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Moore, Angelo L., PhD, RN, LTC, AN, USA

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917 Pacific Avenue, Suite 600
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14. ABSTRACT

Purpose: Determine which individual characteristics and health behaviors are predictors of patient satisfaction and health status in military beneficiaries, investigate whether healthcare provider support and patience autonomy influence health outcomes, and explore subgroup differences in health outcomes. **Design**: This was a descriptive, correlational design with a qualitative component. **Methods**: Participants were recruited from either the study health clinic or adjacent shopping center. Data were collected using a demographic sheet and validated measures for spirituality, participation in religious activities, mistrust, racism/discrimination, access to care, continuity of care, patient-provider communication, interpersonal treatment, communications, patient preference for autonomy, provider autonomy support, patient satisfaction, physical health status, and mental health status. Participants also provided recommendations that would improve their healthcare experiences. **Sample**: Two-hundred active duty Army Soldiers and family members participated which yielded over 90% power. **Analysis**: Simple linear, step-wise, and multivariate regression were used to build models to assess relationships between individual characteristics, health behaviors, and health outcomes. ANOVA was used for group comparisons. Participant's open-ended responses were analyzed using content analysis.

Findings: In multiple regression analyses, access to care predicted patient satisfaction and mental health status; mistrust predicted patient satisfaction and physical health; spirituality predicted physical health status; and communication behaviors predicted patient satisfaction, physical health status, and mental health status. There were no significant differences in health outcomes according to gender, race/ethnicity, sponsor rank, or whether a Soldier or family member. Satisfaction with Care, Access to Care, Interpersonal Treatment, and Quality of Care emerged as themes from patient recommendations to improve healthcare experiences. **Implications for Military Nursing**: Knowing which individual characteristics predict important health outcomes will allow targeted interventions to improve outcomes. Nurses need to be included in leadership and actively-engaged and involved in solving access to care issues. Leadership need to place particular emphasis on communication skills training for all healthcare staff.

15. SUBJECT TERMS

patient satisfaction, health status in military beneficiaries, health outcomes, patient targeted interventions

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Principal Investigator (PI) Military Contact Information

Duty Title	[redacted]
Address	[redacted]
	[redacted]
Telephone	[redacted]
Mobile Telephone	[redacted]
E-mail Address	[redacted]

PI Home Contact Information

Address	[redacted]
Telephone	[redacted]
Mobile Telephone	[redacted]
E-mail Address	[redacted]

Signatures

PI Signature	_____	Date	23 October 2014
Mentor Signature	_____	Date	23 October 2014

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Abstract

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TSNRP Research Priorities that Study or Project Addresses

Primary Priority

Force Health Protection:	☒ Fit and ready force ☐ Deploy with and care for the warrior ☒ Care for all entrusted to our care
Nursing Competencies and Practice:	☒ Patient outcomes ☒ Quality and safety ☐ Translate research into practice/evidence-based practice ☐ Clinical excellence ☐ Knowledge management ☐ Education and training
Leadership, Ethics, and Mentoring:	☐ Health policy ☐ Recruitment and retention ☐ Preparing tomorrow's leaders ☐ Care of the caregiver
Other:	☐

Secondary Priority

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Other:	☐

Progress Towards Achievement of Specific Aims of the Study or Project

Findings related to each specific aim, research or study questions, and/or hypothesis:

Purpose

The purpose of this study was to address current gaps in knowledge by taking a multi-dimensional approach to determine which individual characteristics and health behaviors are predictors of patient satisfaction and health status in Active Duty Army Soldiers and their family members receiving health care services at one Army health clinic. In this study, we investigated if health care provider support and patient preference for autonomy influenced patient satisfaction and health status. In addition, subgroup analyses were conducted to explore group differences in patient satisfaction and health status according to demographics. Results were used to assist in the implementation of the Patient-Centered Medical Home (PCMH) and support the development and modifications of interventions and processes aimed at improving patient satisfaction and health status. Patient satisfaction impacts future health care utilization and readiness for Soldiers and their families. Soldiers must be physically and mentally fit to fight.

Specific Aims

1. To determine what individual characteristics (religious participation, spirituality, mistrust, racism/discrimination, perceived access to care, and continuity of care) affect patient satisfaction and health status.
2. To determine what health behaviors (patient-provider communication, communications, and interpersonal treatment) affect patient satisfaction and health status.
3. To determine if provider autonomy support and patient preference for autonomy moderate patient satisfaction and health status.
4. To explore significant subgroup differences in patient satisfaction and health outcomes.

Application to TSNRP Research Priorities

The purposes of this study align with two TSNRP goals. First, findings contributed to building knowledge about “Force Health Protection” by holistically examining characteristics affecting Soldiers and military family members entrusted in our care. Second, results from this study advanced knowledge about “Nursing Competencies and Practice” by developing evidence about characteristics and behaviors that affect patient outcomes. The Patient-Centered Medical Home model was a new model to the Army, and this was a prime opportunity for nurses to research what’s important to patients, advocate their needs, shape the future military health care system, and strengthen the fighting force.

Conceptual Framework

A modified version of Andersen’s Behavioral Model for Health Services Use was used to guide this study. The conceptual model used in this study had three broad domains: individual characteristics, health behaviors, and health outcomes (see Figure 1).

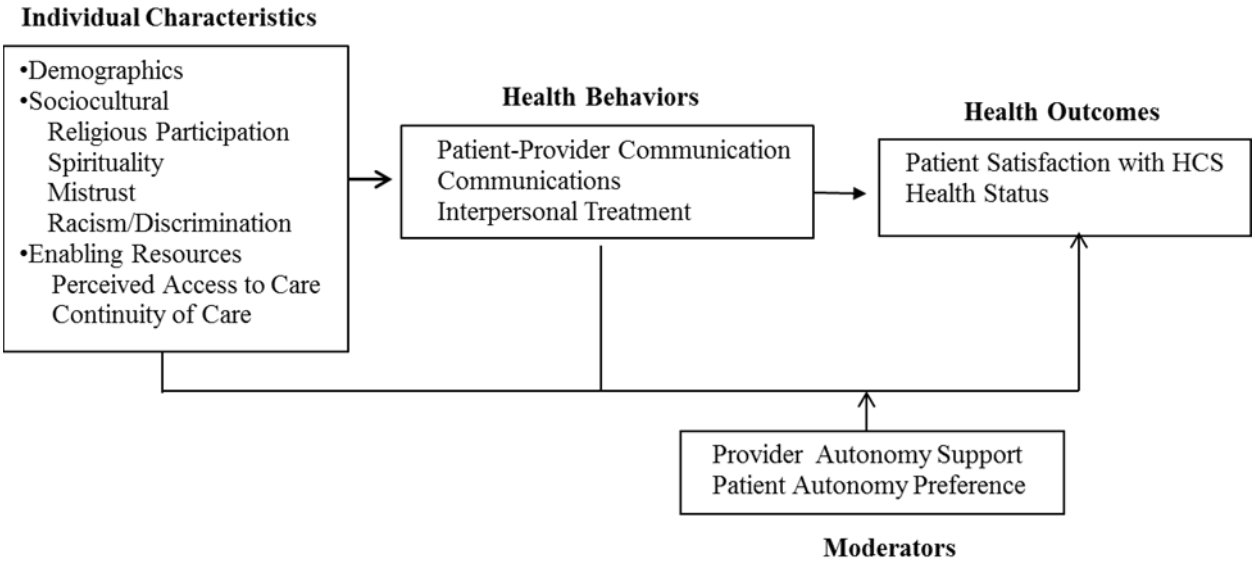

Figure 1. Conceptual Model of individual characteristics and health behaviors on outcomes.

General Methodology

Statistical programming and analyses were performed using SAS 9.2 (SAS Institute, Cary NC) or higher. All negative responses were reverse coded prior to any analysis. Histograms, boxplots, and scatterplots were used to visualize the distribution of data points and to identify potential outliers. Categorical data were summarized with frequencies and percentages as appropriate. Continuous data were summarized using mean, standard deviation, median, and minimum and maximum values. Statistical tests were two-sided and were conducted at the .05 significance level, unless specified otherwise. All *p* values were reported.

