

▲ Perceptions of an Ideal Career versus Perceptions of Six Health Careers

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Objective: This study was intended to compare and contrast young adults' perceptions of an ideal career versus their perceptions of six health professions: medical laboratory science, nursing, pharmacy, physical therapy, radiation technology, and respiratory therapy. **Study Design:** The study used a survey developed by May et al., which was modified and tested for application to the allied health workforce. The instrument measures 17 parallel items on a five-point Likert scale and has been assessed for reliability (coefficient α , 0.81–0.84) and content validity by a panel of experts. Analysis included descriptive statistics and paired t tests, with Bonferroni adjusted α significance set at $p < 0.0028$. **Population:** The study used a convenience sample of 720 young adults aged 18 to 24 yrs who were recruited between January and September 2005 at job fairs and community events in one urban area and two adjacent rural communities in a northeastern U.S. state. **Findings:** All six health professions were perceived as significantly less desirable ($p < 0.001$) than the ideal career in the areas of "being respected" and "working with high technology." "Care for people" was the third highest ranked attribute of an ideal career, and pharmacy and radiation technology were found to be statistically significantly lower in this area ($p < 0.001$). Only nurses were perceived as having job security that matched the ideal, with the other professions perceived as offering significantly less job security than the ideal ($p < 0.001$). **Conclusions:** Health care is increasingly dependent on highly collaborative multidisciplinary teams.

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Inaccurate perceptions of allied health occupations likely hamper the development of an adequate pipeline of new recruits to these professions, which has the potential to impact all health disciplines. Strategies to address this challenge and areas for further research are outlined. *J Allied Health* 2008; 37:8–16. <AU: abstract has been shortened to meet journal/Medline rqmts.>

IN THE PAST 7 YEARS, much attention has focused on a shortage of health care professionals. These shortages are expected to be exacerbated as an aging workforce reaches retirement, just as the "baby boomer" cohort moves into the last third of life, a time of greater health services utilization. Across the board, new recruits into health care professions are needed, yet recruitment issues have plagued many of the allied health disciplines. For example, in a student sample, 85% were only vaguely familiar with allied health careers, even though they had a favorable opinion of these careers.¹ Students' failure to pursue allied health careers may be due to a lack of information rather than insufficient interest. Prospective allied health students have generally received their career information from a practicing health professional and have enrolled in these fields when encouraged to do so by a practitioner.² Together, these studies suggest public image and visibility are important elements to student recruitment. The aim of this study was to explore young adults' perception of an ideal career and their perceptions of six allied health careers as a basis for evidence-based recruitment strategies.

Some professions have already benefited from dramatic recruitment and public image campaigns. For example, since 2000, concentrated efforts by nurse leaders,³ the Johnson & Johnson advertisement campaign,⁴ and improving nursing salaries⁵ have increased the visibility of this profession such that educational programs are at capacity and refusing admission to many qualified students.⁶ Long before this public attention, however, increasingly severe workforce shortages had developed in some allied health professions.⁷ These authors suggested that hospital cost containment is one cause of the increasing demand for rehabilitative and outpatient care provided by allied health

professionals. In an occupation-specific example, Adams and Vann blame a “lack of funding for recruitment efforts, declining interest in medical fields, competition from other allied health programs, and lack of flexibility (convenience) for nontraditional students” as barriers to radiation therapy student recruitment.¹ **[AU: Ref by Adams + Vann appeared twice in ref list. Refs renumbered; pls check.]** Despite these assessments, there is little evidence that the demand in individual disciplines has translated into heightened public awareness or funding for allied health student recruitment.

