

PSYCHOMETRIC CHARACTERISTICS OF A PATIENT SATISFACTION INSTRUMENT TAILORED TO THE CONCERNS OF AFRICAN AMERICANS

The national initiative to eliminate health disparities by 2010 makes clear the need for culturally appropriate patient-reported outcome measures. The objective of the study was to refine and augment an existing comprehensive patient satisfaction instrument, the Group Health Association of America (GHAA) survey, to capture the health care concerns of African Americans from diverse socioeconomic backgrounds. Modifications of GHAA items included splitting, rewording, substituting, and adding items. The result was a 21-domain instrument. Three new domains included respect, health education, and discrimination/stereotyping. A cross sectional survey of 600 African Americans and Whites yielded 237 usable surveys with 214 self-identified as African American ($n=100$) or White ($n=114$). Item-scale correlations were examined to evaluate the extent to which items correlated more highly with the scale they were intended to represent than they did with other scales. Support was found for 15 of 19 hypothesized multi-item scales. This study yields a survey that can be used to evaluate care delivered to African Americans and Whites. The survey needs to be evaluated in other samples to determine if it adequately reflects cultural issues from other ethnic minorities. (*Ethn Dis.* 2006;16:948–955)

Key Words: Disparities, Instrument Development, Minority, Patient Satisfaction, Survey

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INTRODUCTION

Patient satisfaction surveys assess consumers' perceptions of the quality of health care. Patient satisfaction reflects the extent to which treatment meets the needs, wishes, and desires of the patient.¹ Satisfaction with care has been found to predict whether patients choose to get treatment and the extent to which they comply with medical recommendations such as returning for services.^{2,3} In addition, with the advent of managed care and health maintenance organizations, patient satisfaction has become a specific organizational objective and is used as an indicator of provider performance.² The national initiative to eliminate health disparities by 2010 makes clear the need for culturally appropriate patient satisfaction measures.⁴ Research on racial and ethnic health disparities in the United States requires that self-report measures, developed primarily in mainstream samples, are appropriate when used in diverse populations.⁵ Specifically, most satisfaction measures have not been developed with extensive input from African Americans. Stewart and Nápoles-Springer⁵ recommended integrating measurement studies into health disparities research to begin building an evidence base of conceptual and psychometric adequacy and equivalence of key measures.

Measures of satisfaction have been evaluated with patients in various outpatient settings.^{1,3,6–8} However, questions about the reliability and validity of such measures in diverse populations have been raised.^{5,6} Use of surveys that are not appropriate for a subgroup of the population could lead to erroneous information and impede efforts to improve healthcare delivery.^{9,10}

Older African Americans need to be targeted to ensure that existing surveys fully capture their experiences with the healthcare system.¹¹ This paper describes the refinement and augmentation of a patient satisfaction survey developed by the Group Health Association of America (GHAA)¹² to make it culturally appropriate for use with African Americans (≥ 50 years of age) and to report on the psychometric properties of the new instrument.

METHODS

Following a systematic review of the literature (1988–1998), 11 multidimensional patient satisfaction instruments were evaluated. The Group Health Association of America Consumer Satisfaction Survey¹² was deemed to be more comprehensive than the other 10^{13–22} and was selected as a starting point for the new tool. Most of the 10 measures were limited to encounter-specific or evaluated only a specific unit of service or disease group. The GHAA was designed to provide employers, health maintenance organizations, and ambulatory care delivery organizations

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Table 1. Patient satisfaction survey respondent characteristics (total N=214)*

