

ORIGINAL ARTICLES

Experiences and Attitudes of Residents and Students Influence Voluntary Service with Homeless Populations

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OBJECTIVE: To assess the impact of two programs at the University of Pittsburgh, one that requires and one that encourages volunteer activity. In the program that requires primary care interns to spend 15 hours in a homeless clinic, we measured volunteer service after the requirement was fulfilled. In the program that encourages and provides the structure for first- and second-year medical students to volunteer, we assessed correlates of volunteering.

MEASUREMENTS AND MAIN RESULTS: When primary care interns were required to spend time at homeless clinics, all (13/13) volunteered to work at the same clinic in subsequent years. Categorical interns without this requirement were less likely to volunteer (24/51; $\chi^2 = 12.7$, $p > .001$). Medical students who volunteered were more likely to be first-year students, have previously volunteered in a similar setting, have positive attitudes toward caring for indigent patients, and have fewer factors that discouraged them from volunteering ($p < .01$ for all) than students who did not volunteer.

CONCLUSIONS: Volunteering with underserved communities during medical school and residency is influenced by previous experiences and, among medical students, year in school. Medical schools and residency programs have the opportunity to promote volunteerism and social responsibility through mentoring and curricular initiatives.

KEY WORDS: medical education; residency training; service learning; indigent; underserved health care.

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The role of medical education in forging attitudes and career aspirations demands a broadened mission of the academic medical center. The implicit assumption that academic centers are training physicians to be socially responsive has been questioned, with several authors noting

increasing cynicism as students progress through their medical school training.¹⁻⁴ This sentiment appears to extend to practice. Doblin et al. noted that “biases of physicians” and “work not respected by peers” were two of the four most commonly cited reasons for difficulties recruiting physicians to work in homeless clinics funded by the McKinney Act.⁵ Service-learning programs integrated into physician training and education programs are one method of providing positive experiences with underserved populations (National and Community Service Trust Act, 1990 amended [42 USC. §12501 et seq]).

The goal of service learning is to provide a meaningful, hands-on learning experience while serving the needs of the community. It is both different from and more encompassing than either a volunteer experience in a community setting or a didactic course on community health taught in the classroom. There are three fundamental tenets of service learning. First, there must be direct, hands-on experience in a community setting using skills commensurate with the students' level of education and training. Second, the service must meet a community-identified and directed need. Finally, there must be a formal learning component to the experience that meets educational objectives and allows the student to reflect on the service with the assistance of faculty and community mentors.

Since 1993 the University of Pittsburgh's Program for Health Care to Underserved Populations has coordinated a service-learning program with the Salvation Army for health professional students and internal medicine residents. As part of this program, primary care interns in the first postgraduate year (PGY1) are required to spend 15 hours at a health care clinic for homeless adults during their ambulatory care rotation. At the same clinics, the university's medical students volunteer in a variety of capacities throughout their 4-year curriculum. First-year and second-year medical students conduct structured patient admission and history-taking sessions and give health education talks. Third-year students participate in the physical examination and treatment, while fourth-year students work as “acting interns” at the clinics and on a public health project. Full-time academic medical center physicians volunteer at the clinics as preceptors on evenings and weekends along with internal medicine residents in the second and third postgraduate years (PGY2

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and PGY3). Aside from the mandatory rotations, all staffing is voluntary, with no scheduling allowances or financial compensation provided. In this article we report outcome data on the impact of a required homeless clinic rotation for primary care interns on their future behavior as residents, and on correlates of volunteerism among pre-clinical medical students.

METHODS

Impact of Service Learning on Resident Volunteerism

Volunteering among primary care and categorical residents during PGY2 or PGY3 was measured in five residency classes (classes 1994–1998) over 4 1/2 years (from February 1993 to October 1996). For primary care residents, the mandatory PGY1 homeless clinic rotation affected the classes of 1997 and 1998. For categorical residents, there were no mandatory requirements during this study period. Rates of volunteerism among PGY2 and PGY3 primary care residents were compared with rates prior to instituting the mandatory rotation and with rates among categorical residents not exposed to the PGY1 rotation.

