

When Is a Network Adequate? Consumer Perspectives on Network Adequacy Definitions

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In managed care arrangements, beneficiaries are strongly incentivized to only seek care inside their network via tiered levels of out-of-pocket costs.¹ As a result, beneficiaries and regulators have a vested interest in ensuring that managed care companies establish and maintain adequate provider networks. Concerns about network adequacy have become particularly important because of the growth of managed care products and the narrowing of provider networks over time.²⁻¹² Regulators have increasingly recognized the potential impact of inadequate provider networks.¹³⁻²⁰ All network adequacy regulations face 3 major constraints. First, network breadth, on any dimension of networks, requires carriers to commit resources and thus will be directly reflected in the price consumers pay.²¹ Excessive requirements may lead to higher prices or may push carriers to leave, so both regulators and consumers must be mindful that important trade-offs must be made and that not all dimensions of provider networks can be simultaneously maximized. Second, regulators work in an environment with a limited supply of providers that are not perfectly distributed.²² This maldistribution puts natural ceilings on many nuanced elements of the regulation of provider networks. Third, measures of network adequacy come with a variety of measurement and implementation challenges.^{18,23} Lastly, it is worth noting that transformation in the provision of care such as the more extensive use of telehealth or transportation benefits may require novel conceptions of network adequacy and how to measure it.¹⁷

All that aside, one of the major obstacles in ensuring an adequate supply of providers is that the concept of network adequacy is vague and there is little empirical work to guide policy makers.¹⁷ These limitations are apparent in the wide range of quantitative standards employed across regulators, markets, and specialties.^{17,18,24-27} Although the measures are diverse and a growing body of academic work is assessing network adequacy regimes,²⁸⁻³¹ one input into discussion of network adequacy has been particularly absent: what makes a network adequate in the eyes of consumers. To improve our understanding of consumer perceptions of network adequacy, we fielded a large national survey that queried consumers on this issue. The survey specifically asked respondents about a number

ABSTRACT

OBJECTIVES: Most Americans have insurance that uses managed care arrangements. Regulators have long sought to ensure access to care through network adequacy regulations. However, consumers have largely been excluded from conversations about network adequacy. To our knowledge, our study is the first to assess consumer preferences for various definitions of network adequacy including those aimed at supporting health equity and reducing disparities.

STUDY DESIGN: We fielded a large and demographically diverse survey of US adults (N=4008) from June 30 to July 2, 2023. The survey queried respondents about their perceptions of what adequate provider networks look like in the abstract.

METHODS: Analyses were conducted using ordinary least squares regression with survey weights as well as *t* tests.

RESULTS: Consumers were overwhelmingly supportive of standard definitions of adequacy focused on the number of providers and travel distance. Majorities also favored more expansive, health equity-focused definitions such as public transportation access, cultural competency, and lesbian, gay, bisexual, and transgender (LGBT+)-inclusive care. Being a woman; having higher levels of education, worse health, and recent experiences with the medical system; and ease of completing administrative tasks were relatively consistent positive predictors of supporting more expansive definitions. More controversial definitions saw effects of partisanship and LGBT+ identification. Rurality, insurance status, education, and recent experiences with the medical system affected perceptions of reasonable appointment wait times and travel distances.

CONCLUSIONS: Our findings indicate that consumers have broad conceptions of network adequacy. Future work should assess consumer trade-offs in resource-constrained settings as well as perceptions of providers and carriers.

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of commonly regulated facets of provider networks and whether those components, in their mind, were important contributors to network adequacy.

METHODS

To learn more about Americans' perspectives on network adequacy, we administered a national survey from June 30 to July 2, 2023, via Lucid (Cint Group AB). Lucid hosts a high-quality survey panel using a double opt-in procedure that relies on quota sampling.³² Lucid was compensated \$1.50 per completed response. A total of 7831 respondents opted into the survey; 7596 (97%) consented, and 4008 of those respondents completed the survey (53%). Respondents were eliminated due to failure to pass 2 standard attention checks (46%). Data were weighted on gender, race, income, and education based on the US Bureau of Labor Statistics' Current Population Survey. The study received approval from the institutional review boards at Texas A&M University.

Dependent Variables: Types of Network Adequacy Requirements Analyzed

Prior to asking respondents about the various components of network adequacy, we briefly introduced them to the topic (see [eAppendix](#) [available at [ajmc.com](#)]). We then asked them about 12 specific aspects of network adequacy that were identified in a recent survey of state regulations and statutes, including wait and travel times for primary care, specialty care, and mental health providers.¹³ After asking about each specialty type, we asked respondents what time frame they considered to be reasonable. A recent survey of provider network adequacy regulation¹⁵ noted that a smaller number of regulators had expanded traditional definitions of adequacy. These expanded definitions offer clear benefits for traditionally marginalized populations who often struggle to access health care services in general as well as health care services that meet their specific needs. We thus asked respondents a series of 6 questions that specifically focused on (1) language barriers, (2) accessibility via public transportation, (3) care outside regular business hours, (4) cultural competency, (5) accessibility for people with disabilities, and (6) inclusive care for lesbian, gay, bisexual, and transgender (LGBT+) populations (see [eAppendix](#) for details). The [eAppendix](#) contains all question wording.

Explanatory Variables

To assess correlates of support for the various facets of network adequacy, we included a number of covariates. We expected that respondents' health status would show strong correlations with more expansive definitions of adequacy and preference for shorter appointment wait times and travel distances. We measured health status in 2 ways. First, we included a measure for self-assessed health

TAKEAWAY POINTS

Consumers have largely been excluded from conversations about network adequacy. To our knowledge, our study is the first to assess consumer preferences for various definitions of network adequacy including those aimed at supporting health equity and reducing disparities. Consumers are overwhelmingly supportive of standard definitions of adequacy. Majorities also favor more expansive, health equity-focused definitions. Our findings should encourage regulators to seek more expansive definitions of network adequacy.

- ▶ Consumers favor broad definitions of network adequacy.
- ▶ Consumers favor more nontraditional definitions of network adequacy than are currently in use in most markets.
- ▶ Lesbian, gay, bisexual, and transgender-inclusive conceptions of network adequacy are most controversial.
- ▶ More work is needed on the practical limitations of network adequacy regulations.

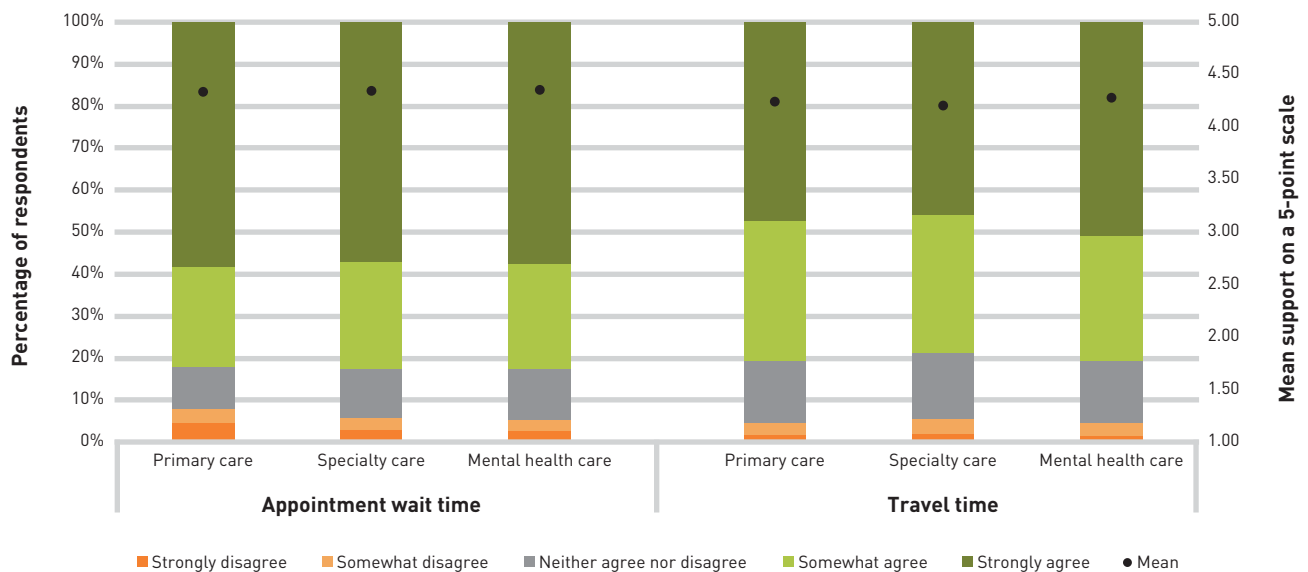
status—a standard 5-point scale from poor to excellent. We also asked respondents whether they identified as an individual with chronic conditions or a disability (binary). We hypothesized that these individuals would support disability access as a component of network adequacy.

