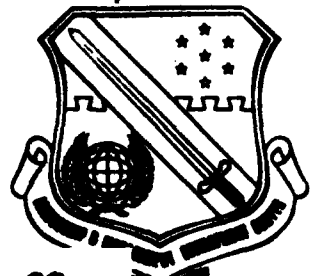


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April 1984

**MEASURING AIR FORCE PATIENT  
SATISFACTION: INITIAL DEVELOPMENT  
OF AN ATTITUDINAL INSTRUMENT**



AD-A142 803

MAJOR LAWRENCE O. SHORT, USAF  
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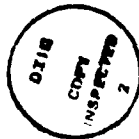
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### Background

A recent trend in the evaluation of medical care has been the increased consideration of health care consumer perceptions of satisfaction with the care received. The increase is evidenced by the greater frequency of empirical and theoretical publications on this subject (See, for example, Hulka, Zyzanski, Cassel, & Thompson, 1970; Hines, Clarkson, & Smith, 1977; Mangelsdorff, 1979; Taylor, Nelson-Wernick, Currey, Woodbury, & Conley, 1981). Although the scope and thoroughness of published articles varies widely, some synthesis of patient satisfaction measures has been developed. The most common elements in what may be called a taxonomy of patient satisfaction include art of care, technical quality of care, accessibility/convenience, finances, physical environment, availability, continuity, and efficacy/outcomes of care (Ware, Davies-Avery, & Stewart, 1978). Some comments about each of these dimensions seem warranted since each contributes to the theoretical background for measuring patient satisfaction.

Art of care refers most frequently to "caring" shown the patient, while technical quality of care emphasizes competence of providers, with special attention to high standards of diagnosis and treatment. Accessibility/convenience concerns all the issues that are part of arranging to receive medical care, and finances deals with the ability to pay or arrange payment for medical service delivered. Physical environment addresses satisfaction with environmental issues such as, "...general pleasantness of the atmosphere, comfort of seating, attractiveness of waiting rooms, clarity of signs and directions, good lighting, quiet, and clean, neat, and orderly facilities and equipment" (Ware et al., 1978, pp. 5-6). Availability has to do with sufficiency of facilities and providers, and continuity of care deals with regularity of care from a facility, location, or provider. Finally, efficacy/



outcomes of care deals with the perceived usefulness and helpfulness of the care received in maintaining health status. According to Ware et al. (1978), the latter three dimensions are less frequently measured than others in the taxonomy.

This taxonomy assumes that characteristics within each dimension are interrelated and that major dimensions are not redundant. These issues are theoretically quite important since they form the basis for empirical findings that patient satisfaction is a multidimensional concept and that multiple items per satisfaction construct are generally necessary (Ware, Snyder, & Wright, 1977).

The Air Force has also recognized the trend in and importance of patient satisfaction measurement. In 1982, the Air Force Inspector General initiated development and administration of a survey, the Air Force Quality of Medical Care Survey (QMCS), to measure members' attitudes about their medical care. At the same time the survey was designed, personnel with the Air Force Medical Inspector General's Office recognized the need for a more standardized instrument which could be researched and used for gathering data on patient perceptions in future years. The purpose of this report is to document results of preliminary analyses on the QMCS toward this goal.

## Method

### Instrumentation

The current version of the QMCS was co-developed and field tested by two representatives from the Survey Branch, Research and Measurement Division, Air Force Manpower and Personnel Center (AFMPC) and one representative from the Leadership and Management Development Center (LMDC). A copy of the survey

is contained in Appendix A. The survey was theoretically and conceptually designed to measure attitudes on six dimensions: general satisfaction, access to care, appointments, availability of care, continuity of care, and concern for patients. These dimensions were the most consistent with the literature and also satisfied the immediate needs of survey development. The survey was also designed with an awareness of the potential bias Ware (1978) calls Acquiescent Response Set (ARS). ARS is defined by Ware as a "tendency to agree with statements regardless of content" (p. 328). Therefore, both "satisfied-dissatisfied" and "agree-disagree" seven point Likert scales were included. In addition, of the 46 "agree-disagree" items, 20 were positively worded and 26 negatively worded to provide a balance of items expressing both favorable and unfavorable opinions. Finally, the existing survey was designed to meet as many requirements as possible at the same time. All involved recognized the potential of developing a survey for continued use in measuring Air Force patient satisfaction, but also recognized the original survey could take at least one and perhaps more refinements before being maximally useful. The initial step in this process was to be accomplished by LMDC to include: an initial factor analysis to determine if the survey contained underlying factors and, if so, the degree to which these factors corresponded to expected theoretical dimensions as an input to instrument content validity; an internal consistency reliability assessment for each obtained factor; some stated expectations and analyses concerning initial assessment of item/factor sensitivity and construct validity; and a specific set of recommendations on what would be needed to complete a finished survey.

After initial development, the Medical Career Division at AFMPC solicited comments from Air Force medical representatives, and appropriate changes were made to the instrument based on comments received. The survey was approved

and distributed to an all-military sample in April, 1983, with a survey report completed in October, 1983 (Survey Branch, 1983). The version of the survey which was administered consisted of 82 items, 24 of which were demographics. After initial administration, resulting data were transferred to LMDC for preliminary analyses leading to a version of the QMCS which could be used as a recurring measurement tool.

### Subjects

The subjects for the study were a random sample of Air Force personnel stratified by grade groups: Colonel-Major, Captain-Second Lieutenant, Chief Master Sergeant-Master Sergeant, Technical Sergeant-Senior Airman, Airman First Class-Airman. A total of 4200 surveys were mailed to respondents' organization addresses. The return response was 62% (N=2593), a rate consistent with other research (Ware, 1978; Ware, Snyder, & Wright, 1976a; 1976b). The sample consisted of 1049 officers and 1540 enlisted, with percentages by grade group ranging from 16% to 22%. A total of 91% of the sample was male and 9% female. Seventy percent (70%) of the sample were married to civilians, 7% were married to military members and 23% were single. Racially, 84% were whites, 11% blacks, 5% others. Time in service ranged from less than 4 years to over 20 years, and respondents ranged in age from 20 years or less to 51 years or more. Seventy-eight percent (78%) of the sample were assigned in the continental United States and 22% overseas. More information about these demographic items as well as responses to items not considered clearly attitudinal can be found in Appendix B, Table 1.

## Procedure

Factor Structure. As previously mentioned, the taxonomy of satisfaction dimensions has received support from an array of previous research. This support comes from content analysis of open-ended questions, examination of published literature, and empirical studies of satisfaction item interrelationships. Therefore, the taxonomy serves as a good check on the content validity of any new survey (Ware, 1981). This check could best be accomplished by formulating expectations about which factors would be extracted and about which items would compose the factors. By this method, theoretical expectations could be validated by empirical results.

After looking both at item content of the survey and existing taxonomies of satisfaction dimensions, the following factors were expected: Concern for Patients, General Satisfaction, Access to Care, Availability of Care, Continuity of Care. Decisions had been made earlier in the survey design not to develop items measuring certain dimensions. For example, the finances dimension was not addressed since payment is normally not an issue in military medicine. No items addressed technical quality of care since there was a sharp division of opinion among Air Force physicians questioned about whether patients could/should address this perceptually (See also Ware, 1981). Finally, physical environment was not addressed since this dimension usually dealt with in-patient settings and most anticipated respondents were likely to be out-patients.

In addition to the above factors, items dealing with appointments were expected to form a separate factor because of the apparent importance of this issue to the military population. For example, results of the Base Inspection Questionnaire (BIQ), a survey administered to about 40,000 active duty Air Force personnel annually, showed medical appointments to be the lowest rated of the medically related items for the years 1978 - 1981. In addition, this issue prompted an "Air Force Waiting Time Survey" in 1982, primarily to

compare waiting time for appointments in Air Force medical facilities to national averages. While some methodological problems clouded results of this effort, its administration did emphasize the importance of the topic to both health care providers and consumers (Findings, 1982). Each survey item was considered and judged independently regarding which, if any, of the expected factors it would load on. These items, by factor, are seen in Table 1. Those items not presented in the table were not expected to load on a factor.

Table 1  
Hypothesized QMCS Factors and Item Content of Each

<u>Factors</u>	<u>Items</u>
Concern for Patients	20, 22, 26, 27, 28, 34, 36, 39, 40, 44, 46
General Satisfaction	18, 21, 25, 37, 45, 49, 50, 51, 54
Access to Care	19, 23, 32, 35, 42
Appointments	31, 64, 65, 66, 67, 72
Availability of Care	24, 29, 30, 38, 43
Continuity of Care	33, 41, 48, 52

Derivation of the factors was accomplished by use of a principal components analysis with a varimax rotation using pairwise deletion. For factor solutions, the "eigenvalue greater than one" criterion was used. In addition, a Scree-test was used to help determine the optimum number of factors to extract. For the analysis, variables were all attitudinal items in the QMCS. Following Ware et al (1976a), the Factored Homogeneous Item Dimensions (FHID) criteria were used to assign items to factors. Under these criteria, it was required that all items in a factor have high loadings (+.40 or greater) only on that factor and low loadings (+.39 or less) on all other factors in the matrix. This method was a useful check not only for item homogeneity but also for item discriminant validity. An additional requirement imposed was that there be an absolute difference of at least .10 between the primary loading and the item's highest secondary loading. When items were coded for analysis, alphabetic characters were recoded to numerics. At the same time, numeric scores for negatively worded items were reversed so that numerically higher responses always indicated more favorable responses.

