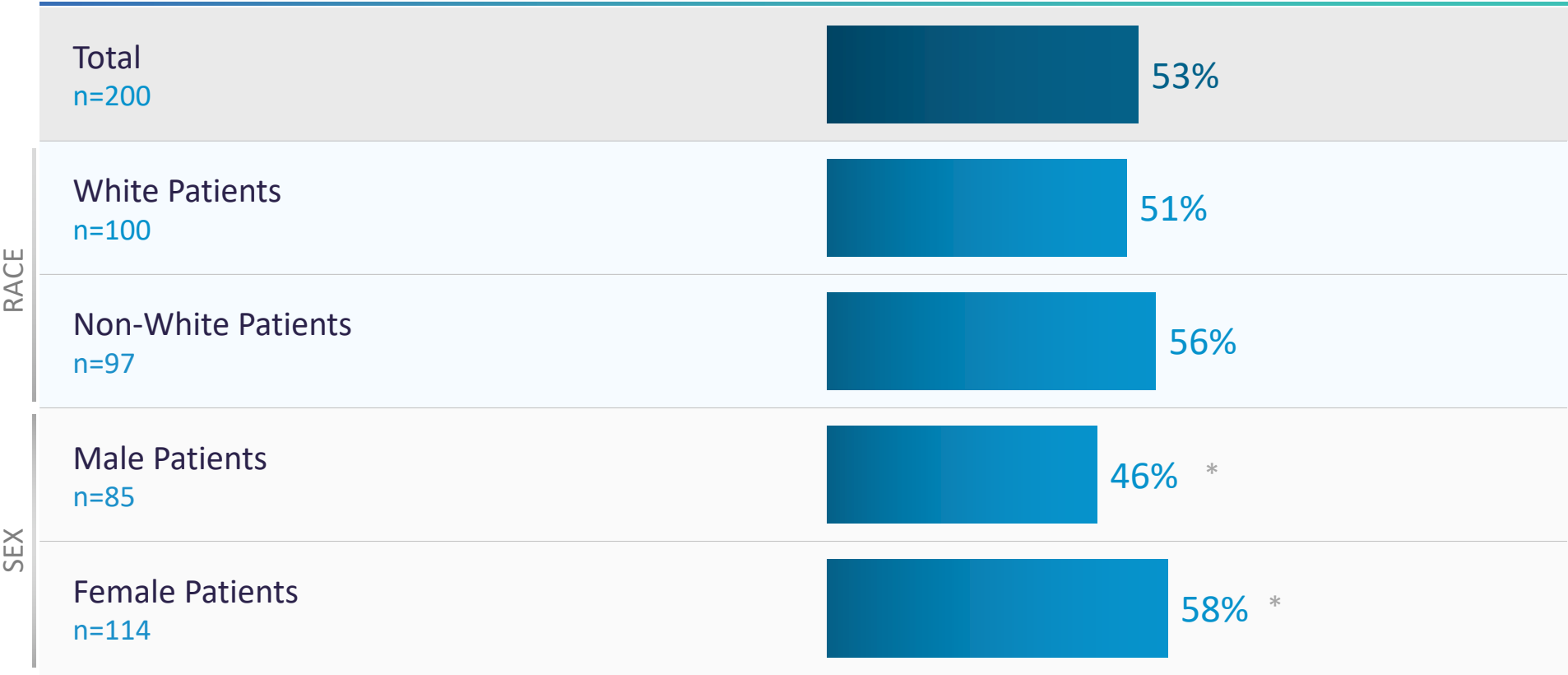
Patients

Q9A

Has there ever been a time in your life where you felt that you were not taken seriously by a healthcare provider (doctor, nurse, etc.)?

* Difference between groups is statistically significant at the 95% CI

Have Felt Invalidated by an HCP % of total



Despite the fact that 53% of patients report that they were on the receiving end of HCP bias, only 30% of HCPs themselves report ever behaving in accordance with bias related to race or sex.

Patients Q9A

Has there ever been a time in your life where you felt that you were not taken seriously by a healthcare provider?