Raising awareness levels and general knowledge about the opportunities offered in different health care professions is only part of the issue. Young adults filter their understanding of a particular occupation through their perception of an ideal career, as well as their perception of their ability to perform in that occupation. Perceptions of individual health careers have been examined in experimental and nonexperimental design studies. The level of awareness and false perceptions about the dangers of working in a clinical laboratory, for example, was altered with a Web-based education module tested.⁸ Career desirability in nursing has also been examined in regard to salary, image, and status.⁹⁻¹¹ Several studies have focused on perceptions of an ideal career compared with a career in nursing.¹¹⁻¹³ Similarly, the different career paths within pharmacy have been identified, with attention directed toward perceptions of the profession.^{14,15} Radiography has also been examined in terms of its attractiveness as a career.¹⁶ To date, however, there has not been a systematic comparison across these allied health professions to identify similarities and differences in perceptions. Clearly such studies are needed to correct misperceptions that cross multiple occupation and setting boundaries and reinforce the positive perceptions of health care careers in general.

Accuracy of students’ perceptions is not the only issue in career decision making about a specific occupation. Students also have a mental image of the “perfect career” in terms of their own perceived talents and abilities, basic values, and career motives and needs, and perceived characteristics of occupations under consideration will be compared with this model.¹⁷ Does the occupational alternative “fit” with what they would ideally like to be doing and feel confident in pursuing? Most students receive career guidance from family members,¹⁸ which means for many potential students most allied health professions may remain hidden and consequently are not brought into consideration. Further, gender remains an important source of career differentiation. While more girls than boys believe that all jobs are equally good for both women and men, girls continue to be underrepresented in the engineering/industrial systems career pathway and dominate the health services career pathway.¹⁸ In addition, self-efficacy also plays a role because students’ career goals are based in part on what they believe they are capable of doing,^{19,20} as well as what others similar to themselves undertake and accomplish.

The purpose of this study was to compare and contrast young adults’ perceptions of an ideal career versus their perceptions of six health professions: medical laboratory science, nursing, pharmacy, physical therapy, radiation technology, and respiratory therapy.

Methods

SAMPLE

A convenience sample of 720 subjects (18–24 yrs old) was recruited from a variety of public places and events held in a rural northeastern state (Vermont). **<AU: VT okay?>** The Rural Urban Computing Area System¹⁸ designations included one urban core area and two more rural adjacent communities. To reach a broad spectrum of young adults, the data were collected from individuals at two job fairs, one food festival, an open-air shopping mall, a college campus, and a job corps residential school. The job fair settings included a wide variety of employers, with very limited representation of health care employers. The data were collected between January 2005 and September 2005.

Young adults were offered a chance to win a handheld personal computer in exchange for completing the survey. If they agreed to participate, informed consent was obtained before beginning the survey. There was no discussion of health care careers before administration of the survey. The sampling method was structured so that every sixth participant completed a survey on a particular career, with careers numbered one through six and rotated sequentially. Confidentiality was maintained by separating the information on the survey from the name and telephone number submitted for the chance to win the handheld computer.

INSTRUMENT

The original survey instrument used in this study (Appendix 1) was developed by May et al.¹¹ and used with the permission of May et al. and the funders of the original study, Sigma Theta Tau International. **[AU: sentence correct as edited?]** The survey instrument was designed to assess perceptions of an ideal career and perceptions of nursing by rating (1) the extent to which an attribute is an element of an ideal career and (2) the extent to which the same attribute is perceived to exist in nursing. Each of the 17 attributes was scored on a five-point Likert scale, ranging from strongly agree to strongly disagree. The instrument from May et al. was tested and subsequently used across a wide range of youth, parents, teachers, counselors, school nurses, and college students.¹¹

To conduct the present study across professions, the authors created five new instruments identical to the original but querying respondents on their perceptions of one of five additional professions: medical laboratory science, pharmacy, physical therapy, radiation technology, and res-

TABLE 1. Demographic Data of Study Participants

Mean age	20.7 yr	
Female	58%	
Single	94	
Employment		
Currently employed	73	
Of those employed		
Full-time	51%	
Part-time	47%	
Self or family member in hospital in past year		
Yes	62%	
Geographic location of residence*		
Urban core	419	(57%)
Other urban	52	(7%)
Rural	26	(4%)
Small/isolated rural	159	(22%)
Missing (not from VT, NY, NH, or MA)	73	(10%)
Education (n = ?) <AU: give sample size>		
Less than high school diploma	10%	
High school diploma or GED	63%	
Associate's degree	4%	
Bachelor's degree	21%	
Master's degree	1%	
Educational plans if no bachelor's degree (n = ?) <AU: give sample size>		
Currently in college	59%	
Plan to go to college	18%	