It should also be noted that we were aware of the technical differences between principal components analysis and factor analysis, per se, especially the use of ls rather than commonalities in the principal diagonals of the correlation matrix. Components analysis was chosen, however, for several reasons as discussed by Mulaik (1972, p. 174). First, results using components analysis often do not differ greatly from those expected using common factor analysis. Second, factor scores can be directly computed rather than estimated. Finally, components analysis seems more appropriate when the major intent is to summarize a set of variables into a smaller number of

hopefully orthogonal variables, as is the case here. Therefore, principal components was the method of choice. We have, however, used the term "factor" to refer to resulting components to avoid confusion for the casual reader even though we recognize the resulting indices were not, strictly speaking, derived by "factor analysis."

Internal Consistency Reliability. The method of choice here was Cronbach's alpha. Generally the most popular of the internal consistency methods, alpha can be obtained from a single survey administration and eliminates the inconsistency of splitting items. Its calculation is based on the number of items in a scale or factor and the mean interitem correlation for that same scale or factor. Usually, therefore, as the average interitem correlation and/or the number of items increase, so does the value of alpha. These procedures must be balanced, however. For example, there is an upper bound on significant increases in alpha from adding items. In addition, adding items that reduce the interitem correlation will not increase alpha. It should also be noted that alpha is often considered the lower bound of internal consistency reliability. Thus, alpha may generally be considered a conservative estimate of the true reliability of a scale or factor (Carmines & Zeller, 1979).

Since it is difficult to attach significance levels to alpha, a more direct standard of comparison was used. Hendrix and Halverson (1979) noted that a coefficient of .70 or above indicates "...Factors which are reliable ..." (p. 22). Carmines and Zeller (1979) hold that "...reliabilities should not be below .80 for widely used scales." (p. 51). Ware (1978) cites evidence that reliabilities of .50 or above are sufficient. For purposes of this study, alpha coefficients were considered acceptable at .50 or above, good at .70 or above, and high if .90 or above.

Item/Factor Sensitivity and Construct Validity. One of the issues that must be addressed in the study of patient satisfaction is the adequacy of such measures as dependent variables. This adequacy deals with both sensitivity and validity of the measures. If they are adequate, we should be able to predict relationships among and between attitudinal and demographic variables. Carmines and Zeller (1979) list three distinct steps toward demonstrating construct validity: specifying the theoretical relationships between concepts, examining empirical relationships between concepts, and interpreting empirical evidence. Thus, empirically verifying predicted theoretical relationships with survey results would provide important evidence about both survey construct validity and the sensitivity of the resulting measures.

Specific predictions were made in four areas for purposes of this study. First, perceptions of satisfaction have been noticed to vary by whether the respondent is answering for himself/herself or others. For example, on the BIQ administrations referred to earlier, Air Force people from 1977 through 1981 consistently rated "satisfaction with medical care provided to you" higher than "satisfaction with medical care provided your dependents." Also, analysis of the 1981 Air Force Officer/Airman Exit Survey revealed a larger percentage of both officers and airmen gave inadequate medical/dental care for dependents as a major reason for leaving the Air Force than gave inadequate medical/dental care for self (Findings, 1982). Finally, Snyder and Ware (1975) showed that attitudes about one's own care were more positive than attitudes about care directed toward people in general. Since there are several items on the QMCS that vary only by referent (self or dependents), it was possible to test the expectation that perceptions of one's own care would



be universally and statistically significantly more positive than perceptions of dependent's care. While this expectation should hold for all items, distinctions should be especially clear when dealing with General Satisfaction. This expectation for all pairs of like items (exclusive of referent) was tested by looking for significant differences between means of the items using one-tailed paired (dependent means) t-tests ( $p < .05$ ).

The second area in which predictions were possible centered on patterns of responses to derived factors by location of medical facility compared to a data base consisting of all other survey responses. Put simply, the QMCS was administered to a random sample of Air Force personnel. By combining the responses of those at the same units, some units had sufficient numbers to test statistically against the data base. Once these individuals were grouped by location, their average response to each derived factor was compared to the average response on that factor of the rest of the data base exclusive of the location being considered. Factor scores were derived by calculating the simple arithmetic average (mean) of responses to items in the factor. [In calculating factor scores, no score was computed if the respondent did not respond to one or more of the items constituting the factor.] Comparisons were made using two-tailed test unpaired (independent means) t-tests ( $p < .05$ ). At issue here was the problem of differences. Experience in survey-guided development has shown that organizations vary in ratings in any dimension. Thus, if the items and factors are doing their jobs, we would expect to see varying patterns of significant/nonsignificant differences by factor when responses of a given location were compared to the remainder of the survey responses in a data base.

The third area in which predictions were possible involved differences in attitudinal variables when compared across categories of key demographic variables. Examples of such comparisons occur in Ware (1981) and Nelson-Wernick, Currey, Taylor, Woodbury, and Cantor (1981). Based on the results cited in these and other studies, as well as the results of Air Force questionnaire data, the following expectations were stated:

1. There will be no significant differences between male and female respondees across all factors;

2. Single persons will be significantly more positive than married persons (whether married to an Air Force member or non-member) on Access to Care, Availability of Care, and Appointments, but not on Continuity of Care;

3. Personnel in the grades of Sergeant through Technical Sergeant will be significantly lower than other grades on Concern for Patients and General Satisfaction;

4. There will be no significant differences by race on Concern for Patients and General Satisfaction;

5. General Satisfaction and Concern for Patients ratings will increase with age of respondent;

6. Less educated people (operationally defined as less than a college degree) will be significantly lower than more educated people in regard to Concern for Patients and General Satisfaction;

7. General Satisfaction will not vary by categories of use frequency, but Availability of Care will, with more frequent users being less satisfied; and

8. Access to Care, Availability of Care, Appointments, and Support Area Satisfaction\* will vary by type of use, with out-patients expressing significantly lower attitudes than in-patients.

All expectations were tested using a One-Way Analysis of Variance ( $p < .05$ ). Where follow on multiple comparisons were necessary, the Student-Newman-Keuls procedure was selected as the best compromise between stringency and statistical power.

\* Although not an expected factor, this prediction was stated for Support Area Satisfaction as an indicator of construct validity. Obviously, this expectation was formulated after factor analysis results were known.

The fourth and final area in which predictions were possible concerned relationships between sets of attitudinal variables. Following theoretical findings, significantly positive relationships were expected between General Satisfaction and four other factors: Appointments, Availability of Care, Continuity of Care, and Access to Care. In addition, significantly positive relationships were expected between General Satisfaction and items reflecting size of medical facility (item 24), careful explanation of medical problems by providers (item 36, item 46), satisfaction with length of time waited for an appointment (item 64) and satisfaction with length of time it takes to see a health provider once inside the medical facility (item 67) (Ware, 1978). All relationships were tested using Pearson Product-Moment Correlation Coefficients ( $p < .05$ ).

## Results

### Factor Structure

The initial exploratory factor analysis included all 60 of the attitudinal items on the QMCS. Demographic items were not included in the analysis and seemed to be adequate in both content and coverage. See "Recommendations" for more comments regarding demographics. This analysis of attitudinal items was conducted to:

- (1) Indicate whether the expected dimensions were present in the survey;
- (2) If the expected dimensions were present, indicate whether the expected items loaded on these dimensions and whether there were survey items other than those expected which loaded on these
- (3) dimensions; and Indicate the presence of factors other than those expected.

To be useful, these factors must be interpretable in terms of item content and contribute significantly to data reduction.

The items included in this analysis, sample sizes (number of valid responses), means, and standard deviations are given in Appendix B, Table 2.

A total of 14 factors with eigenvalues greater than one were extracted. Most of these factors were interpretable in terms of item content, but in some cases as few as two items had their primary loadings on a factor. For example, one factor consisted of the two items on foreign doctors (57 and 58), and another consisted of the two items on the use of more than one medical facility (60 and 61). Since one of the goals of factor analysis is to reduce the set of variables used to gather data (survey items) to a smaller set of new variables (factors) and the substitution of one factor for two items was not considered sufficient in terms of data reduction, these factors were not included in subsequent analysis.

The initial factor analysis did indicate the presence of the six dimensions the survey was designed to measure, except that the first factor extracted appeared to contain the items for both Concern for Patients and General Satisfaction. A second factor analysis was completed using the items which had their primary loadings on the expected dimensions. In addition, one unexpected factor from the initial analysis was retained, consisting of four items related to satisfaction with support areas. There were a total of 35 items in the second analysis, and 7 factors with eigenvalues greater than one were extracted, accounting for 58.4% of the variance. The item content of these seven factors is given in Table 2. This table also shows that most of the factors contain a mix of positively worded and negatively worded items, the exceptions being those factors primarily consisting of satisfaction type items. The complete factor loading matrix from this second factor analysis is shown in Appendix B, Table 3.

#### Internal Consistency Reliability

The items which had their primary loadings on each of the seven factors were used to determine Cronbach's alpha for each factor. These results are

Table 2

Item Content and Direction of Scoring  
for Measures of Major Satisfaction  
Dimensions (Factors)

<u>Factor</u>	<u>(Survey Number)</u>	<u>Item Content (Direction of Scoring)</u>
Concern for Patients	(26)	Take unnecessary risks (-)
	(28)	Treat patients with respect (')
	(34)	Make patient feel foolish (-)
	(36)	Don't explain medical problems (-)
	(39)	Past medical problems ignored (-)
	(40)	Respect patients' feelings (+)
	(46)	Don't explain problems (-)
General Satisfaction	(18)	Very satisfied with medical care-self (+)
	(21)	Can get help with questions-self (+)
	(49)	Very satisfied with medical care-dependents (+)
	(50)	Can get help with questions-dependents (+)
	(51)	Excellent care, last year-dependents (+)
	(54)	Dependent care could be better (-)
Appointments	(31)	Hard to get appointment (-)
	(64)	Helpfulness of people who make appointments (s)*
	(65)	Length of time for appointment wait (s)
	(66)	Ease of access for appointment system (s)
	(67)	Wait inside facility (s)
	(72)	Access by telephone (0)**
	Availability of Care	(24)
(29)		Sufficient health providers (+)
(30)		All needed for medical care (+)
(38)		Lacks things for medical care (-)
(43)		Sufficient specialists (+)
Continuity of Care	(33)	Don't see same provider (-)
	(41)	Family members see different providers (-)
	(48)	See same provider-self (+)
	(52)	Seldom see same provider-dependents (-)
Access to Care	(32)	Long trip to facility (-)
	(35)	Facility convenient (+)
	(42)	Operating hours good (+)
Support Area Satisfaction	(68)	Helpfulness of pharmacy (s)
	(69)	Time to fill prescription (s)
	(70)	Helpfulness in support areas (s)
	(71)	Wait time in support areas (s)

\*Denotes item with "satisfied-dissatisfied" response alternatives.

