

Project Talent: Nursing



Dr. Ronald Cossman
Dr. Jeralynn Cossman

Philip Mason
Katherine Harney

ABSTRACT

Affinity for place is a key component to individual migration decision-making. Recruitment to rural places is based, in part, on the assumption that individuals raised in a rural area have an affinity for rural places and are therefore more likely to return to their hometown or a similar rural area. We tested that affinity hypothesis in a pilot survey (N=1008) of nursing students in Mississippi. We asked “Assuming that a suitable job opportunity (for example, salary, specialty area, etc.) was available, where would you want to work in Mississippi when you graduate?” Fully 90% said they would be willing to work in Mississippi upon graduation, assuming an appropriate job was available. We then matched responses with birthplace and high school (i.e., direct city-to-city matches). We also coded the respondents’ cities via the rural-urban continuum county code and calculated correlations to similarly-sized communities. Using a weighted average, of all respondents, more than half (59%) across all categories of birthplace chose a practice location in a county of similar size to the county in which they were. This is consistent with similar research by Costa, Schrop, McCord and Gillanders (1996), in which approximately half of family practice physicians wanted to establish their practice in a community similar to the one in which they were raised. While a majority (54%) stated a preference for large (250,000 or more residents) counties, only 2% of all respondents chose rural counties (<2,500 residents) and only 30% chose to relocate to small (2,500 – 19,999 residents) counties. To obtain more nuanced results the responses were divided by the four county size categories for birthplace, all respondents. When we matched birthplace to relocation preference, while 76% of large county natives wanted to return to large counties, only 15% of rural county natives sought to relocate to rural places. Essentially the same pattern was found when we matched by county of high school graduation. We speculate that students are self-selecting out of rural options since a majority chose a hospital as a desired working environment and of those who cited a working specialty chose ER, labor & delivery, pediatrics, critical care, surgery, OB-GYN, neonatal and ICU – specialties typically found in larger institutions. The survey results quantify the role that affinity for community and desired work specialization (as opposed to economic opportunity) plays in the migration decision and reveals whether those raised in small towns yearn to return to a small town. This research could have fundamental implications for recruitment and economic development strategies, especially in rural areas.

INTRODUCTION

Mississippi is a poor, primarily rural, state and as such faces shortages of health care professionals. Of the state's 82 counties, 78 are Health Professional Shortage Areas (HPSA) in which there is a shortage of primary care medical providers.¹ The estimated underserved population (living in HPSAs) in the state of Mississippi is 32%, almost three times the U.S. rate of 12%.² Portions of all 82 counties are listed as Medically Underserved Areas (MUA) in which residents have a shortage of personal health services.

Recruitment of nurses is a challenge in any environment. In Mississippi there is an additional challenge in recruiting to rural areas, as well as recruiting to poor communities (e.g., the Mississippi Delta). In 2009 the hospital registered nurse (RN) vacancy rate for the state of Mississippi stood at 5.0%, with sub-county health district RN vacancy rates ranging from 1-11%.³

Based on previous research, we proposed that rural natives (defined as those born and/or graduating high school in rural counties) would have a greater affinity for rural areas and thus would be more likely to choose to relocate to similarly sized counties upon graduation from nursing school. The purpose of this study was to quantify that affinity for rural places and develop a predictive model of who would choose rural places so that rural and underserved health care areas in Mississippi could more efficiently and effectively recruit nurses. An extension of our research question was designed to quantify student support for a direct job matching program between nursing graduates and employers either in their geographic location of preference and/or nursing specialty preferences.

LITERATURE REVIEW

Much of the nursing recruitment literature^{4,5} is from the perspective of the hospital,^{4,5} or specifically focuses on the hospital's recruitment interactions with prospective nurses.^{6,7,8} Less research has been done specifically on the recruitment of nurses and especially the recruitment of nurses to rural and underserved places. One study surveyed third year family practitioners and found that approximately half of the respondents desired to return and establish their practice in a small town (less than 10,000 residents), small city (10,000 – 50,000 residents) and moderate city (50,000 – 500,000 residents).⁹ Interestingly, the factor that ranked the highest was "significant other's wishes," while "initial income guarantee" ranked 8th behind such factors as "recreation/culture" and "schools for children."

Another study surveyed a wide range of health care training graduates (ranging from nurse practitioner and nurse midwife to physician) and found that a rural background, participation in a rural-based training program, desire to serve community health needs, return to hometown and financial incentives (e.g., education loan repayment) were significantly associated with a desire to establish a rural-based practice.¹⁰ However comparisons of this research to Mississippi are limited because the researchers defined "rural" as less than 50,000 residents and not part of an urban area and only 13 of Mississippi's 82 counties (16%) meet that criterion.

Another factor that adds to the complexity of recruitment and retention of nurses is that it is an expensive proposition. One study estimated the total cost to replace an RN (in a hospital setting) between \$62,100 and \$67,100 (2002 calculation).¹¹ It is reasonable to assume that recruitment to a rural or underserved location is even higher, given the difficulty of identifying and then marketing to an individual who is willing to relocate to a rural and underserved area. There is some evidence of this rural recruitment penalty. By virtue of their location in rural areas it takes 60% longer to fill nursing vacancies compared to urban counterpart facilities.¹²

SURVEY METHODOLOGY

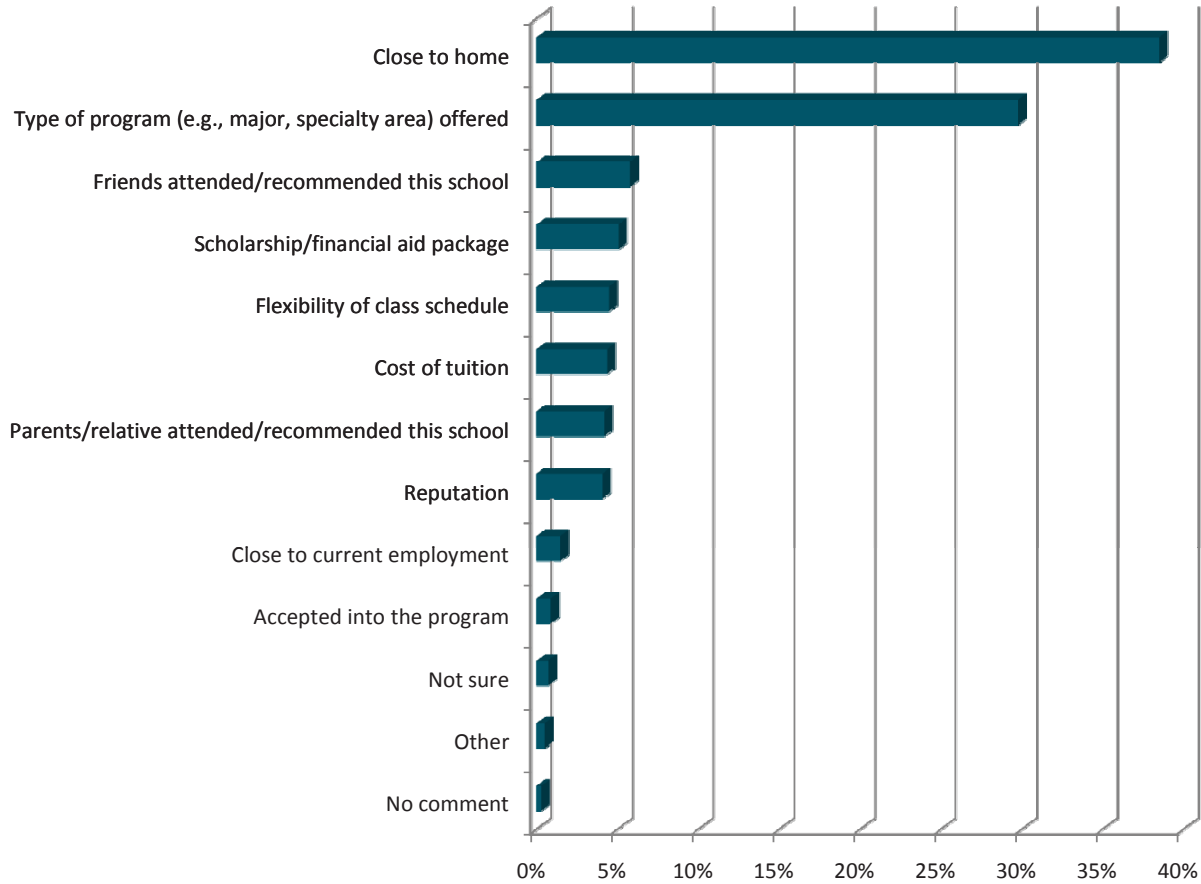
The Social Science Research Center obtained MSU human subjects protection approval and conducted a pilot on-line survey of Mississippi nursing students during the spring semester of 2010. The pilot consisted of 101 respondents. The survey was modified based on comments from respondents and administered during the fall semester of 2010. The fall nursing student survey was conducted by the Wolfgang Frese Survey Research Laboratory at the Social Science Research Center at Mississippi State University. A web based survey was posted to the Internet at the beginning of the 2010 fall semester. An open-access URL (web address) was provided to deans of nursing programs throughout the state. All 22 public and private nursing programs in Mississippi were contacted and 16 participated in the survey. The total participating population was 4,527 (fall 2010 nursing student enrollment), total responses to the survey were 1,008 and the response rate among the participating nursing student population was 22%. Response rates at participating schools ranged from 2% to 100%.