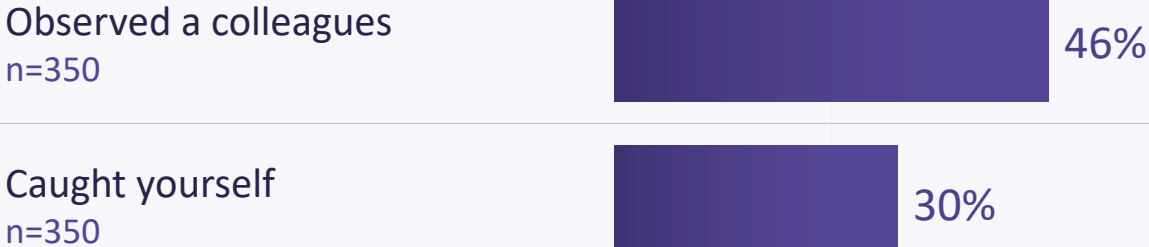
Patients Have Felt Invalidated by an HCP % of minority respondents



HCPs Q12-13

Have you ever observed a time when a colleague applied bias to a situation based on a patient's sex or race?
Have you ever caught yourself applying bias to a situation based on a patient's sex or race?

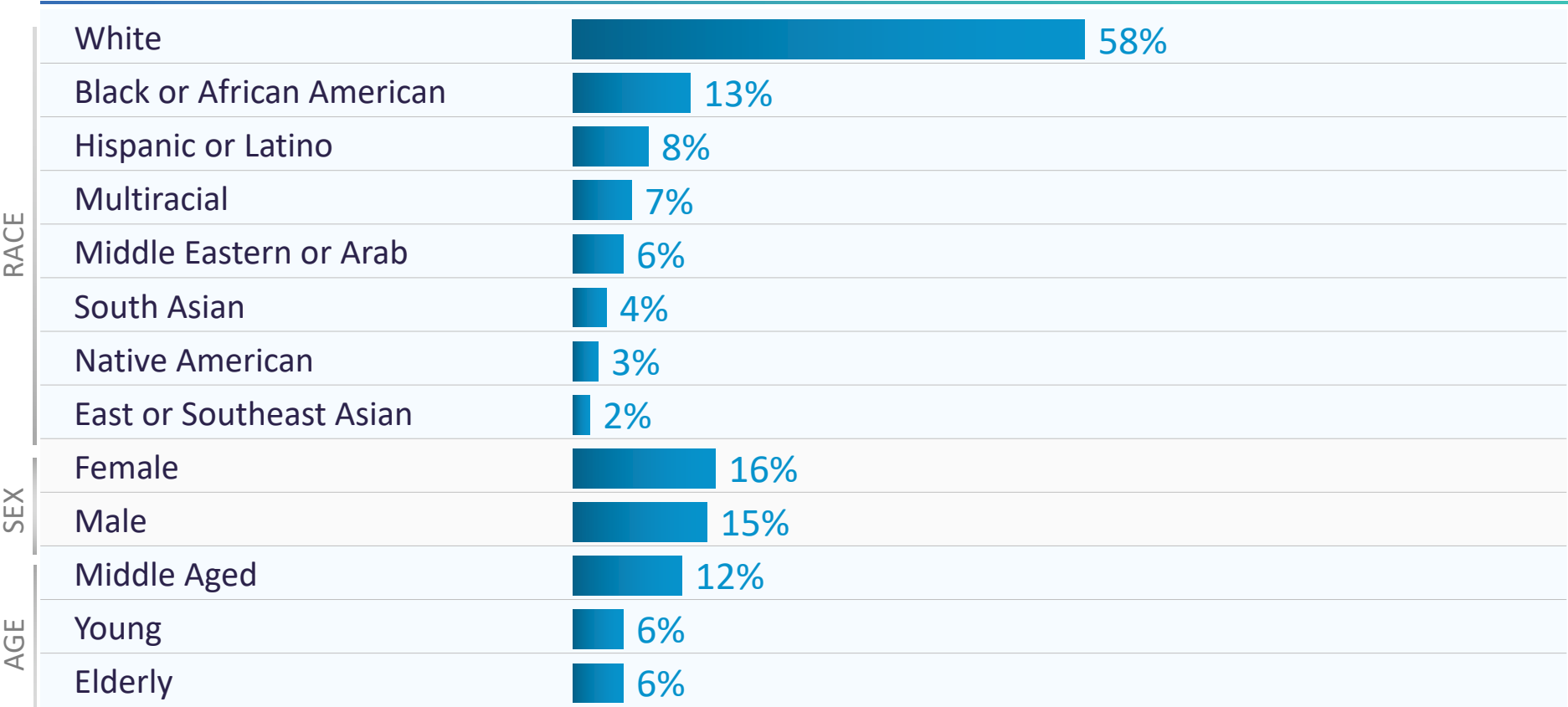
HCPs Have Observed/Exhibited Bias % total unaided mentions