\*\*Denotes item with response alternatives other than "agree-disagree" and "satisfied-dissatisfied."

Table 3  
Cronbach's Alpha for Medical Survey Factors

<u>Factor</u>	<u>N</u>	<u>Alpha</u>	<u>rho</u>
Concern for Patients	2291	.85	.45
General Satisfaction	1909	.87	.53
Appointments	2474	.85	.48
Availability of Care	2424	.80	.44
Continuity of Care	1876	.78	.46
Satisfaction with Support Areas	2389	.75	.43
Access to Care	2487	.57	.30
Overall (all 35 items)	1636	.92	.24

N= Sample size

rho= Average item intercorrelation

given in Table 3, which also includes sample size and average item intercorrelations for each factor. Values of Cronbach's alpha ranged from .87 to .57, with a majority being .80 or greater. Alpha for all 35 items was higher than for any single factor (.92).

#### Item/Factor Sensitivity and Construct Validity

The first relationship tested using the medical survey data was the prediction that perceptions of one's own care would be significantly more positive than perceptions of dependents' care. The results of the t-tests using the seven pairs of items are shown in Table 4. Statistically significant differences between items were found for six of the seven pairs ( $p < .001$ ). The responses to the item for "self" were more positive in all cases than those for the "dependent" item. The only item pair which did not show a statistically significant difference was that dealing with seeing the same health provider when going for medical care. These expectations, therefore, were largely confirmed.

The second area in which predictions were tested was the comparison of individual medical facilities to the rest of the QMCS data base. Four facilities were selected at random from the facilities which had at least 50 respondents. The response patterns resulting when factor scores from these facilities were compared to the factor scores for the rest of the data base are shown in Table 5. Complete information for the t-tests on factor scores for each of the four bases is given in Appendix B, Tables 4-7. It should be noted that because of the way the factor scores were computed, single people are under-represented in the factors containing dependent-type items (i.e., General Satisfaction and Continuity of Care). In this case, varying patterns of differences were noted, as expected. Again, expectations were confirmed.

Table 4

Paired t-Test Results for  
Member/Dependent Items

<u>Items</u>	<u>N</u>	<u>Mean</u>	<u>Std Dev</u>	<u>t</u>
Use of more than one facility				
60 (Member)	1661	3.62	1.58	3.7*
61 (Dependent)		3.55	1.57	
Prefer civilian medical facility				
55 (Member)	2040	3.18	1.95	12.54*
56 (Dependent)		2.84	1.82	
Hardly ever see same health provider				
33 (Member)	1940	3.69	1.91	1.38
52 (Dependent)		3.64	1.72	
Very satisfied with medical care received				
18 (Member)	2018	4.78	1.73	23.11*
49 (Dependent)		3.95	1.83	
Care in past year has been excellent				
25 (Member)	1929	4.50	1.73	14.07*
51 (Dependent)		4.01	1.78	
Some things about medical care could be better				
45 (Member)	1982	3.03	1.46	6.12*
54 (Dependent)		2.85	1.44	
Can reach someone for help without problem				
21 (Member)	2020	4.32	1.84	19.23*
50 (Dependent)		3.63	1.71	

\*p &lt; .001



Table 5  
Factor Means for Selected Facilities

<u>Factor</u>	<u>Base A</u>	<u>Base B</u>	<u>Base C</u>	<u>Base D</u>
Concern for Patients	4.56	4.74	4.50	4.18*
General Satisfaction	4.18	3.96	3.82	3.33*
Appointments	3.46	3.34	3.12*	3.01*
Availability of Care	3.62	4.45*	3.81*	3.40
Continuity of Care	3.18*	3.36	3.57	2.94*
Support Area Satisfaction	3.83*	4.55	4.27*	4.70
Access to Care	5.16	4.77*	5.24	5.54*
Overall	3.99	4.02	3.92	3.72*

\*Difference between base mean and data base mean,  $p < .05$ .

The third type of prediction tested involved expected differences/similarities in attitudes when examined across certain demographics. There were a total of eight expected relationships between certain factors and selected demographic items, each relationship requiring from two to seven ANOVAs to test. Examination of the first expected relationship, that between sex of respondents and scores on each of the seven factors, revealed no significant differences, as predicted. The ANOVA summary tables are included in Appendix B, Table 8.

To examine the relationship between marital status and factor scores, the sample consisted of three groups: (1) married to Air Force member, (2) married to non-member, and (3) single. Analysis of variance revealed significant ( $p < .0001$ ) differences as expected on two of the four factors tested. The results (Table 6) show single respondents significantly more positive than married respondents on Appointments and Availability of Care. The vertical lines on the table indicate the homogeneous subsets as determined by the Student-Newman-Keuls procedure. There were no differences by marital status on Continuity of Care or Access to Care. Summary tables for these ANOVAs are in Appendix B, Table 9.

When respondents in the grades of Sergeant through Technical Sergeant were compared with those in all other grades, they were found to be significantly less positive ( $p < .001$ ) on both Concern for Patients and General Satisfaction, as expected (see Table 7). Since only two groups were compared, the multiple comparison procedure was not necessary. The ANOVA summary table is shown in Appendix B, Table 10.

For investigation of the relationship between race of respondent and factor means for Concern for Patients and General Satisfaction, the sample

Table 6

Analysis of Variance Results for Selected  
Factors by Marital Status

<u>Factor</u>	<u>Group</u>	<u>N</u>	<u>Mean</u>
Appointments	Married to non-member	1740	3.48
	Married to AF member	188	3.51
	Single	541	4.03
Availability of Care	Married to non-member	1720	3.31
	Married to AF member	179	3.38
	Single	519	3.69
Continuity of Care	Married to non-member	1611	3.58
	Married to AF member	117	3.46
	Single	142	3.67
Access to Care	Married to non-member	1741	5.26
	Married to AF member	189	5.24
	Single	551	5.18

Table 7

Analysis of Variance Results for Selected  
Factors by Grade

<u>Factor</u>	<u>Group</u>	<u>N</u>	<u>Mean</u>	<u>F</u>
Concern for Patients	Sergeant, Staff Sergeant, Technical Sergeant	430	4.23	35.975*
	Others	1857	4.60	
General Satisfaction	Sergeant, Staff Sergeant, Technical Sergeant	386	3.71	11.87*
	Others	1520	3.97	

\* Difference significant,  $p < .001$

consisted of three groups: black, white, and other. As expected, no statistically significant differences were found by race on either factor. The ANOVA summary table is in Appendix B, Table 11.

To test the predictions dealing with respondent's age, the respondents were assigned to the four groups shown in Table 8. Although the multiple comparison procedure did not show significantly different subsets, the omnibus F-tests for both Concern for Patients and General Satisfaction did indicate significant differences ( $p < .01$ ) (see Appendix B, Table 12). For both factors, scores generally increased with age. Results were, therefore, consistent with expectations, but were not strongly so.

When respondents' level of education was examined as the dependent variable, the respondents were divided into two groups for comparison: those without a Bachelor's degree and those with at least a Bachelor's degree. As expected, factor scores on both Concern for Patients and General Satisfaction were significantly higher for respondents with a college degree (Table 9). Differences in scores for both factors were significant at the .05 level, and the ANOVA summary tables are in Appendix B, Table 13.

When frequency of use was examined as the independent variable, respondents were grouped into five categories based on their response to item 11 on the QMCS. The means on General Satisfaction and Availability of Care for each of these groups are given in Table 10, along with the results of the Student-Newman-Keuls procedure. Availability of Care was fairly consistently lower with increasing frequency of use, but there were no statistically significant differences for General Satisfaction. ANOVA summary tables are in Appendix B, Table 14. Here, trends were in the expected direction, but, again, not strongly so.

Table 8

Analysis of Variance Results for Selected  
Factors by Age

<u>Factor</u>	<u>Group</u>	<u>N</u>	<u>Mean</u>
Concern for Patients	25 yrs old or less	534	4.44
	26-35 years	757	4.47
	36-45 years	867	4.62
	46-60 years	125	4.62
General Satisfaction	25 yrs old or less	278	3.86
	26-35 years	676	3.82
	36-45 years	828	3.96
	46-60 years	120	4.27

Table 9

Analysis of Variance Results for Selected  
Factors by Education Level

<u>Factor</u>	<u>Group</u>	<u>N</u>	<u>Mean</u>	<u>F</u>
Concern for Patients	No college degree	1288	4.38	50.169*
	College degree	995	4.72	
General Satisfaction	No college degree	1017	3.86	4.105*
	College degree	886	3.99	

\*Difference significant,  $p < .05$

Table 10

Analysis of Variance Results for Selected  
Factors by Frequency of Use

<u>Factor</u>	<u>Group</u>	<u>N</u>	<u>Mean</u>
General Satisfaction	No medical services in past year	139	4.06
	1-5 times in past year	1270	3.93
	6-10 times in past year	316	3.86
	11-15 times in past year	90	3.80
	More than 15 times in past year	66	3.84
Availability of Care	No medical services in past year	176	3.67
	1-5 times in past year	1602	3.43
	11-15 times in past year	107	3.30
	6-10 times in past year	413	3.27
	More than 15 times in past year	98	2.90

The last of the predicted relationships between factors and demographic variables to be tested concerned the type of medical services the respondent had used during the past year. The two groups compared were those who had used in-patient service only and those who had used out-patient service only. These results are shown in Table 11. Those respondents who had used in-patient service were significantly more positive on Appointments, Availability of Care, and Support Area Satisfaction. In-patient and out-patient groups had nearly identical scores on Access to Care. The ANOVA summary tables are in Appendix B, Table 15.

