

The Learners' Perceptions Survey—Primary Care: Assessing Resident Perceptions of Internal Medicine Continuity Clinics and Patient-Centered Care

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Abstract

Background In 2010, the Department of Veterans Affairs (VA) implemented a national patient-centered care initiative that organized primary care into interdisciplinary teams of health care professionals to provide patient-centered, continuous, and coordinated care.

Objective We assessed the discriminate validity of the Learners' Perceptions Survey—Primary Care (LPS-PC), a tool designed to measure residents' perceptions about their primary and patient-centered care experiences.

Methods Between October 2010 and June 2011, the LPS-PC was administered to Loma Linda University Medical Center internal medicine residents assigned to continuity clinics at the VA Loma Linda Healthcare System (VALLHCS), a university setting, or the county hospital. Adjusted differences in satisfaction ratings across settings and over domains (patient- and family-centered care, faculty and preceptors, learning, clinical, work and physical environments, and personal

experience) were computed using a generalized linear model.

Results Our response rate was 86% (77 of 90). Residents were more satisfied with patient- and family-centered care at the VALLHCS than at either the university or county ($P < .001$). However, faculty and preceptors (odds ratio [OR] = 1.53), physical (OR = 1.29), and learning (OR = 1.28) environments had more impact on overall resident satisfaction than patient- and family-centered care (OR = 1.08).

Conclusions The LPS-PC demonstrated discriminate validity to assess residents' perceptions of their patient-centered clinical training experience across outpatient primary care settings at an internal medicine residency program. The largest difference in scores was the patient- and family-centered care domain, in which residents rated the VALLHCS much higher than the university or county sites.

Editor's Note: The online version of this article contains the Learners' Perceptions Survey—Primary Care survey scores by domains and elements comparing Veterans Affairs, university, and county Loma Linda University Medical Center internal medicine resident continuity clinics.

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Introduction

The relative disinterest of residents in a primary care (PC) career likely results from challenges that include inequitable remuneration, overworked physicians, burdensome administrative tasks,^{1–3} and patients' complex chronic diseases that require comprehensive, coordinated services and team care.^{4,5} Patient-centered care principles such as team-based care, chronic disease management, and enhanced communication have been recommended by national organizations as part of internal medicine (IM) residency reform and redesign.^{6,7} However, evaluating these reforms is limited by a lack of instruments designed to measure the effect of patient-centered care principles on residents' perceptions of PC training⁸ and to compare IM continuity clinics that differ in terms of available resources and education.^{9,10}

The Department of Veterans Affairs (VA) Learners' Perceptions Survey—Primary Care (LPS-PC) is a survey designed to assess PC education and trainee perceptions of patient-centered care. The LPS-PC is modified from the original VA Learners' Perceptions Survey (LPS).¹¹ Since 2001, the VA's Office of Academic Affiliations (OAA) has administered the LPS to assess health profession trainees' satisfaction with their VA clinical training experiences.¹² The LPS has validity evidence across professional disciplines and clinical settings.^{13–16} We report on a study to determine whether the LPS-PC can discriminate resident perceptions of patient-centered care across different continuity clinics in an IM residency program.

Methods

Survey Development

The LPS-PC was derived from the LPS under the OAA's National Evaluation Workgroup, which consisted of OAA leadership, clinician educators, and health services and education researchers. To develop a PC version of the LPS, the work group made 3 changes to the survey. It added a facility-level training experience domain that asked respondents to rate the value of their PC clinical experience (poor, fair, adequate, very good, excellent); included an 18-element patient-centered care domain; and changed several questions to focus on attributes of the PC setting, including faculty and preceptors, the learning, clinical work, and physical environment, and learners' personal experiences domains. Survey content was reviewed by a focus group of PC physicians, associated health and nursing educators, and VA leadership. Changes were made based on their expert consensus recommendations. The LPS-PC was pilot tested with 12 Loma Linda University Medical Center (LLUMC) IM residents at the VA Loma Linda Healthcare

What was known

Patient-centered care approaches such as team-based care and chronic disease management have been recommended to improve patient care.

What is new

A survey by the Department of Veterans Affairs (VA) assessed residents' experiences in primary care settings, focusing on faculty and preceptors, learning, clinical work, the physical environment, and personal experiences.

Limitations

Single-specialty, single-institution study, and small sample size limit generalizability.

Bottom line

The survey effectively discriminated across the 3 teaching sites, suggesting that VA sites may provide better patient-centered care experiences than university-based or county hospital-based sites.

System (VALLHCS). Residents provided verbal and written feedback, and modifications were made based on their input.