Partisanship has emerged as a crucial correlate of many public perceptions related to health care regulation.³³ We included indicators for both Republicans and Democrats in our models, with nonpartisans serving as the reference category. We expected that Republican respondents would be less supportive of expansive definitions of adequacy but especially for provisions for LGBT+ people.

We also expected that recent experiences with the medical system would shape respondents' preferences such that respondents who sought care from a provider in the past year would be supportive of more expansive definitions of adequacy. We used binary indicators for primary care, mental health care, and specialty care. We also thought that respondents who struggle with administrative tasks, a variable commonly used in the administrative burden literature,^{34,35} would be supportive of more expansive definitions of adequacy (5-point scale). The variable is based on the question, "How difficult is it for you to complete such administrative tasks as renewing your driver's license, registering your car, or signing up for insurance?" with options from extremely easy to extremely difficult (5-point scale).

In addition, we had several assumptions related to respondents from traditionally marginalized communities. First, we expected that minority racial/ethnic group respondents as well as those of lower socioeconomic status would generally favor more expansive definitions focused on underserved populations. We defined minority racial/ethnic group respondents as individuals who indicated that they were Black, Asian, Hispanic, or another category, with White respondents serving as the reference group. We utilized both educational attainment (a 4-point measure: less than high school [omitted], high school, some college, college or more) and income (a 6-point measure: < \$14,000 [omitted], \$15,000-\$24,999, \$25,000-\$34,999, \$35,000-\$49,999, \$50,000-\$74,999, ≥ \$75,000) as proxies for socioeconomic status. Moreover, we expected that

FIGURE 1. Respondent Preferences for Network Adequacy Definitions: Wait and Travel Times*



*Survey questions for dependent variables for wait time: "To be adequate, my provider network should contain primary care providers with whom I can schedule appointments in a reasonable time frame when I need care"; "To be adequate, my provider network should contain specialty care providers (like cardiologists and dermatologists) with whom I can schedule appointments in a reasonable time frame when I need care"; and "To be adequate, my provider network should contain mental and behavioral health care providers (like psychologists and counselors) with whom I can schedule appointments in a reasonable time frame when I need care."

Survey questions for dependent variables for travel time: "To be adequate, my provider network should contain primary care providers in reasonable travel time to my home"; "To be adequate, my provider network should contain specialty care providers (like cardiologists and dermatologists) in reasonable travel time to my home"; and "To be adequate, my provider network should contain mental and behavioral health care providers (like psychologists and counselors) in reasonable travel time to my home."

individuals who did not identify as heterosexual (binary) would be more supportive of the LGBT+-inclusive care component of network adequacy. We also expected that individuals who speak a language other than English at home (binary) would be more supportive of adequacy definitions that include language provisions.

Lastly, we included controls for age, women (binary), rural residency (binary), and insurance status (Medicare, Medicaid, employer sponsored, individual market, with the uninsured as the excluded category; all binary).

Analyses

To assess support for the various items in definitions of adequacy and desired wait time and travel time, we relied on weighted least square regression utilizing survey weights. The approach facilitates comparison and interpretation of the results.³⁶ In several analyses, we also utilized *t* tests as appropriate. For all analyses, we considered a *P* value less than .05 statistically significant.

RESULTS

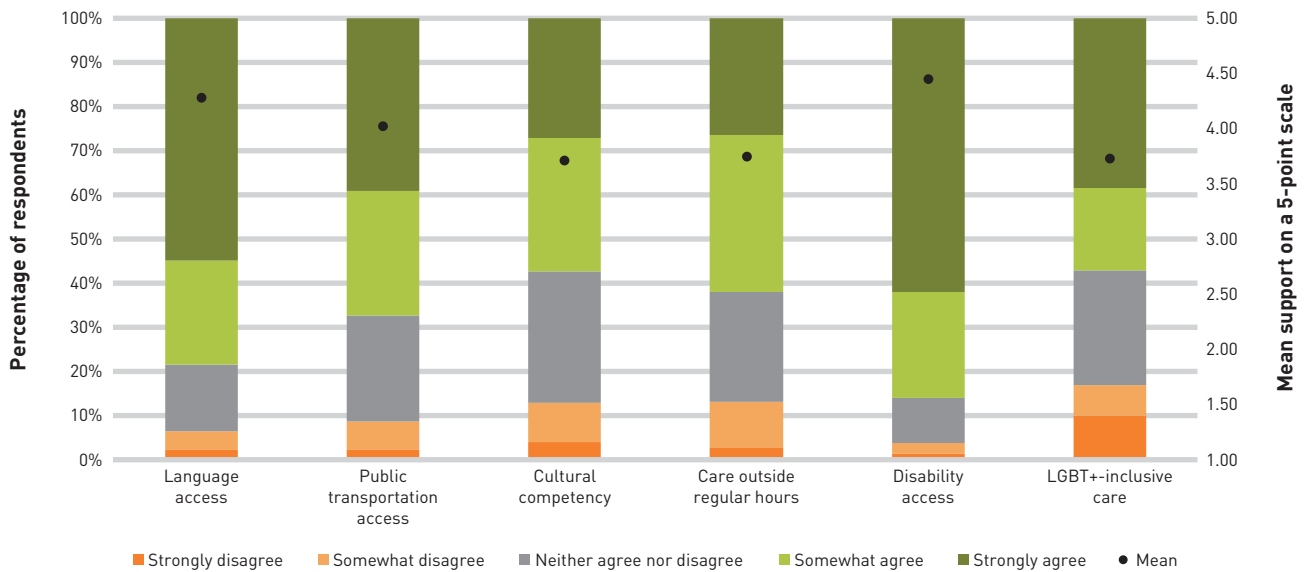
Adequacy and Provider Types

Overall, we found overwhelming public support for definitions of adequacy that focused on timely access to primary care, specialist, and mental health providers (Figure 1). Across the 3 provider types,

more than 80% of respondents either somewhat or strongly agreed with the statement that appointments should be available in a reasonable time frame, including 81.9% (95% CI, 80.3%-83.5%) for primary care providers, 82.6% (95% CI, 81.0%-84.1%) for specialists, and 82.6% (95% CI, 81.0%-84.1%) for mental health providers. Conversely, less than 8% of respondents (95% CI, 6.9%-9.1%) disagreed with the statement for primary care providers, and opposition dropped below 6% for specialists (95% CI, 5.0%-7.1%) and mental health providers (95% CI, 4.6%-6.1%). Mean support on a 5-point scale was 4.28 (95% CI, 4.24-4.33) for primary care, 4.31 (95% CI, 4.27-4.35) for specialty care, and 4.36 (95% CI, 4.28-4.36) for mental health care. In our follow-up question, we further inquired about what respondents considered a reasonable time frame for appointment wait times. Here, respondents indicated a mean of 7.31 days for primary care (95% CI, 6.85-7.77), 10.15 days for specialty care (95% CI, 9.65-10.69), and 7.46 for mental health care (95% CI, 7.02-7.89). Differences were statistically significant ($P < .001$) when comparing primary care with specialty care and mental health care with specialty care.

We found the same overwhelming support from respondents for reasonable travel times for all 3 types of providers (78.6% for specialty care [95% CI, 76.9%-80.2%], 80.5% for primary care [95% CI, 78.9%-82.1%], and 80.6% for mental health care [95% CI, 79.0%-82.2%]). This compares to oppositional responses for less

FIGURE 2. Respondent Preferences for Network Adequacy Definitions: Equitable Health Care Access*



LGBT+, lesbian, gay, bisexual, transgender.