The fourth type of prediction tested involved relationships between sets of attitudinal variables. Pearson Product-Moment correlations between the selected items or factors and the General Satisfaction factor were all statistically significant, as expected, and are reported in Table 12.

### Discussion

While not all results can be discussed, comments about some of the specific findings are in order. Concerning the content and reliability of the factors, results were generally positive. The empirically derived factors fit closely with theoretical expectations as did the items which composed them. The number of items per factor were sufficient for reliability, with one exception, following Ware's (1981) finding that about four items per factor are usually sufficient. Actual alpha values were all in the acceptable range, with only one being near the low end of the range.

Of the observed factors, clearly the most problematic is Access to Care. This statement is based on two findings. First, the number of items and the alpha coefficient are both lower than would be hoped. Second, the content

Table 11

Analysis of Variance Results for Selected  
Factors by Type of Use

<u>Factor</u>	<u>Group</u>	<u>N</u>	<u>Mean</u>	<u>F</u>
Appointments	In-patient only	125	3.88	5.203*
	Out-patient only	1858	3.60	
Availability of Care	In-patient only	123	3.59	4.466*
	Out-patient only	1821	3.33	
Support Area Satisfaction	In-patient only	116	5.03	6.837*
	Out-patient only	1784	4.73	
Access to Care	In-patient only	122	5.25	.048
	Out-patient only	1864	5.27	

\*Difference significant,  $p < .05$



Table 12

Pearson Product-Moment Correlations  
Between Selected Items/Factors and  
The General Satisfaction Factor

<u>Factor or Item</u>	<u>N</u>	<u>r</u>
36. Health providers cause people to worry a lot because they do not explain medical problems to patients.	1900	.464
46. Health providers hardly ever explain the patient's medical problems to him/her.	1900	.477
24. A larger hospital/clinic is needed at this base.	1882	.178
67. The length of time you have to wait for a health provider, once inside the hospital/clinic.	1904	.460
65. The length of time you have to wait for an appointment.	1902	.483
Appointments	1884	.547
Availability of Care	1867	.408
Continuity of Care	1808	.459
Access to Care	1882	.257

Note:  $p < .001$  for all r's.

sampled by the factor is limited, a fact also related to a low number of items in the factor. This, then, is the factor that could benefit most from revision.

A possibility for strengthening the factor is revising the items contained in the factor. While seemingly counter to Snyder and Ware (1975) who found no factor differences by item referent, it is obvious from the factor loadings that personal referent items load to the factor more highly than the general referent items. Similarly, other items that might be expected to load here but did not, such as "parking" (item 19), are also general referent items. Some improvement may be possible by making the referent consistent from item to item. Of course, the Access factor is one especially prone to item heterogeneity, so some decrease in internal consistency may be unavoidable. Nevertheless, this factor would almost certainly benefit from item revision. We should also note that we are aware of Ware's (1981) caution about using summary scores in the face of item heterogeneity. We chose to compute factor scores only after careful consideration of the covariance matrix and factor loadings and with regard to consistency in the report. Item heterogeneity should be kept in mind, therefore, when considering Access to Care factor scores.

One other comment about factors is in order. Two factors not consistent with the literature were extracted. Appointments was expected based on previous Air Force studies of medical care. Support Area Satisfaction, however, was not. Apparently, Air Force health care consumers consider areas such as laboratories, X-Ray, and the pharmacy independent of areas of primary care.

Concerning the sensitivity analyses and construct validity analyses, some thoughts also emerge. First, the expectations for self vs other referent item variation held true, showing consistently less positive perceptions of

dependent's care than care for self. In addition to providing standardization data, this finding may continue to suggest some attention to dependents' care is in order. Second, the varying patterns of significant differences by location when compared to the data base show findings important for use of the instrument in a consulting or evaluation mode. Cautions apply, however, because of comparatively small samples used in comparison to the data base. Third, relationships expected from theory were confirmed completely in regard to attitudinal items. The weakest correlation (.17, hospital size with satisfaction) is likely due to the expressed preference of military people for small, "family-feeling" hospitals/clinics where providers and patients are all personally known.

Fourth, the expectation about grade was based on the notion that the grade group Sergeant through Technical Sergeant is the lowest rank group to consistently need care both for dependents and self and so would likely be the most negative group in terms of satisfaction. This was confirmed with both Concern for Patients and General Satisfaction. Fifth, concerning marital status, results were as predicted except for Access to Care, where no differences were seen on the omnibus F-test (and, therefore, obviously not in the follow-on comparisons). This result points out precisely the problem of factors with two to three items and lower-than-desired reliability. Is the observed outcome due to the fact that expected differences truly did not exist or the fact that the measure could be more reliable? In this case, it's impossible to tell.

Sixth, results regarding age showed significant omnibus F-tests, but no significant follow-on comparisons. Means for the age groups were numerically in the expected order; however, differences did not appear strong enough to be

consistently reflected. Possible reasons include difficulties with the categories and lack of a representative retired population where increases in satisfaction would have been more likely.

Seventh, frequency of use findings were generally as expected for General Satisfaction; however, for Availability of Care, the most frequent users were not the least satisfied. They were, however, in the least satisfied group as divided by the multiple comparison tests. Finally, type of use findings were generally consistent with predicted differences between in-patient and out-patient care. The exception was Access to Care, for which the means for the two groups were virtually identical.

#### Conclusions and Recommendations

In the final analysis, evidence of instrument content and construct validity and internal consistency reliability support use of the QMCS in a revised 35-item format. The factor structure is statistically sound and generally consistent with the literature. The factors show acceptable to excellent internal consistency reliability as does the overall instrument when all items are considered together. Finally, evidence of the sensitivity of patient satisfaction items and factors support their use as dependent variables, and empirical relationships and differences generally converge with those reported in the literature and with previous Air Force medical findings, supporting construct validity.

While the survey does seem useful as is, we believe it could be made better by some future research. We provide these as recommendations to be considered:

1. While decisions were made early in the process not to address certain dimensions, we recommend additional thought now be given to addressing areas such as technical quality of care, physical environment, and outcome of care. These are found in the literature taxonomies, seem possible to measure in an Air Force environment, and would add to the content validity of the survey. Similarly, dimensions such as organization of services and availability of preventative care could be developed. Likewise, additional items might be revised/inserted to expand the content coverage of the accessibility and availability dimensions. Parking, mentioned earlier, for example, is a frequent accessibility item which did load on that factor here. If such revisions are considered useful, very helpful references would be Ware, Snyder, and Wright (1976a; 1976b); Ware, Davies-Avery, and Stewart (1978); and Ware (1981).
2. We recommend serious consideration be given to revising attitudinal items into an "agree-disagree" response format. This would provide a consistency of response options and lessen the possibility of respondent confusion. However, it is important to keep in mind the notion of acquiescent response set and to include both positively and negatively worded items.
3. One of the major limitations of the present study was the fact that only one survey administration was available. This eliminates the possibility of several useful types of analyses. One of the most pressing examples is the need for test-retest reliability (stability) coefficients as an additional factor/item reliability check. Our experience shows sample sizes need not be large, but stability of item and factor results are very important. Especially if any type of evaluation work is to be done, this "instrument wobble" or lack of consistency from one administration to another can be a great problem. A useful reference for this kind of work would be one of the LMDC Technical Reports (Short & Hamilton, 1981) which addresses reliability measurement issues with application to an organizational assessment survey instrument.
4. Another stability issue is the stability of the factor structure across both various intervals of time and various demographic groups. Clearly, the observed factor structure should remain constant and not vary in either of these cases. Unfortunately, multiple administrations and a sizable data base are needed. Nevertheless, this is an important issue to be discussed. Helpful references may again come from the LMDC Technical Report Series (Hightower & Short, 1982; Hightower, 1982).
5. An important future issue is the development of normative or comparison groups against which to interpret scores. A score has little meaning unless compared to something. In LMDC consulting work, a score is considered relative to the response

scale (i.e., one to seven), relative to the entire survey data base, and relative to the results of individuals in like work groups. A similar system could be developed for patient satisfaction measures.

6. As previously noted, these analyses did not address demographic items. The demographics in the current QMCS were carefully prepared and tested prior to survey administration. We recommend these items be retained for future surveys provided they cover appropriate content.
7. Depending upon content coverage desired, it may be useful to expand items beyond the 35 which clearly factor. This may be done in one of two ways. First, simply add the items to the survey and analyze them as individual items. Second, additional items could be developed and tested to build a factor around desired items. For example, consider the two items which currently factor together on "foreign doctors." If the issue of foreign doctors is important, other items could be developed and tested to build a four or five item factor. It should be noted that the two current items do load together, but the resulting factor would be unlikely to yield stable results with only two items.
8. Finally, we ask it be remembered that this survey included only active military members, not retirees or dependents. This is important because there is no reason to assume these groups are equivalent or consistent. For example, in responses to the 1978 Military Health Services Utilization Survey, a larger percentage of retired sponsors and spouses were "very satisfied" with overall quality of medical care received than were active members and spouses. In addition, a slightly lower percentage of active spouses were "very satisfied" than were active members (Findings, 1982). Omission of retiree data could shift services away from populations that deserve the very best in medical care as well as creating a data base not representative of the population served. If data are needed on these groups, additional surveys and/or equivalency studies may be needed.