*Residence as defined by the Rural Urban Commuting Area System.²¹

piratory therapy. These instruments were then reviewed by a panel of experts—content and practice experts in each field—to establish content validity and pilot tested with young adults (aged 18–24 yrs) who were either college students or employed. The final study tools consisted of six parallel instruments to measure perceptions of an ideal career versus perceptions of one of the following careers: medical laboratory science, nursing, pharmacy, physical therapy, radiation technology, and respiratory therapy. Approval of this research project was received from the University of Vermont Institutional Review Board.

ANALYSIS

Statistical analyses were run using SAS version 9.1 (SAS Institute Inc., Cary, NC). Descriptive statistics are reported for demographic variables. The statistical comparisons were performed with both parametric and nonparametric tests (Wilcoxon signed rank test, Kruskal–Wallis test). The results were very similar; therefore, only the results from parametric tests are reported. Responses to the ideal questionnaire among subgroups of respondents (defined by age or health care career) were compared using analysis of variance. The paired *t* test was used to compare the ratings of the ideal career versus health care careers. The significance

level (α) was adjusted for multiple tests using the Bonferroni method ($\alpha/18$ items = 0.0028). All tests were two sided.

Results

A total of 720 individuals between 18 and 24 yrs of age completed the survey, with roughly equal samples by discipline: medical laboratory science ($n = 122$), nursing ($n = 117$), pharmacy ($n = 122$), physical therapy ($n = 121$), radiation technology ($n = 118$), and respiratory therapy ($n = 120$). Demographic information is shown in Table 1 and reveals a mostly white, employed sample, the majority of whom have graduated from high school and are currently in college.

To ensure there was no random skewing of groups, the responses to the ideal career items were compared for the individuals completing the survey in the different disciplines. There were no significant differences (analysis of variance; all $p > 0.12$). There were no significant differences found among the age cohorts (18–19, 20–21, and 22–25 yrs; $n = 228, 254, \text{ and } 243$, respectively). Gender distribution ranged from 54% to 66% female in all subsets.

MOST IMPORTANT ELEMENTS OF AN IDEAL CAREER VS. SIX HEALTH CAREERS

As shown in Table 2 and Appendix 2, all six health professions were perceived as significantly less desirable ($p < 0.001$) than the ideal career in the area of “have respect” and “am appreciated.” “Care for people” was the third highest attribute of an ideal career, and the only health care careers ratings found to be statistically significantly lower in this area ($p < 0.001$) were those for pharmacy and radiation technology. The respondents included “use my brain a lot” as a top five attribute of an ideal career but perceived only nurses and medical laboratorians as matching this ideal. Only nurses were perceived as having job security that matched the respondents’ ideal career at a significant level.

LEAST IMPORTANT ELEMENTS OF AN IDEAL CAREER VS. HEALTH PROFESSIONS

As seen in Table 3 and Appendix 2, the respondents in this study gave lower importance ratings to “being very powerful,” “working with high technology,” “making a lot of money,” “working with my hands a lot,” and “be very busy” as descriptors of their ideal career. None of the health care careers were perceived as “being very powerful,” and the ratings of all the health careers in this study were consistent with this perception of an ideal career. With the exception of physical therapy, all six health careers were seen to have more interaction with technology ($p = 0.0001$) than desired in the ideal career. Nurses were seen as making less money and being busier ($p = 0.0001$) than desirable in an ideal career, but this perception did not extend to the other careers.