Each participant had a summed score for every concept under study. All participants summed scores were used in separate simple linear regression models to determine if a significant bivariate association was found between each independent and dependent variable. Each model was evaluated for adequacy of fit using F-statistic and the effect of each predictor was summarized by the least squares parameter estimates with associated 95% confidence intervals. Variables from simple linear regression models that reached significance at the alpha = .10 were then entered into separate multiple regression models to predict each outcome variable (patient satisfaction, physical health status, and mental health status). The multivariate framework allowed for simultaneously evaluation of predictors with adjustment for potential confounders. Stepwise procedure was used to build parsimonious models. Standard linear regression model diagnostic tools including residual plots were used to verify model assumptions, including normality and homogeneity of variances.

For Aim 2, the above steps were repeated; however, hierarchical regression was used to determine if the change in variance (R^2) was significant for the outcome variables when health behaviors were added to the model. For Aim 3, interaction terms were created between the proposed moderating variable and predictor variable. The strength of the moderating effect was tested with each interaction term, and a significance test at the alpha = .05 level indicated the presence of a moderating relationship. For Aim 4, demographic data were analyzed to identify signals of additional subgroup effects that the primary analysis may not have detected. In these analyses, separate ANOVA models relating each selected demographic variable to each health outcome were created. All group comparisons from Analysis of Variance (ANOVA) models

were based on Type III sums of squares. Whenever necessary, non-parametric procedures were considered to adjust the models for normality and homogeneity of variance. These subgrouop analyses were considered exploratory; hence, they were not involved in the power analysis calculation and no adjustment for multiplicity was done. Lastly, we used content analysis with subcodes and themes to analyze qualitative responses from two open-ended questions.

Results

Aim 1: To determine what individual factors (religious participation, spirituality, mistrust, racism/discrimination, perceived access to care, and continuity of care) effect patient satisfaction and health status

Research Question 1: Do individual characteristics (religious participation, spirituality, mistrust, racism/discrimination, perceived access to care, and continuity of care) independently predict patient satisfaction and health status?

Results:

Patient Satisfaction: Religious Participation, Perceived Access to Care, and Continuity of Care were positively associated with patient satisfaction (p-values ranged from 0.0317 to <0.0001). Furthermore, Mistrust and Racism/Discrimination were inversely related to patient satisfaction (p<.0001 for both variables).

Physical Health Status: Univariate modeling results suggested that the following variables were independent predictors for poorer physical health: Religious Participation (p=0.0403), Support from God (p=0.0082), and Mistrust (p=0.0031). Perceived Access to Care was the only individual patient characteristic that was independently associated with a better physical health status.

Mental Health Status: Of the individual characteristics, Mistrust and Racism/Discrimination, were associated with poorer mental health while Perceived Access to Care was positively related to mental health status in the univariable models. See Table 1.

Table 1. Estimates of the Coefficients, Standard Errors, and p-values from simple Linear Regression Models for Patient Satisfaction, Physical Health, and Mental Health

	Patient Satisfaction			**Physical Health Status**			**Mental Health Status**		
Individual Characteristic	**Univariate Coefficient**	**SE**	**P-value**	**Univariate Coefficient**	**SE**	**P-value**	**Univariate Coefficient**	**SE**	**P-value**
Religious Participation	0.15	0.07	0.0317	-0.12	0.06	0.0403	0.07	0.06	0.2602
Support from God	0.07	0.08	0.3728	-0.17	0.06	0.0082	0.05	0.07	0.4627
God's Purpose for Me	0.18	0.12	0.1442	-0.18	0.10	0.0752	0.13	0.11	0.2531
Mistrust	-0.89	0.08	<.0001	-0.24	0.08	0.0031	-0.19	0.09	0.0413
Racism/Discrimination	-0.96	0.23	<.0001	-0.31	0.20	0.1232	-0.43	0.22	0.0526
Perceived Access to Care	1.21	0.09	<.0001	0.29	0.10	0.0059	0.27	0.12	0.0190
Continuity of Care	2.31	0.40	<.0001	0.44	0.36	0.2150	0.09	0.40	0.8198

SE, Standard Error

Research Question 2: What combination of individual characteristics predicts patient satisfaction and health status?

Results:

Patient Satisfaction: Perceived Access to Care and Mistrust remained significantly related to patient satisfaction (p <.0001 for both variables) while holding all other variables in the model constant. Mistrust was negatively associated and Perceived Access to Care was positively associated to patient satisfaction.

Physical Health Status: Support From God and Mistrust was negatively associated with physical health status indicating that participants with a greater level of Support from God and Mistrust were those with poorer physical health (p <.008, p <.003) while holding all other variables in the model constant.

Mental Health Status: Perceived access to care was the only individual patient characteristic that remained significantly associated (p <.019) with a better mental health status while holding all other variables in the model constant. See Table 2.

Table 2. Estimates of the Coefficients, Standard Errors, and p-values from Final Stepwise Multiple Linear Regression Models for Patient Satisfaction, Physical Health, and Mental Health

Outcomes	**Covariates**	**Coefficient**	**SE**	**P-value**
Patient Satisfaction*	Mistrust	-0.49	0.09	<.0001
	Perceived Access to Care	0.81	0.11	<.0001
Physical Health Status**	Support from God	-0.17	0.06	0.0082
	Mistrust	-0.24	0.08	0.0031
Mental Health Status***	Perceived Access to Care	0.27	0.12	0.0190

SE, Standard Error Note: Only variables retained in the model after Stepwise Linear Regression are shown here.
*****This model included terms for Religious Participation, Mistrust, Racism/Discrimination, Perceived Access to Care, and Continuity of Care******This model included terms for Religious Participation, Support from God subscale, God's Purpose for Me subscale, Mistrust, and Perceived Access to Care. ***This model included terms for Mistrust, Racism/Discrimination, and Perceived Access to Care,

Aim 2: To determine what health behaviors (patient-provider communication, communications, and interpersonal treatment) affect patient satisfaction and health status.
Research Question 3: Do health behaviors independently predict patient satisfaction and health status?

Results:

Health behaviors to patient satisfaction: Simple linear regression results are shown in Table 3. In general, communication behaviors were positively associated with patient satisfaction (p<.001).

Health behaviors to physical health: Univariate modeling results showed that only communications was positively significantly (p=.03) associated with physical health. Types of communication behaviors reflecting patient-provider communication and interpersonal treatment did not reach significance.

Health behaviors to mental health: Of the communication behaviors, patient-provider communication and communications were significantly (p=.02 and p=.007 respectively) positively associated with better mental health (Table 3). Interpersonal treatment did not reach significance.

Table 3. Estimates of the Coefficients, Standard Errors, and p-values from Simple Linear Regression Models for Patient Satisfaction, Physical Health, and Mental Health

	Patient Satisfaction			Physical Health Status			Mental Health Status		
Communication Behaviors	**Univariate Coefficient**	**SE**	***P*-value**	**Univariate Coefficient**	**SE**	***P*-value**	**Univariate Coefficient**	**SE**	***P*-value**
Patient-Provider Communication	1.56	0.18	<.0001	0.20	0.17	0.238	0.47	0.19	0.015
Communications	1.84	0.09	<.0001	0.28	0.13	0.037	0.40	0.14	0.007
Interpersonal Treatment	1.74	0.10	<.0001	0.13	0.13	0.311	0.27	0.15	0.0735

SE: Standard Error

Research Question 4: What combination of health behaviors predicts patient satisfaction and health status?

Results:

Health behaviors to patient satisfaction: When all 3 variables (patient-provider communication, communications, and interpersonal treatment) were introduced in a stepwise multivariate linear regression model (Table 4), all remained significantly positively associated with patient satisfaction. The final model accounted for 70% (R^2= .70) of the variability in patient satisfaction.

Health behaviors to physical health: The statistically significant positive relationship between communications and physical health detected in univariate analysis was confirmed in multivariate analysis (Table 4).

Health behaviors to mental health: Results of stepwise multivariable regression (Table 4) identified communications as the unique communication behavior that was significantly related to mental health (p=.007). The direction of this relationship was positive, and the final model accounted for 4% (R^2= .04) of the variability in mental health.

Table 4. Estimates of the Coefficients, Standard Errors, and p-values from Final Stepwise Multiple Linear Regression Models for Patient Satisfaction, Physical Health, and Mental Health

Outcomes	**Covariates**	***β* Coefficient**	**SE**	***P*-value**
Patient Satisfaction[a]	Patient-Provider Communications	0.53	0.13	<.0001
	Communications	1.31	0.19	<.0001
	Interpersonal Treatment	0.38	0.19	0.043
Physical Health Status[b]	Communications	0.28	0.13	0.033
Mental Health Status[c]	Communications	0.40	0.14	0.007

SE: Standard Error Note: Only variables retained in the model after Stepwise Linear Regression are shown here.
[a]This model included terms for Patient-Provider Communication, Communications, and Interpersonal Treatment.
[b]This model included terms for Communications.
[c]This model included terms for Patient-Provider Communication, Communications, and Interpersonal Treatment.

