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Patient Satisfaction with Dental Hygiene Providers in US Military Clinics

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Purpose. Military service members receive their dental care from military dental clinics. The purposes of this study were to assess satisfaction and to identify predictors of patient satisfaction with the hygiene provider in military dental treatment facilities.

Methods. Standardized surveys were administered from 2000 through 2004 by the Tri-Service Center for Oral Health Studies. Dependent variables were overall satisfaction with today's visit and overall satisfaction with the clinic's ability to take care of your needs. Independent variables were grouped by environment of care, beliefs about the care, and demographic characteristics. Principal component factor analysis and hierarchical multiple linear regression were used to test the hypotheses.

Results: A total of 98 792 surveys, with no missing data, from a sample of 130 801, were analyzed. Patients treated by hygiene providers were highly satisfied with dental care, as the mean score for satisfaction with today's visit was 6.61, and overall satisfaction with the clinic was 6.44 on a 7-point bipolar adjective rating scale. Factor analysis revealed that beliefs about care (46.7%) and environment (26.8%) were the most important factors to satisfaction. Both regression models developed for patient satisfaction achieved statistical significance. Model one, overall satisfaction with today's visit, obtained R^2=.311, with F (6, 98785) = 8923, p<.0001. Model two, overall satisfaction with the clinic, obtained R^2=.284 with F (6, 98785) = 7848, p<.0001.

Conclusions. This study demonstrated that beliefs about care are the most important factors associated with patient satisfaction with the hygiene provider. The interpersonal experience has a strong association with patients' assessment of care and thus, training providers about the relationship of satisfaction with the interpersonal experience can enhance overall satisfaction.

Keywords: satisfaction, patient satisfaction, dental hygiene, military, military dentistry

Introduction

Customer satisfaction with the hygiene provider appears to be lacking in the dental literature. An existing Department of Defense (DoD) patient satisfaction survey monitors the satisfaction of military beneficiaries who receive treatment in

military clinics throughout the world, but the data have never been analyzed in aggregate to identify trends or predictors of satisfaction. Patient satisfaction in military dental treatment facilities has not been formally assessed in over a decade. Additionally, previous assessments have focused on satisfaction with the overall dental experience, and not the hygiene provider.

Active duty service members of the U.S. Air Force, Army, Marines, and Navy receive the bulk of their dental treatment from one of 300 world wide military dental treatment facilities. Clinics are located on ships, military bases, and in deployment environments. Dental hygiene services are provided by registered dental hygienists (RDHs) and prophy technicians in military dental clinics. The bulk of dental hygiene services are provided by RDHs who attended accredited US schools. RDHs who work for the military are required to maintain a current state license and follow the state's guidelines for continuing education requirements. The use and training of prophy technicians varies by each military service, but these providers are only authorized to remove supragingival calculus and are under direct supervision of other providers.

Review of the Literature

Traditionally, the clinician's technical competence and mechanical precision were important factors in the assessment of dental satisfaction; lay opinions played no role in this method of measuring quality.[1] Consumerism forced dental professionals to compete for patients and traditional patient satisfaction became an important part of providing dental services.[2]

A large body of work in the field of patient satisfaction exists in the medical literature. Medical care patient satisfaction studies have consistently shown that the quality of the interpersonal interactions between the provider and the patient play a large role in defining patient satisfaction.[3-5] A similar body of research exists for the dental field. Ross and Duff found that patients return to the dentist for subsequent care due to satisfaction with the interpersonal component of the dental relationship rather than the technical quality of the care received.[6] Evidence for both medical and dental patient satisfaction studies show that desirable interactions lead to more satisfied patients who better understand and more accurately follow prescribed regimens.[7-8] A satisfied patient may have a different set of behaviors that ultimately manifest into both a healthier patient and a more satisfied customer. Newsome and Wright (1999) reviewed 46 studies of patient satisfaction and found the factors most commonly identified with dental patient satisfaction were technical competence, interpersonal factors, convenience, costs, and facilities.[9]

Dental patient satisfaction among active duty service members has not been widely studied. Chisick conducted 2 studies of satisfaction on active duty military members.-[11] Similar to the civilian studies, Chisick focused on access, availability/convenience, interpersonal skills, and pain control as predictors of satisfaction. He concluded that active duty personnel were generally very satisfied with military dental care and satisfaction did not vary significantly across demographics. Access was a consistent predictor of decreased satisfaction levels.