TABLE 2. Top Attributes of an Ideal Career Compared with Six Health Care Careers

Top Attributes	Medical Laboratorian	Nurse	Pharmacist	Physical Therapist	Radiation Technologist	Respiratory Therapist
Have respect	<u>9.07</u>	<u>7.43</u>	<u>9.16</u>	<u>8.09</u>	<u>10.12</u>	<u>9.28</u>
Make decisions for myself	<u>11.71</u>	<u>8.51</u>	<u>11.39</u>	<u>8.14</u>	<u>12.65</u>	<u>9.71</u>
Use my brain a lot	0.98	0	<u>4.94</u>	<u>5.43</u>	<u>4.75</u>	<u>4.43</u>
Am appreciated	<u>7.02</u>	<u>6.15</u>	<u>9.60</u>	<u>6.03</u>	<u>10.02</u>	<u>6.18</u>
Always have a job	<u>7.61</u>	1.68	<u>3.40</u>	<u>3.17</u>	<u>6.50</u>	<u>7.30</u>
Care for people	2.96	-2.44	<u>5.04</u>	0.64	<u>5.44</u>	1.93

Note. *t* test statistics were used for the comparison of means (ideal – career). Underlined values indicate that the ideal career rating is significantly higher than that of the health care career. *t* test statistics that are not underlined are nonsignificant. A *t* test statistic ≥ 3.06 is significant at the adjusted significance level of 0.0028. Analyses were adjusted for multiple comparisons (Bonferroni method). A *t* test statistic ≥ 3.91 is significant at the 0.0001 level of significance. [AU: Pls check that this table is okay as edited.]

Discussion

This study suggests that young adults perceive these health professions as falling short of their ideal career in the domains of respect, decision making, and being appreciated. Our sample of young adults may reflect age cohort values regarding key career attributes such as desiring respect while being less desirous of positional power. At the same time, there are clear misperceptions about these health care careers despite 62% of the sample having a personal or family experience with hospitalization in the past year. Job security and professional decision making, for example, are current health care career realities. The magnitude of the perceptual mismatch between the ideal career and health care careers may create barriers that unnecessarily hamper development of an adequate pipeline. Moreover, at this time of professional shortages and ample job opportunities in the health care arena, our respondents saw only nursing as being similar to the ideal in the area of job security. Given the magnitude of the shortages and the growing societal health care needs, public campaigns to illustrate the opportunities and rewards of these professions are a policy imperative.

It is also important to note the few nonsignificant findings in this study because they are meaningful from a

recruitment perspective. The lack of statistically significant differences means that respondents found the profession to possess an attribute to the same level as their ideal career. This study found, for example, “care for people” to be consistent with their ideal for all careers but pharmacy and radiation technology. Such resonance offers an opportunity to design recruitment efforts that highlight this fundamental element of health care careers in a manner that matches young adults’ perceived ideal. Moreover, these data suggest opportunities for image marketing that correct misperceptions by, for example, highlighting the ways pharmacists and radiation technologists do indeed care for people. Similarly, only laboratorians and nurses were considered to “use brain a lot” in a manner consistent with the ideal. Pharmacists, physical therapists, radiation technologists, and respiratory therapists were viewed as professions that use their brains less than their ideal. This is particularly surprising, given that both pharmacy and physical therapy are at doctoral-level entry. Marketing to align perceptions with realities would better enable potential students to make career choices consistent with their ideals and their abilities. Overall, these findings suggest that career recruitment campaigns that redress misperceptions, as well as illustrate the differences among health professions, may help individuals find a good match within the range of possible options.

TABLE 3. Least Important Factors to an Ideal Career Compared with Six Health Care Careers

Least Important Attributes	Medical Laboratorian	Nurse	Pharmacist	Physical Therapist	Radiation Technologist	Respiratory Therapist
Be powerful	0.39	-1.52	0.29	-0.46	1.03	2.37
Work with technology	-9.21*	-4.90*	-3.28*	-2.38	-10.59*	-5.01*
Make a lot of money	2.24	<u>5.59</u>	0.13	0.47	0.68	2.80
Work with hands	-3.22*	-6.99*	-1.33	-6.94*	-1.53	1.69
Be very busy	-2.17	-7.71*	-2.16	-1.42	1.19	0.42