*Survey questions for dependent variables: "To be adequate, my provider network should contain providers with whom I can talk in the language of my choice"; "To be adequate, my provider network should contain providers that I can reach via public transportation"; "To be adequate, my provider network should contain providers who are aware of my own cultural beliefs and values and how these may be different from other cultures"; "To be adequate, my provider network should contain providers who provide care outside of regular business hours (like evenings and weekends)"; "To be adequate, my provider network should contain providers who are accessible for people with disabilities"; and "To be adequate, my provider network should contain providers who provide affirmative, inclusive, and respectful environment for all clients, with a focus on lesbian, gay, bisexual, and transgender (LGBT) people."

than 5% of respondents for each of the 3 provider types. The respective means for support on a 5-point scale were 4.16 (95% CI, 4.13-4.21), 4.22 (95% CI, 4.18-4.25), and 4.25 (95% CI, 4.22-4.29). The follow-up question indicated that respondents considered maximum acceptable travel distances to be 26.04 minutes for primary care (95% CI, 25.26-26.82), 30.34 minutes for specialty care (95% CI, 29.35-31.34), and 27.49 minutes (95% CI, 26.59-28.40) for mental health care. All comparisons between specialties were statistically significant ($P < .001$).

Adequacy and Equitable Access to Care

Respondents' assessment of network definitions related to equitable health care access generally did not score as high as those related to provider type (Figure 2). However, accessibility for people with disabilities scored particularly high, with 86.2% (95% CI, 84.5%-87.4%) of respondents agreeing that adequate networks should contain accessible providers compared with 3.6% (95% CI, 2.9%-4.5%) in opposition. Similarly, language accessibility was an important component of network adequacy for 78.4% of respondents (95% CI, 76.6%-80.1%), with only 6.4% (95% CI, 5.5%-7.5%) opposed. Roughly 2 in 3 respondents considered public transportation access (67.3% [95% CI, 65.3%-69.2%]) and extended office hours (62.0% [95% CI, 60.0%-64.0%]) to be important. Notably, support dropped below 60% for both cultural competency (57.4% [95% CI, 55.4%-59.4%])

and LGBT+-friendly environments (57.2% [95% CI, 55.1%-59.2%]). Mean support on a 5-point scale varied from as high as 4.43 for disability access (95% CI, 4.40-4.67) to as low as 3.67 for cultural competency (95% CI, 3.61-3.72).

Regression Results

We estimated a series of weighted least square models. Table 1 contains the regression results regarding the timely access and travel distance measures for primary care, specialty care, and mental health care (6 measures). All dependent variables were on 5-point scales. Our regression analyses indicate that experiences seeking mental health care over the past year were consistently associated with higher levels of support across all 6 measures (0.179-0.351; $P < .002$), as were higher levels of education (0.060-0.115; $P < .011$); women were also consistently more supportive than men (0.101-0.186; $P < .009$). Conversely, those who struggled with administrative tasks showed lower levels of support across all 6 measures (-0.153 to -0.098; $P < .001$), as did those with higher levels of self-assessed health (-0.104 to -0.055; $P < .013$). Other correlates were less consistent. Those seeking primary care over the past year were more supportive only in measures of primary care adequacy (0.127 [travel time] and 0.139 [wait time]; $P < .019$). Rural residents were less supportive of including wait time standards for mental health care (-0.134; $P = .011$), and Democrats (compared

TABLE 1. Weighted Least Square Regression Results: Respondent Preferences for Network Adequacy Definitions—Wait and Travel Times*

Variables	Primary care wait time	Specialty care wait time	Mental health care wait time	Primary care travel time	Specialty care travel time	Mental health travel time
Partisanship (vs nonpartisan)						
Republican	0.027	-0.032	-0.043	0.012	0.054	-0.056
Democrat	0.071	0.007	0.061	0.066	0.098*	0.095*
LGBT+ (binary)	0.008	0.053	0.087	0.068	0.017	0.061
Struggles with administrative tasks (5-point scale, low to high)	-0.153***	-0.126***	-0.123***	-0.098***	-0.114***	-0.104***
Self-assessed health (5-point scale, low to high)	-0.065*	-0.055*	-0.104***	-0.083***	-0.063**	-0.067**
Non-English language at home (binary)	-0.083	-0.124*	-0.064	-0.085	0.029	-0.071
Disability or chronic condition (binary)	0.035	0.025	-0.007	0.113*	0.078	0.110*
Rural residency (binary)	-0.094	-0.060	-0.134*	-0.084	-0.077	-0.079
Sought primary care last year (binary)	0.139*	0.079	0.076	0.127*	0.061	0.028
Sought specialty care last year (binary)	0.035	0.045	0.037	-0.041	-0.009	-0.061
Sought mental health care last year (binary)	0.179**	0.205***	0.299***	0.207***	0.184***	0.351***
Insurance type (vs all others)						
Medicare (binary)	-0.015	0.043	-0.007	0.098	0.091	0.008
Medicaid (binary)	-0.075	0.043	-0.026	0.063	0.099	0.057
Self (binary)	-0.088	0.037	-0.033	0.064	0.005	0.043
Employer-sponsored insurance (binary)	0.091	0.063	0.007	0.109	0.113	0.030
Age (in years)	0.004*	0.007***	-0.000	-0.001	0.004*	0.001
Female (binary)	0.186***	0.112**	0.163***	0.101**	0.102**	0.119**
Race and ethnicity (vs White)						
Black (binary)	-0.096	-0.149*	-0.186*	-0.105	-0.088	-0.052
Asian (binary)	-0.245*	-0.156	-0.252*	-0.103	-0.028	-0.054
Hispanic (binary)	-0.166*	-0.105	-0.112	-0.070	-0.057	-0.020
Other (binary)	-0.102	-0.106	-0.154	-0.006	-0.059	-0.016
Income (6-point scale)	-0.003	0.005	0.008	-0.007	0.001	0.032*
Education (4-point scale)	0.075**	0.092***	0.060*	0.097***	0.115***	0.077**
Constant	4.132***	3.896***	4.447***	4.236***	3.807***	4.127***
Mean of dependent variable	4.284	4.311	4.322	4.216	4.169	4.255
Observations	3943	3917	3918	3935	3906	3907
R ²	0.103	0.117	0.086	0.066	0.086	0.080

LGBT+, lesbian, gay, bisexual, and transgender.

P* < .05; *P* < .01; ****P* < .001.

*Complete results listed in the eAppendix. All dependent variables are on 5-point scales. Income categories: <\$14,000, \$15,000-\$24,999, \$25,000-\$34,999, \$35,000-\$49,999, \$50,000-\$74,999, ≥\$75,000. Education categories: less than high school, high school, some college, college or more. Survey questions for dependent variables: “To be adequate, my provider network should contain [primary care/specialty care/mental and behavioral health care providers] with whom I can schedule appointments in a reasonable time frame when I need care” (wait time) and “To be adequate, my provider network should contain [primary care/specialty care/mental and behavioral health care providers] in reasonable travel time to my home” (travel time).

with nonpartisans) were more supportive of travel time standards for specialty care (0.098; *P* = .032) and mental health care (0.095; *P* = .034). Lastly, those with a disability or chronic condition were more supportive of adequacy definitions including primary care travel time (0.113; *P* = .012) and mental health travel time (0.110; *P* = .015). Race and ethnicity variables were inconsistent.