#### A Final Comment

The use of patient satisfaction measures provides a potentially very valuable tool. Evidence that patients' perceptions do represent real states of affairs, the increasing need for information about the interpersonal aspects of medical care, and improvements in the design and development of patient satisfaction surveys are compelling reasons to expand such efforts.

Patient satisfaction information can provide data available nowhere else about evaluation of services. Perhaps more important, however, are findings that patient satisfaction data can be used as a predictor of health and illness behavior (see, for example, Ware, 1978). All these potential gains are real possibilities given a carefully developed and standardized instrument. We hope and believe the current work has at least started that process.

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Appendix A  
Air Force Quality of Medical Care  
Survey

# USAF QUALITY OF MEDICAL CARE SURVEY





DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS AIR FORCE MANPOWER AND PERSONNEL CENTER  
RANDOLPH AIR FORCE BASE, TX 78150

SG

15 MAR 1983

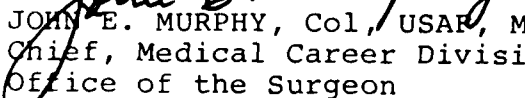
Quality of Medical Care Survey

Air Force Survey Participant

1. The mission of the Air Force Medical Service is to provide the best quality medical care within the funds and resources available. Medical care is something everyone needs sometime in their lives and the quality of that care is important to each and everyone of us.

2. We are interested in your thoughts and opinions about the quality of medical care both you and your dependents have received at USAF hospitals and clinics. You can help us by completing the attached survey and returning it with answer sheet in the preaddressed envelope by 22 Apr 83. Your information will be used to determine areas we in the medical community can improve in our services provided to you. Please take the time to complete the survey. Thank you for your participation.

FOR THE COMMANDER

  
JOHN E. MURPHY, Col, USAF, MSC  
Chief, Medical Career Division  
Office of the Surgeon

3 Atch

1. Survey
2. Answer sheet
3. Envelope

USAF  
QUALITY OF MEDICAL CARE  
SURVEY  
FOREWORD

As part of our continuing efforts to provide the best medical care, we need to periodically assess our members' perceptions of the quality of care they receive at USAF medical facilities. The information you provide will be used to form USAF policies needed to provide high quality medical care. We appreciate your participation in making this survey an important tool for reflecting the voice of our active and retired members.

PRIVACY ACT STATEMENT

In accordance with the Air Force Privacy Act Program, AFR 12-35, Paragraph 8, the following information about the survey is provided:

- a. Authority. 10 U.S.C., 8012, Secretary of the Air Force: Powers and Duties, Delegation by.
- b. Principle Purpose. Survey conducted to gather attitudes and opinions from active and retired Air Force members about the quality of medical care they receive from USAF medical facilities.
- c. Routine Use. The survey data will be converted to statistical information for use in evaluating the quality of USAF medical care.
- d. Participation in this survey is entirely voluntary.
- e. No adverse action of any kind may be taken against any individual who elects not to participate in this survey.

INSTRUCTIONS FOR COMPLETING THE SURVEY

Select only one answer to each question. Make any additional comments on the comment sheet at the end of the survey.

Mark your answers on the separate answer sheet. Please use a No. 2 pencil. Be sure to mark your answers carefully so that you enter them opposite the same answer sheet number as the survey question number.

Be sure that you answer marks are heavy and that you blacken the oval-shaped space.

Right Way	1 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
To Mark	2 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Answer Sheet	3 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
	4 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Wrong Way	5 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
To Mark	6 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Answer Sheet	7 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
	8 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>

Since this survey is strictly anonymous, please do not write your name or your SSAN on either your answer sheet or survey booklet.

DO NOT STAPLE OR OTHERWISE DAMAGE THE ANSWER SHEET AS THE ELECTRONIC SCANNER WILL NOT READ THE FORM, AND YOUR INPUT WILL BE REJECTED.

Section I

1. What is your current grade? (Retirees should respond with the grade at which they retired.)

A. Colonel	F. Second Lieutenant	K. Staff Sergeant
B. Lieutenant Colonel	G. Chief Master Sergeant	L. Sergeant
C. Major	H. Senior Master Sergeant	M. Senior Airmen
D. Captain	I. Master Sergeant	N. Airman First Class
E. First Lieutenant	J. Technical Sergeant	O. Airman
		P. Airman Basic
  
2. What is your current status?
  - A. Active Duty
  - B. Retired
  
3. What is your sex?
  - A. Male
  - B. Female
  
4. What are your total years of active federal military service (TAFMS)? (Retirees should select Option, Not Applicable.)

A. Not Applicable, I am retired	G. 8 years	L. 13-14 years
B. Less than 4 years	H. 9 years	M. 15-16 years
C. 4 years	I. 10 years	N. 17-18 years
D. 5 years	J. 11 years	O. 19-20 years
E. 6 years	K. 12 years	P. Over 20 years
F. 7 years		
  
5. What is your marital status?
  - A. Married and spouse is not a member of a military service
  - B. Married and spouse is a member of a military service
  - C. Single
  
6. What is your race?
  - A. Black
  - B. White
  - C. Other
  
7. What is your ethnic background?
  - A. Hispanic (Mexican-American, Puerto Rican, Cuban descent, Spanish descent)
  - B. Asian-Pacific American (Filipino, Chinese, Japanese, Korean, Asian-American)
  - C. Native American (American Indian, Eskimo, Aleut)
  - D. Other, or Unknown

Items 8 and 9, please identify the Air Force medical facility that you and your dependents primarily use from the list below. Mark the first letter in Item 8 and the second letter in Item 9. For example, if you use the Randolph AFB Clinic, you would mark Item 8 as "D" and Item 9 as "M". If you do not currently use a USAF medical facility, mark "Z" in Item 8 and "Z" in Item 9, and proceed to the next item.

Hospital	Code	Hospital	Code
Alconbury	JQ	Lajes	ED
Altus	EE	Lakenheath	JD
Anderson	GX	Langley	HJ
Andrews (Malcolm Grow)	EA	Laughlin	DB
Ankara	JT	Little Rock	EB
Athens (Hellenikon)	JA	Loring	GU
Aviano	JK	Los Angeles Air Station	CE
Barksdale	GF	Lowry	DJ
Beale	GA	Luke	HP
Bentwaters	JL	MacDill	HK
Bergstrom	HD	Malmstrom	GP
Bitburg	JB	March	GD
Blytheville	GG	Mather	DF
Bolling	EN	Maxwell	DG
Brooks	CG	McClellan	BF
Camp New Amsterdam	JU	McConnell	GE
Cannon	HE	McChord	EL
Carswell	GH	McGuire	EI
Castle	GB	Minot	GQ
Chanute	DE	Misawa	FC
Charleston	EK	Moody	HQ
Chicksands	JR	Mountain Home	HO
Clark	FA	Myrtle Beach	HB
Columbus	DI	Nellis	HC
Davis Monthan	HF	Norton	EM
Dover	EF	Offutt (Ehring Bergquist)	GJ
Duluth	HR	Osan	FD
Dyess	GR	Patrick	CC
Edwards	CA	Pease	GI
Eglin	CB	Peterson	GZ
Eielson	AB	Plattsburgh	GT
Ellsworth	GK	Pope	EJ
Elmendorf	AA	Ramstein	JM
England	HH	Randolph	DM
Fairchild	GM	Reese	DC
Fairford	JS	Rhein-Main	JN
F.E. Warren	GL	Robins	BD
George	HA	San Vito	JI
Goodfellow	DK	Scott	EC
Grand Forks	GN	Sembach	JO
Griffiss	GS	Seymour Johnson	HL
Grissom	GY	Shaw	HG
Hahn	JC	Sheppard	DH
Hancock Field	HS	Spangdahlem	JJ
Hanscom	CF	Taegu	FH
Hickam	FF	Tinker	BA
Hill	BB	Torrejon	JH
Holloman	HN	Travis (David Grant)	EG
Homestead	HI	Tyndall	HM
Howard	HT	Upper Heyford	JE
Incirlik	JG	USAF Academy	IA
Iraklion	JF	Vance	DL
Izmir	JV	Vandenberg	GC
Kadena	FG	Whiteman	GV
Keesler	DD	Wiesbaden	JX
Kelly	BE	Williams	DA
Kirtland	EH	Wright-Patterson	BC
K.I. Sawyer	GO	Wurtsmith	GW
Kunsan	FB	Yokota	FE
Lackland (Wilford Hall)	CD	Zaragoza	JW
		Zweibrucken	JP
		Other	ZZ