Note. *t* test statistics were used for the comparison of means (ideal – career). Underlined values indicate that the ideal career rating is significantly higher than that of the health care career. The asterisks indicate that the ideal career rating is significantly lower than that of the health care career. *t* test statistics that are not underlined or do not have an asterisk are nonsignificant. A *t* test statistic ≥ 3.06 is significant at the adjusted significance level of 0.0028. Analyses were adjusted for multiple comparisons (Bonferroni method). A *t* test statistic ≥ 3.91 is significant at the 0.0001 level of significance. [AU: Pls check that table is okay as edited.]

Limitations and Suggestions for Additional Further Study

This study was limited to one geographic region of the country and addressed only six health careers. Similar research should test for variations by geographic region, culture, and ethnicity as a basis for more empirically based recruitment activities. The generalizability of the study was also limited by the use of a convenience sample recruited from a range of public places. As such, the respondents were not limited to a particular population of interest, for example, young adults planning to attend college. At the same time, respondents may reflect perceptions of a more general young adult population, which offers valuable insights into those just embarking on their formative career years. Additional studies including a broader array of health professions are essential to the formation of evidence-based marketing strategies and workforce development efforts. Stratification by gender and socioeconomic class may also provide valuable insights. There also needs to be additional exploration of the data sources used by young people in making career choices. Is the family/friends network still the primary source of information? If so, how do we assure that accurate information about the range of contemporary health professions is available? Finally, appropriate marketing needs to take gender-focused initiatives into consideration and test their effectiveness.

Conclusions

Health care is increasingly dependent on highly collaborative interprofessional teams. Thus, shortages in any area will impact the entire system. Efforts for a more accurate media/marketing portrayal of the decision-making, job security, intellectual rigor, and public appreciation components of these careers would support better alignment of perceptions of an ideal career and a health care career. Arguably, greater visibility and stronger alignment would facilitate greater interest in these careers in this 18- to 24-year-old age cohort. Such efforts are important, because it is during this life stage that individuals make definitive life choices about career direction.

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APPENDIX 1

Survey Instrument
Perceptions of an Ideal Career and a Health Care Career

You have been invited to participate in this survey of 18-24 year olds for the purpose of understanding how your perceptions of a selected career in health care compare to your ideal career. Results will help guide recruitment of health care workers in Vermont in the future. Your confidentiality will be strictly maintained. Your name or email address will not be connected to your answers on this survey. This research project is funded by a HRSA Special Congressional Initiative Rural Health Research Grant and conducted by the Office of Nursing Workforce at the University of Vermont. Thank you for participating, if you have any questions please call Mary Val Palumbo at (800) 458-2741 or contact her via email: mpalumbo@uvm.edu.

General Information

Age (in years): _____

Gender:

- Male Female

Marital Status:

- Single Married Divorced/Separated
Widowed Civil Union

Education (years): _____

Race:

- African American or Black American Indian or Alaska Native
Asian Caucasian or White
Hispanic or Latino Native Hawaiian/Pacific Islander
Other:

Residence: Town: _____ Zip Code: _____

Check highest educational level completed (check only one):

- High School, highest grade completed: 8th 9th 10th 11th
High School Diploma or GED
Associate's Degree, Major (e.g. English)
Bachelor's Degree, Major
Master's Degree, Major
Doctoral Degree, Major

Are you currently enrolled in college? Yes No

If not enrolled, do you plan to attend college? Yes No

Are you currently employed? Yes No

If employed, do you work Full Time or Part Time? Full Time Part Time

Have you or a family member of yours been a patient in a hospital in the last year? Yes No

Careers and Health Professions

Below are 18 statements about careers. For each statement mark the answer that best describes how you feel about careers.

