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Nursing Student Perceptions of Health Care Worker Appearance and Compassion, Skill, Knowledge, and Trustworthiness

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Abstract

Background: Many health care facilities enforce strict dress code policies prohibiting visible body modifications, including tattoos, piercings, and vibrant hair colors. As popularity of body modifications among young adults surges, facilities may be forced to adapt policies as these workers enter the workforce. While some evidence exists related to patient perceptions of health care workers with body modifications, there is little about how nursing students perceive them. This study aimed to describe undergraduate, pre-licensure nursing students' perceptions of health care worker appearance on compassion, skill, knowledge, and trustworthiness.

Methods: Using cross-sectional design, an on-line Likert-type survey was used to collect data from 137 undergraduate, pre-licensure nursing students in Northeast Tennessee. Participants viewed photos of male and female workers with various body modifications. Data were analyzed using descriptive and inferential statistics.

Results: There were statistically significant differences between groups across all four variables. Male and female health care workers without body modifications were rated highest on all four variables. Male and female with tattoos were rated the second highest. Male and female with facial piercings were rated lowest. The female health care worker color, irrespective of body modification type, was rated higher than the male counterpart across all variables.

Conclusion: Results suggest that nursing students may perceive health care workers without body modifications to be the most compassionate, skilled, knowledgeable, and trustworthy. Students may perceive tattoos as more acceptable in the workplace than facial piercings or vibrant hair colors. Students may perceive body modifications as more acceptable for females than males.

Nursing Student Perceptions of Health Care Worker Appearance and Compassion, Skill, Knowledge, and Trustworthiness

Although body modification is a trend that has rapidly increased in popularity throughout the last decade, the alteration of one's physical appearance is not a new phenomenon. The most common forms of body modification, tattoos and piercings, have been practiced for centuries and attributed to a variety of reasons, including affiliation to a group, identification of a certain person, forced branding, adornment, rites of passage, and religious purposes (Koenig and Carnes, 1999; Schmid, 2013). Early historical documentation of tattoos dates to ancient Rome, where military commanders described the inhabitants of present-day Scotland having naked painted bodies. This group of warriors was termed the Picts, deriving from the Latin word Picti, meaning painted or tattooed, which first appeared in Eumenius's panegyric written in 297 AD (Schmid, 2013).

A common reason for tattooing was the branding of an individual, with the first Christians being branded by the Roman Empire to identify them as an outsider group in Roman society (Schmid, 2013). These forced and permanent markings were commonly seen on slaves, traitors, and convicted criminals throughout history. Voluntary and personalized tattoos became more common once crusaders journeyed to the eastern parts of the Mediterranean Sea, marking their bodies with Christian designs to ensure a Christian funeral if they perished in a foreign country (Schmid, 2013). A fascination for tattoos surfaced in Europe beginning in the middle of the 19th century and tattooing gained popularity among the contrasting population groups of the aristocrats and the lower class, leading to the idea that those with tattoos did not need or want to work (Schmid, 2013). At the beginning of the 20th century, tattoos surged in popularity among European aristocrats, marking the first time in history that tattoos were "seen as a beauty

accessory or jewelry and at the same time a manifestation of individuality and personal freedom" (Schmid, 2013, p. 446). From the early 1900s onward, tattoos have continued to increase in popularity among those with the desire to express themselves uniquely and permanently.

Similarly, piercings date back in history for thousands of years, with ear piercings being the most common in both ancient times and in the modern day. With large and heavy earrings becoming a popular trend among European aristocrats in the 17th century, their earlobes naturally stretched and left drooping holes in the absence of jewelry (Schraff, 2006). Purposeful gauging was performed by the Zapotec people of Mexico, who fitted large hollow disks into their ears, nose, and lips to convey importance in society (Schraff, 2006). Many forms of facial piercings can be found in early historical documents, with the act itself having important spiritual meaning, as the blood from a piercing was thought of as an offering to the gods or ancestors (Schraff, 2006). An example of the religious importance behind piercings can be found in Mayan history, where tongues were pierced to communicate with spirits and ancestors during ceremonies (Schraff, 2006). Lip piercings were common practice in Alaska as a coming-of-age ritual. Once a boy became a young man, a plug made of bone would be fitted into his lip to show that he had reached adulthood (Schraff, 2006). As evidenced by historical documents dating back thousands of years, body modification has played an important role in many cultures, religions, and societies.