Setting and Participants

The LLUMC IM residency program consists of the preliminary, categorical, and PC tracks and a medicine-pediatrics residency. Categorical and PC track residents are arbitrarily assigned to continuity clinics at 1 of 3 sites: VALLHCS, university, and county hospital clinics with approximately 35, 24, and 22 clinics, respectively, at each site. The 9 PC track residents have 1 or 2 continuity clinics per week with 3 to 7 clinics at their primary site at the VALLHCS, and 1 or 2 clinics at a secondary site (the university or county) per month. Categorical residents are assigned 1 half-day of continuity care clinics per week and rotate through an additional 6 months of 1-month ambulatory block rotations that consist of PC and subspecialty experiences. Residents have an additional 3 months of electives and 4 months of "selectives," in which they choose subspecialty rotations that may be in part or wholly ambulatory. Overall, PC track residents have 6 more months of ambulatory care training in a variety of specialty clinics to enhance their PC skills.

Beginning in 2010, the VA implemented a patient-centered care model known as the Patient Aligned Care Team (PACT),¹⁷ which aims to provide patients with high-quality, outcomes-based, patient-centered, continuous, and coordinated care through an ongoing relationship with a team of health practitioners, caregivers, and administrative support staff.¹⁸ PACT was implemented in all PC clinics, including resident and faculty clinics. Before PACT, the VA developed many processes that support patient-centered

principles,¹⁹ including an advanced clinical information system,^{20–22} performance metrics and quality improvement processes,²³ high-quality chronic disease and preventive care,^{24–26} and timely access to care.²⁷

In contrast, residents at the university and county continuity clinics were not formally organized into PC teams with nursing and other staff. In addition, at the time of the study, neither the county nor the university sites had a fully functional electronic health record.

Survey Administration

The survey was administered voluntarily, electronically, and anonymously to all LLUMC categorical and PC track IM residents between October 2010 and June 2011. Demographic data included sex, graduation year, and continuity clinic site assignment. To maintain respondent anonymity, residents did not identify their residency track due to the small numbers of PC-track residents. Residents were asked to identify their primary continuity clinic assignment and answer the survey about that clinic. Due to the anonymity of the survey, it is not known which clinic the PC track residents evaluated. Reminders to complete the survey were sent through e-mail, texts, and flyers.

The study was approved by the VALLHCS Institutional Review Board.

Analysis

Domain scores were computed for each respondent as ordinal scales or standardized means computed by dividing the mean of each domain's element responses by the standard deviation across all respondents. Element responses were scored by assigning integer values to the 5 response categories (1 = very dissatisfied, 2 = dissatisfied, 3 = neither, 4 = satisfied, 5 = very satisfied). Because all but 1 factor per domain satisfied the "eigenvalue less than 1" rule and the ordered response categories were coded consecutively, standardized mean scores represent a sufficient statistic to measure domain satisfaction as a latent respondent characteristic.²⁸

Adjusted differences across facilities were computed using generalized linear models with a normal distribution and identity linking function for standardized mean scores as well as with a multinomial distribution and a cumulative linking function for ordinal domain scores. Facility differences are reported as differences in *t*-distributed standardized means and as Wald χ^2 distributed odds ratios. The latter reflects the change in the likelihood that an average responder would report a higher level of satisfaction had their training experience been at the university instead of VALLHCS, or at the county instead of the university. Differences were

adjusted to reflect the mix of patients that the respondent reported seeing in the facility using an instrumental variable computed as the difference in respondent and the respondent's facility mean for the 3 facility-invariant elements (facility parking, facility location convenience, and patient record systems). Finally, respondents' value of each domain was computed as the independent association of each domain-level satisfaction on overall facility-level satisfaction.

Results

Of the 90 categorical and PC track residents, 77 (86%) responded, with 31 (40%), 26 (34%), and 20 (26%) from VALLHCS, university, and county, respectively. Among the respondents, 41 (53%) were men. In addition, 30 (39%), 26 (34%), 17 (22%), and 2 (3%) were postgraduate year (PGY)-1, PGY-2, PGY-3, and PGY-4, respectively.

Adjusted differences between facilities (VALLHCS, university, and county) are reported in terms of standardized means (TABLE 1) and ordinal scales (TABLE 2). The VALLHCS scores were significantly higher than the university and county scores for all domains except the physical environment ($P < .05$; TABLE 1). The university domain scores were not statistically different from those of the county, with the exception of physical and work environment, which was higher at the university.