Table 2 presents the results for reasonable wait times and travel distances. We found that Republicans (compared with nonpartisans) consistently favored shorter wait times for all 3 provider types (-1.858 to -1.171; *P* < .049). Democrats (compared with nonpartisans) favored

shorter wait times for specialty care (-2.233; *P* = .012) and mental health (-1.884; *P* = .001) and shorter travel distances for mental health (-2.051; *P* = .039) and specialty care (-3.391; *P* = .003), with primary care just above our cutoff value for statistical significance. Those who sought specialty care in the past year found longer wait times in days for mental health (1.529; *P* = .003) and specialty care (1.625; *P* = .001)—but not primary care—and longer travel distances in minutes for all 3 provider types (2.501-3.276; *P* < .029) more acceptable. Those with higher levels of self-assessed health favored shorter travel distances for primary care (-0.921; *P* = .026) and specialty

TABLE 2. Weighted Least Square Regression Results: Respondent Preferences for Reasonable Wait and Travel Times^a

Variables	Primary care wait time in days	Specialty care wait time in days	Mental health care wait time in days	Primary care travel time in minutes	Specialty care travel time in minutes	Mental health travel time in minutes
Partisanship (vs nonpartisan)						
Republican	-1.171*	-1.858**	-1.319*	-0.649	-2.674	-1.747
Democrat	-1.592	-2.233*	-1.884**	-1.789	-3.391**	-2.051*
LGBT+ (binary)	2.755	3.522*	0.635	0.115	0.630	-0.605
Struggles with administrative tasks (5-point scale, low to high)	-0.298	-0.629*	-0.184	-0.411	-0.944*	-0.435
Self-assessed health (5-point scale, low to high)	0.045	-0.152	0.050	-0.921*	-1.101*	-0.628
Non-English language at home (binary)	-0.624	-1.082	-0.644	1.207	2.266	2.616
Disability or chronic condition (binary)	0.650	1.136	-0.452	-1.756	-1.658	-2.393*
Rural residency (binary)	-0.647	-0.804	-0.195	3.694***	5.539***	3.465**
Sought primary care last year (binary)	0.847	0.755	1.008	0.887	0.260	0.762
Sought specialty care last year (binary)	0.216	1.625**	1.529**	3.276***	2.501*	2.966**
Sought mental health care last year (binary)	0.141	0.374	-0.001	2.517	3.775*	1.444
Insurance type (vs all others)						
Medicare (binary)	0.070	-0.804	-0.320	-3.785*	-4.628*	-5.505**
Medicaid (binary)	-0.816	-1.811	-1.158	-4.464*	-6.310**	-5.847**
Self (binary)	-1.611	-1.721	-1.499	-5.154**	-6.431**	-6.318***
Employer-sponsored insurance (binary)	-1.584	-1.295	-0.628	-3.095	-3.905*	-3.013
Age (in years)	-0.026	-0.023	0.026	0.066*	0.007	0.105**
Female (binary)	-0.069	0.823	-0.156	-0.785	0.475	-1.331
Race and ethnicity (vs White)						
Black (binary)	0.565	-1.677	-1.379*	-2.342	-5.825***	-4.042**
Asian (binary)	-0.619	-3.128***	-0.840	-1.538	-5.373**	-0.875
Hispanic (binary)	-2.005***	-3.292***	-1.493**	-0.812	-3.586	-0.147
Other (binary)	-2.416***	-3.527***	-2.340***	-1.409	-3.559	-2.093
Income (6-point scale)	-0.016	0.082	-0.186	0.217	0.301	-0.158
Education (4-point scale)	0.852*	1.422***	0.663**	0.942	1.752**	1.066*
Constant	5.334***	6.584***	4.256**	24.460***	31.026***	25.794***
Mean of dependent variable	7.310	10.152	7.456	26.043	30.344	27.493
Observations	3825	3837	3840	3801	3807	3805
R ²	0.019	0.044	0.025	0.039	0.051	0.046

LGBT+, lesbian, gay, bisexual, transgender.

P* < .05; *P* < .01; ****P* < .001.

^aComplete results listed in eAppendix. Income categories: < \$14,000, \$15,000-\$24,999, \$25,000-\$34,999, \$35,000-\$49,999, \$50,000-\$74,999, ≥ \$75,000. Education categories: less than high school, high school, some college, college or more. Survey questions for dependent variables: "In your opinion, what is a reasonable time frame for getting a [primary care/specialty care/mental and behavioral health care] appointment?" (wait time) and "In your opinion, what is a reasonable travel time (in minutes) to get access from your chosen [primary care/specialty care/mental and behavioral health care] provider?" (travel time).

care (-1.101; *P* = .032). Those with disabilities or chronic conditions sought shorter travel distances for mental health providers (-2.393; *P* = .021). More difficulties with administrative tasks were associated with lower tolerance for travel minutes (-0.944; *P* < .044) and wait days (-0.629; *P* = .026) for specialty care.

In terms of insurance coverage, Medicare beneficiaries (-5.505 to -3.785; *P* < .027) and Medicaid beneficiaries (-6.310 to -4.464; *P* < .019) favored shorter travel distances, as did those purchasing insurance in the individual market (-6.431 to -5.154; *P* < .009). Those with employer-sponsored care favored shorter travel distances for

specialty care (-3.905; *P* = .039). All comparisons are with respondents without these types of insurance coverage. Compared with White respondents, Hispanic respondents (-3.292 to -1.493; *P* < .010) and respondents of other race/ethnicity (-3.527 to -2.340; *P* < .001) favored shorter wait times across all 3 categories of providers, and Black (-5.825; *P* < .001) and Asian (-5.373; *P* < .005) respondents particularly favored shorter travel time for specialty care. Those with higher levels of education were willing to accept longer wait times across all 3 provider types (0.663-1.422; *P* < .012) and longer travel distances for specialty care (1.752; *P* = .003) and mental health care

TABLE 3. Weighted Least Square Regression Results: Respondent Preferences for Expanded Network Adequacy Definitions^a

Variables	Language access	Public transportation access	Cultural competency	Care outside regular hours	Disability access	LGBT+-inclusive care
Partisanship (vs nonpartisan)						
Republican	0.004	-0.113*	0.002	-0.044	-0.020	-0.451***
Democrat	0.109*	0.161**	0.154**	0.033	0.031	0.414***
LGBT+ (binary)	0.092	0.138*	0.163*	0.049	0.101	0.523***
Struggles with administrative tasks (5-point scale, low to high)	-0.117***	-0.063**	-0.011	-0.052*	-0.117***	-0.066**
Self-assessed health (5-point scale, low to high)	-0.047*	-0.078**	0.003	-0.037	-0.066**	-0.067*
Non-English language at home (binary)	0.002	-0.034	0.001	0.022	-0.080	-0.226**
Disability or chronic condition (binary)	0.077	0.093	0.090	0.111	0.047	0.009
Rural residency (binary)	-0.079	-0.012	-0.069	-0.025	-0.035	-0.073
Sought primary care last year (binary)	0.072	0.166**	0.067	0.113	0.098	0.224***
Sought specialty care last year (binary)	0.029	-0.088	-0.091	-0.106*	-0.009	-0.141*
Sought mental health care last year (binary)	0.196***	0.273***	0.164**	0.187**	0.280***	0.221***
Insurance type (vs all others)						
Medicare (binary)	0.073	0.085	0.144	0.040	0.008	0.356***
Medicaid (binary)	0.094	0.129	0.089	0.018	-0.053	0.235*
Self (binary)	0.025	0.107	0.079	-0.017	-0.013	0.201
Employer-sponsored insurance (binary)	0.045	0.042	0.046	0.111	0.070	0.284**
Age (in years)	-0.005***	-0.006***	-0.010***	-0.005**	0.002	-0.005*
Female (binary)	0.129**	0.166***	0.086	0.077	0.165***	0.181***
Race and ethnicity (vs White)						
Black (binary)	-0.146*	0.004	0.099	0.098	-0.097	-0.006
Asian (binary)	-0.204*	-0.177	-0.006	-0.010	-0.237*	-0.037
Hispanic (binary)	-0.086	-0.071	-0.066	-0.061	-0.071	-0.064
Other (binary)	0.099	0.154	0.081	0.131	-0.111	-0.038
Income (6-point scale)	-0.008	-0.029*	-0.000	-0.004	0.003	-0.004
Education (4-point scale)	0.037	0.069**	0.068*	0.093***	0.095***	0.100**
Constant	4.678***	4.336***	3.755***	3.863***	4.201***	3.456***
Mean of dependent variable	4.249	3.955	3.676	3.727	4.433	3.686
Observations	3949	3944	3946	3939	3945	3949
R ²	0.043	0.066	0.047	0.033	0.109	0.142

LGBT+, lesbian, gay, bisexual, transgender.

P* < .05; *P* < .01; ****P* < .001.