Medical Student Attitudes

Medical students at the University of Pittsburgh are encouraged to volunteer in structured, community-based activities coordinated by various student organizations. Correlates of volunteering were assessed with a questionnaire that was mailed to all first-year and second-year students in the spring of 1996. Coordinators for each program confirmed volunteerism.

The survey contained questions about demographics, past and current volunteering, future career plans, and ratings of 26 attitude statements about caring for indigent patients and 15 factors that could encourage or discourage students from volunteering. Attitude questions and potential encouraging/discouraging factors were derived from focus group discussions with previous participants and from the literature.^{6,7} All attitudes and encouraging/discouraging factors were rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree; or 1 = strongly discouraged, 5 = strongly encouraged). Responses to the

attitudinal questions were analyzed individually and aggregated into summary scores based on principal components extraction. Two scores (encouraging and discouraging) were created for each student for each influencing item. Encouraging scores were created by assigning a "1" if the student responded strongly or somewhat encouraged and a "0" otherwise. Discouraging scores were created by assigning a "1" if the student responded strongly or somewhat discouraged and a "0" otherwise. Then, the sum of the number of encouragers and number of discouragers was counted for each respondent.

Pearson χ^2 and student's *t* tests were used to identify significant correlates of volunteering. Multivariate logistic regression analysis was used to identify significant independent correlates of volunteering. Independent variables included in the modeling were race, year in school, gender, previous volunteering experience, projected debt burden, the summary attitude measures, and the sum of encourager and discourager influencing factors. The dependent variable was current volunteering.

RESULTS

Impact of Service Learning on Resident Volunteerism

A total of 160 internal medicine residents were followed and categorized by having ever volunteered at the homeless clinic during PGY2 or PGY3. Of the 160, 114 (71.3%) were male and 30 (18.8%) were in the primary care track. During the 5-year period, 81 (50.6%) of the residents volunteered to work at the clinics. As shown in Table 1, prior to implementing the mandatory rotation for primary care PGY1 (July 1994), equivalent percentages of primary care and categorical PGY2 and PGY3 residents volunteered (41.2% vs 48.1%; $\chi^2 = 0.2$, $p < .4$). After the mandatory rotation was instituted in primary care PGY1, there was a significant increase in future volunteerism among primary care residents (41.2% vs 100%; $\chi^2 = 11.5$, $p = .001$) and more volunteerism by primary care residents than categorical residents (100% vs 45.1%; $\chi^2 = 12.7$, $p < .0001$). There were no significant differences in gender or race between volunteers and nonvolunteers.

Table 1. Volunteer Status of PGY2 and PGY3 Residents in the General Medicine Residency Training Program at the University of Pittsburgh Before and After Mandatory Rotations for Primary Care PGY1 Residents

Track	Before Mandatory Rotation, n				After Mandatory Rotation, n		
	1991/1994*	1992/1995*	1993/1996*	Total (%)	1994/1997*	1995/1998*	Total (%)
Primary care	8	5	4	17	7	6	13
Volunteers	3	3	1	7 (41.2)	7	6	13 (100)
Categorical	31	24	24	79	27	24	51
Volunteers	15	12	11	38 (48.1)	11	12	24 (47.1)

*Year residents started/year residency completed.

Medical Student Attitudes

Based on data from the Office of Student Affairs, 82 (56.2%) of the 146 first-year students volunteered and 100 (68.5%) completed the questionnaire. In the second-year class of 136 students, 62 (45.6%) volunteered and 110 (80.9%) returned the questionnaire. Second-year students were more likely to respond to the survey ($\chi^2 = 5.68$, $p = .017$) but less likely to volunteer ($\chi^2 = 3.15$, $p = .08$). There was no difference in gender, race, or volunteer status between respondents and nonrespondents to the survey. Participation in the volunteer program was more common in women (53.5%) than men (46.5%) ($\chi^2 = 5.83$, $p = .02$). Students volunteered at a number of sites: 114 (79.2%) of the 144 volunteers contributed time at the homeless clinics, 33 (22.9%) worked with a homeless street outreach team, 13 (9.0%) with a pregnant adolescent support program, 8 (5.6%) in a health clinic at a juvenile detention center, and 7 (4.9%) at other sites.