It will be important to my career that I:

- 1. always have a job Strongly Agree Agree Uncertain Disagree Strongly Disagree
2. use my brain a lot Strongly Agree Agree Uncertain Disagree Strongly Disagree
3. care for people Strongly Agree Agree Uncertain Disagree Strongly Disagree
4. am appreciated Strongly Agree Agree Uncertain Disagree Strongly Disagree
5. know a lot Strongly Agree Agree Uncertain Disagree Strongly Disagree
6. work very hard Strongly Agree Agree Uncertain Disagree Strongly Disagree
7. make a lot of money Strongly Agree Agree Uncertain Disagree Strongly Disagree
8. go to college Strongly Agree Agree Uncertain Disagree Strongly Disagree
9. work with my hands a lot Strongly Agree Agree Uncertain Disagree Strongly Disagree
10. work in a safe place Strongly Agree Agree Uncertain Disagree Strongly Disagree
11. am a leader Strongly Agree Agree Uncertain Disagree Strongly Disagree
12. make decisions for myself Strongly Agree Agree Uncertain Disagree Strongly Disagree
13. be very busy Strongly Agree Agree Uncertain Disagree Strongly Disagree
14. be very powerful Strongly Agree Agree Uncertain Disagree Strongly Disagree
15. make good grades Strongly Agree Agree Uncertain Disagree Strongly Disagree

- 16. have respect ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 17. work with high technology a lot ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 18. be very excited about my work ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree

Below are 18 statements about nurses. For each statement mark the answer that best describes how you feel about nurses.

- 1. Nurses will always have a job. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 2. Nurses use their brain a lot. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 3. Nurses are caring people. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 4. Nurses are appreciated. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 5. Nurses know a lot. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 6. Nurses work very hard. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 7. Nurses make a lot of money. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 8. Nurses have a college degree. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 9. Nurses work with their hands. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 10. Nurses work in safe places. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 11. Nurses are leaders. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 12. Nurses make decisions for themselves. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 13. Nurses are very busy. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 14. Nurses are very powerful. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 15. Nurses need good grades. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 16. Nurses are respected. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 17. Nurses work with high technology. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 18. Nurses always work in hospitals. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree

[NOTE: This survey is an abridged form. In the original, five tables follow, identical to the one for nurses above, that ask about pharmacists, physical therapists, respiratory therapists, radiation technologists, and medical laboratory workers. The full survey can be found in the online version of this paper.] **<BOCA: pls set the complete table but save the following 5 tables for the online version>**

Below are 18 statements about pharmacists. For each statement mark the answer that best describes how you feel about pharmacists.

- 1. Pharmacists will always have a job. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 2. Pharmacists use their brain a lot. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 3. Pharmacists are caring people. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 4. Pharmacists are appreciated. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 5. Pharmacists know a lot. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 6. Pharmacists work very hard. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 7. Pharmacists make a lot of money. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 8. Pharmacists have a college degree. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 9. Pharmacists work with their hands. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 10. Pharmacists work in safe places. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 11. Pharmacists are leaders. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 12. Pharmacists make decisions for themselves. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 13. Pharmacists are very busy. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 14. Pharmacists are very powerful. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 15. Pharmacists need good grades. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 16. Pharmacists are respected. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 17. Pharmacists work with high technology. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 18. Pharmacists always work in hospitals. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree

Below are 18 statements about physical therapists. For each statement mark the answer that best describes how you feel about physical therapists.

- 1. Physical therapists will always have a job. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 2. Physical therapists use their brain a lot. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 3. Physical therapists are caring people. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 4. Physical therapists are appreciated. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 5. Physical therapists know a lot. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 6. Physical therapists work very hard. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 7. Physical therapists make a lot of money. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 8. Physical therapists have a college degree. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 9. Physical therapists work with their hands. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree
- 10. Physical therapists work in safe places. ___ Strongly Agree ___ Agree ___ Uncertain ___ Disagree ___ Strongly Disagree