Patients who have felt invalidated by an HCP report that the HCPs are most often white and middle aged, with equal bias coming from both male and female HCPs.

Patients Q9B

Characteristics of Discriminating HCPs % among those indicating experiences of not being taken seriously by an HCP, n=106



If there has been a time where you felt that you were not taken seriously by a healthcare provider, please select the characteristics of the healthcare provider.



Minority and female patients report instances of not being believed or heard by their HCPs, and some share that they were denied treatment until their symptoms worsened.

Patients Q10

Please describe what happened in the situation where you felt that you were not taken seriously by a healthcare provider.

“When I became sick I fell out at work with a collapsed lung. My COPD was caused by my job. It was a workers’ comp case at the start and **I was treated like I was trying to get something for free.**”

— Multiracial male patient with COPD

“I told them I was hurting and couldn't breathe well and **they continuously blamed my weight.** It took me seeing them (as well as different doctors) to finally get a clear diagnosis.”

— Other ethnicity female patient with asthma

“I had GERD with esophagus and had lost tons of weight and needed an appointment for an upper endoscopy. **My doctor said I just needed to eat and didn't give me the appointment.**”

— Black female patient with migraines

“I told my doctor that diabetes runs in my family and I thought I had it. He kept saying no but I felt sick and had all the symptoms. Finally I came back extremely sick and he checked my blood sugar. **He finally took my diagnosis seriously but I could have died.**”