Variable	Total	African American (n=100)	White (n=114)	Test of Difference	P value
Age in years				$t = -1.31$.1914
Range	50-93	51-93	50-92		
Age ≥ 65	97 (45%)	41 (41%)	56 (49%)		
Sex				$\chi^2 = 1.61$.2039
Male	119 (56%)	51 (51%)	68 (60%)		
Female	95 (44%)	49 (49%)	46 (40%)		
Marital status				$\chi^2 = 16.47$.0024
Never married	35 (16)	14 (14%)	21 (18%)		
Married	92 (43)	32 (32%)	60 (53%)		
Separated	11 (5%)	9 (9%)	2 (2%)		
Divorced	39 (18%)	22 (22%)	17 (15%)		
Widowed	35 (16%)	22 (22%)	13 (11%)		
Education				$\chi^2 = 41.28$	<.0001
Less than 8th grade	8 (4%)	4 (4%)	4 (4%)		
Some high school	25 (12%)	20 (25%)	5 (4%)		
High school graduate	34 (16%)	25 (25%)	9 (8%)		
Some college	51 (24%)	24 (24%)	27 (24%)		
College graduate	38 (18%)	17 (17%)	21 (18%)		
Postgraduate	58 (27%)	10 (10%)	48 (42%)		
Annual household income				Wilcoxon rank sum test = -4.54	<.0001
<\$10,000	47 (23%)	32 (34%)	15 (14%)		
\$10,000 to \$19,999	35 (17%)	16 (17%)	19 (18%)		
\$20,000 to \$29,999	16 (8%)	9 (10%)	7 (7%)		
\$30,000 to \$39,999	11 (5%)	7 (8%)	4 (4%)		
\$40,000 to \$49,999	14 (7%)	9 (10%)	5 (5%)		
\$50,000 to \$59,999	14 (7%)	6 (6%)	8 (7%)		
\$60,000 to \$69,999	10 (5%)	4 (4%)	6 (6%)		
\$70,000 to \$79,999	11 (5%)	3 (3%)	8 (7%)		
\geq \$80,000	43 (21%)	8 (9%)	35 (32%)		
Often see same doctor				$\chi^2 = .88$.8287
Always	117 (55%)	55 (56%)	62 (54%)		
Most of the time	84 (39%)	39 (39%)	45 (40%)		
Some time	11 (5%)	5 (5%)	6 (5%)		
Rarely or never	1 (1%)	0	1 (1%)		
Recommend care provider				$\chi^2 = 1.35$.5088
Definitely yes	138 (66%)	63 (64%)	75 (67%)		
Probably yes	68 (32%)	32 (33%)	36 (32%)		
Probably not	4 (2%)	3 (3%)	1 (1%)		
Definitely not	0	0	0		
Intend to switch				$\chi^2 = .13$.9872
Definitely yes	2 (1%)	1 (1%)	1 (1%)		
Probably yes	9 (4%)	2 (4%)	5 (4%)		
Probably not	89 (42%)	40 (41%)	49 (43%)		
Definitely not	112 (53%)	53 (54%)	59 (52%)		
Health status				$\chi^2 = 7.67$.1042
Excellent	21 (10%)	6 (6%)	15 (13%)		
Very good	58 (27%)	22 (22%)	36 (32%)		
Good	72 (34%)	36 (36%)	36 (32%)		
Fair	42 (20%)	24 (24%)	18 (16%)		
Poor	19 (9%)	11 (11%)	8 (7%)		

* Numbers sometime do not add to 214 because of missing data.

Table 2. Scaling properties on 159 African Americans and Whites with complete ratings

Scale	# of Items	Total Sample (N=159)			African Americans (n=76)			Whites (n=83)		
		Alpha	Range of Item-Scale Correlations*	% Scaling Successes†	Alpha	Range of Item-Scale Correlations	% Scaling Successes	Alpha	Range of Item-Scale Correlations	% Scaling Successes
General access to care	5	.91	.68-.83	94	.92	.66-.87	50	.90	.71-.85	91
General convenience	7	.89	.62-.76	91	.90	.59-.77	40	.89	.60-.78	73
Technical quality	4	.95	.86-.88	86	.95	.85-.90	68	.93	.84-.90	79
Communication	5	.94	.71-.91	71	.95	.74-.90	53	.93	.70-.93	57
Paperwork	3	.96	.89-.95	100	.95‡	.90-.94	100	.92§	.88-.95	100
Choice	5	.95	.80-.90	96	.94	.80-.92	87	.93	.81-.90	94
Interpersonal care	5	.93	.77-.83	72	.93	.77-.82	44	.92	.82-.86	67
Respectfulness	3	.92	.80-.87	88	.93	.78-.85	57	.92	.82-.90	76
Health education	4	.94	.82-.90	98	.95	.84-.91	79	.93	.79-.90	91
Services covered	6	.92	.73-.86	100	.92	.67-.80	92	.94	.77-.93	99
Information about plan	2	.92	.85	100	.92	.83	100	.93	.86	100
Office staff	3	.93	.85-.88	100	.91§	.79-.84	87	.96§	.90-.93	100
Discrimination/Stereotyping	4	.81	.49-.72	100	.82	.54-.69	95	.78	.40-.79	79
Perceived quality of care	4	.94	.82-.88	88	.95	.83-.90	71	.92	.82-.86	68
General satisfaction with care	3	.76	.53-.65	69	.73	.51-.60	36	.81	.55-.73	71

* Item-scale correlations corrected for overlap.