Two recent studies have identified models to predict patient satisfaction with military medical care. Mangelsdorff and Finstuen identified that attitudes and beliefs about the care were the most salient factors in the prediction model.[12] Waiting time, as a measure of access and age, health status, and gender demographic variables, were also significant predictors of satisfaction. A refinement of the model was recently published and validated the method.[13] Military beneficiary status (active duty, retired, or family member), the reason for the visit, and variables regarding beliefs about the care and waiting time were added to the model and are predictive of patient satisfaction in the military setting. These previous studies are precursors to this project.

Dentists have become very aware that the interpersonal dynamics between the provider and the patient is an important determinant in perceived satisfaction. A study by O'Shea, Corah, and Ayer displayed that US dentists recognize that patient dissatisfaction has a significant impact on care-seeking behavior, and in particular, on decisions to seek a new dentist.[14] With all the importance placed on dental satisfaction, there do not appear to be any published articles on consumer satisfaction with care given by the dental hygiene providers. Ovid lists 29 065 journal articles on patient satisfaction, 1386 articles on dental patient satisfaction, and 114 articles on dental hygiene patient satisfaction. The articles on dental hygiene

satisfaction focus on job satisfaction of the dental hygiene provider, satisfaction with the dental hygiene school/curriculum, satisfaction with independent dental hygiene practice, and satisfaction with varying dental hygiene procedures. Additional searches using EBSCO and Google proved fruitless. One abstract has been published on patient satisfaction with the dental hygiene provider. Johnson reported on a pilot test of a survey instrument aimed at assessing patient satisfaction at the Idaho State University Dental Hygiene Clinic.[15]

The purposes of this project were to identify levels and predictors of satisfaction with the hygiene provider in military dental treatment facilities.

Methods

This project is a secondary analysis of dental patient satisfaction data collected in military dental clinics. The data are anonymous and do not contain patient identifiers. The surveys are administered in the clinics with the use of the Random Appointment Time Slot Generator system, which generates the patients who are to receive the survey. All patients that seek treatment on the randomized day are asked to complete the survey.

Survey Instrument

The dental satisfaction survey was composed of 27 questions focusing on access, quality, interpersonal relationships, overall satisfaction, and demographic data, and was approved by the Department of Defense (DoD) Institutional Review Board to ensure patient privacy. The surveys analyzed for this project were administered from the fourth quarter of fiscal year 2000 through the fourth quarter of 2004. Seventeen digitized text files of data were received directly from the Tri-Service Center for Oral Health Studies, located in Bethesda, Md.

Data

The 17 text files were imported into SPSS v. 12 resulting in one master file with 658 443 cases. Respondents indicated whether they saw a dentist, dental hygienist, or both during their visit. Those who responded affirmative to receiving treatment only from a dental hygienist only during the visit were kept in the study, resulting in 130 801 surveys. Questions pertaining to satisfaction with the dentist were deleted. Subjects were only included in the final sample if all questions were answered, which resulted in a data set of 98 792 with no missing data.

Dependent Variables

The study examined 2 dependent variables. Y1 was defined as the assessment of satisfaction with the dental care for **today's visit** and Y2 was defined as overall satisfaction with the **clinic's ability** to take care of the patient's dental needs. The 2 dependent variables were based on responses to a 7-point bipolar adjective rating scale as follows: Completely dissatisfied (1) Very dissatisfied (2) Somewhat dissatisfied (3) Neither satisfied nor dissatisfied (4) Somewhat satisfied (5) Very satisfied (6) or Completely satisfied (7).

Independent variables

The independent variables were divided into 3 major categories: demographics, beliefs about the care itself, and environmental factors. The demographic variables included on the survey were age, gender, beneficiary category (active duty, family member, or retiree), military rank, and military service. Patients responded to 7 belief questions regarding the care provided by the dentist and were rated on a 5-point scale as follows: Poor (1), Fair (2), Good (3), Very Good (4), Excellent (5). Environmental factors included whether the appointment was scheduled or not, number of days waiting for appointment, rating of the number of days waited for an appointment, whether the patient was seen on time for the appointment.