The response rates were due—at least in part—to a response incentive program aimed at the individual nursing programs the total number of respondents for the fall 2010 wave was 1,008. The cooperation rate (completed surveys versus incomplete surveys, partially completed surveys and refusals) was 86%. As such, this survey is based on a convenience sample. Individuals in various nursing school programs were not randomly sampled for participation. Thus margin of error statistics are not applicable. All questions in the survey, unless otherwise noted, provided for only one response/choice, usually in the context of most important factor. Most questions also included an option for “Not sure” and “No comment.” Finally, some questions include an option for “Other” in which case the respondent was asked to explain in a pop-up text box. In all cases we examined the “other” responses, coded them, and, if appropriate, added them to the existing response categories.

SURVEY RESPONSES

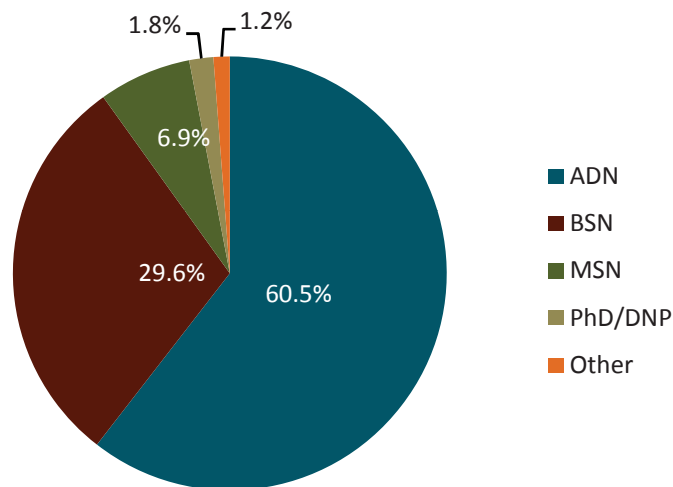
We asked “What was the single most important reason/factor for choosing their nursing program or school?” More than a third (38.5%) said that the school was *close to home*. Nearly another third (29.8%) based their decision on the *type of program (e.g., major, specialty area) offered*. Once these two choices were selected, the percentage for other reasons fell off quickly. The next most important reason was *friends attended or recommended this school*, at 5.8%. However, adding together all those categories that speak to the school’s reputation and offerings (*type of program, friends attended, parents attended, and reputation*), this category accounts for 44% of the responses. After examining the *other* response comments and recoding, the *other* category was reduced from 75 responses (7.3%) to 5 responses (0.5%). Most were added to existing categories, although two new categories were created, *reputation* (4.2%) and *accepted into the program* (0.9%). (See also Appendix Table A1: Why Did You Choose This School?)

Chart 1: Why Did You Choose This School?



The majority of respondents in the survey (60.5%) were currently enrolled in associate degree in nursing programs. Another third (29.6%) were enrolled in bachelor of sciences degree in nursing programs. The remainder of students were enrolled in masters, doctoral, other or had no comment. (See also Appendix Table A2: Type of Nursing Program)

Chart 2: Type of Nursing Program



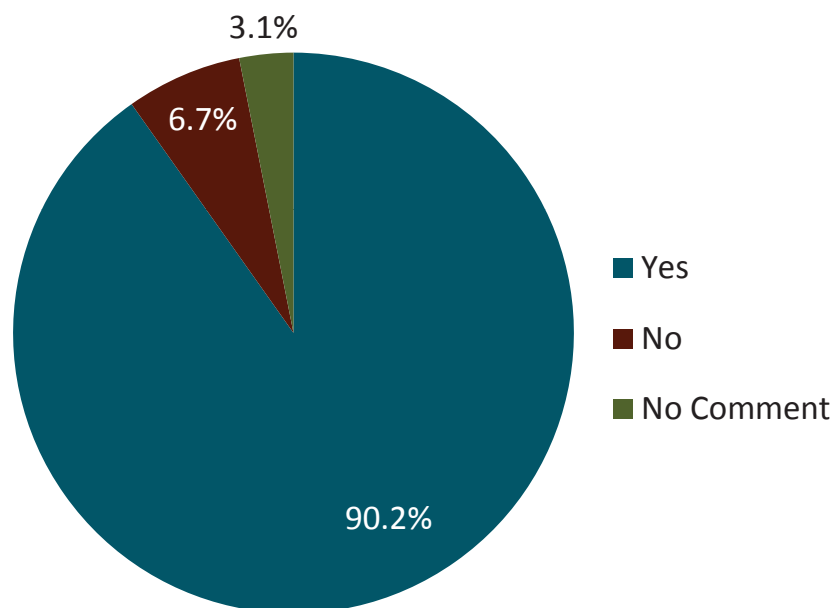
More than a third of respondents planned on graduating this academic year (2010-2011), with 9.1% graduating in the fall of 2010 and 30.2% planning on graduating in the spring 2011. Almost half, 44.5% expected to graduate in the 2011-2012 academic year.

Table 1: Expected Graduation Dates

<i>Graduation Dates</i>	<i>Percent</i>	<i>N</i>
Fall 2010	9.1%	92
Spring 2011	30.2%	304
Fall 2011	15.2%	153
Spring 2012	29.3%	295
Other, Already graduated, No comment	16.2%	164
Total	100%	1,008

We asked “Assuming that a suitable job opportunity (for example, salary, specialty area, etc.) was available, would you want to work in Mississippi when you graduate?” Overwhelmingly (90.2%) nursing graduates responded “Yes, I would work in Mississippi after graduation.” Obviously the desire or at least the openness to remaining in state to work is high among nursing students. A critical factor to recruitment is making nursing students aware of job opportunities within the state of Mississippi. (See also Appendix Table A3: Desire to Work in Mississippi)

Chart 3: Desire to Work in Mississippi



We provided a list of possible reasons for not wanting to work in Mississippi to the 68 respondents who indicated such. A fifth (20.6%) of the nursing students who would not work in Mississippi after graduation cited the location as their single more important reason, followed by lack of area amenities (19.1%) and salary package (19.1%), two of which cannot be resolved. On the brighter side, 11.8% of students who do not want to work in Mississippi when they finish school desire to be close to their family outside of Mississippi, which is not a negative comment on the state. In addition, no respondents felt Mississippi lacked additional training opportunities or had a negative perspective on the working

environment and only 1.5% reported there were few job opportunities for their spouse/partner. (See Also Appendix Table A4: Reasons for NOT Wanting to Work in Mississippi)

Chart 4: Reasons for NOT Wanting to Work in Mississippi



WHAT DO NURSING STUDENTS WANT IN A JOB?

We asked a series to questions to determine how important various job-related factors were in terms of making a relocation decision. We asked about the relative importance (“very important”, “important”, “neutral”, “unimportant”, “very unimportant”, “not sure” and “no comment”) for 12 job-related factors: total salary package (e.g., loan repayment, signing bonus, relocation expenses), working environment and conditions (working hours, size or type of facility), where I can work in my specialty, job opportunities for my spouse/partner, area amenities (e.g., sports, parks, cultural activities, restaurants), the public school system (K-12), availability of additional professional training opportunities, climate (i.e., weather), size of the city, close to family, future professional opportunities and wherever I can find a job after graduation. The 12 factors were presented in one table so that the respondent could see all the factors at once and respondents could choose the same response (i.e., “very important”) for multiple factors. We analyze the results of this series of questions in three ways. First, in rank order, what were deemed “very important” factors? Second, in rank order, what were deemed “very important or important factors? Finally, when compared to the rank order of the list as presented to the respondents (which was intentionally rank ordered by what the literature suggested would be the most important factors), did any factors move up or down in rank? We repeat the analysis for “unimportant” and the remaining categories.

The top job-related factor, cited by almost three quarters of nursing students (73.7%) was *working environment and conditions* (e.g., working hours, size or type of facility), cited by 15.2% more students as “very important” than the next highest ranked factor, *salary package* (58.5%). Only three factors were cited as “very important,” by more than half of the respondents: *work environment*, *salary package*

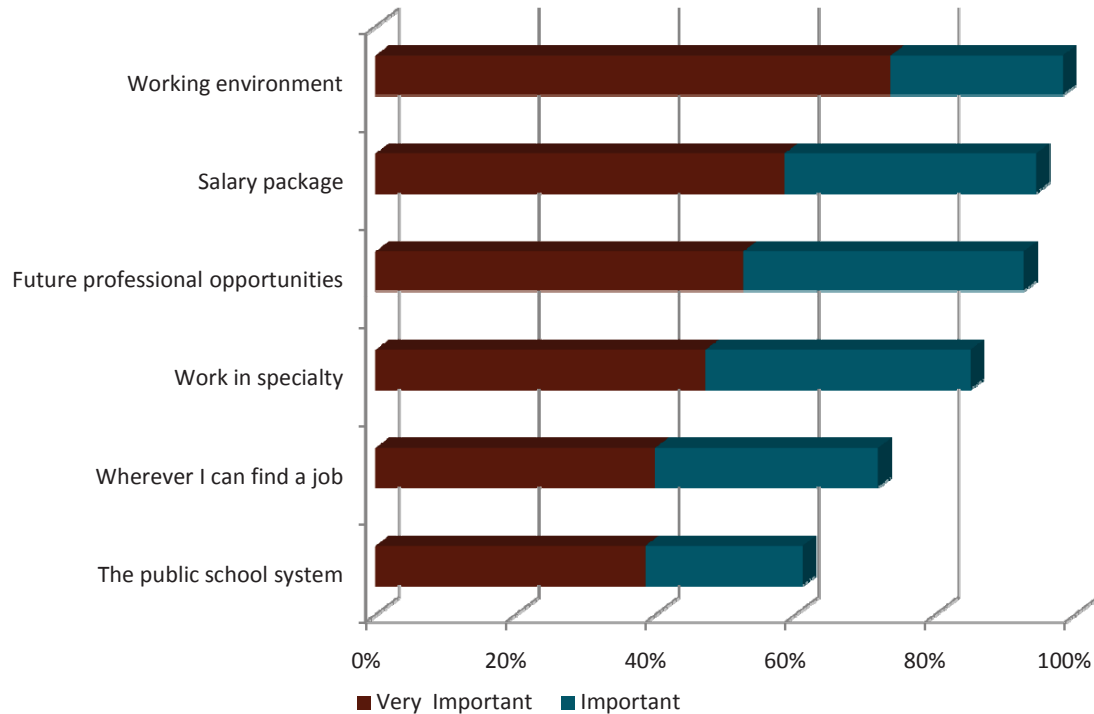
and future professional opportunities. In the next tier were *work in specialty* (47.2%), *wherever I can find a job* (40.0%), the *public school system* (38.6%), *professional training opportunities* (34.7%), *job opportunities for spouse* (31.3%) and *close to family* (29.2%). Rounding out the bottom factors cited as a “very important” factor by less than a quarter of the respondents were *area amenities* (14.8%), *climate* (14.7%) and *size of city* (13.6%).