Research Question 5: How much more variance do health behaviors add to individual characteristics in predicting patient satisfaction and health status?

Results:

Individual characteristics to patient satisfaction: The individual characteristics (Set A) were represented by mistrust and access to care which were found to be significantly associated to patient satisfaction. This model accounted for 53% (R^2= .53) of the variability in patient satisfaction; however, when the communication behaviors (Set B) were added to the model, this full model accounted for 73% (R^2= .73) of the variability in patient satisfaction (Table 5). This increased change in R^2 (.20) was significant [*F* Statistic (3,194) = 46.32 and *p*=<.0001].

Individual characteristics to physical health: The individual characteristics (Set A) were represented by spirituality and mistrust which were found to be significantly associated to physical health. This model accounted for 7% (R^2= .07) of the variability in physical health; however, when communication behaviors (Set B) were added to the model, this full model accounted for 9% (R^2= .09) of the variability in physical health (Table 5). This increased change in R^2 (.02) was not significant [*F* Statistic (3,192) = 1.26 and *p*=.29].

Individual characteristics to mental health: The individual characteristics (Set A) were only represented by perceived access to care which was found to be significantly associated to mental health. This model accounted for 3% (R^2= .03) of the variability in mental health; however, when communication behaviors (Set B) were added to the model, this full model accounted for 6% (R^2= .06) of the variability in mental health (Table 5). This increased change in R^2 (.03) was not significant [*F* Statistic (3,193) = 1.93 and *p*=.13].

Table 5. Estimates of the Increases in R^2, *F* Statistic, and p-values from Hierarchical Multiple Regression Models for Patient Satisfaction, Physical Health, and Mental Health

Outcomes	Set A (Individual Characteristics) R^2	Set B (Communication Behaviors) R^2	Change in R^2	F Statistic	*P*-value
Patient Satisfaction[a]	0.53	0.73	0.20	46.32	<.0001
Physical Health Status[b]	0.07	0.09	0.02	1.26	0.291
Mental Health Status[c]	0.03	0.06	0.03	1.93	0.126

SE: Standard Error Note: Only variables retained in the model after Stepwise Linear Regression are shown here.
[a]This model included terms for Mistrust, Perceived Access to Care, Patient-Provider Communication, Communications, and Interpersonal Treatment.
[b]This model included terms for Spirituality, Mistrust, Patient-Provider Communication, Communications, and Interpersonal Treatment.
[c]This model included terms for Perceived Access to Care, Patient-Provider Communication, Communications, and Interpersonal Treatment.

Aim 3: To determine if provider autonomy support and patient preference for autonomy moderate patient satisfaction and health status.

Research Question 6: Does provider autonomy support influence the strength of the relationship between individual characteristics and patient satisfaction and health status?

Results:

Provider autonomy support moderated the strength of the relationship between continuity of care and mental health status (*p*=.02). This relationship was positive; therefore, when patients felt that providers supported their autonomy, there was a stronger positive relationship between continuity of care and better mental health status (Table 6 and Figure 2).

Table 6. Provider Autonomy Support as a Moderator of Mental Health Status

Variable	Estimate	95% CI Lower Bound	95% CI Upper Bound	P-value
Religious Participation	0.0131	-0.0103	0.0365	0.2703
Support from God subscale	-0.0006	-0.0278	0.0265	0.9650
God Purpose for me subscale	-0.0102	-0.0501	0.0297	0.6149
Mistrust	-0.0128	-0.0433	0.0178	0.4103
Racism within Health Care Setting	0.0314	-0.0454	0.1081	0.4211
Perceived Access to Care	0.0157	-0.0245	0.0559	0.4418
Continuity of Care	0.1425	0.0207	0.2644	0.0221

CI, Confidence Interval.
Note: Estimate, 95% CI, and p-value for a non-zero effect test of the interaction between Provider Autonomy Support and each row variable of interest.

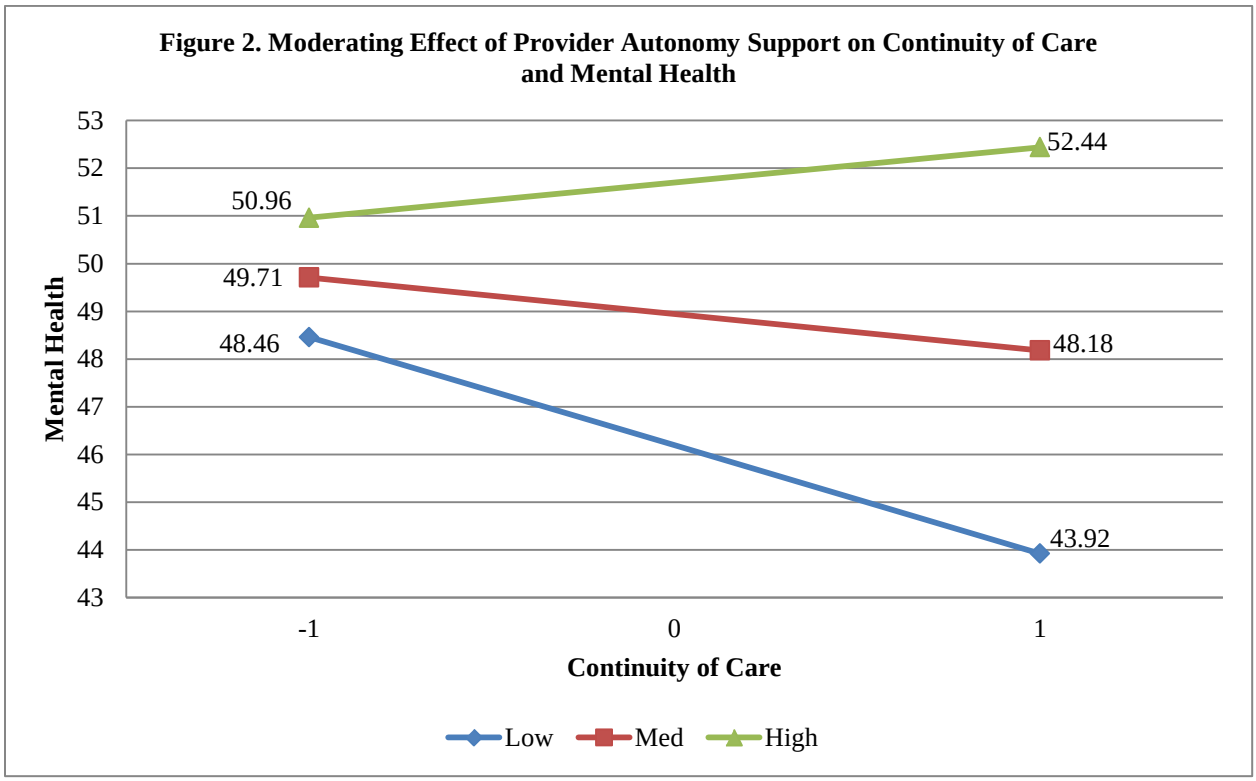

Figure 2. Moderating Effect of Provider Autonomy Support on Continuity of Care and Mental Health

Analyses were also conducted to determine if provider autonomy support influenced the strength of the relationship between health behaviors and patient satisfaction and health status. Provider autonomy support moderated the strength of the relationship between communications and patient satisfaction (p=.04). This relationship was positive; therefore, when patients felt that providers supported their autonomy, there was a stronger positive relationship between communications and patient satisfaction (Table 7). Patient autonomy support did not

significantly moderate the relationship between health behaviors and physical or mental health status.

Table 7. Provider Autonomy support as a Moderator of the Relationship Between Health Behaviors and Patient Satisfaction

Variable	Estimate	95% CI Lower Bound	95% CI Upper Bound	P-value
Patient-Provider Communication	-0.0130	-0.0628	0.0366	0.6042
Communications	0.0325	0.0013	0.0636	0.0410
Interpersonal Treatment	0.0269	-0.0083	0.0620	0.1338

CI, Confidence Interval.
Note: Estimate , 95% CI, and p-value for a non-zero effect test of the interaction between Provider Autonomy Support and each row variable of interest.

Research Question 7: Does patient autonomy preference influence the strength of the relationship between health behaviors and patient satisfaction or health status?