Another popular form of body modification is the alteration of one's hair color by using temporary or permanent dyes. As with tattoos and piercings, hair coloring dates to ancient times in locations including Greece, Egypt, and Rome. Blonde hair was a common aspiration among Greek women in the 4th century BC, as they would treat their hair with a potassium solution and rub in a pomade of yellow flowers and pollen ("The Art of Hair Coloring – A History," 2005).

Blonde dyed hair held a symbolic meaning to the ancient Romans, representing eroticism and highlighting a woman's gracefulness and elegancy. This idea was reflected by the Roman Empire's demand that prostitutes color their hair yellow or wear a yellow-colored wig to represent their profession (Hanumanthayya, Balasubrahmanyam, Mohan, Mohan, and Nikhil, 2018). The Egyptian pharaoh Rameses II accentuated his red hair using henna plant extracts ("The Art of Hair Coloring – A History," 2005). Red hair could also be obtained by fermenting leeches in vinegar for two months, spreading the mixture over the hair, and sitting in the sun for several hours (Hanumanthayya et al., 2018). The use of plant and animal extracts to dye hair continued until the first synthetic hair colorant was produced in 1907 by Eugene Schueller, involving an oxidizing and alkalizing agent ("The Art of Hair Coloring – A History," 2005). This invention was followed by a surge in advertising campaigns, making the practice of hair coloring socially desirable. Since the early 1900s, hair coloring has only become more widespread, with many individuals choosing to dye their hair vibrant and exotic colors to achieve individuality through self-expression.

Body modification has been practiced since ancient times and continues to gain traction with each decade. The relevance of tattoos and piercings is growing rapidly, as four out of ten American adults have at least one tattoo, while an additional 19% are considering getting a tattoo (Stracener, 2019). Body art is particularly trendy among young adults, as "approximately 25% of young adults ages 18 to 25 have tattoos, whereas those with body piercings range from 33% to 50%" (Owen, Armstrong, Koch, and Roberts, 2013, p. 21). As these young adults enter the workforce, it is safe to assume that many will have body modifications, often purposefully in locations which are not visible or can be easily hidden due to organizational policies. This is particularly true in health care. Although tattoos, piercings, and vibrant hair colors are more

common and acceptable in modern-day society, the health care field struggles to understand how providers with body art may influence a patient's perception, satisfaction, and outcome. As a result, many organizations enforce strict dress code policies prohibiting visible body art for their employees with the fear that tattoos, piercings, and unnatural hair colors may warrant negative perceptions from patients and others.

Current literature is limited to understanding what perceptions patients may have of health care workers with tattoos and piercings. One major gap is the dearth of information about how students, particularly nursing students, perceive health care workers with these body modifications. In addition, the current literature neglects to include vibrant, unnatural hair color and how this form of body modification may affect perceptions of health care workers. This study aims to contribute to the literature and begin to close these gaps.

Background

The popularity of tattoos, piercings, and bold hair colors are on a rise in modern-day society as more individuals, regardless of age, gender, or profession, choose to express themselves through their choices of body art. Despite body art becoming more common and perhaps more accepted, there are still many professions which strictly prohibit visible tattoos, piercings, and unnatural hair colors in the work setting, including the health care field. However, as "time and generational changes cause new cultures, trends, and issues to evolve and develop; nursing as a profession is not immune to these cultural shifts" (Dorwart, Kuntz, and Armstrong, 2010, n.p.). Visible tattoos and piercings and unnatural hair colors have generally been prohibited for health care professionals, with most hospitals and clinics maintaining strict policies against visible body art. According to West, Wantz, Campbell, Troutman, and Muthler (2016), "the goal of health care is to provide the best possible outcomes and experiences for

patients and families," so it is imperative that patients feel comfortable with and confident in their health care provider. However, the shift in generational body art modification is clear, as "47 percent of Millennials and 36 percent of people belonging to Generation X have a tattoo compared to 13 percent of Baby Boomers" (Stracener, 2019, n.p.). As indicated, nursing is not immune to the cultural shifts in appearance and this includes nursing students. These same nursing students, with their body art and modifications, are preparing to enter the workforce. While most literature focuses on patient perceptions of health care worker appearance, little is known about how nursing students perceive health care workers' appearances. In addition, health care workers with unnatural hair colors are typically excluded from the current research studies, as they only focus on visible tattoos or piercings.