Statistical Methods

A principal component factor analysis with a Varimax rotation was used to assess the nature of dental satisfaction. The goal of this portion of the project was to identify the main components of satisfaction. Factor analyses allowed data reduction and increased the stability of the model. The variables identified in the factor analysis were included in the hierarchical multiple linear regression analysis to assess the predictive effects of the dependent variables on the satisfaction with today's visit. This methodology focused on the analyses of reduced and full regression models to estimate the individual and unique contribution of each independent variable. Hierarchical regression accounts for correlations among variables and allowed examination of each variable's effect on the model. Cronbach's alpha was used to assess inter-item reliability; alpha level was set at p=.01.

Results

Surveys with no missing data (n=98 792) from the last quarter of fiscal year 2000 through the fourth quarter of fiscal year 2004 were analyzed for this portion of the project. The surveys analyzed for this project constitute 75.5% of all returned questionnaires that indicated the visit was for dental hygiene care only. The majority of subjects were male (76.6%, n=75 700) and reported being an active duty service member (98.6%, n=97 370). The service affiliations of respondents were as follows: Air Force - 31.3 % (n = 30 945), Army - 29.2% (n = 28 891), Marines - 14.0%(n = 13,826), Navy - 24.7%. The majority of active duty respondents were enlisted personnel (81.2%, n=80 142) with the remaining subjects being officers.

Descriptive statistics, including means and correlations, for the independent and dependent variables are presented in Table I. Overall satisfaction was rated high, as the mean score for overall satisfaction with today's visit was 6.61 (SD .79), and overall satisfaction with the clinic's ability take care of the needs was rated 6.44 (SD .82) on the 7-point bipolar adjective rating scale. Among the respondents, 97.5% noted that they would return to the clinic for care if they were given that choice. The ratings of the beliefs about care were high as well. The courtesy and friendliness of the dental hygiene provider was rated highest, receiving a mean score of 4.79 and thoroughness of the dental hygiene treatment received a mean score of 4.73 which was the lowest rating of the 3 beliefs about care ratings. Satisfaction for the 2 dependent variables, satisfaction with today's visit (Y_1) and overall satisfaction with the clinic (Y_2) are presented for each of the demographic variables; differences in satisfaction are minor across the demographic variables presented. Older individuals and those who had scheduled appointments have higher levels of satisfaction. The longer wait times associated with 'wal- in' patients may describe lower levels of satisfaction for those patients with no appointment.

Table I. Descriptive Statistics: Patient Satisfaction, Independent and Dependent Variables

	n	%	Mean (SD)	Mean (SD) Today's Visit Satisfaction (Y_1)	Mean (SD) Clinic's Ability to Meet Needs (Y_2)
Dependent Variables					
Y_1 – Overall satisfaction with care received today's visit	98792	-	6.61 (.79)	-	-
Y_2 – Overall satisfaction with clinic's ability to meet needs	98792	-	6.44 (.82)	-	-
Independent Variables					
Age Group Categories					
17 years and under	310	.30	-	6.49 (.93)	6.30 (1.0)
18-19 years	7425	7.50	-	6.52 (.78)	6.39 (.81)
20-29 years	50377	51.00	-	6.58 (.79)	6.41 (.82)
30-39 years	29972	30.30	-	6.64 (.78)	6.47 (.83)
40-49 years	9583	9.70	-	6.72 (.77)	6.57 (.80)
50 years and above	1125	1.10	-	6.77 (.73)	6.63 (.80)
Gender					
Male	75700	76.60	-	6.56 (.84)	6.45 (.81)
Female	23092	23.40	-	6.53 (.90)	6.41 (.86)
Beneficiary Categories					
Active Duty	97370	98.60	-	6.61 (.78)	6.45 (.82)
Family Member of Active Duty	1212	1.20	-	6.42 (1.1)	6.18 (1.1)
Retiree	210	.20	-	6.66 (.74)	6.46 (.88)
Military Rank Categories					
E1 – E4	34939	35.40	-	6.55 (.82)	6.41 (.83)
E5 – E9	45203	45.80	-	6.64 (.77)	6.64 (.82)
Warrant Officer	1827	1.80	-	6.59 (.85)	6.37 (.92)
Officer	16823	17.00	-	6.65 (.75)	6.47 (.81)
Service Branch Categories					
Army	28891	29.20	-	6.58 (.88)	6.39 (.91)
Navy	24411	24.70	-	6.61 (.76)	6.47 (.77)
Marine Corps	13826	14.00	-	6.60 (.76)	6.43 (.80)
Air Force	30945	31.30	-	6.63 (.74)	6.48 (.79)
Other Service	719	.70	-	6.64 (.84)	6.49 (.82)
Thoroughness of hygiene treatment	98792	-	4.73 (.57)	-	-
Overall quality of care received from hygienist	98792	-	4.75 (.55)	-	-
Hygienist courtesy and friendliness	98792	-	4.79 (.56)	-	-
Scheduled appointment					
Yes	94587	95.70	-	6.61 (.78)	6.44 (.82)
No	4205	4.30	-	6.51 (.78)	6.48 (.89)
Days waited for appointment	93596	-	5.21 (1.7)	-	-
Rating of days waited for appointment	93596	-	4.02 (.96)	-	-
Seen on time					
Yes	90250	91.40	-	6.63 (.75)	6.47 (.79)
No/no appointment	8542	8.60	-	6.34 (.97)	6.15 (.92)