^aComplete results listed in the eAppendix. All dependent variables are 5-point scales. Income categories: <\$14,000, \$15,000-\$24,999, \$25,000-\$34,999, \$35,000-\$49,999, \$50,000-\$74,999, ≥\$75,000. Education categories: less than high school, high school, some college, college or more. Survey question for dependent variables: "To be adequate, my provider network should contain providers with whom I can talk in the language of my choice" (language access); "To be adequate, my provider network should contain providers that I can reach via public transportation" (public transportation access); "To be adequate, my provider network should contain providers who are aware of my own cultural beliefs and values and how these may be different from other cultures" (cultural competency); "To be adequate, my provider network should contain providers who provide care outside of regular business hours (like evenings and weekends)" (care outside regular hours); "To be adequate, my provider network should contain providers who are accessible for people with disabilities" (disability access); and "To be adequate, my provider network should contain providers who provide affirmative, inclusive, and respectful environment for all clients, with a focus on lesbian, gay, bisexual, and transgender (LGBT) people" (LGBT+-inclusive care).

(1.066; *P* < .030). Rural residents were also willing to accept longer travel distances for all 3 types of providers (3.465-5.539; *P* < .003).

Lastly, our assessments of conceptions of adequacy focusing on traditionally marginalized populations are presented in **Table 3**. Republicans (compared with nonpartisans) were less supportive of definitions of adequacy including access to public transportation (-0.113; *P* = .045) and LGBT+-inclusive care (-0.451; *P* < .001).

Conversely, Democrats (compared with nonpartisans) were more supportive of definitions including language access (0.109; *P* = .025), public transportation access (0.161; *P* = .001), cultural competency (0.154; *P* = .003), and LGBT+-inclusive care (0.414; *P* = .001). Members of the LGBT+ community strongly favored definitions focused on LGBT+-inclusive care (0.523; *P* < .001) and also favored cultural competency (0.163; *P* = .024) and public transportation access

(0.138; $P = .046$). Women were consistently more supportive of expansive definitions for language access, public transportation access, disability access and LGBT+-inclusive care (0.129-0.181; $P < .003$). Higher levels of education were consistently associated with support for inclusion (0.068-0.100; $P < .017$) except for language access. Respondents with better self-assessed health opposed more expansive definitions of adequacy (-0.078 to -0.047 ; $P < .038$) except for cultural competency and more expansive opening hours. Those struggling with administrative tasks were less supportive of more expansive definitions of adequacy (-0.117 to -0.052 ; $P < .019$) except for cultural competency. Respondents seeking mental health care in the past year consistently favored more expansive adequacy standards (0.164-0.280; $P < .008$), whereas those who sought primary care were more supportive of public transportation access (0.166; $P = .003$) and LGBT+-inclusive care (0.224; $P = .001$). However, those who sought specialty care were less supportive of the latter (-0.141 ; $P = .013$). We found stronger support for LGBT+-inclusive care among Medicare (0.356; $P < .001$) and Medicaid (0.235; $P = .018$) beneficiaries and those getting insurance from their employer (0.284; $P = .003$). Black (-0.146 ; $P = .030$) and Asian (-0.204 ; $P = .014$) respondents were more unfavorable toward language access.

DISCUSSION

How do consumers define network adequacy, and how do those definitions align with current regulatory approaches? Most states currently have standards for wait times and travel distance in place. We display a selective number of these standards in [eAppendix G](#). We found that wait time and travel standards tended to be somewhat out of line with consumers' definitions of adequate networks. For example, in California, wait time standards are 10 days for primary care and mental health appointments and 15 days for specialty care providers,³⁷ but a review of Medicaid programs found that wait times ranged from 10 to 45 days for primary care, 10 to 60 days for specialty care, and 7 to 21 days for mental health care.³⁸ Newly proposed standards for federal Affordable Care Act marketplaces specify maximum wait times of 15 days, 30 days, and 10 days, respectively.³⁹ Our findings are similar with regard to travel time (eAppendix G). In addition, we found that a majority of consumers have much broader conceptions of network adequacy than is currently implemented in many jurisdictions, particularly for standards for disability access, language access, and public transportation.¹³

In terms of individual predictors, we found that women consistently favored more expansive definitions of adequacy. This may be because women tend to serve as the primary decision maker for health care decisions in most households.⁴⁰ We also found that seeking mental health care over the past year was a relatively consistent correlate. This may be reflective of the challenges respondents faced when seeking mental health care.³¹ Higher levels of education were also consistently associated with stronger support for the various adequacy definitions. Counter to our expectations, those who struggle with administrative tasks were less supportive of expansive adequacy

definitions, as were those respondents with better levels of health. However, people with more administrative struggles tended to care more about travel time. Lastly, for the most controversial component of adequacy, LGBT+-inclusive care, we saw strong opposition from Republicans and strong support by Democrats.

Limitations

Several methodological and substantive limitations apply to our study, including all common limitations of cross-sectional survey research using online panels. However, our data were generated from the panel of a reputable Internet-based survey platform, which is the predominant approach to survey research today. Lucid's data have also been validated and found to be of high quality.³² Data quality was also improved by 2 attention checks and reCAPTCHA verification. Respondents also answered questions about an issue that they may not have considered previously. This means their opinion may be subject to change as they learn more about the issue. Substantively, we note that our focus here is to learn more about consumer preferences in the abstract. Although, to our knowledge, this work is the first to analyze consumer perceptions on this topic, we know nothing about providers' thoughts on this issue; we are interested in what makes a network adequate for consumers. As noted previously, we did not highlight or ask respondents about potential trade-offs (such as higher premiums or fewer plan choices, for example). Importantly, we also acknowledge that the realities of provider distribution and opportunity costs prevent regulators from fully aligning network regulations with consumer preferences in the abstract. Future research should particularly focus on how consumers evaluate trade-offs between the various values and which dimensions are important for them, as well as provider and insurer perceptions of regulations. Of course, limitations in provider supply may preclude many regulations from being adopted in the first place.

CONCLUSIONS

Managed care offers many benefits to consumers. However, it entails trade-offs because it imposes various restrictions on consumer choice. One of these restrictions, provider networks, holds significant sway over the ability of consumers to access medical care. Inadequate provider networks can have significant implications for the health and financial well-being of consumers. There are also reasons to believe that inadequate provider networks may further inequities and disparities in health care. Regulators have recognized the important impact of provider networks and have responded with various regulations to ensure adequate networks for consumers. However, to our knowledge, consumers have been completely left out of conversations about what makes a network adequate.

Our findings carry several implications. First, we show that, in the abstract, consumers have relatively broad definitions of network adequacy. However, as aforementioned, network adequacy regulations run into challenges related to costs, implementation, provider supply, and secular developments in the provisions of care,

making trade-offs inevitable while setting natural boundaries to the extent that regulation is feasible or even desirable. Second, with regard to consumers, further clarification is needed on the degree to which they value the various dimensions of provider networks in relationship to each other when trade-offs are required. Our findings here provide an important starting point for this future work. Third, we need to gain a better understanding of the practical restraints that network adequacy regulations have both in terms of the available supply and the potential response from carriers avoiding overregulated environments. Lastly, finding appropriate measures to assess the various dimensions of network adequacy remains an underdeveloped field. Nonetheless, more attention to this issue, by both academics and policy makers, is crucial as managed care arrangements continue to serve more and more Americans. ■

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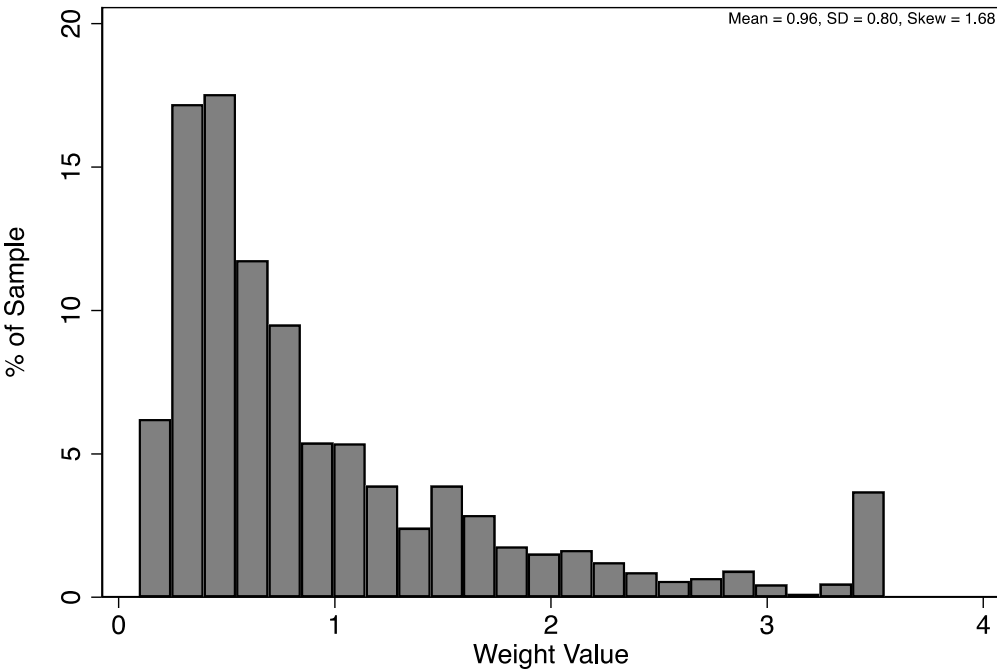
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eAppendix

eAppendix A: Distribution of Weights



eAppendix B: Comparison of Raw and Weighted Qualtrics Data to National Benchmarks

