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## Location Decisions of National Health Service Corps Physicians

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**Abstract:** Results of a survey of 100 National Health Service Corps (NHSC) physicians in 10 east coast states (94 per cent response rate) indicate that 56 have plans to locate in a rural area after their service obligation is complete and 15 have not yet decided. Those who decide for a rural practice value personal and community factors to a higher degree than professional factors and are more likely to have a primary care practice. (*Am J Public Health* 1983; 73:906-908.)

### Introduction

It is well known that rural areas are medically underserved: they have a physician population ratio of only 64/100,000 compared with 156/100,000 in urban areas. This maldistribution problem has resisted all four major types of federal programs,<sup>1</sup> as well as medical school based programs.<sup>2</sup>

Two possible explanations for this failure involve both the beginning and the end of the programs. They may be based on the wrong assumptions about why physicians choose to settle in urban areas. Lists of important location factors have been generated by numerous studies.<sup>3-13</sup> The results of all these studies suggest that when professional factors are weighted more heavily in a physician's mind, he/she is more likely to want to practice in a relatively narrow specialty in an urban location; and when community and personal factors are given more weight, the physician tends to be more likely to want to practice in a rural area, and to be involved in a primary care practice setting.

The second explanation for failure of the programs concerns the location decisions of the recipients of the public and private programs. Except for a few long-term follow-up of some medical school programs, no effort has been made to analyze their location decisions.

This paper addresses both of these gaps by testing the integrity of the interpretation of important factors identified in the literature that are said to predict physician location choice, using a group of respondents that are serving in the National Health Service Corps (NHSC) on the east coast.

### Methods

All 106 NHSC physicians in the New England states, New York, Pennsylvania, Maryland, and Virginia were included in the sample. This is 15 per cent of the total number of rural NHSC physicians.

These physicians were sent a mailed questionnaire using a data collection instrument based on that of Heald and Cooper.<sup>14</sup> The following four areas of information were included: demographic information, factors predicting locational decision, career plans, and open-ended comments on the NHSC program itself.

### Results

A response rate of 94 per cent to the mailed questionnaire resulted in 100 completed questionnaires.\*

The two most significant variables affecting location choice were medical specialty and place of upbringing. Not surprisingly, physicians who intended to do primary care were very likely to indicate a preference for a rural setting. Physicians who were originally from rural areas were also more inclined to start a rural practice (76 per cent versus 47 per cent of those from urban areas).

Table 1 shows responses to questions about the 26 factors thought to be important in physicians selecting a practice location. Of these factors, 12 were cited significantly more often as influencing decisions to practice in an urban area; major influences included opportunity for social life, cultural advantages, access to continuing education, and opportunities for regular contact with other physicians.

Nine factors were cited significantly more often as influencing decisions to practice in rural areas; major influences included being more influential in the community, having a high medical need in the community, climate and/or geographic features, preference for a rural life-style, recreational possibilities, and having been brought up in a rural area.

There were five factors that have been noted previously as influencing decisions, but which could not be substantiated as important from our data: availability of loans for beginning practice; influence of spouse; influence of family and friends; advice of older physician; and prosperity of community.

When the 26 factors are grouped into the three main categories of personal, community, and professional factors, analysis reveals that the model drawn from the literature is generally appropriate for this sample. Physicians are more inclined to choose rural practice because of personal factors than professional factors; although community factors are

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\*The six non-respondents were from New Hampshire, New York (one each); and Pennsylvania and Maryland (two each).

**TABLE 1—Summary of Responses on Factors Related to Current Intentions about Location of Medical Practice**

Factor	Frequency Cited as Influence		Frequency Cited as Major Influence	
	Urban	Rural	Urban	Rural
	Prospect of being more influential in community affairs	1	43*	0
High medical need in area	5	46*	1	19*
Climate or geographical features of area	5	60*	0	22
Influence of preceptorship program	2	11*	0	1
Preference for urban or rural living	19	57*	3	35*
Recreational and sports facilities	17	41*	2	11
Organized effort of community to recruit physicians	1	19*	0	2
Availability of loans for beginning practice	9	0	0	2
Influence of spouse	23	25	11	21
Influence of family or friends	14	16	1	3
Having been brought up in such a community	12	16	1	9*
Forgiveness of a prior educational loan in exchange for service	3	11	0	1
Quality of educational system for children	45*	11	3	4
Availability of good social service, welfare, or home care services	27*	6	0	0
Opportunities for regular contact with a medical school or medical center	59*	8	3	4
Income potential	21*	4	2	3
Opportunities for social life	48*	7	11*	2
Availability of clinical support facilities and personnel	48*	6	5	3
Opportunity to join partnership or group practice	21*	8	3	0
Opportunity to work with specific institution	20*	4	2	2
Cultural advantages	51*	3	13	2
Having gone through medical school or a residency in the area	21	5	2	1
Access to continuing education	46*	4	7*	1
Opportunity for regular contact with other physicians	43*	4	8*	0
Advice of older physician	6	3	0	0
Prosperity of community	13	7	0	1

\*Differences are statistically significant at .05 level.

slightly less important than had been anticipated to those intending to locate in a rural area. Physicians intending to practice in an urban area are closer to the model: they were more likely to select professional and community factors than personal factors as being important.