Table 2: Factors Important in Determining Where Participants Want to Live and Work After Graduation

	Very Important	Important
Factor	Percent	N
Working environment	73.7%	24.6%
Salary package	58.5%	36.0%
Future professional opportunities	52.6%	40.1%
Work in specialty	47.2%	37.9%
Wherever I can find a job	40.0%	31.9%
The public school system	38.6%	22.5%
Professional training opportunities	34.7%	45.8%
Job opportunities for spouse	31.3%	26.1%
Close to family	29.2%	37.1%
Area amenities	14.8%	36.7%
Climate	14.7%	27.6%
Size of city	13.6%	30.1%

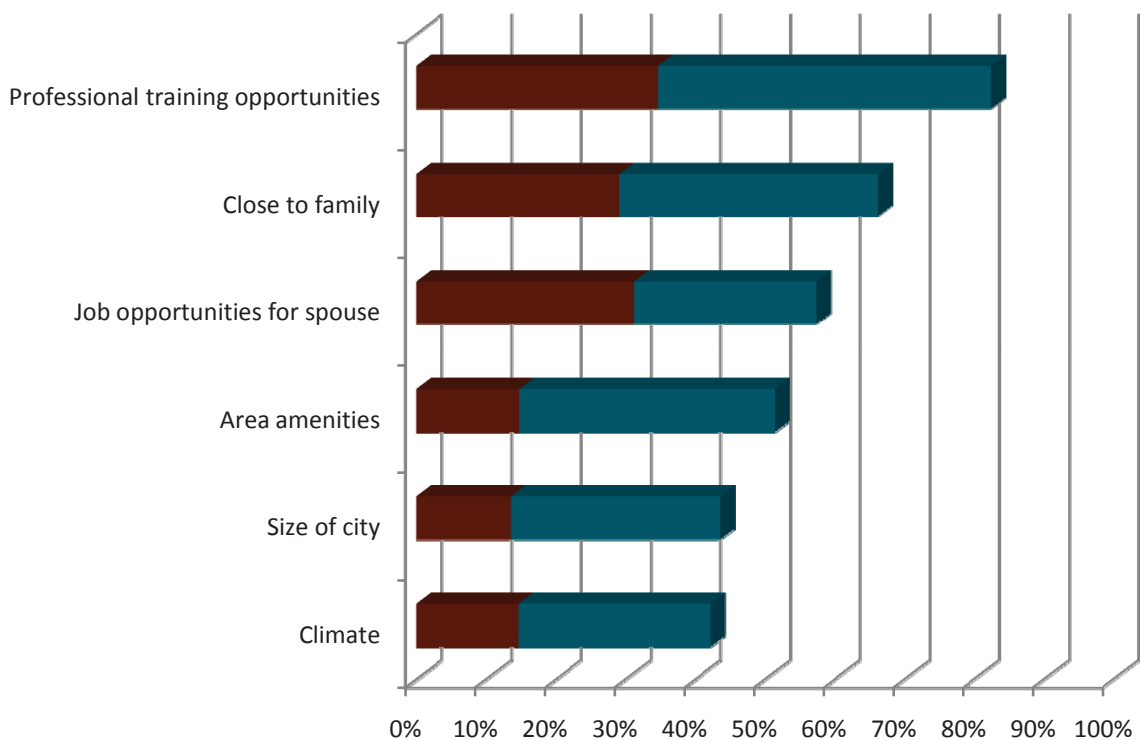
In addition to “very important,” respondents could also choose “important” to reveal their preferences, although among the top six factors the category of “very important” outweighed the category of “important.” When the category of “very important” is combined with the category of “important,” respondents listed the job-related factor of *working environment* is cited by almost all respondents (98.3%) as being a major concern in their job preferences. See Chart 4a: Job Related Factors. In other words, virtually every respondent ranked the *working environment* in their future job to be the most important factor. Not surprisingly, *salary package* was second, cited by 95% of respondents as having some degree of importance. This was closely followed by *future professional opportunities*, cited by 93% as having some degree of importance. The job factor *work in my specialty* was cited by 85% of respondents as having some degree of importance, followed by *wherever I can find a job* (72%) and the *public school system* (61%). Clearly, the top tier, in which more than three quarters of nursing students cited as having some degree of importance, speak to the quality of the job experience (*working environment, future professional opportunities and work in specialty*), although *salary package* was also in the top tier.

Chart 4a: Job Related Factors



Of the next six job-related factors, *professional training opportunities* were of particular interest. See chart 4b: Job Related Factors. Although it ranked 7th in term of being “very important” (35%), when the “very important” and “important” categories were combined, professional training opportunities ranked above two of the upper tier factors (81%), the job-related factors of *wherever I can find a job* (72%) and *the public school system* (61%). This further strengthens the argument that work environment factors are of paramount importance to future nursing professionals. Respondents felt proportionally less strongly about the remaining five job-related factors. Being *close to family* was “very important” to less than a third of respondents (29%) but overall was cited by two thirds (66%) as being of some importance. *Job opportunities for spouse* was “very important” for almost a third (31%) and had some importance for more than half of the respondents (57%). *Area amenities* was cited by less than a fifth (15%) as being “very important” but, nonetheless, had some importance for slightly more than half (52%). The *size of the city* was deemed as “not important”, with less than half (44%) claiming some importance, while *climate* (i.e., weather) was the lowest ranked factor, only 42% thought it had some importance.

Chart 4b: Job Related Factors



Next, we look at how job-related factors were ranked by respondents as “very important” versus an expected ranking based on a review of the literature. *Working environment* and conditions was the top concern, above *salary package* in second place; *future professional opportunities* were ranked third, a much higher ranking than expected. These ranking continue to suggest that the total work environment, opportunities for advancement and ability to contribute are, as a package, a higher concern than simply salary. These results suggest that nursing students are looking beyond their first post-graduation employment and are taking into consideration longer-term factors. That said, the job-related factor *wherever I can find a job* ranked fifth in terms of importance, reintroducing a pragmatic view to the wish list. Although two-thirds of respondents were married or in a relationship, respondents ranked the job-related factor *job opportunities for spouse/partner* at 8th, whereas the expected ranking due to marital status was 4th. The job-related factor *area amenities* ranked poorly at 10th, followed by *climate* (11th) and *size of city* (12th).

The factors deemed most important to soon-to-be nursing graduates are within the employer’s control, (i.e., *work environment* and conditions, *salary*, *future professional opportunities* and ability for the graduate to *work in their specialty*). Factors beyond the control of the employer (e.g., *job opportunities for spouse/partner*, *proximity to family*, *area amenities*, *climate* and *size of city*) are not deemed terribly important by respondents.

To report that a factor is not ranked as important is not the same as saying that that factor was unimportant. Almost a fifth of respondents consider Mississippi’s *climate* to be “unimportant” or “very unimportant” in terms of a job-related factor. Similarly, the *public school system*, *job opportunities for spouses*, *size of city* and *area amenities* are judged to be “unimportant” or “very unimportant”. The remaining variables are considered very or slightly unimportant. In stark contrast, only 0.1% considered *work environment* to be “unimportant” or “very unimportant”.

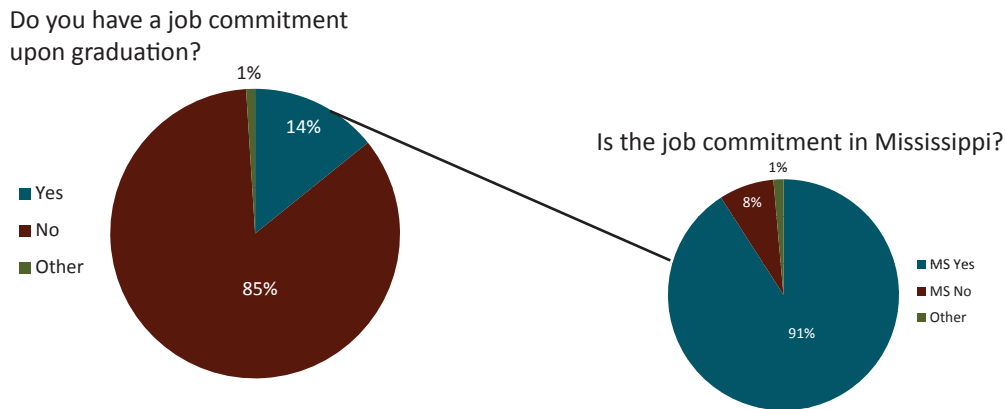
The indifferent choice, “neutral”, appears to be the more popular with respondents wishing to leave their options open. Fully a third of respondents were neutral about *size of the city* (38.0%), *climate* (37.6%) and *area amenities* (34.0%). In contrast only 1.5% of respondents were “neutral” about their *work environment*. Finally, less than 1% of respondents were unsure of how they felt about any of these job-related factors. However, almost 5% responded with “no comment” about a *job opportunity for their spouse/partner*, a much larger percentage that for any other factor. We can only speculate that they have not yet had a conversation about post-graduate plans with their spouse/partner.