Variable	Survey Data (Raw)	Survey Data (Weighted)	Benchmark	Benchmark Source
Female	51%	51%	51%	CPS
College Degree	37%	33%	31%	CPS
Black	11%	13%	13%	CPS
White	69%	64%	62%	CPS
Hispanic	10%	17%	18%	CPS
Democrat	36%	36%	34%	ANES (Wgt.)
Republican	29%	30%	28%	ANES (Wgt.)
Mean Age	45	47	47	ANES (Wgt.)
Median Income	35,000 to 49,999	50,000 to 74,999	\$55 – 59,999	ANES (Wgt.)

Note: Comparison of the data to known population benchmarks. CPS =Current Population Survey. ANES=American National Election Study. Preference is given to CPS considering its sample size and representativeness, but make use of weighted ANES data whenever it was not possible to use CPS (i.e. CPS does not ask questions about Party ID). Weights in column two adjust for gender, education, race, age, and income. N (Survey Data)=4,008

eAppendix C: Survey Introduction and Questions

Introduction

Next, we would like to ask you a few questions about provider networks & access to medical care. A provider network is a list of the doctors, other health care providers, and hospitals that a health insurance plan contracts with to provide medical care to its members (patients).

There has been lots of talk in the news about how consumers often struggle to get access to medical care. One of the reasons for this maybe that provider networks may not contain a sufficient number of medical providers to ensure timely access to medical care. That is, provider networks may not be "adequate" enough. However, we know very little about what consumers like yourself think about the issue of "network adequacy."

Survey Questions Related to Network Adequacy

To be adequate, my provider network should contain primary care providers with whom I can schedule appointments in a reasonable timeframe when I need care.

To be adequate, my provider network should contain specialty care providers (like cardiologists and dermatologists) with whom I can schedule appointments in a reasonable timeframe when I need care.

To be adequate, my provider network should contain mental and behavioral health care providers (like psychologists and counselors) with whom I can schedule appointments in a reasonable timeframe when I need care.

To be adequate, my provider network should contain providers with whom I can talk in the language of my choice

To be adequate, my provider network should contain providers that I can reach via public transportation

To be adequate, my provider network should contain providers who are aware of my own cultural beliefs and values and how these may be different from other cultures

To be adequate, my provider network should contain providers who provide care outside of regular business hours (like evenings and weekends)

To be adequate, my provider network should contain providers who are accessible for people with disabilities

To be adequate, my provider network should contain providers who provide affirmative, inclusive, and respectful environment for all clients, with a focus on lesbian, gay, bisexual, and transgender (LGBT) people

To be adequate, my provider network should contain primary care providers in reasonable travel time to my home

To be adequate, my provider network should contain specialty care providers (like cardiologists and dermatologists) in reasonable travel time to my home

To be adequate, my provider network should contain mental and behavioral health care providers (like psychologists and counselors) in reasonable travel time to my home

All questions offered the following responses:

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

In your opinion, what is a reasonable timeframe for getting a primary care appointment. Please type in the number of days

In your opinion, what is a reasonable timeframe for getting a specialty care appointment. Please type in the number of days.

In your opinion, what is a reasonable timeframe for getting a mental and behavioral health care appointment. Please type in the number of days

In your opinion what is a reasonable travel time (in minutes) to get access from your chosen primary care provider.

In your opinion what is a reasonable travel time (in minutes) to get access from your chosen specialty provider.

In your opinion what is a reasonable travel time (in minutes) to get access from your chosen mental and behavioral health care provider.

All questions offered respondents the opportunity to type in a number

eAppendix D: Weighted Least Square Regression Results: Respondent Preferences for Network Adequacy Definitions, Wait and Travel Times

VARIABLES		(1) Primary Care Wait Time	(2) Specialty Care Wait Time	(3) Mental Health Care Wait Time	(4) Primary Care Travel Time	(5) Specialty Care Travel Time	(6) Mental Health Travel Time
Partisanship (vs. Non-Partisan)	Republican	0.027 (0.638)	-0.032 (0.514)	-0.043 (0.384)	0.012 (0.802)	0.054 (0.295)	-0.056 (0.261)
	Democrat	0.071 (0.189)	0.007 (0.878)	0.061 (0.190)	0.066 (0.149)	0.098* (0.033)	0.095* (0.034)
LGBTQ+(binary)		0.008 (0.922)	0.053 (0.439)	0.087 (0.189)	0.068 (0.278)	0.017 (0.807)	0.061 (0.318)
Struggles with Administrative Tasks (5-point scale, low to high)		-0.153*** (0.000)	-0.126*** (0.000)	-0.123*** (0.000)	-0.098*** (0.000)	-0.114*** (0.000)	-0.104*** (0.000)
Self-Assessed Health (5-point scale)		-0.065* (0.013)	-0.055* (0.010)	-0.104*** (0.000)	-0.083*** (0.000)	-0.063** (0.005)	-0.067** (0.002)
Non-English Language at Home (binary)		-0.083 (0.236)	-0.124* (0.050)	-0.064 (0.285)	-0.085 (0.129)	0.029 (0.629)	-0.071 (0.200)
Disability or Chronic Condition (binary)		0.035 (0.530)	0.025 (0.618)	-0.007 (0.895)	0.113* (0.012)	0.078 (0.111)	0.110* (0.015)
Rural Residency (binary)		-0.094 (0.102)	-0.060 (0.249)	-0.134* (0.011)	-0.084 (0.079)	-0.077 (0.118)	-0.079 (0.112)
Sought Primary Care Last Year (binary)		0.139* (0.016)	0.079 (0.157)	0.076 (0.153)	0.127* (0.018)	0.061 (0.248)	0.028 (0.581)
Sought Specialty Care Last Year (binary)		0.035 (0.459)	0.045 (0.307)	0.037 (0.380)	-0.041 (0.320)	-0.009 (0.830)	-0.061 (0.138)
Sought Mental Health Care Last Year (binary)		0.179** (0.001)	0.205*** (0.000)	0.299*** (0.000)	0.207*** (0.000)	0.184*** (0.001)	0.351*** (0.000)
Insurance Type (vs. all others)	Medicare (binary)	-0.015 (0.848)	0.043 (0.564)	-0.007 (0.919)	0.098 (0.202)	0.091 (0.209)	0.008 (0.909)
	Medicaid (binary)	-0.075 (0.351)	0.043 (0.569)	-0.026 (0.726)	0.063 (0.406)	0.099 (0.181)	0.057 (0.429)
	Self (binary)	-0.088 (0.357)	0.037 (0.676)	-0.033 (0.699)	0.064 (0.462)	0.005 (0.956)	0.043 (0.613)
	Employer-sponsored Insurance (binary)	0.091 (0.220)	0.063 (0.402)	0.007 (0.918)	0.109 (0.148)	0.113 (0.104)	0.030 (0.670)
Age		0.004* (0.024)	0.007*** (0.000)	-0.000 (0.903)	-0.001 (0.418)	0.004* (0.017)	0.001 (0.710)
Female (binary)		0.186*** (0.000)	0.112** (0.003)	0.163*** (0.000)	0.101** (0.008)	0.102** (0.008)	0.119** (0.001)
Race and Ethnicity (vs. White)	Black (binary)	-0.096 (0.176)	-0.149* (0.046)	-0.186* (0.012)	-0.105 (0.137)	-0.088 (0.240)	-0.052 (0.425)
	Asian (binary)	-0.245* (0.014)	-0.156 (0.099)	-0.252* (0.014)	-0.103 (0.234)	-0.028 (0.750)	-0.054 (0.527)
	Hispanic (binary)	-0.166* (0.032)	-0.105 (0.148)	-0.112 (0.103)	-0.070 (0.269)	-0.057 (0.411)	-0.020 (0.766)
	Other (binary)	-0.102 (0.406)	-0.106 (0.332)	-0.154 (0.177)	-0.006 (0.943)	-0.059 (0.599)	-0.016 (0.885)
Income (6-point scale)		-0.003 (0.836)	0.005 (0.716)	0.008 (0.542)	-0.007 (0.595)	0.001 (0.959)	0.032* (0.012)
Education (4-point scale)		0.075** (0.005)	0.092*** (0.000)	0.060* (0.010)	0.097*** (0.000)	0.115*** (0.000)	0.077** (0.001)
Constant		4.132*** (0.000)	3.896*** (0.000)	4.447*** (0.000)	4.236*** (0.000)	3.807*** (0.000)	4.127*** (0.000)
Mean of Dependent Variable		4.284	4.311	4.322	4.216	4.169	4.255
Observations		3,943	3,917	3,918	3,935	3,906	3,907
R-squared		0.103	0.117	0.086	0.066	0.086	0.080