As can be seen in Table 2, 56 of the 100 respondents expressed intention to locate in a rural area, with 15 respondents ambivalent. Among those ambivalent physicians, the most important factor contributing to their decisions to locate in a rural area was a high medical need, followed by availability of recreational facilities. The most important factor for the ambivalent group to decide to locate in an urban area was access to continuing education and the potential for a large income. More respondents who joined NHSC voluntarily intend to locate in a rural area than respondents fulfilling an obligation.

**TABLE 2—Present Status in the NHSC by Intention to Locate Practice**

Status in NHSC	Location Intention			
	Rural	Urban	Ambivalent	No Response
Presently completing NHSC obligation	28	20	9	2
Have completed obligation and extended NHSC service	4	0	2	1
Joined NHSC independently	23	6	4	0
Other	1	0	0	0
Total	56	26	15	3

$\chi^2 = 9.16, 9 \text{ DF}; p = .42.$

### Discussion

The extremely high response rate (94 per cent) to this mailed survey reflects the sample's interest in the topic and the program.

Our results cannot be generalized: the sample involved NHSC physicians in 10 east coast states, and there are significant regional variations between states. Moreover, we possess data only on expressed intention, not on actual location after completing NHSC obligations.

Physicians inclined to practice in a rural area appear to be motivated by the qualities of rural life, including the prospect of serving a high medical need in an area. They tend to rate personal factors more highly and professional factors less highly. Physicians inclined to an urban practice are motivated by professional needs such as access to continuing education and the availability of clinical support facilities.

We do not know whether involvement in the NHSC program has influenced the responses we analyzed. The numerous open-ended responses suggest that there has been some impact.<sup>15</sup> An evaluation of the impact of NHSC on those who serve in it is important, since maldistribution remains an important problem in the health care field, and it is critical to have our increasingly-finite dollars spent on programs with the greatest probability of success. Such an evaluation should be longitudinal in nature. If the responses of this study group are any indication, the level of interest is very high and the results will provide information which could make the NHSC more effective.

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## Employment, Sense of Well-Being, and Use of Professional Services among Women

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**Abstract:** Utilizing data from the National Health and Nutrition Examination Survey of 1971-1975 (NHANES I), comparisons were made of general well-being scores and utilization of professional services between employed and non-employed women. Employed women tend to have a higher sense of well-being and utilize fewer professional services to cope with personal and mental health problems than their non-employed counterparts. This tendency is more pronounced among non-married and less-educated women, with an indication of a counter-tendency among college-educated non-White women. (*Am J Public Health* 1983; 73:908-911.)

### Introduction

In recent years, considerable attention has been given to women's changing work role and health status;<sup>1-5</sup> nevertheless, evidence for the impact of employment on women's health is uneven. In general, the employed seem to enjoy better mental health than the nonemployed,<sup>5-7</sup> yet the workplace and home may pose conflicting demands and expectations.<sup>8-11</sup> Many previous studies have been restricted to small samples of select persons in certain areas and offer limited generalizability to heterogeneous populations and varying circumstances. The purpose of this study, based on a national probability sample, is to determine the net effect of women's employment on their sense of well-being and utilization of professional services.

### Methods

Data were obtained from the first National Health and Nutrition Examination Survey of 1971-1975 (NHANES I).

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This survey was conducted by the National Center for Health Statistics (NCHS) on a nationwide probability sample of persons aged 1-74, based on a multi-state, stratified sample of loose clusters of persons in land-based segments (a cluster of households).<sup>12</sup>

The General Well-Being schedule (GWB) was administered to a subsample of adults aged 25-74 (6,913) in the NHANES I in order to provide a complete assessment of the health and mental well-being of the adult population. The GWB schedule consists of 18 items and produces six subscales.\* The total GWB score ranging from 0 to 110 is obtained by summing the six subscale scores.

Comparisons are made with respect to GWB scores, prevalence of personal and mental problems, and utilization of professional services between those women who were gainfully employed and those who were not employed. Analysis was limited to 3,012 women aged 25 to 64, selected from the NHANES I subsample. General characteristics of the study sample are presented in Table 1. The analysis properly incorporated sample weights in such a way that the overall sample size is preserved to compute reasonable chi-square statistics. The chi-square statistics were presented as a guide to assess the general strength of association. Due to the complexity and prohibitively expensive computing cost, design effects were not taken into account in computing the test statistics. It is known that design effect in a chi-square test for association is less than that in sample variance of population estimates.<sup>18</sup> Nevertheless, the failure to take into account design effects may have over-estimated chi-square values by a different magnitude.

\*This includes: 1) freedom from health worry [scale of 0 to 15]; 2) satisfying and interesting life [0 to 10]; 3) energy level [0 to 20]; 4) cheerful versus depressed mood [0 to 25]; 5) relaxed versus tense and anxious mood [0 to 25]; and 6) emotional and behavioral control [0 to 15]. The internal consistency coefficient for the items was .93, and the test-retest with three-month separation produced a reliability coefficient of .80.<sup>13</sup> Correlations of the GWB with other mental health instruments range from .5 to .7, and in two validation studies the GWB discriminated mental health patients from population samples with correlation coefficients of .43 and .56.<sup>14</sup> Also, GWB and related scales have been meaningfully used in several studies.<sup>15-17</sup>