Results:

Patient autonomy preference did not significantly moderate the relationship between health behaviors and patient satisfaction or health status.

Analyses were conducted to determine if patient autonomy preference moderated the strength of the relationship between individual characteristics and patient satisfaction and health status (Table 8). Patient autonomy preference moderated the strength of the relationship between mistrust and patient satisfaction (p=.02). This relationship was negative; therefore, when patients had lower levels of being involved in their care and treatment decisions, there was a stronger negative relationship between mistrust and patient satisfaction (Figure 3). Patient autonomy preference did not significantly moderate the relationship between individual characteristics and health status.

Table 8. Patient Preference for Autonomy as a Moderator of Patient Satisfaction

Variable	Estimate	95% CI Lower Bound	95% CI Upper Bound	P-value
Religious Participation	-0.0181	-0.0494	0.0132	0.2556
Support from God subscale	-0.0228	-0.0583	0.0128	0.2078
God Purpose for me subscale	-0.0290	-0.0831	0.0251	0.2920
Mistrust	-0.0398	-0.0738	-0.0058	0.0220
Racism within Health Care Setting	-0.0004	-0.1042	0.1033	0.9934
Perceived Access to Care	0.0325	-0.0082	0.0733	0.1167
Continuity of Care	0.0464	-0.1217	0.2144	0.5871

CI, Confidence Interval
Note: Estimate , 95% CI, and p-value for a non-zero effect test of the interaction between Patient Preference for Autonomy and each row variable of interest.

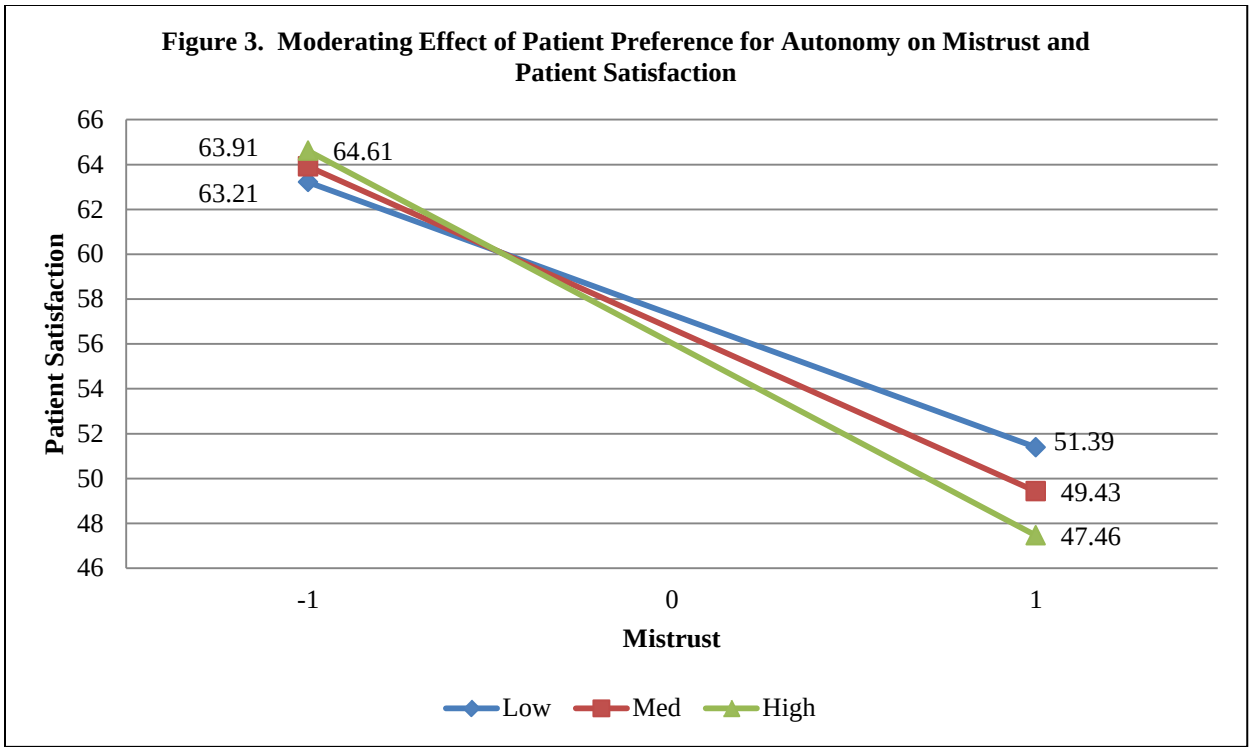

Figure 3. Moderating Effect of Patient Preference for Autonomy on Mistrust and Patient Satisfaction

Aim 4: To explore significant subgroup differences in patient satisfaction and health outcomes.
Research Question 8: Are there significant differences in patient satisfaction and health status according to demographics.

Results:

Access to Care

Table 9 displays the distribution of perceived access to care by gender, race/ethnicity, component, and sponsor rank. Although there was a slightly higher mean score for access to care among females, there were no statistically significant differences across gender (p=.14) in the ANOVA model. The mean scores were also generally similar across race/ethnicity (p=.53), component (p=.36), and sponsor rank (p=.10) in the ANOVA model.

Table 9. Summary of Access to Care scores by Gender, Race, Component and Sponsor Rank

Characteristic	Access to Care Summary Mean (SD)	*P*-value*
Gender		.14
Female	37.8 (6.51)	
Male	36.4 (6.33)	
Race		.53
African American/Black	36.7 (7.68)	
Asian	38.7 (5.37)	
Caucasian/White	37.4 (6.28)	
Latino/Hispanic	38.4 (6.00)	
Pacific Islander**	43.0 (n/a)	
Other	35.2 (6.42)	
Component		.36
AD Family Member	37.7 (6.42)	
Active Duty Soldier	36.8 (6.51)	
Sponsor Rank		.10
Company Grade Officer (O1-3)	40.8 (5.27)	
Field Grade Officer (O4-6)	40.0 (8.12)	
Junior Enlisted (E1-4)	37.4 (6.43)	
Senior Enlisted (E5-8)	36.3 (6.39)	
Warrant Officer (W1-4)	40.6 (6.69)	

*p-value from an ANOVA models relating each factor to access to care.
**There was only 1 Pacific Islander enrolled in the study. This subject was lumped together with the Asian subgroup in the analysis.

Health Outcomes

Three key health outcomes were examined and tested for differences across demographic subgroups. These outcomes were patient satisfaction, physical health status, and mental health status. Patient satisfaction scores were highest among females (57.4 $\pm$12.1), Latinos/Hispanics (59.6 $\pm$12.3), AD family members (57.7$\pm$12.3), and Warrant Officers (62.6 $\pm$8.73). No statistically significant association was detected between any of the four demographic factors and patient satisfaction (p=.08 for gender, p=.30 for race/ethnicity, p=.06 for component, and p=.27 for sponsor rank).Table 10 presents the relationship between the demographic factors of interest and patient satisfaction.

Table 10. Summary of Patient Satisfaction Scores by Gender, Race, Component and Sponsor Rank

Demographic Characteristic	Patient Satisfaction Score Mean (SD)	*P*-value*
Gender		.08
Female	57.4 (12.10)	
Male	54.5 (10.47)	
Race		.30
Caucasian/White	55.9 (10.62)	
African American/Black	58.1 (13.73)	
Latino/Hispanic	59.6 (12.30)	
Asian	55.0 (11.10)	
Pacific Islander**	49.0 (n/a)	
Other	51.9 (12.69)	
Component		.06
AD Family Member	57.7 (12.25)	
Active Duty Soldier	54.6 (10.49)	
Sponsor Rank		.27
Company Grade Officer (O1-3)	61.3 (7.06)	
Field Grade Officer (O4-6)	61.3 (12.88)	
Junior Enlisted (E1-4)	55.5 (10.32)	
Senior Enlisted (E5-8)	55.9 (13.03)	
Warrant Officer (W1-4)	62.6 (8.73)	

*p-value from an ANOVA models relating each factor to patient satisfaction.
**There was only 1 Pacific Islander enrolled in the study. This subject was lumped together with the Asian subgroup in the analysis.

Health Status scores using physical and mental health indices revealed no significant correlates for gender, race, or sponsor rank (Table11& 12). Higher scores indicate better health. While physical health status scores (Table 11) were numerically higher for males (50.2 $\pm$9.79), active duty Soldiers(50.0$\pm$9.4), and Company Grade Officers ranks (54.8$\pm$5.7), no statistically significant differences were observed (p=.49 for gender, p= .56 for race, p=.60 for component, and p =.19 for sponsor rank).