† Scaling successes: item-scale correlation is at least 2 standard errors (SE) higher for hypothesized scale than with competing scale(s).

Difference in scale alpha for African Americans and Whites significant at †P=.04 or §P=.01.

with a comprehensive assessment of patient perceptions of ambulatory health care.¹² The survey assesses 16 domains of care, such as finance, access, technical quality, cost, continuity, and communication.

Data from a qualitative study to explore African Americans' perceptions on quality of care were used to modify the GHAA instrument to reflect the needs of African Americans.²³ The result was a 21-domain instrument with 88 items, including 77 satisfaction and 11 demographic items. The basic changes included splitting complex items into two items, making items more precise through rewording; substituting phrases for clarity and specificity; and adding new items. In addition, three domains were added that were considered important by African Americans: respectfulness of providers, discrimination/stereotyping, and health education.

Pilot Test

The modified GHAA instrument was pilot tested in face-to-face interviews with 30 participants (7 men and 23 women), 50% African American and

50% White, 27% married and 23% divorced, and annual incomes ranging from \$20,000 to ≥\$80,000. The aim of the pilot test was to identify areas of difficulty in the items, including lack of clarity or vagueness, as well as content omissions. The pilot study was advertised with a flyer in churches, stores, ambulatory clinics of a health sciences institution, and personal contact in the San Francisco Bay Area. Inclusion criteria were self-identification as African American or White, ≥50 years old, can read English at the sixth-grade level, and received health care in the United States in the last 12 months. Each participant read and signed a consent form approved by the University of California San Francisco Institutional Review Board. Pilot study participants were administered either the entire 88-item (n=6) questionnaire or a portion of it (n=24).

All comments about the questionnaire were tabulated and used as input in refining the draft instrument. Six satisfaction items were dropped (leaving a total of 71 satisfaction and 11 demographic items) after the pilot test, and other items were modified. Modifications included moving some items

to other domains, substituting words/phrases with more easily understood ones, and adding new words to some phrases for clarity.

Field Test

The 71-item survey tapped 19 hypothesized domains. We selected a stratified random sample of 600 patients from an existing computerized database of 10,154 patients (an adult ambulatory care patient database maintained by the University of California San Francisco) who were identified as African American or White, were ≥50 years old, and had at least one visit to the ambulatory healthcare clinic during the previous year. All persons in the database were health plan enrollees. The sampling frame was stratified by ethnicity (African American and White; equal samples), age (50-64 years, ≥65 years), and sex (equal number of men and women for each age group).

The survey was mailed to these 600 patients with instructions to complete and return it in a postage-paid envelope within two weeks in return for \$10 cash (mailed within a week of receiving completed survey). Included was a one-

page cover letter that explained how and why the person's name was obtained, introduced the researchers, the purpose of the survey, the voluntary nature of participation, and the right to refuse to participate. The University of California San Francisco Institutional Review Board approved the study protocol.

A standardized follow-up protocol was used for all 600 prospective participants. One week after mailing the survey, a reminder post card was sent. Two weeks later, a maximum of two telephone reminder calls were attempted to each person who had not returned the survey to prompt them to complete the mail survey. The time interval between telephone calls was a week. Phone calls were also made to persons who returned surveys with missing data to fill in the missing information. New surveys were mailed to those who misplaced their surveys. In addition, re-mailing was done to the forwarding address if a survey was returned from the post office with a new address. The data collection period lasted for two months after initial mailing.

Data Analysis

The hypothesized item-scale structure was evaluated by using multi-trait scaling analysis.²⁴ Item convergence within scales (item-scale correlations, internal consistency reliability or coefficient alpha) and item discrimination across scales (items correlating more strongly with hypothesized scales than with other scales) was assessed. We analyzed the data for the total sample and separately for Whites and African Americans.