Table 3: How Job Related Factors Were Ranked

Factor	Very Important	Neutral	Very Unimportant	Not Sure	No Comment
Working environment	98.3%	1.5%	0.1%	0.0%	0.1%
Salary package	94.5%	5.2%	0.2%	0.0%	0.1%
Future professional opportunities	92.7%	6.3%	0.4%	0.3%	0.3%
Work in specialty	85.1%	13.1%	0.8%	0.3%	0.7%
Wherever I can find a job	71.9%	20.0%	5.1%	0.5%	2.5%
The public school system	61.1%	19.4%	17.5%	0.4%	1.6%
Professional training opportunities	80.5%	15.7%	3.0%	0.3%	0.5%
Job opportunities for spouse	57.4%	20.6%	16.6%	0.5%	4.9%
Close to family	66.3%	27.1%	6.2%	0.2%	0.2%
Area amenities	51.5%	34.0%	13.7%	0.0%	0.8%
Climate	42.3%	37.6%	19.7%	0.0%	0.4%
Size of city	43.7%	38.0%	17.8%	0.1%	0.4%

To qualify the respondent’s freedom to choose a future job-related location, we asked if they had already made a job commitment upon graduation (e.g., received a written or verbal agreement to work for a specific employer or medical facility). Eighty five percent said they did not have a commitment in hand, although 14% did acknowledge a commitment. For those respondents who had a commitment (N=143), a vast majority (90.9%) said the job was in Mississippi. (See also Appendix A5: Job Commitment)

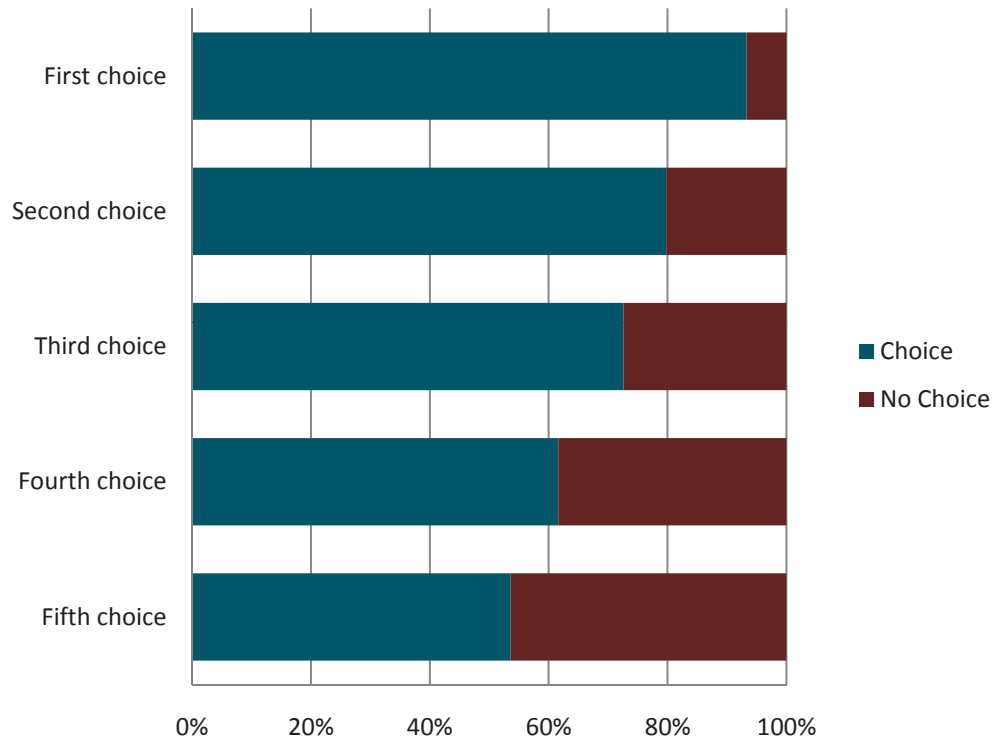
Chart 5: Do You Have a Job Commitment Upon Graduation?



We then matched responses with birthplace, high school and location of nursing training (i.e., direct city-to-city matches). We also coded the respondents’ cities via the rural-urban-continuum county code and calculated matches to similarly sized county.

To quantify the respondent’s relocation preferences we presented a table listing all municipalities in the state of Mississippi. Respondents could make up to five relocation choices. Mississippi nursing students have one strongly held relocation preference, but their preferences fall off quickly after exhausting their third choice. By the fifth relocation choice, only half (53.6%) expressed a preference. (See also Appendix A6: Relocation Choices)

Chart 6: Relocation Choices



To test for affinity for hometown, we matched place of birth and high school graduation with the respondent’s first relocation preference. In Table 4, we compare the respondent’s place of birth county (anywhere in the U.S.) to the size of their first relocation preference (74% of respondents were born in Mississippi). Using a weighted average, more than half (59%) of all Mississippi nursing student respondents across all categories of birthplace chose a practice location in a county of similar size to the county in which they were born (calculations not shown). This is consistent with similar research, in which approximately half of family practice physicians wanted to establish their practice in a community similar to the one in which they were raised.¹³ To obtain more nuanced results, we then divided the counties into four categories based on their 2009 population to measure whether natives from rural and small counties have a greater affinity for, and therefore are more likely to return to, rural and small counties. (For a complete discussion of the matching methodology, see Appendix, Matching Methodology: Birthplace or High School to Postgraduate Preference) As illustrated in the table below, almost half (44%) of the state’s population resides in large counties and, as would be expected for low residential density counties, only 8% of the population resides in rural counties. One fifth of the state’s 82 counties fall into three of the population categories, while two-fifths are in the small category. When we examine the respondents, among those who reported a birth county (936 out of 1,008 or 93%), more than a third are native to large and moderate counties, while only 5% are small county natives (we speculate that those who did not report a birthplace either moved at an early age or were born outside the U.S.). More respondents reported their high school graduation county (N=988). Here, the distribution is approximately one third across large, moderate and small counties, while rural counties accounted for almost 10% of respondents.

Table 4: Place of Birth

	Mississippi only		All U.S. counties	
	Counties	2003 Population	Birth County	High School
	<i>N</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Large county: 250,000 + residents	17	44.4%	35.9%	29.7%
Moderate county: 20,000-250,000 residents	12	20.1%	38.3%	29.8%
Small county: 2,500-19,999 residents	34	27.6%	21.2%	30.6%
Rural county: Less than 2,500 residents	19	7.9%	4.6%	9.9%
Totals	82	100%	100%	100.0%

When the responses were divided by the four county size categories for birthplace, all respondents showed a majority preference (54%) for large (250,000 or more residents) counties, while only 2% of all respondents chose rural areas and only 30% of small county natives chose to relocate in small counties. Reading the highlighted diagonal of the table, affinity for a similarly sized hometown varies dramatically, from 76% for large county natives to 15% for rural county natives. More than half of moderate, small and rural county natives would move up the rural-urban continuum to a larger county to practice nursing, leaving rural and small sized counties behind.

Respondents from large counties comprised 34% of the survey population. A total of 75.8% who were born in a large county would choose a large county for professional practice, while 15.7% would choose a moderate sized (20,000 to 250,000 residents) county, and zero percent of those born in large counties expressed an interest in relocating to a rural county. Among moderate sized county natives, 43.6% would choose to remain in a moderate sized county, while 40.9% would choose a large size county, and 14% would choose a small county and only 1.2% would choose a rural county. Among small county natives, almost half (47.6%) would prefer large counties, a fifth (20.6%) would choose a moderate county, almost a third (29.6%) would choose a similarly sized (small) county, and only 2.1% would choose a rural county. Our last category, natives of rural (2,500 residents or fewer) counties, was by far the smallest category, totaling 40 survey respondents (5% of respondents). The largest segment (40%) would seek employment in large counties, while a quarter (25%) would relocate to moderate sized counties. A fifth (20%) would choose to move up the rural-urban continuum code to a small county, while only 15% would seek employment in rural counties. However, 43% of all those who chose a rural location were rural natives (calculations not shown).

Table 5: Responses by County Size

Size of birth county	Size of first preference county									
	Large county		Moderate county		Small county		Rural county		Total	
	<i>N</i>	<i>Percent</i>	<i>N</i>	<i>Percent</i>	<i>N</i>	<i>Percent</i>	<i>N</i>	<i>Percent</i>	<i>N</i>	<i>Percent</i>
Large county	222	75.8%	46	15.7%	25	8.5%	0	.0%	293	34.1%
Moderate county	138	40.9%	147	43.6%	48	14.2%	4	1.2%	337	39.2%
Small county	90	47.6%	39	20.6%	56	29.6%	4	2.1%	189	22.0%
Rural county	16	40.0%	10	25.0%	8	20.0%	6	15.0%	40	4.7%
Total	466	54.2%	242	28.2%	137	15.9%	14	1.6%	859	100.0%

*149 did not specify a relocation preference, did not know their birth county, had “other” commitment (i.e., military service) or did not comment.

If we seek to alleviate the nursing shortage in rural areas in Mississippi we face three linked issues.