The principal component factor analyses with Varimax rotation identified 2 major components of patient satisfaction and are presented in Table II. The 3 variables associated with rating beliefs about the dental hygienist were significant, and included in the beliefs factor, and allow us to rank the importance of these beliefs. The first construct identified was termed beliefs about care and all 3 variables associated with rating satisfaction with the hygienist were significant and included in the beliefs factor. The rotated factor loadings (correlations) for each of the 7 dentist satisfaction questions were as follows: overall quality of care (.956), thoroughness of treatment (.945), and dental hygienist courtesy and friendliness (.932).

Table II. Principal Component Factor Analysis, Rotation Component Matrix Solution for Belief and Environment Dental Items

	Rotated Factor Loadings (Correlation)	
Item	Factor 1 - Beliefs	Factor 2 - Environment
Overall quality of care received from hygienist	.956	-.025
Thoroughness of hygiene treatment	.945	-.026
Hygienist courtesy and friendliness	.932	-.025
Number of days waited for appointment	.031	.875
Rating of number of days waited	.305	-.658
Was appointment scheduled	.106	.658

Note: N = 98,792 hygiene patients; Varimax Rotation Method

The second factor identified was termed the environment factor and it was composed of 3 variables. The rotated factor loadings for each of the 4 environmental variables were as follows: number of days patient waited for appointment (.875), scheduled appointment (.658), and a rating of number of days patient waited for appointment (-.658). Beliefs about the care accounted for 46.76% and environmental factors 26.78% of the total variance. Cumulatively, the 2 factors accounted for 73.54% of the total variance in dental satisfaction.

Hierarchical multiple regression models were created for each of the 2 dependent variables using the variables identified by factor analysis. Table III presents the results of the regression model of the dependent variable overall satisfaction with dental care received during today's visit (Y_1). All tested effects, except scheduled appointment, are significant at the alpha equals .01 level. The full regression model accounts for 31.1% of the shared variance, with F (6, 98785) = 8923, p <.0001. The hierarchical regression allowed the identification of the largest contributors to the full model. Beliefs about the care is an aggregation of all three questions regarding care received by the hygienist and account for 24.4% of the total variance with a F statistic (3, 98785) = 11,681, p <.0001. The belief factor accounts for almost 78% percent of the 31.1% of the shared variance. Held in isolation, each individual belief does not describe a large percentage of the variation. Cronbach's alpha was .944, which suggests high inter-item reliability of the 3 questions, which may explain why the aggregate beliefs variable accounted for large proportions of the shared variance versus each individual effect tested. The environmental factor and 3 variables that comprise the factor were all statistically significant but only describe 1.1% of the shared variation. Though these areas may be important to practice management, they do not seem to play a large role in patient satisfaction with the hygiene provider.

Table III. Hierarchical Multiple Regression Analyses of Hypotheses associated with Y_1 Overall Satisfaction with Care Received during Today's Visit

Effects tested	R^2 Full	R^2 Reduced	R^2 Change	df_1	df_2	F	p
Full Model Regression	.31112540	.00000000	.31112540	6	98785	8923.2	.0000
Beliefs About the Care Itself	.31112540	0.0667548	.24437038	3	98785	11681.1	.0000
Thoroughness of hygiene treatment	.31112540	0.3039518	.00717334	1	98785	1028.7	.0000
Overall quality of care from hygienist	.31112540	0.3019055	.00921969	1	98785	1322.1	.0000
Hygienist courtesy and friendliness	.31112540	0.3075245	.00360061	1	98785	516.3	.0000
Environmental Factors	.31112540	0.2994066	.01171856	3	98785	560.2	.0000
Scheduled appointment	.31112540	0.3111002	.00002492	1	98785	3.6	.0572
Number of days waited for appointment	.31112540	0.3099445	.00118062	1	98785	169.3	.0000
Rating of days waited for appointment	.31112540	.29975200	.01137318	1	98785	1630.9	.0000