RESULTS

Demographics

Of 600 satisfaction surveys, 237 (40%) useable questionnaires were received, and of these, 214 (91% of 237) self-identified as African American or White (100 [47%] African American

and 114 [53%] White) and were included in these analyses (Table 1). Respondents' age ranged from 50 to 93 with a mean of 65 years. For more information on the respondents and non-respondents, the reader is referred to a prior published paper on the study.²⁵

Multi-trait Scaling Analyses

Multi-trait scaling analyses⁸ were conducted with the 159 cases with complete data (76 African Americans, 83 Whites). Support was found for 15 of the 19 hypothesized multi-item scales (Table 2): 1) general access to care, 2) general convenience, 3) technical quality, 4) communication, 5) paperwork, 6) choice, 7) interpersonal care, 8) respectfulness, 9) health education, 10) services covered, 11) information about plan, 12) office staff, 13) discrimination/stereotyping, 14) perceived quality of care, and 15) general satisfaction with care. Internal consistency reliability of these 15 multi-item scales ranged from .76 to .96 (median=.93). Item discrimination across the scales was generally supported with 78% (49/63 items) of item-scale correlations for hypothesized scales exceeding correlations of items with other scales by two standard errors. The percentage of these scaling successes ranged from 69 (general satisfaction with care) to 100 (services covered, information about plan, office staff, and discrimination/stereotyping) for the total scale; 36 (general satisfaction with care) to 100 (information about plan) for African Americans; and 57 (communication) to 100 (information about plan and office staff) for Whites.

A total of eight items were omitted for performing poorly (poor item convergence and/or item discrimination). All of the original GHAA scales were retained, but some were subsumed by categories newly created when the GHAA survey was modified before the field test (eg, "services covered" absorbed several items from the "finance"

and "cost of care" scales). Discrimination/stereotyping was a new domain, and the "office staff" scale regarding clerical persons was separated from providers (see Table 3 for definitions).

Internal consistency reliability coefficients were very similar for the African American and White subgroups. The scale with the lowest estimated reliability was general satisfaction with care (.76 in the overall sample; .73 and .81 in African Americans and Whites, respectively). All other scales had alpha coefficients $>.80$ in both groups except for discrimination/stereotyping scale (.78) for Whites. Reliability estimates were similar in the two groups but they were significantly higher for African Americans on paperwork and lower for office staff.

Table 3 shows the items in the revised scales and corresponding item-scale correlations. All item-scale correlations met our item-scale convergence criterion of $>.40$ in both groups and in the total sample (ranging from .51 to .94 for African Americans; .40 to .93 for Whites; and .49 to .95 for the total sample).

Scale scores were then calculated for the total sample by averaging non-missing items. We computed a score if at least one item in the scale was answered. Scores were transformed linearly to a 0–100 possible range with 100 indicating the highest level of satisfaction. Table 4 reflects differences in mean scores for African and Whites compared with the total sample. The lowest and highest mean scores for the total, African American, and White samples were observed for the same scales (general satisfaction with care and discrimination/stereotyping). Scale mean scores ranged from 57 (SD 26) to 87 (SD 19) for the total sample, from 58 (SD 27) to 82 (SD 22) for African Americans, and from 56 (SD 26) to 91 (SD 16) for Whites. Significant mean differences between the two ethnic groups were found on the general convenience and discrimination/

Table 3. Patient satisfaction instrument scales and item-scale correlations corrected for overlap for total sample and by group