- 1. Both the absolute (40 respondents) and relative (5%) size of rural natives is insufficient to address health care worker shortages in rural areas in Mississippi.
- 2. Less than a fifth (15%) of rural natives expressed an interest in remaining in a rural area. Thus, despite the recruitment and training, fully two fifths (40%) would relocate to large counties and a quarter (25%) would relocate to moderate sized counties.
- 3. Respondent’s choice of size of county may be a function of their work preferences. Half of respondents (52%) expressed a specific desire to work in a hospital. See Chart 7: Desired Nursing Environment. In stark contrast, only 1.7% identified a Rural Health Clinic as their desired work environment. (See also Appendix A7: Desired Nursing Environment)

Continuing the hospital setting theme, when respondents were asked about their desired area of nursing, services usually associated with a hospital were predominately mentioned. See Chart 8: Desired Nursing Speciality. Cited the most frequently was emergency room (14.1%), followed by labor & delivery (10.6%), pediatrics (10%), critical care (7.2%), surgery (5.9%), OB-GYN (4.8%), neonatal (4.6%) and intensive care (4.3%). (See also Appendix A8: Desired Nursing Speciality)

Chart 7: Desired Nursing Environment

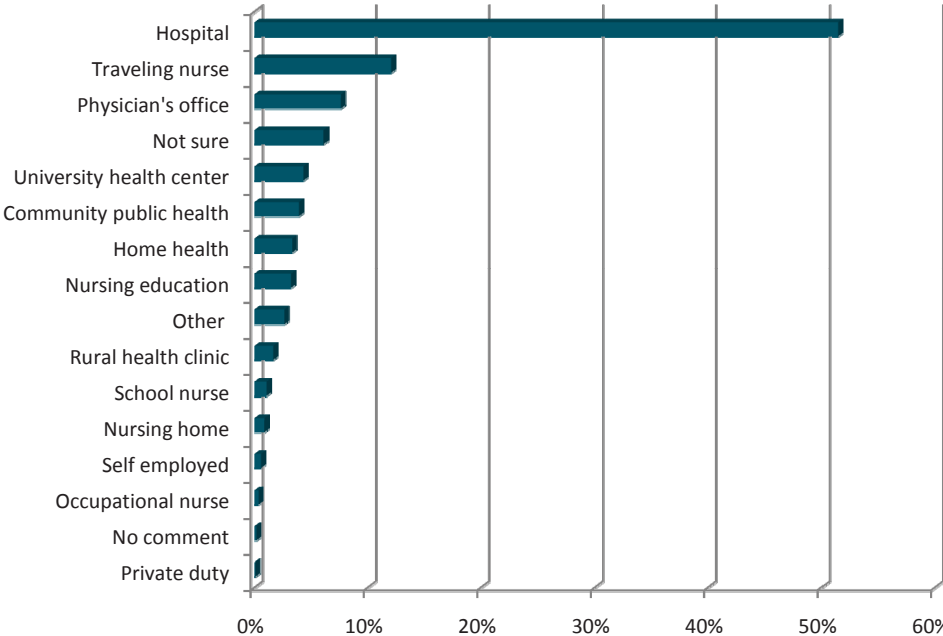
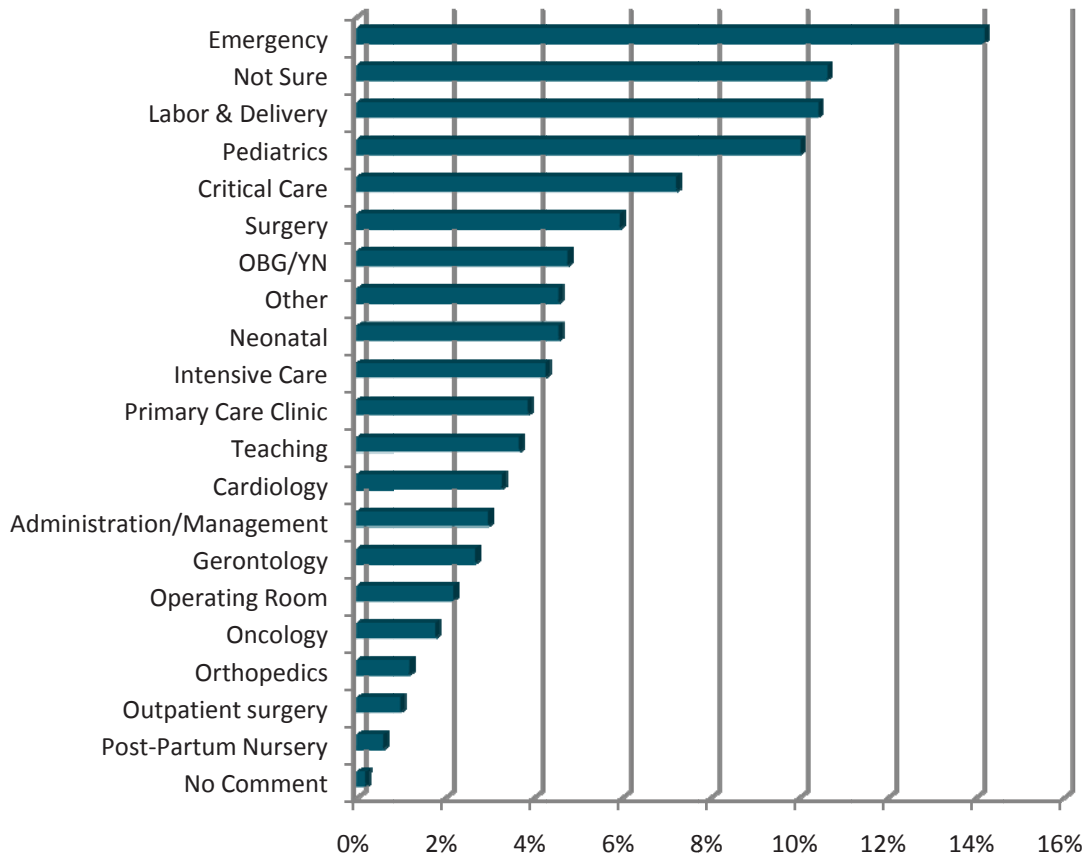


Chart 8: Desired Nursing Specialty



We conducted the same matching with the respondent’s high school county and their first relocation preference (86% attended high school in Mississippi). See Table 6: Size of High School County. The primary finding is that 64% of respondents across all county categories (weighted average) would choose a similarly sized county to where they graduated high school (calculations not shown). However, when we divide the respondents by size of high school county, a different story emerges. While large-county high school graduates are drawn overwhelmingly to large counties and almost half of moderate county high school graduates will choose a similarly sized place, less than a third of small county graduates would remain in a small county and 12% of rural county graduates would locate in a rural county after graduation from their nursing program. Again, the entire population of respondents showed a majority preference (54.6%) for large counties, while only 1.7% of all respondents chose rural counties.

Respondents from large county high schools comprised 27% of the survey population. A total of 87.1% would choose a large county, while 8.8% would choose a medium county, 4% would choose a small county and none would choose a rural county. Among those who graduated from high school in moderate sized counties, 41.4% would relocate to a large county, almost half (48.4%) would remain in a similarly sized county, 9.5% would relocate to small county and less than 1% would relocate to a rural county. Of those who graduated from high school in small sized counties, 41.6% would choose to relocate to a large county, a quarter (26.3%) would move to a moderate, but larger county, almost a third (31.4%) would choose a similarly sized county and just 0.7% would move to a rural county. Our last category, those who graduated from high schools in rural counties, has the most variation in location preferences. Almost half (47.3%) would relocate to large counties, a quarter (24.7%) would move to moderate sized counties, 16.1% would prefer small counties and 11.8% would choose to locate in a rural county. However, 73% of respondents who chose rural areas were rural county high school graduates (calculations not shown).

Table 6: Size of High School County

Size of high school county	Size of first preference county									
	Large county		Moderate county		Small county		Rural county		Total	
	<i>N</i>	<i>Percent</i>	<i>N</i>	<i>Percent</i>	<i>N</i>	<i>Percent</i>	<i>N</i>	<i>Percent</i>	<i>N</i>	<i>Percent</i>
Large county	217	87.1%	22	8.8%	10	4.0%	0	.0%	249	27.4%
Moderate county	113	41.4%	132	48.4%	26	9.5%	2	.7%	273	30.1%
Small county	122	41.6%	77	26.3%	92	31.4%	2	.7%	293	32.3%
Rural county	44	47.3%	23	24.7%	15	16.1%	11	11.8%	93	10.2%
Total	496	54.6%	254	28.0%	143	15.7%	15	1.7%	908	100.0%

Large: 250,000+ residents, Moderate: 20,000-250,000 residents, Small: 2,500-19,999 residents, Rural: <2,500

* 100 did not specify a relocation preference, did not know their high school county, had "other" commitments (i.e., military service) or did not comment.

We then considered "drift", whether the respondents would choose different sized county as their third, fourth, or fifth choice. Keep in mind that respondents were simply presented with a list of cities in Mississippi from which to choose. We found that there was no evidence of drift across the respondents' relocation choices before (results not shown) and after controlling for the size of birth county (see Appendix Table A9). In general, those who chose large counties as their first choice continued to choose large counties for their subsequent relocation choices. However, the results suggest that there may be a *slight* propensity for respondents who attended high school in large counties to prefer a place of relocation in a small county for their second, third, fourth, or fifth choices (see Appendix Table A10). Due to the small number of respondents when stratified by preference relocation and size of high school county, these results need to be interpreted with caution.

Nearly 90% of the respondents were female; so we also assessed potential spousal employment opportunities as they related to recruitment of nursing students. We asked first about their marital/relationship status and then about their ability to choose their post-graduation relocation location. Two thirds (66%) of Mississippi nursing students are either in a relationship or currently married. The remaining third (32%) are single and not in a relationship, separated, divorced or widowed.