Note: N = 98,792 hygiene patients

The second regression model utilized overall satisfaction with the clinic's ability to take care of the dental needs as the dependent variable. The full model F (6, 98785) = 7,848.7, p <.0001 accounts for 28.4% of the shared variance. Similar to the first model, beliefs about the care itself F (3, 98785) = 6,256.1, p <.0001 is the single largest predictor of satisfaction, accounting for 13.6% of the shared variance. Environmental factors F (3, 98785) = 3343.2, p <.0001 accounted for 7.2% of the shared variance. Of the environmental factors, the rating of days waited for the appointment seemed to be the most salient factor, accounting for 6.5% of the shared variance and reported in Table IV. Respondents rated waiting time as more important for the overall assessment of the clinic versus the assessment of today's satisfaction

Table IV. Hierarchical Multiple Regression Analyses of Hypotheses associated with Y_2 Overall Satisfaction with Clinic's Ability to Take Care of Dental Needs

Effects tested	R^2 Full	R^2 Reduced	R^2 Change	df_1	df_2	F	p
Full Model Regression	.28431221	0	.28431221	6	98785	7848.7	.0000
Beliefs About the Care Itself	.28431221	.14833840	.13597381	3	98785	6256.1	.0000
Thoroughness of hygiene treatment	.28431221	.27869435	.00561786	1	98785	775.4	.0000
Overall quality of care from hygienist	.28431221	.28121291	.00309930	1	98785	427.8	.0000
Hygienist courtesy and friendliness	.28431221	.28165087	.00266134	1	98785	367.3	.0000
Environmental Factors	.28431221	.21164914	.07266307	3	98785	3343.2	.0000
Scheduled appointment	.28431221	.28415807	.00015414	1	98785	21.3	.0000
Number of days waited for appointment	.28431221	.28238394	.00192827	1	98785	266.2	.0000
Rating of days waited for appointment	.28431221	.21897851	.06533370	1	98785	9018.0	.0000

Note: N = 98,792 hygiene patients

Discussion

This study is seminal in nature as it is the first in the literature to assess levels of dental satisfaction with the dental hygiene provider. While there are many articles in the literature on dental hygienist job satisfaction, education satisfaction, and satisfaction with procedures or adjunctive devices, there appears to be a vacuum of evidence for patient satisfaction with the dental hygienist. The results clearly indicate that military members are highly satisfied with the hygiene care they receive at military dental clinics. Though no direct comparisons of the findings are possible due to a lack of literature, the findings are consistent with the limited literature on military dental satisfaction. The regression models strongly suggest that patient beliefs about received care are the primary drivers of patient satisfaction. Patients do not typically have the ability to assess the technical competence of providers and thus use the interpersonal exchanges as a surrogate for technical competence. Patients' perceptions of the appointing process are also important to satisfaction. Respondents indicated that the "rating of the number of days waited for an appointment" was more important than the actual "number of days waited," suggesting that individuals do not always equate waiting for an appointment as negative, but rather base their decision on other factors as well. These findings suggest that providers and administrators cannot focus on one aspect of the appointing process as patients tend to rate these areas in aggregate.

It may be of interest to note that none of the demographic variables achieved significance and were therefore excluded from the models. The military has a highly diverse population and there were no practical satisfaction differences based on the available demographic information. Race, educational level, and income were not captured in this survey, but the rank structure and income potential serve as a surrogate for education.