Subscale	Items	Item Source	AA (n=76)	W (n=83)	Total (N=159)
<i>General access to care:</i> Ability to get needed care, including specialty care	Ability to get hospital care if you need it	Mod	.74	.78	.76
	Ability to get medical care if you need it	Mod	.87	.80	.83
	Ability to get specialty care if you need it	Mod	.82	.85	.83
	How your need to see a specialist is handled	Mod	.70	.76	.73
	Ability to get medical care in an emergency	Mod	.66	.76	.68
<i>General convenience:</i> Timeliness of care, convenience of hours, telephone access, waiting in office	Hours when the care provider's office is open	Mod	.59	.67	.63
	Availability of medical information or advice by phone	GHAA	.63	.60	.62
	Arrangements for making appointments for medical care by phone	GHAA	.59	.74	.69
	How quickly your urgent healthcare needs are attended to	GHAA	.72	.78	.76
	Length of time you wait between making an appointment for routine care and the day of your visit	GHAA	.77	.73	.75
	Length of time spent waiting at the office to see the healthcare provider	GHAA	.72	.71	.72
<i>Technical quality:</i> Knowledge, skills, and experience of providers, thoroughness of care	The explanation you get for having to wait at the healthcare provider's office	Sub	.59	.78	.69
	The knowledge that your care providers have	New	.85	.86	.86
	The completeness of examinations	Sub	.88	.86	.87
	The skill and experience of doctors in treating your health problems	Sub	.87	.90	.88
<i>Communication:</i> Information, responsiveness, explanations/answers	How completely your care provider treats your health problems	Sub	.90	.84	.87
	The extent to which you are informed about what is going on with your care	New	.87	.79	.83
	The completeness of responses to your questions	New	.84	.93	.89
	The extent to which your care providers answer your most important questions	New	.90	.92	.91
	How clear the explanations of medical procedures and tests are	Sub	.85	.88	.86
<i>Paperwork:</i> Quantity and complexity of paperwork and forms.	The amount of time you have with your care providers during a visit.	Mod	.74	.70	.71
	The number of forms you must fill out	Mod	.91	.93	.92
	The ease of filling out the forms	Mod	.94	.95	.95
	Length of time you spend filling out claim forms or other paper work	GHAA	.90	.88	.89
<i>Choice:</i> Choice of providers, ease of seeing provider of choice	Extent of real choice you have in choosing your primary care provider	New	.80	.81	.80
	Number of doctors you have to choose from	GHAA	.91	.84	.88
	Arrangements for choosing a personal doctor	GHAA	.91	.90	.90
	Ease of seeing the doctor of your choice	GHAA	.92	.80	.86
	Extent to which you see the provider you expected to see	New	.84	.85	.84
<i>Interpersonal care:</i> Attention/personal interest, friendliness, courteousness, reassurance, support	Attention given to what you have to say	Mod	.78	.83	.81
	Attention shown to your privacy concerns	GHAA	.82	.84	.83
	Amount of cooperation among care providers and staff	New	.72	.82	.77
	Friendliness and courteousness shown to you by your care providers	Mod	.80	.83	.81
	Reassurance and support offered to you by care providers	Mod	.77	.86	.80
	<i>Respectfulness:</i> Respect shown, care about you as a person, address you by preferred name, courtesy, acceptance	Reassurance and support offered to you by care providers	Mod	.77	.86
The extent to which your care providers address you by the name you prefer		New	.78	.82	.80
How much the provider care about you as a person		New	.84	.90	.87
<i>Health education:</i> Availability of information about health, advice about prevention	Respect shown to you	Mod	.85	.87	.86
	Advice you get about ways to avoid illness and stay healthy	GHAA	.85	.79	.82
	The extent to which your care provider talks to you about prevention during a medical visit	New	.87	.89	.88
	Availability of information about health	New	.91	.89	.90
<i>Services covered:</i> Coverage for needed care, amount of out-of-pocket expenses, maintain health without undue expenses	Adequacy of information about health	New	.84	.90	.87
	The extent to which your insurance benefits cover the services you need	New	.77	.87	.82
	Coverage for preventive care and routine office visits	GHAA	.80	.82	.81
	Coverage for illness visits or treatments	Mod	.79	.93	.86
	Coverage for hospitalization	Mod	.79	.77	.78
	Ability for you to get the medical care you need without financial problems	Mod	.72	.79	.74
<i>Information about plan:</i> Availability of information and someone to answer questions about plan	The amount you pay out-of-pocket (for example, copayments, deductibles, payments for services not covered by your plan)	GHAA	.67	.78	.73
	Availability of information from your care provider or plan about cost of care	Mod	.83	.86	.85
	Availability of someone to answer questions about your insurance coverage	New	.83	.86	.85