10. How long have you used the services at the USAF medical facility you identified in Items 8 and 9?
- A. Not Applicable, no USAF medical facility available
  - B. Less than 6 months
  - C. 6 months but less than 1 year
  - D. 1 year but less than 2 years
  - E. 2 years but less than 3 years
  - F. 3 years but less than 4 years
  - G. 4 years but less than 6 years
  - H. 6 years but less than 10 years
  - I. 10 years but less than 15 years
  - J. 15 years but less than 20 years
  - K. 20 years or more
11. How many times in the past year did you obtain medical services at the USAF hospital/clinic you primarily use?
- A. Not applicable, no USAF medical facility available
  - B. 0
  - C. 1-5
  - D. 6-10
  - E. 11-15
  - F. 16-20
  - G. 21-25
  - H. 26-30
  - I. 31 or more
12. During the past year, what type of services did you receive at the USAF hospital/clinic you primarily use?
- A. Not applicable, I did not use services at USAF hospital/clinic this past year
  - B. In-patient service only
  - C. Out-Patient service only
  - D. Both in-patient and out-patient services
13. How many times in the past year did your dependents obtain the medical services at the USAF hospital/clinic they primarily use?
- A. Not applicable, no dependents
  - B. Not applicable, no USAF medical facility used
  - C. 0
  - D. 1-5
  - E. 6-10
  - F. 11-15
  - G. 16-20
  - H. 21-25
  - I. 26-30
  - J. 31 or more
14. During the past year what type of service did your dependents receive at the USAF hospital/clinic they primarily use?
- A. Not applicable, no dependents
  - B. Not applicable, they did not use services at USAF hospital/clinic this past year
  - C. In-patient service only
  - D. Out-patient service only
  - E. Both in-patient and out-patient services
15. Where do you presently reside?
- A. On base, CONUS
  - B. Off base, CONUS
  - C. On base, Overseas
  - D. Off base, Overseas

16. What is your highest level of education now (include accepted GED credits)?
- A. Some high school (did not graduate)
  - B. High school graduate or GED equivalent (no college)
  - C. Trade or technical school (no college)
  - D. Some college, but less than one year
  - E. One year college, but less than two years
  - F. Two years college, but less than three (including two-year associate degree)
  - G. Three years or more college, no degree
  - H. Registered nurse diploma program
  - I. College degree (BS, BA, or equivalent, except LL.B.)
  - J. Graduate work beyond bachelor degree (no Master's degree)
  - K. Master's degree
  - L. Postgraduate work beyond Master's degree
  - M. Doctorate degree (including LL.B., J.D., D.D.S., M.D., and D.V.M.)
17. What was your age on your last birthday?
- A. 20 years old or less
  - B. 21-25 years old
  - C. 26-30 years old
  - D. 31-35 years old
  - E. 36-40 years old
  - F. 41-45 years old
  - G. 46-50 years old
  - H. 51-60 years old
  - I. 61-70 years old
  - J. 71 years or older

### Section II

This section includes several statements about the medical care you receive at a USAF hospital/clinic. Several of these statements refer to health providers which includes (for the purpose of this survey): physicians, physician assistants, nurse practitioners, nurse midwives, psychologists, and social workers. Please indicate how much you agree or disagree with each statement at your particular USAF hospital/clinic by using the scale below. Please consider the services at the USAF hospital/clinic you primarily use.

A	B	C	D	E	F	G	H
STRONGLY DISAGREE	DISAGREE	SLIGHTLY DISAGREE	NEITHER AGREE NOR DISAGREE	SLIGHTLY AGREE	AGREE	STRONGLY AGREE	NOT APPLICABLE

- 18. I am very satisfied with the medical care I receive.
- 19. Parking is a problem when you have to get medical care.
- 20. Health providers are not as thorough as they should be.
- 21. If I have a medical question, I can reach someone for help without any problem.
- 22. Health providers always do their best to keep the patient from worrying.
- 23. In an emergency, it is very hard to get medical care quickly.
- 24. A larger hospital/clinic is needed at this base.
- 25. The care I have received from health providers in the last year has been excellent.
- 26. Sometimes health provider take unnecessary risks in treating patients.
- 27. Health providers are very careful to check everything when examining patients.
- 28. Health providers always treat patients with respect.



A	B	C	D	E	F	G	H
STRONGLY DISAGREE	DISAGREE	SLIGHTLY DISAGREE	NEITHER AGREE NOR DISAGREE	SLIGHTLY AGREE	AGREE	STRONGLY AGREE	NOT APPLICABLE

29. There are enough health providers at my hospital/clinic.
30. I think my hospital/clinic has everything needed to provide complete medical care.
31. It is hard to get an appointment for medical care right away.
32. It takes me a long time to get to my hospital/clinic.
33. I hardly ever see the same health provider when I go for medical care.
34. Sometimes health providers make the patient feel foolish.
35. The hospital/clinic where I get medical care is conveniently located.
36. Health providers cause people to worry a lot because they do not explain medical problems to patients.
37. Most people at this hospital/clinic receive medical care that could be better.
38. My hospital/clinic lacks some things needed to provide complete medical care.
39. The medical problems I have had in the past are ignored when I seek care for a new medical problem.
40. Health providers respect their patients' feelings.
41. If more than one family member needs medical care, we have to go to different health providers.
42. Operating hours at this hospital/clinic are good for most people.
43. There are enough specialists (e.g., pediatrics, OB/GYN, etc.) at my hospital/clinic.
44. Health providers do not advise patients about ways to avoid illness or injury.
45. There are things about the medical care I receive that could be better.
46. Health providers hardly ever explain the patient's medical problems to him/her.
47. People are usually kept waiting a long time when they are at the hospital/clinic.
48. I see the same health provider just about every time I go for medical care.
49. I am very satisfied with the medical care my dependents receive.
50. If my dependents have a medical question, they can reach someone for help without any problem.
51. The care my dependents have received from health providers in the past year has been excellent.
52. My dependents hardly ever see the same health provider when they go for medical care.

A	B	C	D	E	F	G	H
STRONGLY DISAGREE	DISAGREE	SLIGHTLY DISAGREE	NEITHER AGREE NOR DISAGREE	SLIGHTLY AGREE	AGREE	STRONGLY AGREE	NOT APPLICABLE

53. The medical problems my dependents have had in the past are ignored when they seek care for a new medical problem.
54. There are things about the medical care my dependents receive that could be better.
55. If no costs were involved, I would prefer a civilian medical facility over a military medical facility.
56. If no costs were involved, my dependents would prefer a civilian facility over a military medical facility.
57. Foreign trained doctors are capable of providing high quality medical care.
58. Most people do not have any problems communicating with foreign doctors.
59. I have trust in the ability of physician assistants (PAs) to provide high quality health care.
60. Having to use more than one medical facility has a strong negative impact on the quality of medical services I receive.
61. Having to use more than one medical facility has a strong negative impact on the quality of medical services my dependents receive.
62. I have trust in the ability of nurse practitioners to provide high quality health care.
63. I am concerned about the quality of care provided by specialists (e.g., pathologists, psychiatrists, etc.) in the emergency care setting.

### Section III

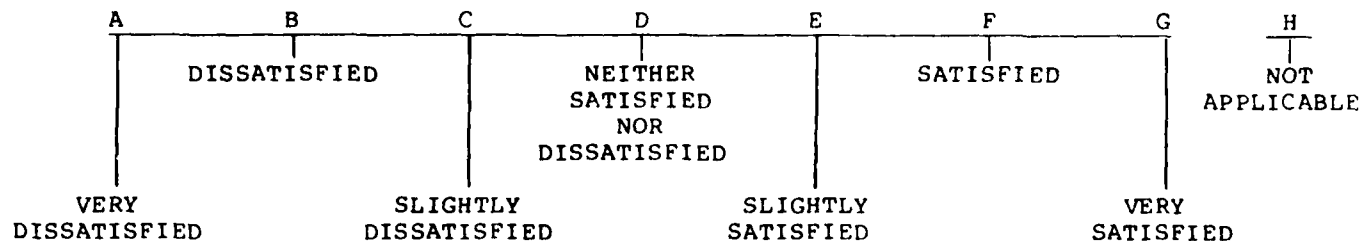
This section asks questions about other areas of medical care. Use the appropriate responses for each item.

For items 64-71, rate your degree of satisfaction with each area by using the scale below.

A	B	C	D	E	F	G	H
	DISSATISFIED		NEITHER SATISFIED NOR DISSATISFIED		SATISFIED		NOT APPLICABLE
VERY DISSATISFIED		SLIGHTLY DISSATISFIED		SLIGHTLY SATISFIED		VERY SATISFIED	

Generally, how satisfied are you with:

64. The helpfulness of personnel who make medical appointments.
65. The length of time you have to wait for an appointment.

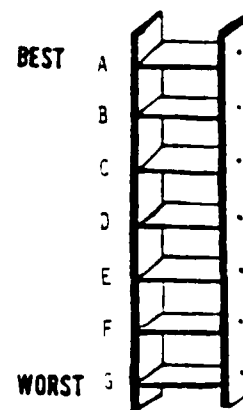


66. Ease of access to the appointment system.
67. The length of time you have to wait for a health provider, once inside the hospital/clinic.
68. The helpfulness of personnel in the pharmacy.
69. The length of time required to fill a prescription.
70. The helpfulness of medical technicians in areas such as x-ray, laboratories, etc.
71. The length of time you have to wait in areas such as x-ray, laboratories, etc.
72. In general, how difficult or easy is it to access the hospital appointment office through the telephone system?
- A. Very easy
  - B. Easy
  - C. Somewhat easy
  - D. Neither easy nor difficult
  - E. Somewhat difficult
  - F. Difficult
  - G. Very difficult
73. If you answered E, F, or G to the previous question, how often do you use walk-in service (non-emergency service) instead of a medical appointment because you feel you need prompt medical attention?
- A. Not applicable, I responded A, B, C or D to question 72
  - B. Very often
  - C. Often
  - D. Sometimes
  - E. Seldom
  - F. Never
74. If you answered E, F, or G to question 72, how often do you use the emergency room service instead of a medical appointment because you feel you need prompt medical attention?
- A. Not applicable, I responded A, B, C or D to question 72
  - B. Very often
  - C. Often
  - D. Sometimes
  - E. Seldom
  - F. Never
75. On the average, how long do you have to wait for a medical appointment?
- A. Same day
  - B. Next day
  - C. 2-4 days
  - D. 5-7 days
  - E. 8-10 days
  - F. 11-14 days
  - G. Over 2 weeks