Table 11. Summary of Physical Component Scores by Gender, Race, Component and Sponsor Rank

Demographic Characteristic	Physical Component Summary (PCS) Mean (SD)	*P*-value*
Gender		.49
Female	49.2 (9.21)	
Male	50.2 (9.79)	
Race		.56
Caucasian/White	50.1 (9.72)	
African American/Black	47.1 (8.87)	
Latino/Hispanic	49.7 (9.58)	
Asian	48.4 (10.04)	
Pacific Islander**	65.5 (n/a)	
Other	50.9 (7.11)	
Component		.60
AD Family Member	49.3 (9.48)	
Active Duty Soldier	50.0 (9.40)	
Sponsor Rank		.19
Company Grade Officer (O1-3)	54.8 (5.70)	
Field Grade Officer (O4-6)	46.5 (5.31)	
Junior Enlisted (E1-4)	50.5 (9.51)	
Senior Enlisted (E5-8)	48.3 (9.62)	
Warrant Officer (W1-4)	49.8 (11.50)	

*p-value from an ANOVA models relating each factor to physical health scores.
**There was only 1 Pacific Islander enrolled in the study. This subject was lumped together with the Asian subgroup in the analysis.

Similarly, we found no differences in mean mental health status scores among the different subgroups (Table 12). The highest mean mental health status scores were achieved by females (50.2 $\pm$9.67), Latino/Hispanics (50.6$\pm$8.96), active duty family members (50.4 $\pm$9.89), and Company Grade Officers (52.8$\pm$7.58); however, all *p*-values from the ANOVA tests were not statistically significant (*p*=.24 for gender, *p*=.42 for race, *p*=.18 for component, and *p*=.34 for sponsor rank).

Table 12. Summary of Mental Health Scores by Gender, Race, Component and Sponsor Rank

Demographic Characteristic	Mental Component Summary (MCS) Mean (SD)	*P*-value*
Gender		.24
Female	50.2 (9.67)	
Male	48.4 (11.87)	
Race		.42
Caucasian/White	50.4 (10.00)	
African American/Black	47.9 (13.03)	
Latino/Hispanic	50.6 (8.96)	
Asian	47.2 (8.34)	
Pacific Islander**	25.5 (n/a)	
Other	47.8 (11.63)	
Component		.18
AD Family Member	50.4 (9.89)	
Active Duty Soldier	48.4 (11.35)	
Sponsor Rank		.34
Company Grade Officer (O1-3)	52.8 (7.58)	
Field Grade Officer (O4-6)	49.2 (11.86)	
Junior Enlisted (E1-4)	48.7 (10.53)	
Senior Enlisted (E5-8)	50.3 (10.82)	
Warrant Officer (W1-4)	41.9 (12.03)	

*p-value from an ANOVA models relating each factor to mental health scores.
**There was only 1 Pacific Islander enrolled in the study. This subject was lumped together with the Asian subgroup in the analysis

Exploratory Qualitative Analysis:

1. What changes would you recommend to your <u>military health care provider</u> that would improve your experience?
2. Focusing on where you receive your healthcare, what changes in the operations of the military health care facility would you recommend to the <u>health facility leadership</u> that would likely improve your experience there?

Results:

Of the 200 participants of the larger quantitative study, 148 (74%) participants provided responses to the open-ended questions. A total of 169 comments were geared towards providers, and 125 comments were addressed to the clinic leadership. In Table 13, we detail the demographics of participants who provided comments to the open-ended questions vs. those that did not respond. On average, the participants that commented tended to be older (Mean(SD)=29.5 (7.12) vs. 26.9 (6.99) years, p=.02) and slightly more educated (Mean(SD)= 13.8 (1.91) vs. 13.2 (1.93) years, p=.08). The commenters were also mostly of Senior Enlisted status (45.9% vs. 32.7%, p=.05), active duty family members (59.5% vs. 40.4%, p=.02), recipients of care from the Family Practice Clinic (60.8% vs. 40.4%, p=.04), and had been assigned to the Family Practice clinic at least 12 months or longer (58.1% vs. 40.4%, p=.01).

Table 13. Demographic Characteristics of Study Participants

Characteristic	Commented (%)	Did Not Comment (%)	*P* Value
Total Study Sample	148 (74.0)	52 (26.0)	
Age (Years)			.04
18 - 24	45 (30.4)	24 (46.2)	
25 - 34	65 (43.9)	20 (38.5)	
35 - 44	35 (23.6)	7 (13.5)	
>= 45	3 (2.0)	1 (1.9)	
Mean (SD) Age	29.5 (7.12)	26.9 (6.99)	.02
Gender			.13
Male	53 (35.8)	25 (48.1)	
Female	95 (64.2)	27 (51.9)	
Race			.90
Caucasian/White	85 (57.4)	32 (61.5)	
African American/Black	25 (16.9)	10 (19.2)	
Latino/Hispanic	16 (10.8)	4 (7.7)	
Asian	10 (6.8)	2 (3.8)	
Pacific Islander	1 (0.7)		
Other	11 (7.4)	3 (5.8)	
Missing	0 (0.0)	1 (1.9)	
Years of Education			.03
9 - 12 years	57 (38.5)	29 (55.8)	
12 - 15 years	60 (40.5)	17 (32.7)	
>=16 years	31 (20.9)	6 (11.5)	
Mean (SD) Years of education	13.8 (1.91)	13.2 (1.93)	.08
Mean (SD) No. of medical appointments in a year	9.6 (12.69)	7.4 (11.17)	.28
Category			.02
Active Duty (AD) Soldier	60 (40.5)	31 (59.6)	
AD Family Member	88 (59.5)	21 (40.4)	
Sponsor Rank			.05
Junior Enlisted (E1-4)	61 (41.2)	31 (59.6)	
Senior Enlisted (E5-8)	68 (45.9)	17 (32.7)	
Warrant Officer (W1-4)	3 (2.0)	2 (3.8)	
Company Grade Officer (O1-3)	10 (6.8)	1 (1.9)	
Field Grade Officer (O4-O6)	5 (3.4)	1 (1.9)	
Missing	1 (0.7)	0 (0.0)	
Assigned clinic			.04
Family Practice	90 (60.8)	21 (40.4)	
Troop Medical Clinic	53 (35.8)	30 (57.7)	
Aviation Medicine Clinic	2 (1.4)	1 (1.9)	
Warrior Transition Unit Clinic	3 (2.0)	0 (0.0)	
Months of care at assigned clinic			<.01
<12 months	61 (41.2)	31 (59.6)	
12-24 months	42 (28.4)	16 (30.8)	
>24 months	44 (29.7)	5 (9.6)	
Missing	1 (0.7)	0 (0.0)	
Having a Nurse Case Manager?			.13
No	136 (91.9)	44 (84.6)	
Yes	12 (8.1)	8 (15.4)	

Note: Active Duty Soldiers are assigned to the Troop Medical Clinic, and family members are assigned to the Family Practice Clinic.

In the section that follows, we discuss and illustrate with brief quotations from participants' four categories of recommendations for improvements in care delivery and operations to health care providers and health care facility leadership (See Table 14). These four categories are discussed in order of frequency of comments received.

Table 14. Distribution of Comments Addressed to Providers and Clinic Leadership Categorized by Themes and Sub-codes.