Resident satisfaction with the survey domains are reported in TABLE 2 and the survey elements in the Appendix (provided as online supplemental material), ranked in order of the lowest odds ratio comparing the VALLHCS and the university; lower odds ratio favored the VALLHCS. For example, in the clinical environment domain, the odds ratio of 0.03 means that a resident assigned to the university clinic has a 3% chance of reporting a higher level of satisfaction than a resident assigned to the VALLHCS clinic. Stated another way, a resident assigned to the VALLHCS clinic is 1/0.03 or 33.33 times more likely to report a higher level of satisfaction than a resident assigned to the university. Notably, residents at the VALLHCS perceived more support from nursing staff between visits, better management of telephone calls, and better time availability of appointments. However, no differences were seen between the VALLHCS and university in terms of how well physicians worked with ancillary staff and nurses.

In the working environment domain, the patient record system was rated higher in both the VA and university clinics compared with the county, the only site that had only 1 element of an electronic health record (lab values).

A number of patient- and family-centered care domain elements were rated higher in the VALLHCS compared

PRIMARY CARE LEARNERS' PERCEPTIONS SURVEY SCORES BY DOMAINS COMPARING VETERANS AFFAIRS (VA), UNIVERSITY, AND COUNTY LOMA LINDA INTERNAL MEDICINE RESIDENT CONTINUITY CLINICS															
Domain	Domain Score ^a			VA Versus University			University Versus County								
				Unadjusted Differences			Adjusted Differences ^b			Unadjusted Differences				Adjusted Differences	
	VA	University	County	Difference in Standard Deviates	t Test	P Value	Difference in Standard Deviates	Wald Test	P Value	Difference in Standard Deviates	t Test	P Value	Difference in Standard Deviates	Wald Test	P Value
Clinical environment	44.71	36.68	32.82	0.89	3.95	< .001	0.76	11.14	.001	0.43	1.34	.19	0.39	3.51	.06
Learning environment	42.80	36.70	36.52	0.79	2.81	.008	0.76	5.99	.01	0.02	0.71	.94	0.04	0.03	.87
Physical environment	45.71	41.90	36.81	0.51	2.15	.38	0.42	9.30	.02	0.68	2.12	.04	0.69	11.06	.001
Work environment	44.87	38.30	33.41	0.78	3.11	.004	0.71	20.39	< .001	0.58	1.9	.07	0.60	8.51	.004
Personal experiences	45.51	38.38	38.89	0.87	3.45	.02	0.78	12.59	< .001	0.06	−0.19	.85	0.06	0.06	.80
Clinical faculty preceptors	44.68	39.09	39.46	0.69	2.41	< .001	0.70	4.69	.03	0.04	−0.12	.90	0.09	0.09	.76
Patient- and family-centered care	41.47	32.58	35.11	1.04	4.29	< .001	1.20	22.17	< .001	0.30	−0.95	.35	0.39	2.59	.11

^a Domain scores are calculated by taking the mean across all elements in the domain and multiplying by 10.
^b Adjusted differences were calculated using generalized linear models that included an instrumental variable to account for other factors confounding the residents' perceptions that was determined by taking the mean of the elements (parking, convenience of the location of the facility, and patient record system) across all respondents from each facility and subtracting the facility mean from the resident's actual responses. Scores were also adjusted for the mix of patients seen and residents' year of training.

TABLE 2 PRIMARY CARE LEARNERS' PERCEPTIONS SURVEY SCORES BY DOMAINS COMPARING VETERANS AFFAIRS (VA), UNIVERSITY, AND COUNTY LOMA LINDA UNIVERSITY MEDICAL CENTER INTERNAL MEDICINE RESIDENT CONTINUITY CLINICS

	VA Versus University			University Versus County		
	Odds Ratio ^a	Wald	P Value	Odds Ratio	Wald	P Value
Overall clinical environment	0.03	8.576	.003	1.61	0.374	.54
Overall learning environment	0.03	5.725	.02	0.43	0.155	.69
Overall physical environment	0.12	6.369	.01	0.47	0.745	.39
Overall working environment	0.08	6.218	.01	0.25	2.467	.12
Overall personal experience	0.03	10.690	.001	2.73	1.996	.16
Overall clinical faculty/preceptor	0.16	2.118	.15	1.62	0.550	.46
Overall patient- and family-centered care	0.02	10.194	.001	1.91	0.778	.38
Value rating of primary experience	0.10	4.043	.04	1.1773	0.935	.33

^a Odds ratios were calculated to describe the probability that the respondent would score the university versus the VA or the county versus the university 1 rating higher on the Likert-type scale. Unadjusted differences were evaluated using *t* tests. All values reflect adjusted differences calculated using generalized linear models that included an instrumental variable to account for other factors confounding the residents' perceptions and were determined by taking the mean of the elements (parking, convenience of the location of the facility, and patient record system) across all respondents from each facility and subtracting the facility mean from the residents' actual responses. Scores are also adjusted for the mix of patients seen and the residents' year of training.

with the university, including use of technology to communicate with patients. Residents at the VALLHCS were also more satisfied with the ability to identify chronic disease patient cohorts needing additional interventions and to follow a patient panel longitudinally. However, no statistical difference was found between the VALLHCS and

the university or between the university and the county in interprofessional, collaborative team care.