Of the 210 students who completed the survey, second-year students were somewhat less likely to volunteer (46.9% vs 53.1%, $\chi^2 = 2.94$, $p = .09$). Race, age, marital status, projected debt burden, and plans to be a primary care physician were not associated with volunteering. Women were more likely to volunteer than men (52.2% vs 47.8%, $\chi^2 = 5.49$, $p = .02$). Previous volunteer experience was not related to current participation unless the specific type and place of past volunteering was considered. As displayed in Table 2, only previous experience with an urban Indian Health Service or with providing direct medical care to an indigent population was associated with current volunteering.

The principal components analysis of the 26 attitude items (Table 2) extracted 4 components that accounted for 43% of the variance. Overall, there were seven individual items that differentiated volunteers from nonvolunteers with ($p < .05$). Of these, six fell on the first principal component, and one fell in the final component. Only the factor score from the first component, which we named *positive attitudes for caring for indigent patients*, was significantly associated with volunteering. For ease of interpretation a summary measure of the score on this first factor was generated by summing the responses to the 12 attitude ratings on this component (coefficient $\alpha = 0.84$) and subtracting 36 (to make a neutral score = 0). The potential range of scores was -24 through +24 with -24 being the least positive attitude. The observed range was -13 through +23 with mean = 9.3, SD = 6.8. The mean of the volunteering students was higher (11.1) than that of nonvolunteering students (7.2, $t = 4.35$, $p < .001$).

Only one encouraging factor (role models in the health profession) differentiated volunteers (52%) from nonvolunteers (37.1%). Also, the number of encouraging factors did not differentiate the volunteers from the nonvolunteers. Six discouraging factors differentiated the two groups (Table 3). Univariate analyses indicated that students with five or more discouraging factors ($n = 75$) were

less likely to volunteer than students with no discouraging factors ($n = 39$) or one to four discouraging factors ($n = 96$) (33% vs 59% vs 68%, $\chi^2 = 20.5$, $p < .001$).

Multivariate logistic regression analysis of current volunteering indicated that previous direct service with an urban Indian Health Service (odds ratio [OR] 3.1; 95% confidence interval [CI] 1.6, 6.2), first year in medical school (OR 2.5; 95% CI 1.3, 4.9), and the summary measure of "positive attitudes for caring for indigent patients" (1.05 [per scale point]; 95% CI 1.00, 1.11) were associated with more volunteering. Having five or more discouraging factors was associated with less volunteering (OR 0.26; 95% CI 0.1, 0.7). Gender was not significantly related to volunteering when the attitude measure was included in the model.

DISCUSSION

Volunteer service with a homeless population is influenced by the education and training we provide. Among residents, participation in a structured, direct care experience with homeless patients was associated with increased subsequent volunteerism. Among medical students, voluntary participation was associated with year in school, the type of previous volunteer activity, fewer discouraging factors, and positive attitudes toward caring for the indigent.

The findings from the medical residency intervention demonstrate that a required, structured rotation with a homeless population can result in sustained volunteerism in this capacity. We assume that a positive experience and readily available opportunities for volunteering are critical in subsequent volunteering. The socialization process that this rotation provides may help dismantle preconceived stereotypes and fears that may have existed about the patients being served. We do not have data on whether there is a carryover to subsequent volunteerism with other special-need communities or in other settings, or if the experience has an impact on postresidency practice characteristics. Previous research has shown the benefits of such curricular efforts in enhancing attitudes and perceptions.^{8,9} However, this is the first report to our knowledge of an impact on volunteerism. Given the challenges compounded by the maldistribution of physicians away from underserved areas,¹⁰ and the difficulties of recruiting physicians to McKinney Act Clinics,⁵ these findings suggest a useful strategy for training physicians who will be receptive to providing care to underserved and disadvantaged populations.