76. On the average, how long do you have to wait for a health provider for a scheduled medical appointment once you are inside the hospital/clinic? (Waiting time is defined as time you waited after appointment time)
- |                       |                          |
|-----------------------|--------------------------|
| A. Don't have to wait | F. 31-45 minutes         |
| B. 1-5 minutes        | G. 46-60 minutes         |
| C. 6-10 minutes       | H. 61-90 minutes         |
| D. 11-20 minutes      | I. 91 minutes to 2 hours |
| E. 21-30 minutes      | J. Over 2 hours          |
77. On the average, how long do you have to wait to have a prescription filled after presenting it to the pharmacy?
- |                       |                          |
|-----------------------|--------------------------|
| A. Don't have to wait | F. 31-45 minutes         |
| B. 1-5 minutes        | G. 46-60 minutes         |
| C. 6-10 minutes       | H. 61-90 minutes         |
| D. 11-20 minutes      | I. 91 minutes to 2 hours |
| E. 21-30 minutes      | J. Over 2 hours          |
78. During the past year, how many times have you had to use CHAMPUS because Air Force medical care was not available? (All active duty members select Option A, Not applicable)
- |                                   |               |
|-----------------------------------|---------------|
| A. Not applicable, on active duty | E. 5-6        |
| B. None                           | F. 7-8        |
| C. 1-2                            | G. 9-10       |
| D. 3-4                            | H. 11 or more |
79. During the past year, how many times have your dependents had to use CHAMPUS because Air Force medical care was not available?
- |                                  |               |
|----------------------------------|---------------|
| A. Not applicable, no dependents | E. 5-6        |
| B. None                          | F. 7-8        |
| C. 1-2                           | G. 9-10       |
| D. 3-4                           | H. 11 or more |

Please refer to the ladder illustrated below. Now we would like for you to consider the quality of Air Force medical care in general. Suppose that the tip of the ladder (Step A), represents the best possible quality of AF medical care, the bottom (Step G), the worst possible quality of AF medical care.

80. Where on the ladder would you place the quality of AF medical care at the present time?
81. Where on the ladder would you place the quality of AF medical care 1 year ago? If you have not been in the Air Force at least 1 year, mark response "H" on your answer sheet.
82. Just as your best guess, where do you think the quality of AF medical care will be 1 year from now?



COMMENT SECTION

ACTIVE \_\_\_\_\_

RETIRED \_\_\_\_\_

Rank: \_\_\_\_\_

Hospital/Clinic: \_\_\_\_\_

We welcome any comments you may have concerning the quality of medical care in the Air Force. If you are making comments in reference to a specific question, please identify that question with your comments.

THANK YOU FOR TAKING THE TIME TO  
PARTICIPATE IN THIS SURVEY AND  
PROVIDING YOUR CANDID OPINIONS ABOUT  
THE QUALITY OF MEDICAL CARE IN THE AIR FORCE

PLEASE PLACE YOUR SURVEY BOOKLET (IF  
YOU MADE COMMENTS) AND ANSWER SHEET  
IN THE RETURN ENVELOPE AND  
RETURN AS SOON AS POSSIBLE

Appendix B  
Tables of Supporting Statistical  
Analyses

Table 1

## QMCS Non-Attitudinal Items

Medical Facility Used

121 Different Facilities  
 Sample size at each ranged from 1 to 96  
 Mean = 21

Grade of Respondent

40.5% Officers		59.5% Enlisted	
0-6	3.9%	E9	1.9%
0-5	7.8	E8	4.3
0-4	10.5	E7	15.6
0-3	10.6	E6	5.9
0-2	5.1	E5	9.2
0-1	2.6	E4	3.8
		E3	3.2
		E2	14.1
		E1	1.5

Sex

Male	90.6%
Female	9.4

Total Active Federal Military Service

Less than 4:	23.5%
4 years:	4.2
5	3.4
6	3.5
7	2.5
8	2.4
9	2.9
10	2.4
11	2.5
12	3.1
13-14	7.6
15-16	9.4
17-18	8.0
19-20	6.1
More than 20:	18.3

Marital Status

Married to Member	7.5%
Married to Non-Member	69.9
Single	22.6

Race

Black	10.7%
White	84.6
Other	4.8

Ethnic Group

Hispanic	3.4%
Asian-Pacific	1.7
Native American	14.7
Other	80.2

Education Level

Some High School	0.3%
High School Graduate	14.9
Trade or Technical School	3.8
Less than 1 year college	9.8
1-2 years college	13.9
2-3 years college	10.7
3 or more yrs college	3.4
Registered Nurse Diploma	0.3
College Degree	11.1
Some Graduate Work	9.3
Masters Degree	16.2
Post Graduate Work	3.5
Doctorate	2.8

Age of Respondents

20 or less	6.8%
21-25 years	18.1
26-30 years	14.7
31-35 years	17.9
36-40 years	23.5
41-45 years	13.7
46-50 years	4.3
51-60 years	1.0



How Long Respondent Has Used Facilities

Less than 6 months	8.7%
6 months - 1 year	18.6
1 - 2 years	23.4
2 - 3 years	17.7
3 - 4 years	12.1
4 - 6 years	8.1
6 - 10 years	5.8
10 - 15 years	2.0
15 - 20 years	0.3
20 or more years	0.2

Frequency of Use - Respondent

None	7.8%
1 - 5 times	64.7
6 -10 times	16.4
11-15 times	4.3
16-20 times	1.9
21-25 times	0.8
26-30 times	0.3
31 or more times	1.0

Type of Service-Respondent

None	10.5%
In-Patient only	4.9
Out-Patient only	73.2
Both	11.5

Where Respondent Resides

On Base, CONUS	28.2%
Off Base, CONUS	50.2
On Base, Overseas	11.4
Off Base, Overseas	10.2

Frequency of Use-Dependent

None	31.8%
1-5 times	34.5
6-10 times	18.1
11-15 times	8.6
16-20 times	3.2
21-25 times	1.5
26-30 times	0.7
31 or more times	1.5

Type of Service - Dependent

None	30.9%
In-Patient only	3.3
Out-Patient only	52.2
Both	13.7

Use of Walk in Service Instead of Appointment

Very often	2.8%
Often	7.0
Sometimes	22.1
Seldom	39.6
Never	28.6

Use of Emergency Room Instead of Appointment

Very often	1.7%
Often	5.9
Sometimes	18.1
Seldom	43.0
Never	31.3

How Long Respondent Waits for Appointment

Same day	13.0%
Next day	16.8
2-4 days	28.4
5-7 days	17.0
8-10 days	8.4
11-14 days	7.1
Over 2 weeks	9.4

Average Wait After Appointment Time

None	3.0%
1-5 minutes	7.1
6-10 minutes	17.0
11-20 minutes	29.5
21-30 minutes	22.8
31-45 minutes	13.5
46-60 minutes	4.5
61-90 minutes	1.9
91-2 hours	.4
Over 2 hours	.3

Average Wait at Pharmacy to Fill Prescription

None	3.3%
1-5 minutes	14.3
6-10 minutes	24.9
11-20 minutes	23.9
21-30 minutes	13.4
31-45 minutes	8.5
46-60 minutes	5.4
61-90 minutes	3.6
91-2 hours	1.3
Over 2 hours	1.5

Times Dependents Used CHAMPUS

None	78.1%
1-2	11.1
3-4	5.0
5-6	1.4
7-8	.9
9-10	.7
11 or more	2.8

Table 2

## Attitudinal Item Means and Standard Deviations

(Note: For Items 18 to 63, 1=strongly disagree and 7=strongly agree.  
For Items 64 to 71, 1=very dissatisfied and 7=very satisfied.)

<u>Item Number</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>
18	2521	4.82	1.71
19	2494	3.62	2.16
20	2518	3.87	1.77
21	2513	4.35	1.83
22	2512	4.48	1.53
23	2408	4.31	1.86
24	2497	3.60	1.97
25	2457	4.52	1.72
26	2437	4.81	1.38
27	2517	4.04	1.62
28	2528	4.42	1.74
29	2521	3.52	1.72
30	2519	3.42	1.82
31	2518	3.07	1.83
32	2518	5.25	1.67
33	2446	3.75	1.90
34	2507	4.32	1.74
35	2537	5.38	1.49
36	2502	4.41	1.58
37	2502	3.71	1.58
38	2507	3.24	1.63
39	2399	4.48	1.58
40	2516	4.69	1.49
41	2110	3.53	1.71
42	2513	5.08	1.47
43	2493	3.27	1.72
44	2505	4.45	1.46
45	2505	3.06	1.48
46	2505	4.63	1.49
47	2526	3.12	1.64
48	2442	3.58	1.79
49	2040	3.96	1.83
50	2042	3.63	1.71
51	1993	4.03	1.78
52	1989	3.63	1.72
53	1967	4.37	1.51
54	2004	2.85	1.44
55	2528	3.17	1.94
56	2049	2.84	1.82
57	2391	4.04	1.59
58	2385	3.27	1.51
59	2511	4.31	1.67
60	2028	3.66	1.60

Table 2 (Continued)

## Attitudinal Item Means and Standard Deviations

(Note: For Items 18 to 63, 1=strongly disagree and 7=strongly agree.  
For Items 64 to 71, 1=very dissatisfied and 7=very satisfied.)