Table 3. Continued

Subscale	Items	Item Source	AA (n=76)	W (n=83)	Total (N=159)
Office staff: Friendliness, courteousness, reassurance, support	Friendliness and courteousness shown to you by office staff	Mod	.79	.91	.85
	Extent to which the office staff address you by your name	New	.84	.90	.87
	Reassurance and support offered to you by office staff	Mod	.82	.93	.88
Discrimination/stereotyping: Perceptions of discrimination, negative attitudes, stereotypes, inaccurate beliefs	Healthcare providers have some beliefs about me that are not true	New	.54	.40	.49
	Healthcare providers have negative attitudes about me	New	.69	.74	.72
	I feel discriminated against by my healthcare provider because of my race	New	.63	.68	.66
	Healthcare providers make me feel inferior	New	.65	.79	.71
Perceived quality of care: Ratings of care, services, and providers' response to health needs	Quality of your relationship with your care provider	New	.87	.85	.86
	The healthcare providers' response to your health needs	New	.83	.82	.82
	Overall quality of care and services	GHAA	.89	.85	.87
	Overall health care	Mod	.90	.86	.88
General satisfaction with care: Satisfaction with medical care	There are some things about the medical care I receive that could be better	GHAA	.60	.63	.61
	The medical care I receive is just about perfect	Mod	.51	.55	.53
	I am not satisfied with some things about the medical care I receive	Mod	.58	.73	.65

* Mod: GHAA item modified for this study; New: new item based on African American qualitative study; Sub: GHAA item substituted with an item from the African American qualitative study; GHAA: original item. AA=African American; W=White.

stereotyping scales ($P_s=.026$ and $.001$, respectively). African Americans had a higher score (65 vs 60) for general convenience and a lower score (82 vs 91) for discrimination/stereotyping.

Table 5 shows the correlations among the scales; these correlations ranged from .16 (office staff and discrimination/stereotyping) to .86 (technical quality and communication).

DISCUSSION

This study was designed to refine and augment an existing comprehensive patient satisfaction instrument, the GHAA survey, to capture the healthcare concerns of African Americans and evaluate the psychometric characteristics of the revised survey. All GHAA scales were retained, which suggests applicability of these basic concepts to African Americans. Most of the changes involved adding new domains (respectfulness, health education, and discrimination/stereotyping) and adding new items to some GHAA scales. Thus, modifications tended to be “fine tuning” rather than major changes to the concepts.

Mean scale scores were generally similar for African Americans and Whites except for discrimination/stereotyping and general convenience. African Americans had a higher mean score on discrimination/stereotyping, which is consistent with La Veist, Nickerson, and Bowie’s finding that African Americans were more likely than Whites to perceive racism and mistrust among healthcare providers.²⁶ Empirical evidence points to the negative effect of racism on satisfaction with care and the

health of African Americans.^{2,27} For example, racism is linked with psychological distress, a weak sense of mastery, poor self-esteem, and high blood pressure.⁵

General access to care, general convenience, and choice are captured by Cleary and McNeil’s depiction of healthcare organization and financing.²⁸ The communication, interpersonal care, respect/disrespect, and discrimination/stereotyping scales reflect the patient-provider relationship and parallel simi-

Table 4. Mean patient satisfaction scale scores: total sample and by group (N=214)

Variable Name	Total Sample (N=214)	African Americans (n=100)	Whites (n=114)	P value
	Mean (SD)	Mean (SD)	Mean (SD)	
General access to care	73.4 (16.8)	73.1 (17)	73.7 (16.7)	.797
General convenience	62.4 (17.6)	65.1 (17.3)	59.9 (17.6)	.026
Technical quality	80.5 (18.3)	78.6 (19)	82.2 (17.6)	.147
Communication	76.3 (18.8)	75.5 (19.4)	77.1 (18.2)	.532
Paperwork	70.5 (19.1)	70.7 (19.7)	70.3 (18.7)	.884
Choice	70.3 (22.2)	69.6 (23.7)	71.0 (21)	.634
Interpersonal care	79.5 (16.2)	78.9 (16.6)	80.1 (16)	.573
Respectfulness	82.2 (17.6)	81.7 (17.9)	82.6 (17.3)	.701
Health education	74.3 (18.9)	75.2 (19.1)	73.4 (18.9)	.493
Services covered	73.8 (18.8)	73.0 (19.50)	74.8 (18.3)	.488
Information about plan	61.5 (24.6)	62.6 (23.8)	60.5 (25.2)	.538
Office staff	70.9 (21.6)	72.3 (20.5)	69.7 (22.5)	.384
Discrimination/stereotyping	86.6 (19.4)	82.1 (22.2)	90.6 (15.7)	.001
Perceived quality of care	79.4 (16.7)	78.2 (17.6)	80.4 (15.9)	.326
General satisfaction with care	57.0 (26.3)	58.4 (27.1)	55.8 (25.6)	.483