Consistent with previous research reporting that being in the first year of medical school was associated with more altruistic attitudes,⁷ our data also associate year in school with volunteerism (notably, the relation for gender did not hold up in the multivariate analyses.) How much the increased volunteerism among first-year students is a reflection of a desire to find a balance to the academic course work or more free time available for volunteering is unclear from our results. Our finding that the type and

Table 2. Description of Medical Student Population (Survey Respondents)

Survey Questions	Volunteer (n = 113), n (%)	Nonvolunteers (n = 97), n (%)	χ^2 Test*	p Value
Place and/or type of previous volunteer experience				
Indian urban health service	55 (48.7)	25 (25.8)	—	.00
Indigent medical care	47 (41.6)	21 (21.6)	—	.00
Food pantry/soup kitchen	37 (32.7)	23 (23.7)	—	.15
Fundraising and clothing drives	27 (23.9)	22 (22.7)	—	.53
Educational programs	29 (25.7)	16 (16.5)	—	.11
Visiting the homebound	22 (19.5)	13 (13.4)	—	.23
Building/renovating housing	18 (15.9)	10 (10.3)	—	.24
Indian rural health service	8 (7.1)	9 (9.3)	—	.60
Positive attitudes about caring for indigent patients [†]				
Medical education should include exposure to indigent patient care.	105 (92.9)	79 (81.4)	6.34	.01
Physicians working with the indigent tend to be less competent than physicians elsewhere. [‡]	3 (2.7)	6 (6.2)	1.59	.21
Indigent patients should expect to receive quality health care.	94 (83.2)	72 (74.2)	2.53	.11
I would like to work with indigent patients in my medical career.	80 (70.8)	44 (45.4)	13.97	.00
Working with indigent patients offers as much intellectual stimulation as other practice opportunities.	86 (76.1)	54 (55.7)	9.81	.00
Medical care is a right.	75 (66.4)	53 (54.6)	3.02	.08
Medical care is a privilege. [‡]	11 (9.7)	24 (24.7)	8.45	.00
All physicians should regularly devote some time to the underserved.	73 (64.6)	47 (48.5)	5.56	.02
More people would be interested in working with indigent patients if they knew these people better.	64 (56.6)	54 (55.7)	0.02	.89
I feel personally responsible for providing care for the indigent.	70 (61.9)	32 (33.0)	17.52	.00
I do not have enough exposure to indigent care in my medical training.	50 (44.2)	33 (34.0)	2.28	.13
I feel I can make a difference in my patients' lives.	105 (92.9)	94 (96.9)	1.67	.20
Negative attitudes about indigent patients				
Working with indigent patients is not very satisfying. [‡]	6 (5.3)	6 (6.2)	0.07	.79
Indigent patients consume an unnecessary excess of resources. [‡]	6 (5.3)	11 (11.3)	2.55	.11
Indigent patients are more demanding. [‡]	15 (13.3)	7 (7.2)	2.04	.15
I have less sympathy for patients whose medical problems are related to drugs, tobacco or alcohol. [‡]	33 (29.2)	39 (40.2)	2.80	.09
Indigent patients get sick more often because they don't take care of themselves. [‡]	44 (38.9)	39 (40.2)	0.04	.85
Consequences of working with indigent patients				
Working with an indigent population is incompatible with a successful family life. [‡]	1 (0.9)	3 (3.1)	1.36	.24
Doctors working with indigent patients are more altruistic than others.	49 (43.4)	54 (55.7)	3.16	.08
I would like to work with indigent patients but not in the inner city. [‡]	22 (19.5)	25 (25.8)	1.19	.28
Indigent patients are more appreciative of their doctor's efforts.	21 (18.6)	24 (24.7)	1.18	.28
Miscellaneous items				
Indigent patients have as much access to health care as nonindigent patients. [‡]	7 (6.2)	10 (10.3)	1.19	.28
In general, it is more difficult to get specialist consultation and services for indigent patients. [‡]	77 (68.1)	79 (81.4)	4.84	.03
Doctors working with indigent patients are more likely to be sued. [‡]	1 (0.9)	1 (1.0)	0.01	.91
Doctors working with indigent patients earn much less than other doctors. [‡]	66 (58.4)	62 (63.9)	0.67	.41
Indigent patients follow physician's recommendations and treatment the same as those in other populations.	17 (15.0)	10 (10.3)	1.04	.31

* χ^2 statistic and associated p value for linear test for trend across 5-point Likert scale of agreement for students who volunteered to work with the indigent during the first two years of medical school versus those who did not.