Residents valued VALLHCS PC training more highly than university training, but no differences were noted between the university and the county (TABLE 2). All domains contributed to residents' rating of their PC experience value, but the clinical/faculty preceptors had the greatest effect (TABLE 3).

TABLE 3 PRIMARY CARE LEARNERS' PERCEPTIONS SURVEY DOMAIN SCORES CONTRIBUTION TO RESIDENTS' VALUATION OF THEIR LOMA LINDA INTERNAL MEDICINE RESIDENT CONTINUITY CLINICS

	Odds Ratio ^a	Wald	P Value
Clinical faculty preceptors	1.534	21.422	< .001
Physical environment	1.285	11.990	< .001
Learning environment	1.276	12.491	< .001
Work environment	1.247	8.924	.003
Personal experience	1.240	11.682	.001
Clinical environment	1.181	8.279	.004
Patient- and family-centered care	1.082	4.730	.03

^a Odds ratios describe the probability of the odds of the domain contributing to the residents' valuation of their primary care clinic.

Discussion

We found that the LPS-PC discriminated characteristics of PC education between sites in a residency program. Consistent with our expectations, the largest difference in domain scores was the patient- and family-centered care domain, in which the VALLHCS was rated much higher. These differences are consistent with the anecdotal observations of this program's residents regarding the VALLHCS as well as that of residents at other VA locations.²⁹ This finding is also corroborated by a national study of IM continuity care clinics, which demonstrated that VA clinics are more prepared to provide patient-centered care.³⁰ Therefore, the LPS-PC may be valuable in assessing and comparing patient-centered care in IM resident continuity clinics as well as in other PC training sites.

The LPS-PC may also have a role in evaluating residents' valuation of their patient-centered care experience. The data in this study are consistent with previous work that showed that valuation of continuity clinics may

be associated with preceptor characteristics and operational issues, such as nursing support and medical record systems,⁸ and that teaching quality and the learning environment contribute to satisfaction with ambulatory clinics.^{31,32} Some data indicate that teaching and implementation of a team model and patient-centered medical home in PC increases residents' satisfaction with their clinic experiences³³ and their satisfaction with caring for patients with chronic pain.³⁴ The lower valuation of patient-centered care in this study may perhaps be the result of not clearly identifying practice components as part of a patient-centered initiative. For example, although residents in this program rated VA technology much higher, collaborative interprofessional team care was not rated more highly despite the existence of PACT teams. Therefore, the survey may be useful in identifying these deficiencies in patient-centered care implementation and education. Further studies are needed to determine residents' perceptions of the contribution of patient-centered care concepts in their valuation of and satisfaction with PC training.

In contrast to these data, previous work comparing resident satisfaction with the affiliated hospitals in this study's local graduate medical education system generally showed higher satisfaction with the university.³⁵ Unlike the present study, faculty were rated similarly across affiliated hospitals. In addition, clinical services such as nursing, availability and timeliness of laboratory and imaging results, and social work and case management were rated lowest in the VALLHCS, although it did show improvements over time. These differences in institutional resources and priorities underscore the value of benchmarking training sites to identify relative areas of strength and weakness that can potentially inform curricular development and identify areas for improvement.³⁵

Our study has limitations. First, the study was limited to 1 institution and 1 academic year, and the sample size was small, thus the findings may not be generalizable. Second, the LPS-PC data were not compared to other tools used to assess patient-centered care implementation.

Conclusion

The LPS-PC is a tool that can be used to assess residents' perceptions of their PC education and the patient-centered care environment. The largest difference in domain scores was the patient- and family-centered care domain, in which the VALLHCS was rated much higher than the university or county sites. As patient-centered concepts and their measurement continue to evolve,³⁶ future research should focus on comparing trainees' perceptions of patient-centeredness to other tools used to assess its implementation. Future studies are needed to evaluate perceptions over time,

compare the LPS-PC to other measures of patient-centered care, and assess residents' valuation of patient-centered care in PC education.

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