Table 7: Marital Status

	<i>Percent</i>	<i>N</i>
Single, never married and NOT in a relationship	22.1%	223
Single, never married and in a relationship	30.3%	305
Currently married	36.1%	364
Separated	1.4%	14
Divorced	7.5%	76
Widowed	0.6%	6
No Comment	2.0%	20
Total	100%	1,008

We then assessed the major factors in making a job-related relocation decision. We investigated the question, if the respondent was married or in a relationship, was the respondent a leading or trailing spouse? Among respondents who were in a relationship or married, a third (33%) would be the leading partner/spouse in choosing a job location. More than half (56.2%) would balance the decision with their spouse/partner. The remainder (5%), are unsure or had no comment. For purposes of recruitment, one third of married/partnered graduating nurses are in a position to make the choice about relocation. Add the number of nurses who are single, never married and not in a relationship, separated, divorced or widowed, and more than half (54%) of nursing respondents are in a position to decide independently or be in a position to lead in the decision making about post-graduation job relocation.

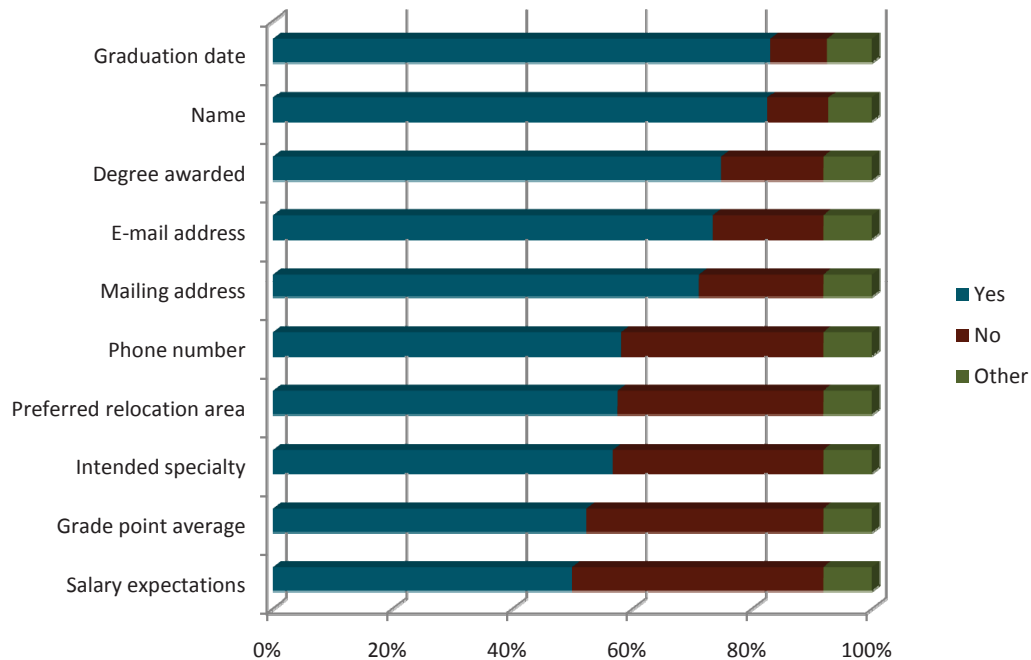
On the other hand, more than half (56%) of those in the subset of “in a relationship or married” would consult/negotiate with their spouse or partner and 6% would follow their partner/spouse. These findings could suggest that successful nurse recruitment could use a family unit approach in which the position and location/community are marketed to the couple, rather than the individual prospective employee to attract this 42% segment of the nursing student community.

Table 8: Major Factors in Making a Job-Related Relocation Decision

	<i>Percent</i>	<i>N</i>
In choosing a job location, which is more important?		
The location where YOU can find a job	33.0%	221
The location where your partner/spouse finds can find a job	6.3%	42
The job locations for you and your partner/spouse are equally important	56.2%	376
Not sure	3.1%	21
No comment	1.4%	9
Total	100%	669

We then measured interest in a potential job-matching program beginning with this question. “You have indicated your preferences about communities you would be willing to work in when you graduate. Which of the following types of information would you be willing to share with potential employers (e.g., Hospitals, Chamber of Commerce, Economic Planners, School Districts) in those communities so they would know who is interested in working and living in their communities? We are not currently collecting this data but want to measure potential interest in a future nursing job matching program.” Some 80% were willing to provide their name and 81% were willing to provide their graduation date. They were also amenable to providing their degree awarded (75%), their e-mail address (73%) and their mailing address (72%). Respondents were less willing to provide information that might preclude them from an opportunity or be perceived as negative information. Those included preferred relocation area (58%), intended specialty (57%), grade point average (52%) and salary expectations (50%).

Chart 9: Interest in Potential Job Matching Programs



Finally, almost three quarters (73%) of Mississippi nursing school respondents were interested enough in a future nursing job matching program to provide an e-mail address for future follow-up. This is a solid measure of the willingness to participate in such a matching program.

STUDY LIMITATIONS

There was a lower than expected level of participation by nursing programs and nursing students in this survey. As noted earlier, this survey is based on a “sample of convenience.” We did not have the option of drawing a random sample from the nursing student population. Absent this control, the survey lacks statistical validity of a random sample. In addition to casting doubts on the outcomes of this research, thus reducing the value of the research to nursing programs, the lack of validity limits the opportunities to disseminate and publish in peer-reviewed journals. Without the validation of peer-reviewed publications, it is very difficult to seek and obtain external funding to continue and expand this research.

To accomplish the statistical validity necessary to move forward we suggest two options. The first is to seek direct access to nursing students in the form of a random sample of student’s university e-mails from which to recruit respondents for an on-line survey. This would be preferably prefaced by a request from each nursing program dean/director to the student body to fully and quickly participate in the survey. The second survey option would be to abandon the sampling scheme in favor of a survey of the entire nursing student population. In other words, all nursing students would receive the survey—perhaps as part of the class registration process, for example. Each nursing program would be strongly encouraged to participate in the survey in order to obtain a response from a representative sample of the entire population. More marketing with the schools of nursing should be conducted to convey the value of this research in regard to the recruitment of students and the placement of graduates in locations of highest health care need.

During the fall 2010 wave, we received responses from only 22% of participating program nursing students in the state (1,008 of 4,527), which was only 18% of all 5,546 nursing students in the state).

Moreover, response rates at participating schools ranged from 2% to 100% and six programs (with 1,019 students) had zero participation. Full participation is the more desirable of the two approaches since the sub-population of nursing students from rural areas is of the greatest interest but is also the smallest sub-set of the entire nursing population (5% to 10%).

DISCUSSION

In terms of measuring affinity for home or a return to rural places, the results do not inspire confidence or encouragement on initial reading. Of all the nursing students who were either born or graduated high school in a rural county (population <2,500), only 15% and 12%, respectively, would choose to return to a rural place upon graduation. The majority would relocate to a large (250,000 people plus) city (40% and 47% respectively) or a medium sized county (25% for both). In contrast, those who were either born or graduated high school in large counties would overwhelmingly choose to relocate to a large county (76% and 87% respectively). Even among those born or graduated in a small (2,500 to 20,000) county would chose to move to a large county (48% and 42% respectively). These percentages must be put into perspective. Large county natives and graduates comprised 34% and 27% (respectively) of the survey respondents, while rural natives and graduates comprised only 5% and 10% of the survey population.

However, there are decidedly bright spots in the data. Size of city is the next to last category of importance for job environment and a majority of respondents want to work in a hospital setting (likely because their specialties of interest tend to be those found in hospitals), which may suggest that nursing students self-select to urban areas because of the nature of job that they seek. This conclusion is supported by the Mississippi of Nursing Workforce. “All generic nursing students are prepared at the generalist level which includes ‘specialty areas’, i.e., labor and delivery, nursery, pediatrics, surgery, critical care, etc. Most nursing students desire positions they see as exciting, glamorous, challenging, i.e., OR, ER, ICU, L&D, etc, and many ‘rural’ hospitals have these ‘specialties’ available. Even the smallest hospitals have emergency departments. Often graduates select employment that offers a large volume of their particular area of interest which leads them to larger facilities,” wrote Wanda Jones, Executive Director of the Mississippi Office of Nursing Workforce.¹⁴

The students’ responses lead us to believe that, if presented with a reasonable job offer that happened to be in a rural place, the job opportunity would trump location. This is supported by the fact that “Wherever I can find a job” ranked 5th in the list of important job, where as location was at the bottom of the rankings.

CONCLUSION AND RECOMMENDATIONS

To contextualize the results presented here, we discuss them through the lens of recruiting more nurses to rural areas in Mississippi. Thus, these are not blanket recommendations for health workforce policy change. They are objective-specific comments intended to spark discussion and consideration.

Generally speaking, we found that the volume of nursing students from rural areas is insufficient to meet the health care workforce needs of Mississippi’s underserved rural areas given that rural natives account for less than 5% of total respondents. As such, we must wonder whether it is reasonable to set a goal of increasing the flow of rural natives to nursing school and health care in general. Despite the findings about low rural native affinity for rural places, we argue that it is a reasonable goal to increase the flow of rural natives to nursing school and—ultimately—to rural nursing practice.

For recruitment of rural nurses, we speculate that a number of factors are in play. First, rural natives bring with them a special understanding of the nature of rural health and community, a nuance that is

difficult to teach to urban natives. Second, rural natives are more likely to be coming from a community of poverty and few job opportunities. Thus, they may be more likely to respond to financial incentives such as financial scholarships or student loan repayment programs.

To increase the flow of rural natives to nursing and health care, some recommendations to consider include expanding existing or initiate new programs (obviously pending appropriate funding, resources and commitment):

- starting in elementary, junior high school and high school to nurture an interest in health care careers, especially in rural areas of Mississippi,
- expanding sciences summer camps, with an emphasis on biological sciences, in partnership with STEM (i.e., Science, Technology, Engineering and Mathematics) recruitment camps,
- extending the existing rural scholars program (such as the one operated by the Northeast Mississippi Area Health Education Center (NE MS AHEC)) statewide from high school students to middle and elementary students,
- expanding the existing rural scholars program statewide to enroll more students, and
- increasing and targeting school financial assistance for rural and underserved area students.