<u>Item Number</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>
61	1696	3.54	1.58
62	2487	4.79	1.43
63	2406	3.46	1.59
64	2529	4.39	1.76
65	2531	3.31	1.75
66	2533	3.70	1.88
67	2528	3.66	1.67
68	2484	5.03	1.46
69	2482	4.38	1.85
70	2457	5.07	1.35
71	2445	4.39	1.60
72	2546	3.52	1.90
73	1519	3.84	1.01
74	1468	3.96	.94
80	2550	4.53	1.28
81	2449	4.40	1.28
82	2528	4.54	1.43

Table 3  
Factor Loading Matrix

Item Number	Concern for Patients	Appointments	General Satisfaction	Availability of Care	Continuity of Care	Support Area Satisfaction	Access to Care
26	51	02	20	14	07	11	03
28	62	21	30	05	05	17	01
34	70	16	14	10	15	06	06
36	77	15	10	06	13	04	05
39	62	11	15	08	18	08	07
40	68	16	30	05	04	15	03
46	74	12	13	04	16	10	07
32	08	11	04	05	12	05	81
35	02	01	07	00	04	10	84
42	16	10	30	14	09	10	43
18	39	16	59	13	09	11	03
21	29	28	46	10	12	13	05
49	28	13	79	14	18	07	05
50	21	32	65	12	20	11	08
51	33	11	79	12	16	13	08
54	20	18	55	22	25	07	01
31	15	64	11	15	16	05	09
64	19	61	23	02	03	25	06
65	16	70	22	11	12	22	08
66	10	82	10	06	08	13	04
67	22	50	21	10	14	34	06
72	12	78	06	03	08	06	02
24	10	07	05	69	00	03	10
29	07	32	20	61	06	07	05
30	10	00	17	81	01	02	00
38	11	03	05	78	05	03	03
43	04	15	30	68	05	03	02
33	21	15	07	02	78	05	12
41	15	10	08	07	62	05	03
48	10	09	18	00	77	07	02
52	15	09	21	03	72	04	04
68	14	09	07	03	03	74	08
69	06	19	01	04	06	75	06
70	18	10	19	05	02	69	04
71	09	22	11	09	09	70	06

Table 4  
t-Tests on Factors

Base A

<u>Factor</u>	<u>Sample</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>t</u>
Concern for Patients	Data Base	2229	4.53	1.16	-.22
	Base A	62	4.56	1.01	
General Satisfaction	Data Base	1853	3.91	1.35	-1.48
	Base A	56	4.18	1.13	
Appointments	Data Base	2405	3.61	1.36	.88
	Base A	69	3.46	1.27	
Availability of Care	Data Base	2358	3.39	1.33	-1.77
	Base A	66	3.62	1.04	
Continuity of Care	Data Base	1819	3.60	1.39	2.26*
	Base A	57	3.18	1.25	
Support Area Satisfaction	Data Base	2322	4.74	1.18	6.26*
	Base A	67	3.83	1.06	
Access to Care	Data Base	2416	5.24	1.13	.59
	Base A	71	5.16	1.04	
Overall	Data Base	1588	4.03	.88	.31
	Base A	48	3.99	.72	

\*  $p < .05$

Table 5  
t-Tests on Factors  
Base B

<u>Factor</u>	<u>Sample</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>t</u>
Concern for Patients	Data Base	2225	4.52	1.15	-1.52
	Base B	66	4.74	1.10	
General Satisfaction	Data Base	1855	3.92	1.35	-0.21
	Base B	54	3.96	1.31	
Appointments	Data Base	2399	3.61	1.36	1.72
	Base B	75	3.34	1.37	
Availability of Care	Data Base	2353	3.36	1.31	-6.94*
	Base B	71	4.45	1.12	
Continuity of Care	Data Base	1826	3.59	1.39	1.18
	Base B	50	3.36	1.24	
Support Area Satisfaction	Data Base	2315	4.72	1.19	1.25
	Base B	74	4.55	1.20	
Access to Care	Data Base	2412	5.26	1.12	3.08*
	Base B	75	4.77	1.36	
Overall	Data Base	1594	4.03	.87	.09
	Base B	42	4.02	.84	

\*  $p < .05$



Table b  
t-Tests on Factors

<u>Factor</u>	<u>Sample</u>	Base C			
		<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>t</u>
Concern for Patients	Data Base	2203	4.53	1.15	.21
	Base C	88	4.50	1.12	
General Satisfaction	Data Base	1833	3.92	1.35	.67
	Base C	76	3.82	1.30	
Appointments	Data Base	2380	3.62	1.36	3.56*
	Base C	94	3.12	1.34	
Availability of Care	Data Base	2330	3.38	1.32	-3.13*
	Base C	94	3.81	1.30	
Continuity of Care	Data Base	1805	3.58	1.38	.06
	Base C	71	3.57	1.57	
Support Area Satisfaction	Data Base	2297	4.74	1.19	3.68*
	Base C	92	4.27	1.10	
Access to Care	Data Base	2393	5.24	1.13	.04
	Base C	94	5.24	1.09	
Overall	Data Base	1573	4.03	.87	.99
	Base C	63	3.92	.87	

\*  $p < .05$

Table 7  
t-Tests on Factors

Base D

<u>Factor</u>	<u>Sample</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>t</u>
Concern for Patients	Data Base	2240	4.54	1.15	2.21*
	Base D	51	4.18	1.13	
General Satisfaction	Data Base	1865	3.93	1.35	2.94*
	Base D	44	3.33	1.26	
Appointments	Data Base	2417	3.62	1.36	3.33*
	Base D	57	3.01	1.29	
Availability of Care	Data Base	2368	3.39	1.32	-.06
	Base D	56	3.40	1.18	
Continuity of Care	Data Base	1832	3.60	1.39	3.14*
	Base D	44	2.94	1.18	
Support Area Satisfaction	Data Base	2334	4.72	1.19	.08
	Base D	55	4.70	1.13	
Access to Care	Data Base	2430	5.23	1.13	-2.95*
	Base D	57	5.54	.77	
Overall	Data Base	1597	4.04	.87	2.22*
	Base D	39	3.72	.84	

\*  $p < .05$

Table 8  
 Summary of Analysis of Variance for Factor  
 Scores by Sex

<u>Factor</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>
Concern for Patients				
Between Groups	4.02	1	4.02	3.035
Within Groups	3027.42	2286	1.32	
General Satisfaction				
Between Groups	3.67	1	3.67	2.024
Within Groups	3449.78	1903	1.81	
Appointments				
Between Groups	.12	1	.12	.067
Within Groups	4544.94	2469	1.84	
Availability of Care				
Between Groups	.54	1	.54	.311
Within Groups	4208.77	2419	1.74	
Continuity of Care				
Between Groups	.01	1	.01	.006
Within Groups	3602.19	1870	1.93	
Access to Care				
Between Groups	.12	1	.12	.093
Within Groups	3153.12	2482	1.27	
Support Area Satisfaction				
Between Groups	.61	1	.61	.431
Within Groups	3364.25	2384	1.41	

Table 9  
Summary of Analysis of Variance of  
Selected Factor Scores by Marital Status

<u>Factor</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>
Appointments				
Between Groups	128.05	2	64.02	35.745*
Within Groups	4416.86	2466	1.79	
Availability of Care				
Between Groups	57.78	2	28.89	16.821*
Within Groups	4147.79	2415	1.72	
Continuity of Care				
Between Groups	2.91	2	1.46	.757
Within Groups	3591.91	1867	1.92	
Access to Care				
Between Groups	3.02	2	1.51	1.188
Within Groups	3150.05	2478	1.27	

\*  $p < .001$

Table 10  
Summary of Analysis of Variance of Selected  
Factor Scores by Grade

<u>Factor</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>
Concern for Patients				
Between Groups	46.99	1	46.99	35.975*
Within Groups	2984.78	2285	1.31	
General Satisfaction				
Between Groups	21.44	1	21.44	11.870*
Within Groups	3439.39	1904	1.81	

\*  $p < .001$

Table 11  
Summary of Analysis of Variance of Selected  
Factor Scores by Race

<u>Factor</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>
Concern for Patients				
Between Groups	5.73	2	2.87	2.163
Within Groups	3018.31	2278	1.33	
General Satisfaction				
Between Groups	3.42	2	1.71	.941
Within Groups	3449.82	1899	1.82	

Table 12  
Summary of Analysis of Variance for Selected  
Factor Scores by Age

<u>Factor</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>
Concern for Patients				
Between Groups	18.17	4	4.54	3.435*
Within Groups	3013.34	2279	1.32	
General Satisfaction				
Between Groups	23.72	4	5.93	3.275*
Within Groups	3437.21	1898	1.81	

\*  $p < .01$

Table 13  
Summary of Analysis of Variance of Selected  
Factor Scores by Education Level

<u>Factor</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>
Concern <sup>.....</sup> for Patients				
Between Groups	65.13	1	65.13	50.169*
Within Groups	2961.15	2281	1.30	
General Satisfaction				
Between Groups	7.44	1	7.44	4.105*
Within Groups	3446.91	1901	1.81	

\* p < .05

Table 14  
Summary of Analysis of Variance for  
Selected Factors by Frequency of Use

<u>Factor</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>
General Satisfaction				
Between Groups	5.89	4	1.47	.810
Within Groups	3409.70	1876	1.82	
Availability of Care				
Between Groups	46.34	4	11.58	6.719*
Within Groups	4122.46	2391	1.72	

\*p < .001

Table 15  
 Summary of Analysis of Variance of Selected  
 Factor Scores by Type of Use

<u>Factor</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>
Appointments				
Between Groups	9.60	1	9.60	5.203*
Within Groups	3656.25	1981	1.85	
Availability of Care				
Between Groups	7.71	1	7.71	4.466*
Within Groups	3353.29	1942	1.73	
Support Area Satisfaction				
Between Groups	9.54	1	9.54	6.837*
Within Groups	2647.39	1898	1.39	
Access to Care				
Between Groups	.06	1	.06	.048
Within Groups	2439.43	1984	1.23	

\*p < .05

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