Notes: p-value in parentheses ***p<0.001, **p<0.01, *p<0.05. All dependent variables are 5-point scales.
Income categories: Less than \$14,000 (omitted), \$15 to \$24,999, \$25 to \$34,999, \$35 to \$49,999, \$50 to \$74,999,
\$75,000+

Education categories: Less than high school (omitted), high school, some college, college or more

Survey questions for dependent variables:

To be adequate, my provider network should contain [primary care/specialty care/providers mental and behavioral health care providers] with whom I can schedule appointments in a reasonable timeframe when I need care.

To be adequate, my provider network should contain [primary care/specialty care/providers mental and behavioral health care providers] in reasonable travel time to my home

eAppendix E: Weighted Least Square Regression Results: Respondent Preferences for Reasonable Wait and Travel Times

VARIABLES		(1) Primary Care Wait Time in Days	(2) Specialty Care Wait Time in Days	(3) Mental Health Care Wait Time in Days	(4) Primary Care Travel Time in Minutes	(5) Specialty Care Travel Time in Minutes	(6) Mental Health Travel Time in Minutes
Partisanship (vs. Non-Partisan)	Republican	-1.171*	-1.858**	-1.319*	-0.649	-2.674	-1.747
	Democrat	(0.048)	(0.006)	(0.038)	(0.572)	(0.070)	(0.184)
LGBTQ+(binary)		-1.592	-2.233*	-1.884**	-1.789	-3.391**	-2.051*
		(0.063)	(0.012)	(0.001)	(0.052)	(0.003)	(0.039)
Struggles with Administrative Tasks (5-point scale, low to high, low omitted)		2.755	3.522*	0.635	0.115	0.630	-0.605
		(0.085)	(0.038)	(0.495)	(0.921)	(0.666)	(0.619)
Self-Assessed Health (5-point scale, low to high, low omitted)		-0.298	-0.629*	-0.184	-0.411	-0.944*	-0.435
		(0.269)	(0.026)	(0.308)	(0.274)	(0.044)	(0.303)
Non-English Language at Home (binary)		0.045	-0.152	0.050	-0.921*	-1.101*	-0.628
		(0.837)	(0.596)	(0.839)	(0.026)	(0.032)	(0.165)
Disability or Chronic Condition (binary)		-0.624	-1.082	-0.644	1.207	2.266	2.616
		(0.190)	(0.064)	(0.177)	(0.394)	(0.198)	(0.118)
Rural Residency (binary)		0.650	1.136	-0.452	-1.756	-1.658	-2.393*
		(0.152)	(0.068)	(0.445)	(0.076)	(0.170)	(0.021)
Sought Primary Care Last Year (binary)		-0.647	-0.804	-0.195	3.694***	5.539***	3.465**
		(0.173)	(0.141)	(0.757)	(0.000)	(0.000)	(0.002)
Sought Specialty Care Last Year (binary)		0.847	0.755	1.008	0.887	0.260	0.762
		(0.065)	(0.220)	(0.052)	(0.440)	(0.850)	(0.547)
Sought Mental Health Care Last Year (binary)		0.216	1.625**	1.529**	3.276***	2.501*	2.966**
		(0.583)	(0.001)	(0.003)	(0.001)	(0.028)	(0.004)
Insurance Type (vs. all others)	Medicare (binary)	0.141	0.374	-0.001	2.517	3.775*	1.444
		(0.783)	(0.586)	(0.998)	(0.069)	(0.034)	(0.347)
Medicaid (binary)		0.070	-0.804	-0.320	-3.785*	-4.628*	-5.505**
		(0.951)	(0.536)	(0.719)	(0.026)	(0.018)	(0.004)
Self (binary)		-0.816	-1.811	-1.158	-4.464*	-6.310**	-5.847**
		(0.368)	(0.110)	(0.223)	(0.018)	(0.005)	(0.003)
Employer-sponsored Insurance (binary)		-1.611	-1.721	-1.499	-5.154**	-6.431**	-6.318***
		(0.064)	(0.138)	(0.116)	(0.008)	(0.001)	(0.001)
Age		-1.584	-1.295	-0.628	-3.095	-3.905*	-3.013
		(0.069)	(0.233)	(0.494)	(0.063)	(0.039)	(0.101)
Female (binary)		-0.026	-0.023	0.026	0.066*	0.007	0.105**
		(0.331)	(0.420)	(0.140)	(0.026)	(0.848)	(0.001)
Race and Ethnicity (vs. White)	Black (binary)	-0.069	0.823	-0.156	-0.785	0.475	-1.331
		(0.893)	(0.168)	(0.735)	(0.350)	(0.659)	(0.165)
Asian (binary)		0.565	-1.677	-1.379*	-2.342	-5.825***	-4.042**
		(0.671)	(0.214)	(0.037)	(0.108)	(0.000)	(0.002)
Hispanic (binary)		-0.619	-3.128***	-0.840	-1.538	-5.373**	-0.875
		(0.619)	(0.000)	(0.322)	(0.425)	(0.004)	(0.632)
Other (binary)		-2.005***	-3.292***	-1.493**	-0.812	-3.586	-0.147
		(0.000)	(0.000)	(0.009)	(0.618)	(0.093)	(0.943)
Income (6-point scale)		-2.416***	-3.527***	-2.340***	-1.409	-3.559	-2.093
		(0.000)	(0.000)	(0.000)	(0.459)	(0.126)	(0.257)
Education (4-point scale)		-0.016	0.082	-0.186	0.217	0.301	-0.158
		(0.910)	(0.611)	(0.132)	(0.498)	(0.454)	(0.586)
Constant		0.852*	1.422***	0.663**	0.942	1.752**	1.066*
		(0.011)	(0.000)	(0.006)	(0.054)	(0.003)	(0.030)
Mean of Dependent Variable		5.334***	6.584***	4.256**	24.460***	31.026***	25.794***
		(0.000)	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)
Observations		7.310	10.152	7.456	26.043	30.344	27.493
R-squared		3.825	3.837	3.840	3.801	3.807	3.805
		0.019	0.044	0.025	0.039	0.051	0.046

Notes: p-value in parentheses ***p<0.001, **p<0.01, *p<0.05

Income categories: Less than \$14,000 (omitted), \$15 to \$24,999, \$25 to \$34,999, \$35 to \$49,999, \$50 to \$74,999,

\$75,000+

Education categories: Less than high school (omitted), high school, some college, college or more

Survey questions for dependent variables:

In your opinion, what is a reasonable timeframe for getting a [primary care/specialty care/ mental and behavioral health care] appointment.