Table 5. Correlations among final patient satisfaction instrument scales (n=211 to 214)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 General access to care	1.0														
2 General convenience	.69	1.0													
3 Technical quality	.67	.58	1.0												
4 Communication	.68	.63	.86	1.0											
5 Paperwork	.40	.47	.42	.42	1.0										
6 Choice	.59	.57	.59	.65	.50	1.0									
7 Interpersonal care	.69	.64	.77	.80	.55	.73	1.0								
8 Respectfulness	.59	.52	.71	.76	.47	.65	.84	1.0							
9 Health education	.54	.49	.63	.68	.42	.56	.67	.65	1.0						
10 Services covered	.56	.54	.48	.50	.52	.51	.58	.48	.48	1.0					
11 Information about plan	.45	.53	.35	.43	.42	.50	.52	.47	.58	.56	1.0				
12 Office staff	.42	.51	.42	.47	.28	.41	.53	.51	.41	.24	.41	1.0			
13 Discrimination/stereotyping	.23	.17	.27	.28	.22	.30	.37	.33	.16	.25	.17	.16	1.0		
14 Perceived quality of care	.70	.61	.83	.81	.42	.59	.76	.67	.57	.52	.37	.40	.29	1.0	
15 General satisfaction with care	.48	.48	.51	.45	.51	.30	.46	.48	.45	.35	.37	.33	.42	.30	1.0

lar domains found in the interpersonal processes of care framework by Stewart et al.²⁹ The literature suggests that patient satisfaction is largely a result of the care provider's interpersonal manner (verbal and nonverbal communication) when interacting with the patient.² For instance, satisfaction is increased when care providers are attentive, give patients the chance to relay information in their own way, provide more information, and share control of the termination of medical interaction.³⁰

Technical quality was one of the 15 scales identified in this study. Technical quality takes place at the patient-provider level and is related to diagnosis and treatment. Making the right diagnosis from appropriate test results in a timely manner, using the right technological advances to give state-of-the-art care, and referring to specialists when indicated are technical quality indicators. But patients may not be equipped to fully assess the type and level of the technical care they receive. Indeed, the highest correlation between scales was for patient ratings of technical quality and communication in this study ($r=.86$). This correlation is almost as high as the reliability of the two scales (.94 and .95 in the overall sample). Similar high correlations between reports about technical and interpersonal aspects of care have been observed in other studies.¹⁶

In the original GHAA instrument, doctors and staff (providers and office staff as used in this study) were combined in a single interpersonal care item. We reasoned that because office persons set up appointments, receive patients, and prepare patients and their charts for direct care providers, any experience that makes a patient upset or pleased during the encounter with the office person could lead to dissatisfaction or satisfaction with the entire healthcare visit. We separated office staff from direct healthcare providers because they can have different effects on patient experiences and perceptions of care.

The Consumer Assessment of Health Plans Survey (CAHPS) was not reviewed for this study. Our study began in the fall of 1998 just after the CAHPS study was initiated. The GHAA survey had been in use since 1988. In addition, the small sample size and inclusion of participants from only the San Francisco Bay Area may limit the generalizability of these results. Moreover, the low response rate (40%) and missing data contributed to an analytic sample size that was less than optimal. Future administrations of the survey should consider using a mixed mode (mail and telephone) of data collection to maximize the response rate.

Because our sample was drawn from a patient database at a university med-

ical center and all of them had health insurance, that 69% of the study participants had at least some college education was not surprising. Thus, our findings may not apply to those with no health insurance or lower levels of education.

CONCLUSION

This study shows that many of the scales for an existing measure of patient satisfaction met scaling criteria in our African American sample. However, modifications to the survey improved it for use with African Americans, supporting efforts to evaluate the applicability of measures in diverse subgroups of the population. Our findings hold promise for use in studies of the satisfaction with care delivered to African Americans and perhaps other vulnerable population subgroups. Further

This study shows that many of the scales for an existing measure of patient satisfaction met scaling criteria in our African American sample.

research is needed to replicate these results in other African American and White samples as well as to determine whether the instrument reflects cultural issues from other ethnic minorities. Use of this patient satisfaction survey may help to reflect concerns of diverse groups and provide the basis for appropriate assessments of the quality of care received.

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