Major Theme	Sub-Codes	For Providers	For Clinic Leadership	Combined Recommendations

		n(%)	*n*(%)	*n*(%)
Satisfaction with Care	Time in appointment with health care provider that is less rushed, permitting patients to talk about health care problems	20 (17%)	7 (6%)	27 (23%)
	Reasonable cost, improved health care coverage	1 (<1%)	0	1 (<1%)
	Continuity in care	14 (12%)	3 (3%)	17 (15%)
	Increase staffing of PCMs	3 (3%)	7 (6%)	10 (9%)
	Provide more follow up care, staff accountability	3 (3%)	3 (3%)	6 (5%)
	Overall satisfaction with encounter with health care provider, staff, and follow-up care is positive	24 (21%)	31 (27%)	55 (47%)
	Satisfaction with Care Totals	**65 (56%)**	**51 (44%)**	**116 (100%)**
Access to Care	Cleaner facilities, improvements to waiting area to include coffee, ability to isolate sick children, child care for patients, and extended pharmacy hours	1 (<1%)	6 (6%)	7 (6%)
	Decreased time to travel/better parking at facility	4 (4%)	5 (5%)	9 (8%)
	User friendly access with making appointments, better telephone access, more courteous staff	12 (11%)	10 (9%)	22 (20%)
	More access to specialists, specialty services, and more choices with PCM	15 (14%)	14 (13%)	29 (27%)
	Less wait time to see PCM or specialists (to include time to appointment and time in waiting room)	24 (22%)	16 (15%)	40 (37%)
	More support with release from employment for medical appointments	1 (<1%)	0	1 (<1%)
	Overall satisfaction with access to facility, on-line access, late evening appointments is positive	1 (<1%)	0	1 (<1%)
	Access to Care Totals	**58 (53%)**	**51 (47%)**	**109 (100%)**
Interpersonal Interaction	Receipt of information that is more easily understood and specific to patients needs	4 (11%)	2 (5%)	6 (16%)
	More courteous PCM, with attentive listening, patience, caring, and respect for patients knowledge	20 (53%)	11 (29%)	31 (82%)
	Interaction with health care provider or leadership perceived as positive	1 (3%)	0	1 (3%)
	Interpersonal Interaction Totals	**25 (66%)**	**13 (12%)**	**38 (100%)**
Quality of Care	More competent, qualified health care providers, improved quality care	21	10	
	Quality of Care Totals	**21 (68%)**	**10 (32%)**	**31 (100%)**

Note: A subject may have provided comments geared towards both providers and clinic leadership under a given theme or sub-theme.

Satisfaction with Care

A majority of the participants' (*n*=116, 40%) written responses to the open-ended questions were comments related to the satisfaction with the health care they received. Slightly

over one-half of the total written responses in this category (*n*=61, 53%) were recommended improvements for healthcare providers that would lead to better satisfaction with care, while slightly less than one-half of the written responses (*n*=55, 47%) recommended improvements to the healthcare facility leadership that would provide a more positive healthcare experience. The most frequent (*n*=27, 23%) recommendations to improve satisfaction were for improvements that could result in participants not feeling rushed through their appointment. Specifically, participants' comments were for healthcare providers to spend more time with them and give them the opportunity to talk about their health care problems. Examples of participants' verbatim comments expressing a lack of satisfaction with care and addressed to health care providers were: "Time spent with patients is quite poor," "Increased time will improve patient/doctor relationships and ensure proper time is spent discussing health issues," "Don't make the patient feel so rushed," and "Spend more time with patient." One specific recommendation from a participant was: "I recommend that the healthcare providers go more in depth about the patient's condition. Sometimes it feels like they're just trying to get patients in and get patients out."

A second frequently occurring type of written response in the category of Satisfaction with Care was recommendations from participants to improve continuity of care (*n*=17, 15%). Participants' written responses in this category were for more consistency when making provider assignments, so providers are familiar with the patient's medical histories to alleviate having to constantly repeat their health care issues with many different providers. One specific response that captured this recommendation was:

> I would recommend for the OB clinic to assign the same doctor to each patient. When I was about to give birth and seen at ... I found it hard to explain my condition and concerns over and over again to the different doctors that I was assigned to.

Participants were nearly equal in their written responses directed towards health care providers and clinic leadership suggesting overall satisfaction with care. Slightly more participants (*n*=31, 27%) wanted the clinic leadership and management to know that they were satisfied with their care; compared to, the number of positive comments directed towards healthcare providers (*n*=24, 21%). Example responses regarding positive satisfaction with health care providers were usually very general: "I am very happy at this time" and "I always have a great experience." However, other comments were detailed, providing information specifically on what was positive about their experience: "This is the first time in 12 years as a military spouse that I even know who my PCM is. This is a good thing that I would love to see happen to all military clinics." One very detailed comment that captures the importance of continuity of care to patient satisfaction was:

> I have not had any complaints about my current health care provider. I make an extra effort to be seen only by my PCM. At times that was not possible and the other provider I saw was not as helpful. Not due to their competency but because my PCM was familiar with my health and the others sometimes took the stance that they could not help because they are not familiar with my medical history.

Access to Care

The second most frequent category of the total written responses from participants was suggested ways to improve access to care (*n*=109, 37%). Of this number, three suggested improvements recommended for access to care included reduced waiting times to get appointments and to be seen once at the clinic (*n*=40, 37%), more available specialty services or selection of primary care providers (*n*=29, 27%), better telephone access for making appointments and more courteous staff (*n*=22, 20%). Example written comments for

improvements to wait times were: “Less time waiting to see a doctor," "not having to wait very long once you are in the room for the provider to come in," “I would like to be able to call when sick and not have to wait 2-3 weeks to be seen," "Move a little quicker instead of having us sit for 45 minutes," and "It would be nice if I don't have to wait forever for them to call me in.”

When participants recommended more access to specialists or more choices in the selection of available primary care physicians, example comments were for: "the opportunity to pick my own PCM" and "more of a choice when it comes to primary care manager." One participant provided a detailed response related to the perceived lack of choices of health care providers:

> I would have liked to be given the opportunity to pick my own PCM. Some do not care, but I would like to have the choice. I would like to know their background, education, and even family stats. I do not necessarily need to know their names, but having some background would allow me to pick a good match for me!

Written responses related to recommendations for a more user-friendly process in making appointments to include online, telephone, and a more courteous staff were: “It can be difficult to make appointments," "Better phone system," and "Very hard to make appointments to right clinic. . . I keep getting hung up on.”

A more detailed response related to satisfaction with care and the health care facility was specific to a medical diagnosis of diabetes. This participant wrote:

> “When you need to speak to your doctor about a medical issue not to be given the run around or play phone tag to try to get a phone consult. Been on diabetic medicine for four months now and called to talk to my doctor about the machine to check my sugar. Four months later with two cancelled appointments and I still haven't checked my sugar yet and he [health care provider] never received the three messages I left him.”

Interpersonal Interactions

Participants also expressed recommendations for health care providers and clinic leadership to improve their interpersonal interactions (*n*=38, 13%). The overwhelming majority of responses in this category (*n*=31, 82%) suggested the need for encounters with healthcare providers that were more courteous, respectful, caring, attentive listeners, and patient. Example recommendations were: “I would like them to spend more time listening to us rather than rushing through the appointment. I have not been able to fully explain to my providers what is wrong and where I am feeling pain. . .” and “Some need to listen more and not assume that all patients are lacking knowledge regarding basic healthcare and biology/human anatomy and physiology.” Participants also suggested that doctors be tested on people skills and to learn active listening skills.

Quality of Care

The fourth category of written responses were within the category of Quality of Care (*n*=31, 11%). Participant responses in this category were suggestions for needed improvements to the quality of care delivered by health care providers. For example when participants perceived that healthcare providers were not competent; the perception was that the receipt of quality care was lacking. These participant responses indicated that providers prescribed medications instead of ordering necessary diagnostic test to appropriately identify the cause of their symptoms. As a result, their health care problems were unresolved. Participants also wanted the clinic leadership to hold healthcare providers accountable for this lack of quality of care. Example comments were: “I would like to see improvement in the quality of care,” “My battalion was assigned an extremely incompetent provider. . . We had to petition to have her

fired from the clinic," and "When there are complaints on doctors (many complaints) they should not be working at the clinic anymore."

Participant comments in this category were also specific to pain and physical injuries, health issues likely specific to this patient population. Suggested comments for improvements in the quality of care delivered by competent health care providers were: "The doctors need to be more thorough when treating tendon and ligament repairs," ". . .and Ibuprofen doesn't fix everything. . . get doctors to fix the problem and not just drug the pain away," and "Do required tests to cover all possible health conditions when necessary. Stop just handing out drugs without getting to the crux of the problem."

Relationship of current findings to previous findings:

Most of the findings were consistent with other published studies that did not include active duty Army Soldiers and their family members. Participants that had higher access to care scores had higher levels of patient satisfaction and better mental health scores. This was interesting as many other studies consider having health insurance as a dimension of access. The entire population in this study had free comprehensive healthcare; yet, access to care was still an issue. One needs to question the emphasis place on having health insurance, and realize that having health insurance is very different than having access to care when needed. Patients need to know how to use or gain access to the healthcare system when needed.