Since the volume of rural nursing students is too small to fill rural vacancies, it may be possible to redirect the larger nursing student flows from large, medium and small counties to rural areas, especially since job environment factors trump location. As the first piece of evidentiary support, consider question order. We asked the respondents (question #7) to indicate the level of importance of a dozen job environment factors. The number one factor was work environment, followed by three other work factors (salary, future professional opportunities and ability to work in specialty). The ever-pragmatic “Wherever I can find a job?” response ranked 5th in importance. Two measures of the importance of location were ranked low. Area amenities was ranked 10 out of 12 (15% considered it very important and 37% considered it important) and size of city ranked last on the list with 14% considering it very important and another 30% considering it important. We then asked (question #8) if, assuming a suitable job were available, would the respondent remain in Mississippi and work and 90% would. It was only after asking those two questions that we asked respondents to list up to five relocation preferences in Mississippi (questions #9). Based on the order of the survey questions and the importance that *job working environment* (ranked #1) had over *size of city* (ranked #12th, last place), we have reason to conclude that an appropriate job would trump location, which bodes well for rural and underserved places.

The next logical step would be to quantify among large, medium and small county nursing students whether:

- there are fundamental reasons that they would reject a rural position,
- a job offer trumps location (e.g., would nursing students take the job opportunity in a rural area),

This sort of data could be best collected through a series of focus groups with a range of nursing students in Mississippi.

To increase the attractiveness of rural positions, funding should be sought to support externships, residencies, and recruitment that would provide:

- practicum and clinical rotations for urban students in rural facilities and locations to increase exposure,
- awareness of practice latitude, freedom and additional responsibility in a rural work settings, and
- financial incentives for nursing graduates to relocate to rural shortage areas.

Rurality may also be a proxy measure for poverty. When, respondents were asked their relocation preferences, they, clearly choose to move up the rural-urban continuum to a larger county. However, they may be more interested in fleeing poverty than leaving low population density. Unfortunately, our survey population from rural areas is too small to test this hypothesis. Furthermore, we are not in a position to change the economic conditions in a county. The question remains, however, would someone with wealth, in the form of a (relatively) high paid health care job, be willing to relocate to a community in poverty? That is clearly a question for further investigation.

Finally, a change in methodology should also be considered to collect longitudinal data on nursing students' attitudes. Shifting from a cross-sectional survey (i.e., a random survey that is performed once or twice a year) to a longitudinal panel survey (i.e., a survey in which the respondents remain the same over time) would allow us to track changes in attitudes and priorities over time. Individuals' priorities and goals can change dramatically between high school graduation and graduation from college due to the influence of training, changes in personal relationships, and the process of maturing. A longitudinal panel survey could capture the effects of those changes over time.

Future surveys could also measure the effect that any intervention or policy changes have on relocation preferences, such as an expanded rural medical scholars program.

FUNDING ACKNOWLEDGMENT

This research was funded by the Dreyfus Health Foundation, as part of a grant awarded to it by the Kellogg Foundation. The findings, conclusions, and recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the Dreyfus Health Foundation or the Kellogg Foundation.

ABOUT THE AUTHORS

Dr. Ronald Cossman is an Associate Research Professor and Research Fellow at the Social Science Research Center at Mississippi State University. Dr. Ron Cossman focuses his research on the spatial analysis and visualization of health conditions. He uses Geographic Information Systems (GIS) and data visualization technologies to investigate the relationships between social and environmental factors and resulting health outcomes such as death rate patterns and chronic illness patterns. His research has appeared in the *Population Health Metrics*, *American Journal of Public Health*, *Population Research and Policy Review*, *the International Journal of Health Geographics*, *Health & Place* and *Journal of Maps*. He has also authored several policy papers and policy briefs for the Mississippi Health Policy Research Center. He can be reached at: 662-325-4801, or E-mail: Ronald.Cossman@ssrc.msstate.edu

Dr. Lynne Cossman has research and teaching interests in medical sociology, demography, and health services research. She works with the Social Science Research Center's (SSRC) Mississippi Health Policy Research Center at Mississippi State University as a Research Fellow, examining issues related to health assessment, prevention, and social epidemiology. She also directs the Mississippi Center for Health Workforce. Dr. Cossman's recent research focuses on spatial concentrations of mortality and morbidity, Mississippi's physician workforce, access to care for Medicaid patients (particularly children), and an evaluation of the Mississippi Medicaid Medical Home Program. Her research projects have been funded by The Robert Wood Johnson Foundation, the Department of Health and Human Services' Office of Rural Health Policy, and Mississippi's Division of Medicaid. Her works have been published in many sociology and interdisciplinary journals including the *American Journal of Public Health*, *Social Problems*, *AIDS Education and Prevention*, *Health and Place*, *The International Journal of Health Geographics*, *The Journal of Economic and Social Measurement*, *Omega: The Journal of Death and Dying*, *Population Research and Policy Review*, *Sociological Inquiry*, and *Sociological Spectrum*.

Mr. Philip B Mason is a graduate research assistant at the Northeast Mississippi Area Health Education Center (AHEC) housed at Mississippi State University's Social Science Research Center (SSRC). His core responsibilities include data management and statistical and spatial analysis. Currently, he is primarily investigating the access to training for health professionals and how telemedicine and technology are used to train them. Mr. Mason is a doctoral candidate in the Department of Sociology at Mississippi State University (MSU). His research interests include rural-urban land use conflict, health care access and training in rural America, and the relationship between religion and health.

Katherine Harney is the Director of the NE MS Area Health Education Center (NE MS AHEC). The NE MS AHEC serves students, health care professionals, and institutions throughout Northeast Mississippi. The Center is committed to improving the health care and decreasing health disparities in Northeast MS counties. Katherine works with the marketing, outreach and the development of programmatic activities for the NE MS AHEC. Additionally, Katherine works with the Mississippi Center for Health Workforce, which is part of a state-wide program focusing on critical health-care issues.

The Social Science Research Center at Mississippi State University (SSRC), officially established in 1950, operates as a university-level, multi-disciplinary research unit, organized with university-wide responsibilities under the supervision of the vice presidents for research and graduate studies and of agriculture, forestry and veterinary medicine. The Center offers a superior research environment with an impressive array of research opportunities and options, state-of-the-art facilities, laboratories and support units that enhance and expand both the scope and quality of social science research. The SSRC fosters a rigorous and independent research environment to ensure objective, relevant and unbiased analyses.
Internet: <http://www.ssrc.msstate.edu/>



Project
Talent:
Nursing

APPENDIX

Table A1 : Why Did You Choose This School?

	<i>Percent</i>	<i>N</i>
Close to home	38.5%	388
Type of program (e.g., major, specialty area) offered	29.8%	300
Friends attended/recommended this school	5.8%	58
Scholarship/financial aid package	5.1%	51
Flexibility of class schedule	4.5%	45
Cost of tuition	4.4%	44
Parents or other relative attended/recommended this school	4.2%	42
Reputation	4.1%	41
Close to current employment	1.5%	15
Accepted into the program	0.9%	9
Not sure	0.7%	7
Other (please specify)	0.5%	5
No comment	0.3%	3
Total	100%	1,008

Table A2: Type of Nursing Program

	<i>Percent</i>	<i>N</i>
Associate Degree in Nursing (ADN)	60.5%	610
Bachelor of Sciences Degree in Nursing (BSN)	29.6%	298
Masters of Science Degree in Nursing (MSN)	6.9%	70
Doctoral Degree (PhD, DNP), Other, No comment	3.0%	30
Total	100%	1,008

Table A3: Desire to Work in Mississippi

	<i>Percent</i>	<i>N</i>
Yes	90.2%	909
No	6.7%	68
No Comment	3.1%	31
Total	100%	1,008

Table A4: Reasons for NOT Wanting to Work in Mississippi

	<i>Percent</i>	<i>N</i>
Location	20.6%	14
Total salary package	19.1%	13
Lack of area amenities	19.1%	13
Close to family	11.8%	8
No comment	8.8%	6
Lack of future professional opportunities	7.4%	5
I do not believe that I can work in my specialty	4.4%	3
The public school system	4.4%	3
Climate (i.e., weather)	2.9%	2
Few job opportunities for my spouse/partner	1.5%	1
Working environment/conditions	0.0%	0
Lack of additional training opportunities	0.0%	0
Total	100%	68

Table A5: Job Commitment

	Yes		No		Other		<i>Total N</i>
	<i>Percent</i>	<i>N</i>	<i>Percent</i>	<i>N</i>	<i>Percent</i>	<i>N</i>	
Upon graduation	14.2%	143	84.8%	855	1.0%	10	1,008
In Mississippi	90.9%	130	7.7%	11	1.4%	2	143

Table A6: Relocation Choices

	Choice		No Choice	
	<i>Percent</i>	<i>N</i>	<i>Percent</i>	<i>N</i>
First choice	93.3%	940	6.7%	68
Second choice	79.8%	804	20.2%	204
Third choice	72.6%	732	27.4%	276
Fourth choice	61.6%	621	38.4%	387
Fifth choice	53.6%	540	46.4%	468

Matching Methodology: Birthplace or High School to Postgraduation Preference

We sought to clearly identify what proportion of nursing students prefer to return to their home city or one of similar size in order to measure their affinity for rural places. To do this, we gave respondents the opportunity to identify up to five Mississippi cities in which they would like to work after graduation from nursing school. We gave respondents the choices of cities because individuals tend to identify with cities and towns as opposed to counties. Moreover, population and job concentrations tend to take place in cities and towns compared to county areas. We matched each respondent's chosen preference cities/towns to their host counties to create a city-county crosswalk and then linked these counties to 2003 Rural-urban Continuum Codes (i.e. Beale Codes) downloaded from United States Department of Agriculture Economic Research Service (<http://www.ers.usda.gov/Data/RuralUrbanContinuumCodes/>). Beale Codes use a nine category rural-urban classification based on total resident population and relationship to metropolitan counties. Beale Codes further distinguishes among metro and non metropolitan counties that are adjacent to a metro area as well as nonmetropolitan counties that are not adjacent to a metro areas. In this study, we collapsed the three metropolitan level Beale Codes into the single category "large county" (i.e., population size of 250,000 or more). We also combined non metropolitan adjacent to a metro county and nonmetropolitan not adjacent to a metro county Beale Code categories if they had the same population size, making three other county size categories. That is, "moderate county" (i.e., 20,000 to 249,999) "small county" (i.e., 2,500-19,999) and "rural county" (i.e., less than 2,500). Similarly, we also linked respondents' birth and high school counties with Beale Codes. Using this methodology, we were then able to identify whether a respondent's birth and high school county(s) matched the size of the county in which they would want work upon graduation.