Review of Literature

Many health care facilities have implemented dress code policies against visible tattoos and piercings based on the idea that they affect a patient's satisfaction, comfort, trust, and even outcomes. Dress codes, as with other policies in nursing, should be derived from evidence-based research with the intent of supporting actions which will positively impact the patient, whose experience is of the upmost importance. Yet deeper examination into the basis of these policies suggests that there is little to no evidence to indicate body art affects the patient in any manner. When surveying 13 hospitals in Montana regarding their policy on tattoos and piercings, Dorwart et al. (2010) found that "many institutions had a policy on body art but found no published evidence that identified any effect of body art among nurses on patient outcomes" (n.p.).

Although some institutions may not be able to provide evidence that body art affects the relationship between a patient and their health care provider, there is published research that points to this. In one of these studies, 319 patrons of an emergency department in Nashville,

Tennessee, were shown three photographs which included a combination of providers with visible and nontraditional piercings, including ear, lip, and nose piercings, and photos without any piercings. Participants were asked to answer survey questions on the competency, knowledge, capability, skillfulness, and ability to trust the physician in the photo as well as whether they would feel comfortable with having that physician as their doctor. The study found that "when asked whether it was appropriate for a physician to have a nose stud…48.0% disagreed or strongly disagreed… 27.9% felt [the earring in the male model] was inappropriate… [and] the lip piercing was felt to be…inappropriate in 52.4%" (Newman, Wright, Wrenn, and Bernard, 2005, p. 215). These perceptions also reflected the patient's perceptions of the physician's competency and trustworthiness. The results showed that:

> One female model…without the nose ring was felt to be competent by 68.8% of subjects, while the same model with a nose ring was felt to be competent by only 44.4%... this same model was also felt to be trustworthy by 69.8% of subjects without the piercing, compared to 47.8% with the piercing. (Newman et al., 2005, p. 216)

Additionally, participants answered that they would be bothered if their physician had such a piercing. This study suggests that some patients do have negative perceptions of providers with body art which may affect their trust and comfort with them, potentially inhibiting the successful development of a provider-patient relationship and diminishing the patient's experience.

Just as there is research which reveals the presence of negative perceptions regarding health care providers with body art, there are also studies which contradict these findings. Cohen, Jeanmonod, Stankewicz, Habeeb, Berrios, and Jeanmonod (2018) report a prospective crossover study in which seven emergency room physicians wore temporary piercings and tattoos while interacting with some patients during a regular day's work. Patients (n = 924) were then given a

survey at the end of their visit assessing perception of the physician's competence, professionalism, approachability, trustworthiness, and reliability. Data analysis revealed, "there were no differences in patients' perceptions of physician professionalism, approachability, competence, or comfort… whether the physician had a visible tattoo, a non-traditional piercing, both… or neither" (Cohen, Jeanmonod, Stankewicz, Habeeb, Berrios, and Jeanmonod, 2018, p. 540). In addition to research that shows that patients have neutral perceptions of a physician with body art, there are also reports of patients expressing positive feelings towards tattoos and piercings in the clinical setting. Staff members at Geisinger Medical Center in Pennsylvania contended that patients in distress or crisis "liked the distraction of conversations about staff tattoos; they then shared stories of their own body art, allowing for development of rapport in the patient-caregiver relationship" (West et al., 2016, n.p.). In these cases, body art had a positive impact on the patient's experience and allowed for a more solid connection between the provider and the patient. This suggests that while negative perceptions of body modifications of health care workers among patients exist when viewing photos, real-time interactions may not be as negative as originally thought.

The results may be conflicting, but there is a variety of literature available assessing patient perceptions about health care providers with body modification. The amount of literature addressing student perceptions of health care workers with body art is substantially less. However, the limited amount of literature that has been published has provided significant knowledge about this topic. Thomas, Ehret, Ellis, Colon-Shoop, Linton, and Metz (2010) highlighted the ways in which perceptions of professional nursing appearance may differ between generations. These researchers assessed the differences in the perceptions of patients, nurses, nursing faculty, and nursing students regarding visible body art by showing photographs

of a female nurse wearing three different levels of body art, including an eyebrow piercing and a visible arm tattoo. These four groups were then asked to rate the nurse in the photo regarding her level of care, skill, and knowledge. The authors found that although all the groups perceived the nurse with the piercing and tattoo as the least caring, skilled, and knowledgeable, "students perceived the nurse with multiple piercings and a tattoo significantly more caring and skilled than patients and faculty" (Thomas et al., 2010, p. 495). Interestingly, 88% of the 75 students surveyed had some type of piercing, with 60% of them having only one piercing (Thomas et al., 2010). Similarly, 38% of students reported having tattoos (Thomas et al., 2010). It is possible that the difference in perceptions between the students and the other groups may be attributed to the fact that many of the students themselves had body modifications in addition to a difference in age or common practice among generations (Thomas et al., 2010). This study indicates that younger generations of students entering the nursing profession may feel more comfortable with visible piercings and tattoos within the health care setting, demonstrating a growing generation gap within the field.