Similar to other published studies, mistrust and racism /discrimination had negative effects on patient satisfaction, physical health status, as well as mental health status. Although racism/discrimination lost significance when put in a multiple regression and controlling for the other variables in the model, mistrust remained a significant negative predictor of patient satisfaction and physical health status. This mistrust likely stem from past participant encounters; whereby, healthcare providers had poor communication behaviors and interactions with patients. As the qualitative results indicated, participants stated that healthcare providers were not attentive listeners, courteous, respectful, patient, or caring which creates a poor milieu for establishing trusting relationships. Participants who reported that healthcare providers had higher communication scores had better physical and mental health status. A basic principle is that people will participate in things/events when they have a pleasant experience. In contrast, people are less likely to engage in activities when they have one or more poor experiences; even though, they have unmet needs. This has been the case for many minority populations.

Quite surprisingly, continuity of care was not a significant predictor of patient satisfaction, physical health status, and mental health status. Other studies have found that continuity of care improves patient satisfaction, physical health status, and mental health status. One explanation may be the nature of this research study population (active duty Soldiers and family members). For a population participants and healthcare providers who constantly relocated every 2-3 years, continuity of care, where the participant see the same healthcare provider for all primary care appointments, is difficult to achieve. While continuity of care with primary care providers may be important to older patients and patients with chronic or multiple health conditions, continuity of care may not be as important to a younger population with more acute or routine health conditions. It may also be the case that access to care has suffered in the spirit of trying to maintain continuity of care with the same healthcare provider.

Another surprising result was that participating in religious activities and spirituality had a significant inverse relationship with physical health status; however, there was a non-

significant positive relationship with patient satisfaction and mental health status. Particularly, those with reported higher levels of spirituality had poorer physical health. This may be indicative of participants with significant health challenges and lack of access to healthcare services have relied on spirituality to fulfilled unmet physical needs from the healthcare system. Other studies provided evidence that participating in religious activities and having spirituality had a positively significant relationship to physical health status, mental health status, and patient satisfaction.

Effect of problems or obstacles on the results:

This study did not experience any problems or obstacles that would have affected the results of this study.

Limitations:

The sample included in this study is representative of only one active duty Army Health Clinic in the Pacific region of the United States; therefore, the results of this study may not be generalizable to other populations located in different geographical regions. There is a good representation of Soldiers and family members; however, there were only a small representation of male family members. Although there was a small representation of male family members, this representation is consistent with active duty family members, which are mainly females. Some of the participants completed study questionnaires in the same clinic where they received care. Due to the proximity of the clinic and structure of the military, some participants may not have been as truthful in their responses to items on the questionnaire for fear of retributions.

Another limitation is the power differential in the communication process that occurs between active Army Soldiers and active duty Army healthcare providers. Active duty Army healthcare providers are commissioned officers that out-rank most of their patients. The military has an established hierarchy that may affect communications and interactions during the process of receiving care. The majority of the participants in this study were Junior Enlisted Soldiers; therefore, they may not have been comfortable being assertive in their communications with these healthcare providers that are more senior in rank. In addition, the structure of the military is such that participants might not consider that healthcare providers and clinic leadership are separate entities, because some military healthcare providers work in both roles (provider and leadership). Therefore, responses to the open-ended questions may not have exactly separated recommendations for the healthcare provider and clinic leadership. Although participants were asked open-ended questions, the responses were written and not in response to face-to-face interviews. As a result, the research team did not have the opportunity to probe further to gain additional insight or clarity of healthcare experiences.

This study did not test for interactions between individual characteristics and health/communication behavior variables. Although all variables were controlled, the hierarchical regression analysis could cause multicollinearity with the addition of several variables measuring similar concepts, such as patient-provider communication and communication. Lastly, this study was cross-sectional with data collected only at one time point in time; therefore, causality cannot be determined.

Conclusion:

The research team successfully achieved the results for all Specific Aims. Individuals who reported higher access to care also had higher levels of patient satisfaction and mental health status. Individuals that reported higher levels of mistrust had lower levels of patient satisfaction and physical health status. Those with higher levels of spirituality tend to be participants with poorer health. Racism/discrimination negatively affected patient satisfaction, but this significance was lost when considering other variables.

Although these individual characteristics predicted patient satisfaction, physical health status, and mental health status, the communication behaviors that occur during the process of receiving medical care predicted a significant amount of variability in these same health outcomes beyond the individual characteristics. This study suggests that improved communication between patients and their providers enhance health outcomes of patient satisfaction, physical health, and mental health. However, communication behaviors that provide the patient with illness-related information and support with decision-making were the strongest predictors of health outcomes among this military population. In the qualitative portion of this study, participants provided insight to behaviors of healthcare providers that negatively affect their patient care experience and recommendations to healthcare providers and clinic leadership that would likely improve their patient care experiences.

Provider autonomy support moderated the strength of the positive relationships between continuity of care and mental health status and between communications and patient satisfaction. Patient autonomy support did not significantly moderate the relationship between health behaviors and physical or mental health status. Patient autonomy preference did not significantly moderate the relationship between health behaviors and patient satisfaction or health status. However, patient autonomy preference did moderate the strength of the negative relationship between mistrust and patient satisfaction.

In the exploratory part of the study, we found no evidence of health disparities or subgroup significant differences in patient satisfaction, physical health status, and mental health status according to gender, race/ethnicity, sponsor rank, or whether an active duty Soldier or family member.

Significance of Study or Project Results to Military Nursing

This study filled a knowledge gap of identifying some of the individual characteristics of active duty Army Soldiers and their family members that affect patient satisfaction, physical health status, and mental health status. These individual characteristics (access to care, mistrust, spirituality, and racism/discrimination) are what patients bring into healthcare facilities, and healthcare staff must make a concerted effort to improve access to care and reduce mistrust and racism/discrimination that tend to have a negative impact on health outcomes.

Nurses need to be actively engaged in leadership and management decisions within the Patient-Centered Medical Home. A critical evaluation of processes and patient flow while identifying barriers or potential barriers that impact access to care need to be a constant stay.. This evaluation needs to determine services needed verses services desired for the patient population, creating a culture that garners trust with staff and patients, minimizing and correcting negative behaviors, reducing wait times, and creating more efficient use of resources. Doctoral-prepared nurses with familiarity in outpatient clinical care may be in a unique position to move the Patient-Centered Medical Home to the next level. Nurses have the capacity and need to be allowed to function at the top of their license and full scope of practice consistent to their educational level and certification. Viewing the entire patient care experience, analyzing processes, determining areas for improvement, implementing culturally competent interventions, and evaluating interventions are similar to the nursing process.

A representative of the patient population should be part of the decision-making process. This representative will be the voice for the patient population needs and concerns to avoid implementing decisions without the patient's perspective. Care cannot be "Patient-Centered" without including the patient. After briefing the clinic leadership on the results of this study, they quickly realized that the leadership and the patient population had different perspectives and expectations related to the availability of and processes of accessing care and services.

Effective communication skills training should be a high priority of all staff members to address patient needs and concerns. Effective communication skills are essential to building and sustaining healthy and trusting relationships with patients. As the results indicated in this study, better communication behaviors predicted higher patient satisfaction, better physical health, and better mental health regardless of gender, race/ethnicity, sponsor rank, and whether the Soldier or family member. Although patients bring their individual characteristics into healthcare facilities, the staff has control over their behaviors and interactions with patients. A patient care experience is a process that involves more people than just the primary care provider. Nurses can assist in creating and providing a positive healthcare experience from the time a patient enters the healthcare facility to following-up after departure of the clinic. Leadership should develop processes and implement interventions to discourage ineffective communication behaviors of all staff.

Obtaining a "Culture of Trust" is imperative for overcoming barriers such as stigma and shame while encouraging Soldiers to seek and utilize healthcare services for addressing mental health issues such as depression, anxiety, post traumatic stress disorder, substance abuse, alcohol abuse, and suicides. Nurses are the most trusted healthcare professional, and leaders implementing the Patient-Centered Medical Home model need to take advantage of this trustworthiness by giving nurses a bigger role in the leadership, planning, organizing, care processes, and identifying patient needs and concerns.

Spiritual care needs to be assessed and incorporated in the plan of care. Spiritual care should be available especially for beneficiaries identified with a lower physical health status. There is evidence that those with higher spirituality have lower incidences of mental or behavioral health issues. Partnerships should be formed with military and non-military spiritual leaders to avail themselves to these beneficiaries when needed and requested.