Table A7: Desired Nursing Environment

	<i>Percent</i>	<i>N</i>
Hospital	51.48%	519
Traveling nurse	12.10%	122
Physician's office	7.64%	77
Not sure	6.15%	62
University health center	4.37%	44
Community public health	3.97%	40
Home health	3.37%	34
Nursing education	3.27%	33
Other	2.68%	27
Rural health clinic	1.69%	17
School nurse	1.09%	11
Nursing home	0.89%	9
Self-employed	0.60%	6
Occupational nurse	0.40%	4
No comment	0.20%	2
Private duty	0.10%	1
Total	100%	1008

Table A8: Desired Nursing Specialty

	<i>Percent</i>	<i>N</i>
Emergency	14.19%	143
Not sure	10.61%	107
Labor & Delivery	10.42%	105
Pediatrics	10.02%	101
Critical care	7.24%	73
Surgery	5.95%	60
OB/GYN	4.76%	48
Neonatal	4.56%	46
Other	4.56%	46
Intensive care	4.27%	43
Primary care clinic	3.87%	39
Teaching	3.67%	37
Cardiology	3.27%	33
Administration/management	2.98%	30
Gerontology	2.68%	27
Operating room	2.18%	22
Oncology	1.79%	18
Orthopedics	1.19%	12
Outpatient surgery	0.99%	10
Post-partum nursery	0.60%	6
No comment	0.20%	2
Total	100%	1008

Table A9: Birth Location and Drift

Place of birth	Size of preference county									
	Large county		Moderate county		Small county		Rural county		Total	
	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Large county										
Preference 1	222	75.8%	46	15.7%	25	8.5%	0	0.0%	293	100%
Preference 2	176	70.7%	46	18.5%	23	9.2%	4	1.6%	249	100%
Preference 3	165	72.1%	33	14.4%	28	12.2%	3	1.3%	229	100%
Preference 4	137	72.5%	28	14.8%	23	12.2%	1	0.5%	189	100%
Preference 5	97	68.3%	18	12.7%	25	17.6%	2	1.4%	142	100%
Moderate county										
Preference 1	138	40.9%	147	43.6%	48	14.2%	4	1.2%	337	100%
Preference 2	116	39.9%	138	47.4%	32	11.0%	5	1.7%	291	100%
Preference 3	123	47.5%	89	34.4%	42	16.2%	5	1.9%	259	100%
Preference 4	116	52.7%	60	27.3%	37	16.8%	7	3.2%	220	100%
Preference 5	86	51.2%	42	25.0%	35	20.8%	5	3.0%	168	100%
Small county										
Preference 1	90	47.6%	39	20.6%	56	29.6%	4	2.1%	189	100%
Preference 2	67	38.7%	54	31.2%	49	28.3%	3	1.7%	173	100%
Preference 3	68	42.8%	38	23.9%	47	29.6%	6	3.8%	159	100%
Preference 4	59	41.8%	34	24.1%	39	27.7%	9	6.4%	141	100%
Preference 5	50	46.3%	22	20.4%	30	27.8%	6	5.6%	108	100%
Rural county										
Preference 1	16	40.0%	10	25.0%	8	20.0%	6	15.0%	40	100%
Preference 2	16	48.5%	11	33.3%	2	6.1%	4	12.1%	33	100%
Preference 3	14	43.8%	10	31.3%	5	15.6%	3	9.4%	32	100%
Preference 4	9	32.1%	8	28.6%	9	32.1%	2	7.1%	28	100%
Preference 5	7	38.9%	5	27.8%	2	11.1%	4	22.2%	18	100%

* Not all respondents specified relocation preferences, did not know their birth county, had "other" commitment (i.e. military service), or did not comment.

Table A10: High School Location and Drift

Place of high school	Size of preference county									
	Large county		Moderate county		Small county		Rural county		Total	
	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Large county										
Preference 1	217	87.1%	22	8.8%	10	4.0%	0	0.0%	249	100%
Preference 2	172	80.8%	20	9.4%	19	8.9%	2	0.9%	213	100%
Preference 3	156	80.0%	19	9.7%	18	9.2%	2	1.0%	195	100%
Preference 4	129	79.1%	21	12.9%	13	8.0%	0	0.0%	163	100%
Preference 5	92	79.3%	10	8.6%	14	12.1%	0	0.0%	116	100%
Moderate county										
Preference 1	113	41.4%	132	48.4%	26	9.5%	2	0.7%	273	100%
Preference 2	97	40.6%	129	54.0%	11	4.6%	2	0.8%	239	100%
Preference 3	117	54.2%	72	33.3%	25	11.6%	2	0.9%	216	100%
Preference 4	96	52.7%	56	30.8%	29	15.9%	1	0.5%	182	100%
Preference 5	86	61.4%	34	24.3%	17	12.1%	3	2.1%	140	100%
Small county										
Preference 1	122	41.6%	77	26.3%	92	31.4%	2	0.7%	293	100%
Preference 2	105	40.2%	78	29.9%	73	28.0%	5	1.9%	261	100%
Preference 3	94	39.8%	62	26.3%	76	32.2%	4	1.7%	236	100%
Preference 4	85	42.3%	45	22.4%	59	29.4%	12	6.0%	201	100%
Preference 5	64	40.5%	31	19.6%	56	35.4%	7	4.4%	158	100%
Rural county										
Preference 1	44	47.3%	23	24.7%	15	16.1%	11	11.8%	93	100%
Preference 2	32	41.0%	31	39.7%	8	10.3%	7	9.0%	78	100%
Preference 3	28	38.9%	22	30.6%	12	16.7%	10	13.9%	72	100%
Preference 4	27	41.5%	14	21.5%	17	26.2%	7	10.8%	65	100%
Preference 5	16	34.8%	16	34.8%	7	15.2%	7	15.2%	46	100%

* Not all respondents specified relocation preferences, did not know their high school's county, had "other" commitment (i.e. military service), or did not comment.

Project Talent: Nursing

References

1. Health Resources and Service Administration, U.S. Department of Health and Human Resources. Find Shortage Areas: HPSA by State and County. Available at: <http://hpsafind.hrsa.gov/HPSASearch.aspx> Accessed on 01/20/2011.
2. StateHealthFacts.org, The Henry J. Kaiser Family Foundation. "Mississippi: Estimated Underserved Population Living in Primary Care Health Professional Shortage Area (HPSAs), as of September, 2008." Available at: <http://www.statehealthfacts.org/profileind.jsp?ind=682&cat=8&rgn=26>. Accessed on 01/20/2011
3. Mississippi Office of Nursing Workforce. 2009 Hospital RN Vacancy Rates (%) by Public Health District. Available at: <http://www.monw.org/research/hospital/2009/2009%20Hospital%20RN%20Vacancy%20by%20PHD.pdf> Accessed on 01/27/2011.
4. Baggot DM, Dawson C, Valdes MS, Zaim S. Rethinking Nurse Recruitment: A Return-on-Investment Approach. *J Nurs Adm.* 2005;35(10):424-427.
5. Wall LL. Plan Development for a Nurse Recruitment-Retention Program. *J Nurs Adm.* 1988;18(2):20-26.
6. Curran CR. Nurse recruitment: A waste of postage, paper and people. *Nursing Economics.* 2003;21(1);32.
7. Kalisch BJ. Recruiting Nurses. *J Nurs Adm.* 2003;33(9):468-477.
8. Upenieks V. Recruitment and Retention Strategies: A Magnet Hospital Prevention Model. *Nurs Econ.* 2003;21(1)
9. Costa AJ, Schrop SL, McCord G, Gillanders WR. To Stay or Not to Stay: Factors Influencing Family Practice Residents' Choice of Initial Practice Location. *Fam Med* 1996;28(3):214-219.
10. Zina MD, VanLeit BJ, Skipper BJ, Sanders, ML, Rhyne RL. Factors in Recruiting and Retaining Health Professionals for Rural Practice. *The Journal of Rural Health.* 2007;23(1):62-71.
11. Jones CB. The Costs of Nurse Turnover, Part 2. *J Nurs Adm.* 2005;35(1):41-49.
12. Tone B. Looking for a job? Think about moving to the country. *NurseWeek* [serial online]. March 1999. Available at: <http://www.nurseweek.com/features/99-3/rural.html/> Accessed 01/20/2011.
13. Costa AJ, Schrop SL, McCord G, Gillanders WR. To Stay or Not to Stay: Factors Influencing Family Practice Residents' Choice of Initial Practice Location. *Fam Med* 1996;28(3):214-219.
14. Jones, W. Personal Communication, March 22, 2011. Executive Director, Office of Nursing Workforce.