11. Physical therapists are leaders. Strongly Agree Agree Uncertain Disagree Strongly Disagree
12. Physical therapists make decisions for themselves. Strongly Agree Agree Uncertain Disagree Strongly Disagree
13. Physical therapists are very busy. Strongly Agree Agree Uncertain Disagree Strongly Disagree
14. Physical therapists are very powerful. Strongly Agree Agree Uncertain Disagree Strongly Disagree
15. Physical therapists need good grades. Strongly Agree Agree Uncertain Disagree Strongly Disagree
16. Physical therapists are respected. Strongly Agree Agree Uncertain Disagree Strongly Disagree
17. Physical therapists work with high technology. Strongly Agree Agree Uncertain Disagree Strongly Disagree
18. Physical therapists always work in hospitals. Strongly Agree Agree Uncertain Disagree Strongly Disagree

Below are 18 statements about respiratory therapists. For each statement mark the answer that best describes how you feel about respiratory therapists.

1. Respiratory therapists will always have a job. Strongly Agree Agree Uncertain Disagree Strongly Disagree
2. Respiratory therapists use their brain a lot. Strongly Agree Agree Uncertain Disagree Strongly Disagree
3. Respiratory therapists are caring people. . . Strongly Agree Agree Uncertain Disagree Strongly Disagree
4. Respiratory therapists are appreciated. . . . Strongly Agree Agree Uncertain Disagree Strongly Disagree
5. Respiratory therapists know a lot. Strongly Agree Agree Uncertain Disagree Strongly Disagree
6. Respiratory therapists work very hard. Strongly Agree Agree Uncertain Disagree Strongly Disagree
7. Respiratory therapists make a lot of money. . Strongly Agree Agree Uncertain Disagree Strongly Disagree
8. Respiratory therapists have a college degree. Strongly Agree Agree Uncertain Disagree Strongly Disagree
9. Respiratory therapists work with their hands. Strongly Agree Agree Uncertain Disagree Strongly Disagree
10. Respiratory therapists work in safe places. . Strongly Agree Agree Uncertain Disagree Strongly Disagree
11. Respiratory therapists are leaders. Strongly Agree Agree Uncertain Disagree Strongly Disagree
12. Respiratory therapists make decisions for themselves. Strongly Agree Agree Uncertain Disagree Strongly Disagree
13. Respiratory therapists are very busy. Strongly Agree Agree Uncertain Disagree Strongly Disagree
14. Respiratory therapists are very powerful. . . Strongly Agree Agree Uncertain Disagree Strongly Disagree
15. Respiratory therapists need good grades. . . Strongly Agree Agree Uncertain Disagree Strongly Disagree
16. Respiratory therapists are respected. Strongly Agree Agree Uncertain Disagree Strongly Disagree
17. Respiratory therapists work with high technology. Strongly Agree Agree Uncertain Disagree Strongly Disagree
18. Respiratory therapists always work in hospitals. Strongly Agree Agree Uncertain Disagree Strongly Disagree

Below are 18 statements about radiation technologists. For each statement mark the answer that best describes how you feel about radiation technologists.

1. Radiation technologists will always have a job. Strongly Agree Agree Uncertain Disagree Strongly Disagree
2. Radiation technologists use their brain a lot. Strongly Agree Agree Uncertain Disagree Strongly Disagree
3. Radiation technologists are caring people. . Strongly Agree Agree Uncertain Disagree Strongly Disagree
4. Radiation technologists are appreciated. . . Strongly Agree Agree Uncertain Disagree Strongly Disagree
5. Radiation technologists know a lot. Strongly Agree Agree Uncertain Disagree Strongly Disagree
6. Radiation technologists work very hard. . . Strongly Agree Agree Uncertain Disagree Strongly Disagree
7. Radiation technologists make a lot of money. Strongly Agree Agree Uncertain Disagree Strongly Disagree
8. Radiation technologists have a college degree. Strongly Agree Agree Uncertain Disagree Strongly Disagree
9. Radiation technologists work with their hands. Strongly Agree Agree Uncertain Disagree Strongly Disagree
10. Radiation technologists work in safe places. . Strongly Agree Agree Uncertain Disagree Strongly Disagree
11. Radiation technologists are leaders. Strongly Agree Agree Uncertain Disagree Strongly Disagree
12. Radiation technologists make decisions for themselves. Strongly Agree Agree Uncertain Disagree Strongly Disagree
13. Radiation technologists are very busy. . . . Strongly Agree Agree Uncertain Disagree Strongly Disagree
14. Radiation technologists are very powerful. Strongly Agree Agree Uncertain Disagree Strongly Disagree
15. Radiation technologists need good grades. . Strongly Agree Agree Uncertain Disagree Strongly Disagree
16. Radiation technologists are respected. . . . Strongly Agree Agree Uncertain Disagree Strongly Disagree
17. Radiation technologists work with high technology. Strongly Agree Agree Uncertain Disagree Strongly Disagree
18. Radiation technologists always work in hospitals. Strongly Agree Agree Uncertain Disagree Strongly Disagree