[†]Proportion of students who returned the survey and responded strongly agree/agree.

[‡]This item was reverse scored in the total attitude summary score.

Table 3. Influential Factors in the Medical Student's Decision to Volunteer

Factors in Decision to Volunteer	Volunteer* (n = 113), n (%)	Nonvolunteer* (n = 97), n (%)	χ^2 Test [†]	p Value
Sense of professional responsibility	0 (0.0)	1 (1.0)	1.17	.28
Religious reasons	0 (0.0)	0 (0.0)	—	—
Political climate	6 (5.3)	12 (12.4)	3.32	.07
Family influence	9 (8.0)	8 (8.2)	0.01	.94
Significant other's influence	7 (6.2)	4 (4.1)	0.45	.50
Patient population	14 (12.4)	28 (28.9)	8.86	.00
Location of indigent population	32 (28.3)	42 (43.3)	5.13	.02
Your community of origin's influence	3 (2.7)	19 (19.6)	15.96	.00
Previous experience with the indigent	4 (3.5)	11 (11.3)	4.79	.03
Working conditions	49 (43.4)	59 (60.8)	6.37	.01
Role models in the health profession	8 (7.1)	11 (11.3)	1.15	.28
Perceived degree of professional respect	27 (23.9)	35 (36.1)	3.73	.05
Educational debt	49 (43.4)	52 (53.6)	2.20	.14
Availability of resources	53 (46.9)	55 (56.7)	2.01	.16
Desired income	44 (38.9)	46 (47.4)	1.54	.22

*Proportion of students responding strongly/somewhat discouraged.

[†] χ^2 statistic and associated p value for linear test for trend across 5-point Likert scale of agreement for students who volunteered to work with the indigent during the first two years of medical school versus those who did not.

quality of previous volunteer experiences are associated with volunteering is noteworthy. As more schools place a service requirement on graduation and medical schools prioritize volunteerism and community service as entry criteria, it may be important to distinguish the type and relative quality of that experience if we are to expect it to influence future behavior.

As Flexner noted at the turn of the century, "medical education is not just a program for building knowledge and skills in its recipients . . . it is also an experience which creates attitudes and expectations."¹¹ Attitudes, perceptions, and future plans among medical students are fluid and pliable and directly influenced by the academic experience.¹²⁻¹⁴ The use of academic faculty as preceptors in our clinics reinforces the value and viability of professional volunteerism in the context of other demanding professional constraints. The preceptors are all full-time faculty members at the University of Pittsburgh and most are on a tenure track and have significant research and clinical responsibilities. Most of them balance their volunteering with families. The students who actively volunteer are exposed to these role models who are able to balance successful careers and a family life with volunteer activities within the community.

There are several limitations to our findings. Participants in the intern service-learning experience were not randomly assigned. It is possible that intrinsic differences between primary care and categorical residents account for the different PGY2 and PGY3 volunteer rates. However, we are encouraged that this potential bias is minimal because volunteerism among primary care residents after the PGY1 rotation exceeded volunteerism among primary care residents before the service-learning experience was instituted. Among medical residents it is unclear whether

this willingness to volunteer extends beyond residency training, when financial and time constraints may be less, but personal commitments greater. Longitudinal tracking of this cohort is needed to assess the nature and sustainability of this association. For medical students, the survey responses are self-reports of current beliefs and behaviors. We need to follow this cohort of students to see if future volunteering is also associated with these responses. Despite these limitations, our findings demonstrate that early experiences during medical school and residency present a significant opportunity to instill social responsibility and sustained volunteerism in future physicians.

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