— Hispanic female patient with diabetes

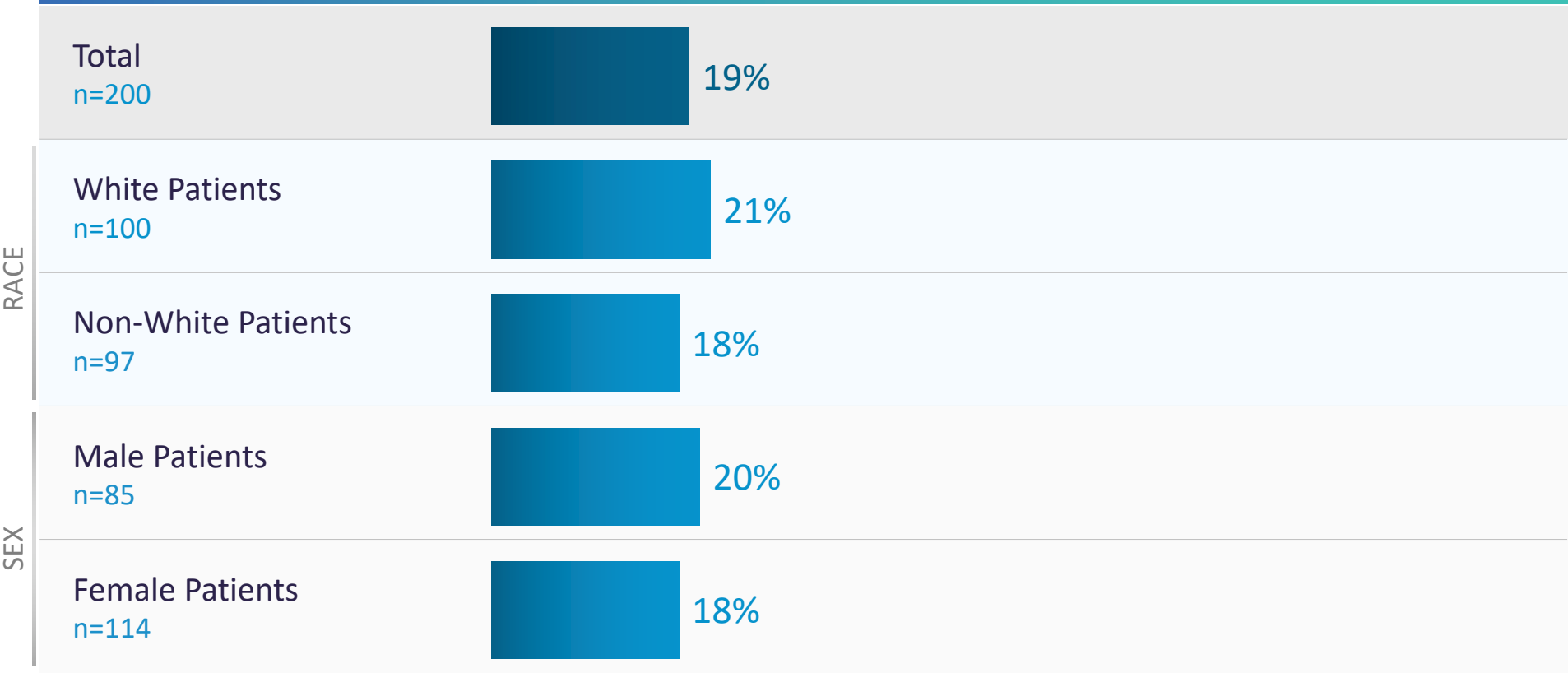


Despite experiencing bias, most patients do not report that they avoid going to the doctor.

Patients Q11

How much do you agree or disagree with the statement 'I generally avoid going to the doctor as much as I can'.

Avoid Going to the Doctor % selecting top two agreement ratings



Patients share that they seek HCPs that they can trust so that they can continue to go to appointments and keep their conditions well managed.

Patients Q12

Please explain why you agree or disagree with the statement ‘I generally avoid going to the doctor as much as I can’.

“I’ve *never had insurance let alone a decent doctor who I was comfortable going to and confident in* him actually successfully treating me or even attempting to.”

— White male patient with migraines

Strongly Agree

“I don’t like doctors. *They treat me like I’m stupid or drug seeking*, even though I actively refuse prescription drugs for pain.”

— White female patient with asthma

Agree

“I need doctors because my diagnoses are complicated. I have several issues that have no standard treatment that works for everyone. I also take quite a few meds that need to be prescribed and monitored. *I just make sure the ones I see listen to me and work with my concerns.*”

— White female patient with diabetes

Somewhat Disagree

“I’m not going to stop going to the doctors just because there are bad ones. *I need care so I will find the right provider until I receive it.*”

— Multiracial female with AI condition

Disagree



Key Takeaways

- ✓ Comparisons suggest that HCP respondents are more likely to make health assumptions regarding black patients, especially regarding pain and pain treatment.
- ✓ Forty-six percent of HCP respondents have observed a time when a colleague applied bias to a situation based on a patient's sex or race and only 30% said they had applied bias themselves. However, 53% of patient respondents report having experienced a time when they felt they were not taken seriously by an HCP.
- ✓ Only one third of HCPs are familiar with implicit bias in healthcare delivery, while 39% say their hospitals provide implicit bias education programs for staff.
- ✓ Only a quarter of the HCPs who work at hospitals that provide implicit bias education programs for staff feel these programs are successful.
- ✓ In conclusion, the data shows that this is a complex issue and there is opportunity to improve awareness and training among HCPs.

Questions?

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