The methodology utilized increased validity as the researchers were not forced to make assumptions about the missing data. Reliability of the study is enhanced by analyzing 17 fiscal quarters of data. This is an extremely large sample and thus statistical significance can be based solely on sample size and caution must be exercised to determine statistical versus clinical/practical significance. The results of this study do have some limitations as to the generalizability. A major limitation is that this survey assessed satisfaction of dental clinic users as opposed to all eligible beneficiaries. This effect may be mitigated by policy requiring all military members to have yearly dental examinations. Representativeness of respondents is a concern as the DoD reported that the active military force was comprised of 83.1% enlisted in September of 2004. Of the 1 426 836 service members, 35% were Army, 27% Air Force, 26% Navy, and 12% Marine Corps.[16] This would indicate that the surveys are representative of the enlisted-officer ratio that comprises the military, but the Army and Navy are underrepresented, while the Air Force is over-represented. Additionally, limitations include excluding almost 25% of the cases due to missing data, but further analysis showed that all 3 measures of satisfaction with the hygiene provider are .04 higher, on a 5-point scale, as compared to excluded cases. The ANOVA results for all 3 belief-related questions does indicate that there are statistically significant differences between the groups, but this is due to the extremely large sample size. Even though statistically there are differences between the 2 samples, practically there are not differences.

Hygiene practice in the military does have some distinct differences as compared to the civilian sector. Military dental clinics in the United States only provide dental services to service members, and thus family members seek their dental care in the private sector. Due to the frequent moves and mobilizations of service members, there is a lack of empanelment of patients to one particular provider. Thus, service members often receive their hygiene care from a different provider at each appointment. Private sector insurance authorizes 2 prophylaxes annually, whereas most service members receive only one prophylaxis annually. These issues provide some unique challenges to providing dental hygiene care in the military setting.

Conclusion

This study has demonstrated that patient beliefs about the care received from the dental hygienist are the largest single predictor of patient satisfaction. These findings have important implications for military and civilian dental hygiene providers. The findings validate the importance of patients' perceptions about care versus the professions trend to base quality care on the technical assessment of care. This suggests opportunities for potential behavior modification in the patient encounter. The mere knowledge of these attributes is essential to improve the patient-provider interaction. For institutional settings, a training vehicle could be developed to make providers aware of the importance of patient beliefs

about the care and methods of how the hygienist can use this information to provide patients with increased satisfaction with their dental encounters.

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Notes

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References

1. Kress GC, Shulman JD. Consumer satisfaction with dental care: where have we been, where are we going?. J Am College of Dent. 1997;64(1): 9-15.
2. . Patient satisfaction with dental care. Dent Clinics of North America. 1988;32(2): 791-802.
3. Ben-Sira Z. The function of the professionals' affective behavior in client satisfaction: a revised approach to social interaction theory. J Health Soc Behav. 1976;17: 3-11.
4. Ben-Sira Z. Affective and instrumental components in the physician-patient relationship. J Health Soc Behav. 1980;21: 170-180.
5. Ross CE, Wheaton B, Duff RS. Client satisfaction and the organization of medical practice: why time counts. J Health Soc Behav. 1981;22: 243-255.
6. Ross CE, Duff RS. Returning to the doctor: the effect of client characteristics, type of practice and experiences with care. J Health Soc Behav. 1982;23: 119-131.
7. Francis V, et al.. Gaps in doctor-patient communication: patient's response to medical advice. N Engl J Med. 1969;280: 259.
8. Korsch B, et al.. Gaps in doctor-patient communications. I. Doctor-patient interaction and patient satisfaction. Pediatrics. 1969;42: 855.
9. Newsome P, Wright G. Dental patient satisfaction: An appraisal of recent literature. British Dental Journal. 1999;186(4): 166-170.
10. Chisick MC. Satisfaction with military dental care by active duty soldiers. Military Medicine. 1994;159(7): 501-4.
11. Chisick MC, Poindexter F. Satisfaction of active duty U.S. service members with military dental care. Military Medicine. 1998;163(12): 813-16.
12. Mangelsdorff AD, Finstuen K. Patient satisfaction in military medicine: status and an empirical test of a model. Military Medicine. 2003;168: 744-49.
13. Mangelsdorff AD, Finstuen K, Larsen S, Weinberg EJ. Patient satisfaction in military medicine: model refinement and assessment of DoD effects. Military Medicine. 2005;170: 309-15.
14. O'Shea RM, Corah NL, Ayer WA. Why patients change dentists: practitioner's views. J Am Dent Assoc. 1984;112: 851-4.
15. Johnson T. Assessment of client satisfaction with services provided by the Idaho State University Dental Hygiene Clinic. J Dent Hyg. 1996;70(5): 190.
16. Active Duty Military Personnel by Rank/Grade [homepage on the Internet]. Department of Defense; c1995-2001. [cited 2005 Apr 21]. Available from: http://web1.whs.osd.mil/mmid/military/miltop.htm.