Below are 18 statements about medical laboratory workers. For each statement mark the answer that best describes how you feel about medical laboratory workers.

1. Medical laboratory workers will always have a job. _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree
2. Medical laboratory workers use their brain a lot. _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree
3. Medical laboratory workers are caring people. _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree
4. Medical laboratory workers are appreciated. _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree
5. Medical laboratory workers know a lot. . . . _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree
6. Medical laboratory workers work very hard. _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree
7. Medical laboratory workers make a lot of money. _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree
8. Medical laboratory workers have a college degree. _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree
9. Medical laboratory workers work with their hands. _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree
10. Medical laboratory workers work in safe places. _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree
11. Medical laboratory workers are leaders. . . . _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree
12. Medical laboratory workers make decisions for themselves. _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree
13. Medical laboratory workers are very busy. . _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree
14. Medical laboratory workers are very powerful. _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree
15. Medical laboratory workers need good grades. _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree
16. Medical laboratory workers are respected. . _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree
17. Medical laboratory workers work with high technology. _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree
18. Medical laboratory workers always work in hospitals. _____ Strongly Agree _____ Agree _____ Uncertain _____ Disagree _____ Strongly Disagree

APPENDIX 2

Tables as Originally Submitted for Reader's Ease of Interpretation

TABLE 2. Top Attributes of an Ideal Career Compared with Six Health Care Careers

Perceptions of an Ideal Career	Compared with Perceptions of Six Health Care Careers (by difference in mean)					
	Medical Laboratorian	Nurse	Pharmacist	Physical Therapist	Radiation Technologist	Respiratory Therapist
Have respect	↓	↓	↓	↓	↓	↓
Make decisions for myself	↓	↓	↓	↓	↓	↓
Use my brain a lot	NS	NS	↓	↓	↓	↓
Am appreciated	↓	↓	↓	↓	↓	↓
Always have a job	↓	NS	↓*	↓*	↓	↓
Care for people	NS	NS	↓	NS	↓	NS

NS, No statistically significant difference between perceptions of an ideal career vs. health care career.

↓* or ↑* Statistically significant difference with $p < 0.0028$. Analyses were adjusted for multiple comparisons (Bonferroni method).

↓ or ↑ Statistically significant difference with $p < 0.0001$.

TABLE 3. Least Important to an Ideal Career Compared with Six Health Care Careers

Perceptions of an Ideal Career	Compared with Perceptions of Six Health Care Careers (by difference in mean)					
	Medical Laboratorian	Nurse	Pharmacist	Physical Therapist	Radiation Technologist	Respiratory Therapist
Be powerful	NS	NS	NS	NS	NS	NS
Work with technology	↑	↑	↑*	NS	↑	↑
Make a lot of money	NS	↓	NS	NS	NS	NS
Work with hands	↑*	↑	NS	↑	NS	NS
Be very busy	NS	↑	NS	NS	NS	NS

NS, No statistically significant difference between perceptions of an ideal career vs. health care career.

↓* or ↑* Statistically significant difference with $p < 0.0028$. Analyses were adjusted for multiple comparisons (Bonferroni method).

↓ or ↑ Statistically significant difference with $p < 0.0001$.