In your opinion what is a reasonable travel time (in minutes) to get access from your chosen [primary care/specialty care/ mental and behavioral health care] provider.

eAppendix F: Weighted Least Square Regression Results: Respondent Preferences for Expanded Network Adequacy Definitions

VARIABLES		(1) Language Access	(2) Public Transportation Access	(3) Cultural Competency	(4) Care Outside Regular Hours	(5) Disability Access	(6) LGBT+Inclusive Care
Partisanship (vs. Non- Partisan)	Republican	0.004 (0.942)	-0.113* (0.045)	0.002 (0.967)	-0.044 (0.417)	-0.020 (0.662)	-0.451*** (0.000)
	Democrat	0.109* (0.025)	0.161** (0.001)	0.154** (0.003)	0.033 (0.536)	0.031 (0.484)	0.414*** (0.000)
	LGBTQ+(binary)	0.092 (0.154)	0.138* (0.046)	0.163* (0.024)	0.049 (0.506)	0.101 (0.092)	0.523*** (0.000)
	Struggles with Administrative Tasks (5-point scale, low to high)	-0.117*** (0.000)	-0.063** (0.003)	-0.011 (0.626)	-0.052* (0.018)	-0.117*** (0.000)	-0.066** (0.010)
	Self-Assessed Health (5-point scale)	-0.047* (0.037)	-0.078** (0.001)	0.003 (0.907)	-0.037 (0.145)	-0.066** (0.003)	-0.067* (0.016)
	Non-English Language at Home (binary)	0.002 (0.976)	-0.034 (0.587)	0.001 (0.992)	0.022 (0.743)	-0.080 (0.168)	-0.226** (0.005)
	Disability or Chronic Condition (binary)	0.077 (0.128)	0.093 (0.079)	0.090 (0.100)	0.111 (0.051)	0.047 (0.296)	0.009 (0.885)
	Rural Residency (binary)	-0.079 (0.158)	-0.012 (0.822)	-0.069 (0.244)	-0.025 (0.665)	-0.035 (0.474)	-0.073 (0.283)
	Sought Primary Care Last Year (binary)	0.072 (0.192)	0.166** (0.003)	0.067 (0.231)	0.113 (0.064)	0.098 (0.058)	0.224*** (0.001)
	Sought Specialty Care Last Year (binary)	0.029 (0.517)	-0.088 (0.055)	-0.091 (0.063)	-0.106* (0.035)	-0.009 (0.825)	-0.141* (0.013)
	Sought Mental Health Care Last Year (binary)	0.196*** (0.000)	0.273*** (0.000)	0.164** (0.007)	0.187** (0.002)	0.280*** (0.000)	0.221*** (0.001)
Insurance Type (vs. all others)	Medicare (binary)	0.073 (0.347)	0.085 (0.323)	0.144 (0.079)	0.040 (0.628)	0.008 (0.904)	0.356*** (0.000)
	Medicaid (binary)	0.094 (0.204)	0.129 (0.131)	0.089 (0.287)	0.018 (0.830)	-0.053 (0.414)	0.235* (0.018)
	Self (binary)	0.025 (0.787)	0.107 (0.269)	0.079 (0.430)	-0.017 (0.862)	-0.013 (0.874)	0.201 (0.079)
	Employer-sponsored Insurance (binary)	0.045 (0.557)	0.042 (0.615)	0.046 (0.571)	0.111 (0.163)	0.070 (0.250)	0.284** (0.003)
	Age	-0.005*** (0.001)	-0.006*** (0.000)	-0.010*** (0.000)	-0.005** (0.003)	0.002 (0.127)	-0.005* (0.012)
	Female (binary)	0.129** (0.002)	0.166*** (0.000)	0.086 (0.060)	0.077 (0.085)	0.165*** (0.000)	0.181*** (0.001)
Race and Ethnicity (vs. White)	Black (binary)	-0.146* (0.039)	0.004 (0.957)	0.099 (0.202)	0.098 (0.182)	-0.097 (0.135)	-0.006 (0.947)
	Asian (binary)	-0.204* (0.022)	-0.177 (0.091)	-0.006 (0.952)	-0.010 (0.927)	-0.237* (0.036)	-0.037 (0.770)
	Hispanic (binary)	-0.086 (0.213)	-0.071 (0.333)	-0.066 (0.415)	-0.061 (0.435)	-0.071 (0.276)	-0.064 (0.457)
	Other (binary)	0.099 (0.303)	0.154 (0.132)	0.081 (0.425)	0.131 (0.222)	-0.111 (0.250)	-0.038 (0.785)
	Income (6-point scale)	-0.008 (0.553)	-0.029* (0.041)	-0.000 (0.984)	-0.004 (0.777)	0.003 (0.848)	-0.004 (0.808)
	Education (4-point scale)	0.037 (0.137)	0.069** (0.008)	0.068* (0.016)	0.093*** (0.001)	0.095*** (0.000)	0.100** (0.002)
	Constant	4.678*** (0.000)	4.336*** (0.000)	3.755*** (0.000)	3.863*** (0.000)	4.201*** (0.000)	3.456*** (0.000)
	Mean of Dependent Variable	4.249	3.955	3.676	3.727	4.433	3.686
	Observations	3,949	3,944	3,946	3,939	3,945	3,949
	R-squared	0.043	0.066	0.047	0.033	0.109	0.142

Notes: p-value in parentheses ***p<0.001, **p<0.01, *p<0.05. All dependent variables are 5-point scales.
Income categories: Less than \$14,000, \$15 to \$24,999, \$25 to \$34,999, \$35 to \$49,999, \$50 to \$74,999, \$75,000+
Education categories: Less than high school, high school, some college, college or more

Survey question for dependent variables:

To be adequate, my provider network should contain providers with whom I can talk in the language of my choice
To be adequate, my provider network should contain providers that I can reach via public transportation

To be adequate, my provider network should contain providers who are aware of my own cultural beliefs and values and how these may be different from other cultures

To be adequate, my provider network should contain providers who provide care outside of regular business hours (like evenings and weekends)

To be adequate, my provider network should contain providers who are accessible for people with disabilities

To be adequate, my provider network should contain providers who provide affirmative, inclusive, and respectful environment for all clients, with a focus on lesbian, gay, bisexual, and transgender (LGBT) people

eAppendix G: Select Wait Time and Travel Time and Distance Requirements

State	Primary Care		Specialty Care		Mental Health	
	Wait Times	Travel Time/Distance	Wait Times	Travel Time/Distance	Wait Times	Travel Time/Distance
Arizona	15 days ¹	45 minutes / 15 miles (suburban) ¹	60 days ¹	60 minutes / 20 miles (suburban) ¹		
California	10 days ²	30 minutes / 15 miles ²	15 days ²	60 minutes / 30 miles ²	10 days ²	30 minutes / 15 miles ²
Federal Marketplace (Proposed)	15 days ³	15 minutes / 10 miles (metro) ³	30 days ³	30 to 60 minutes / 20 to 40 miles ³	10 days ³	
Medicare Advantage ¹		15 minutes / 10 miles (metro) ¹		30 to 60 minutes / 20 to 40 miles (metro) ¹		
Medicaid (various states)	10-45 days ⁴	6 to 60 miles ⁴	10-60 days ⁴	15 to 100 miles ⁴	7-21 days ⁴	15 to 120 miles ⁴
Texas	14 days ⁵	30 miles ¹	21 days ⁵	75 miles ¹	14 days ⁵	
Vermont (MCOs)	14 days ¹	30 minutes ¹				30 minutes
Washington	10 days ¹	30 miles (urban) ¹	15 days ¹			

Notes: 1. University of Maryland Carey School of Law Clinical Law Program. Fifty-State Survey Network Adequacy Quantitative Standards: Geographic Criteria, Appointment Wait Times & Provider/Enrollee Ratios. University of Maryland Carey School of Law; 2016.

2. California Department of Managed Health Care. Measurement Year 2018: Provider Appointment Availability Survey Methodology. California Department of Managed Health Care; 2018.

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4. Zhu JM, Polsky D, Johnstone C, McConnell KJ. Variation in Network Adequacy Standards in Medicaid Managed Care. American Journal of Managed Care. 2022;28(6):288.

5. Relating to Network Adequacy Standards and Other Requirements for Preferred Provider Benefit Plans, HB 3359 (2023).