Policies and procedures promoting continuity of care need to be evaluated to determine its relevance for a somewhat young, nomadic patient and healthcare provider population. While there is a financial incentive to achieve continuity of care with PCMs, efforts may be causing unintended negative effects on access to care. Based on the findings from this study, continuity of care with PCMs did not significantly predict higher patient satisfaction or better physical and mental health status. In addition, the qualitative results indicated that participants were more concerned with getting access to care when needed, and that a standardized level of care regardless of the provider. Hence, efforts should focus on interventions to improve access to healthcare services, rather than focusing on Primary Care Manager-by-name intended to maintain continuity of care. Some clinics have realized that continuity of care with PCMs is not achievable, so they have redefined continuity of care within a team of primary care providers. Further evaluation is needed to determine if continuity of care within a team is truly different from previous methods of providing primary care pre-PCMH.

The Army Nurse Corps' Patient Caring Touch System (PCTS) is an excellent model for nurses to utilize to address the patient care experience in outpatient care areas, and this model is complimentary to the Patient-Centered Medical Home model. The patient remains in the center of care. The five elements of the PCTS are (1) Evidence-Based Practice, (2) Healthy Work Environments, (3) Patient Advocacy, (4) Enhanced Communication, and (5) Capability Building. Implementation of all these elements will help create a positive healthcare experience for all patients.

Future research studies should evaluate other non-active duty military beneficiaries and branches of service receiving care in military treatment facilities to determine if these same factors are relevant in these populations as well. Future research studies should use a mixed method design, which would include instruments currently in use and utilizing face-to-face interviews to determine the validity of current instruments for accurately measuring concepts that have financial implications to military healthcare facilities. Future research should include healthcare providers and staff members to validate interactions and encounters between patients and staff members. Lastly, a future research should conduct a longitudinal study to test the effectiveness of interventions designed to improve patient health outcomes.

Changes in Clinical Practice, Leadership, Management, Education, Policy, and/or Military Doctrine that Resulted from Study or Project

After presenting preliminary research findings to the clinic leadership in 2012, the leadership contacted the Customer Service personal and inquired about available training programs that focused on communication skills. The leadership selected a communication training program and required all primary care providers to attend. The Office of the Army Surgeon General sends out Army Provider Level Satisfaction Surveys (APLSS) to patients receiving outpatient care services. Prior to the study, this clinic had challenges with overall patient satisfaction scores. Although this data was not part of this study, their patient satisfaction scores began to improve over time.

Table 15. Study Clinic Trended APLSS Scores

Month/Year	Patient Satisfaction Scores (Goal is 95%)
March 2011	88.35%
March 2012	92.78%
March 2013	97.3%
March 2014	91%

References Cited

None.

Summary of Dissemination

Type of Dissemination	***Citation***	***Date and Source of Approval for Public Release***
Publications	Moore AD, Hamilton JB, Pierre-Louis BJ, Jennings BM (2013). Increasing access to care and reducing mistrust: Important considerations when implementing the Patient-Centered Medical Home in Army health clinics. Military Medicine, 178(3): 291-298.	09 August 2012 TAMC
	Moore, A.D., Hamilton, J.B., Pierre-Louis, B.J. (2013). Communication behaviors predict patient satisfaction, physical health, and mental health for active duty Army Soldiers and their family members: Important considerations when implementing the Patient-Centered Medical Home. Journal of the National Black Nurses Association, 24 (2), 8-16.	5 December 2012 TAMC
Publications in Press	Pierre-Louis, B.J., Moore, A.D., Hamilton, J.B., (in print). The military healthcare system may have the potential to prevent health disparities. Journal of Racial & Ethnic Health Disparities.	23 July 2014 WAMC
	Moore, A.D., Hamilton, J.B., Pierre-Louis, B.J., & Krusel, J.L. (under review). Patients tell providers and clinic leadership how to improve patient satisfaction.	14 July 2014 WAMC
Podium Presentations	Moore AD, (2013). "Increasing access to care and reducing mistrust needed when implementing the Patient-Centered Medical Home." National Black Nurses Association 41st Annual Leadership Institute and Conference, New Orleans, LA. (August 4, 2013). Attendance self-funded.	13 May 2013 TAMC

	Moore, A.D. (2014). "How communication behaviors predict patient satisfaction, physical health, and mental health for Army Soldiers and their family members: Implementing the Patient-Centered Medical Home." 28th Annual Conference of the Southern Nursing Research Society. San Antonio, TX. (Podium Presentation, February 12- 15, 2014).	6 January 2014 WAMC
	Moore, A.D. (2014). "Transitioning to the Patient-Centered Medical Home: Patients tell providers and clinic leadership how to improve patient satisfaction." The Clute Institute 2014 San Antonio International Academic Conference. San Antonio, TX. (Podium Presentation, March 15- 18, 2014).	3 March 2014 WAMC
	Moore, A.D. (2014). "Transitioning to the Patient-Centered Medical Home: Patients tell providers and clinic leadership how to improve patient satisfaction." 2014 Womack Army Medical Center Research Symposium. Fort Bragg, NC. (Podium Presentation, May 15, 2014).	3 March 2014 WAMC
	Moore, A.D. (2014). "A military healthcare system incorporating the Patient Caring Touch System and Patient-Centered Medical Home may have the potential to prevent health disparities" 2014 Triservice Nursing Research Program Research & Evidenced-Based Practice Dissemination Course. San Antonio, TX. (Podium Presentation, September 15-18, 2014).	11 August 2014 WAMC
Other	Presentation to Schofield Barracks Health Clinic Command – discussed the results of Specific Aims 1 and preliminary results for Specific Aim 2	14 September 2012 *PAO approval not required for this presentation per PAO, since presentation given locally within the command.

	Presentation to Schofield Barracks Health Clinic Command - discussed results of Specific Aims 3, and preliminary results for Specific Aim 4 and qualitative data	29 May 2013 *PAO approval not required for this presentation per PAO, since presentation given locally within the command.

Reportable Outcomes

None

Recruitment and Retention Table

Recruitment and Retention Aspect	Number of Subjects This Reporting Period	Total Number of Subjects Since Study or Project Began
Number of Subjects Projected in Grant Application	200	
Human Subjects Consented	204	204
Subjects Who Withdrew	4	4
Subjects Who Completed Study	200	200
Subjects With Complete Data	200	200
Subjects with Incomplete Data	0	0

Demographic Characteristics of the Sample

Characteristic	No. of Participants (%)
Total Study Sample	200
Age (Years)	
18 - 24	69 (34.5%)
25 - 34	85 (42.5%)
35 - 44	42 (21%)
>= 45	4 (2%)
Mean (SD) Age	28.8 (±7.17)
Gender	
Male	78 (39%)
Active Duty – 74	
Family Member - 4	
Female	122 (61%)
Active Duty – 17	
Family Member - 105	
Race	
Caucasian/White	117 (58.5%)
African American/Black	35 (17.5%)
Latino/Hispanic	20 (10%)
Asian	12 (6%)
Pacific Islander	1 (0.5%)
Other	14 (7%)
Missing	1 (0.5%)
Years of Education	
9 - 12 years	86 (43%)
12 - 15 years	77 (38.5%)
>=16 years	37 (18.5%)
Mean (SD) Years of education	13.6 (±1.93)
Mean (SD) No. of medical appointments in a year	9.0 (±12.33)*
Category	
Active Duty (AD) Army Soldier	91 (45.5%)
AD Army Family Member (dependent)	109 (54.5%)
AD Soldier Rank	
Junior Enlisted (E1-4)	53 (58.9%)
Senior Enlisted (E5-8)	31 (34.5%)
Warrant Officer (W1-4)	2 (2.2%)

Characteristic	No. of Participants (%)
Company Grade Officer (O1-3)	4 (4.5%)
Family Member Sponsor Rank	
Junior Enlisted (E1-4)	39 (35.8%)
Senior Enlisted (E5-8)	54 (49.5%)
Warrant Officer (W1-4)	3 (2.8%)
Company Grade Officer (O1-3)	7 (6.4%)
Field Grade Officer (O4-6)	6 (5.5%)
Assigned clinic	
Family Practice	111 (55.5%)
Troop Medical Clinic	83 (41.5%)
Aviation Medicine Clinic	3 (1.5%)
Warrior Transition Unit Clinic	3 (1.5%)
Months of care at assigned clinic	
<12 months	92 (46%)
12-24 months	58 (29%)
>24 months	49 (24.5%)
Missing	1 (0.5%)
Having a Nurse Case Manager?	
No	180 (90%)
Yes	20 (10%)

SD, Standard Deviation

* When the 17 participants who reported having >20 appointments a year and 5 participants who had missing data for this variable were removed from the sample, the population (*n* =178) had a marked difference in the mean and standard deviation 5.8 (4.6).