This generation gap was also made evident by Daigle (2018), where conversations were held with nurses who varied in age from 46 to 74 years to analyze how nursing uniforms have changed over the decades and how these changes have affected the nursing professional image. The author found that the "emerging theme for uniform evolution emphasized changes in the mindset of younger generations of nurses and their aversion to the… tradition in nursing" (Daigle, 2018, p. 556). Furthermore, older participants made remarks concerning the generational change in nursing appearance, stating that younger nurses strive to look trendy instead of traditional or lack the desire to look professional (Daigle, 2018). This study highlights the ways that the professional appearance for nursing has changed significantly over the last few

decades, specifically with uniform color and style. Daigle (2018) notes the importance of future research focusing on the Millennial generation, investigating their perceptions and how current trends, such as body modification, may change socially acceptable norms in the professional setting.

Although older generations may argue that incoming nurses are unconcerned with professional appearance, there is literature available which contradicts this idea. Akhtar-Danesh, Baumann, Kolotylo, Lawlor, Tompkins, and Lee (2013) surveyed nursing faculty members and nursing students to identify viewpoints held about professionalism in the nursing field. Four sets of common factors emerged from the results, and each set was named based on their distinguishing statements. The humanists factor reflected the belief that "professional values include respect for human dignity, personal integrity, protection of patient privacy, and protection of patients from harm" (Akhtar-Danesh et al., 2013, p. 255). The facilitators group considered professionalism to involve adherence to standards, policies, and personal beliefs and values (Akhtar-Danesh et al., 2013). The most popular choice among nursing students, the regulators group, reflected the belief that "professionalism is fostered by a workplace in which suitable beliefs and standards are communicated, accepted, and implemented by its staff" (Akhtar-Danesh et al., 2013, p. 259). The portrayers factor was the second most common among the nursing students. This group strongly believed that professionalism is best demonstrated through one's image and attire, including proper uniform and adherence to dress codes. The authors attributed this idea being popular among students due to "the symbolism and identification with the nurse's uniform reflecting professionalism for those still learning about the profession" (Akhtar-Danesh et al., 2013, p. 264). Being as professional appearance and strict adherence to dress codes are commonly emphasized in nursing programs, students may place

importance of professional appearance in the health care setting, which typically excludes visible body modification.

The influence of education on student perceptions of professional appearance is also evident (O'Brien, Copus, Johnson, Inglehart, and Habil, 2019). Dental hygiene students and patients were shown photographs of male and female dental hygienists to evaluate hairstyle, clinical jackets, and ear jewelry and were then asked to rate their professional qualities. The results showed that the students consistently evaluated the female clinician with the unprofessional hairstyle, which was down and around the shoulders instead of pulled back in a bun, less positively than the patients (O'Brien et al., 2019). In addition, the dental students rated the female and male hygienists with unprofessional ear accessories, the female wearing large hoops and the male wearing ear plugs, less positively than the patients (O'Brien et al., 2019). When analyzing the results, the authors concluded that "dental hygiene students learn the aspects of professionalism during their education, and graduates strive to uphold the dental hygiene oath to maintain the highest standards of professional competence and personal conduct" (O'Brien et al., 2019, p. 38). Not only does this study demonstrate that current enrollment in a program may influence students' perceptions of professional appearance, but it also suggests that students may have differing standards regarding professional appearance than patients.

Research Question

Personal appearance is typically one of the first aspects noticed about an individual, so perceptions of health care workers' appearance may have significant effects on a variety of patient outcomes. While some information about patient perceptions of body art and modification exists, there is little information about how nursing students perceive them.

Therefore, the purpose of this study is to begin to close that gap. The research questions for this study are as follows:

RQ1: What are nursing students' perceptions of health care workers' skill based on appearance?

RQ2: What are nursing students' perceptions of health care workers' compassion based on appearance?

RQ3: What are nursing students' perceptions of health care workers' trustworthiness based on appearance?

RQ4: What are nursing students' perceptions of health care workers' knowledge based on appearance?

Methods

Research Design

This study used a cross-sectional descriptive survey design to investigate nursing students' perceptions of health care workers' appearance and the dependent variables of compassion, skill, knowledge, and trustworthiness.

Sample

Power analysis

A statistical a priori power analysis was performed for sample size estimation using Cohen's (1988) recommendations. The effect size in this study was considered to be small (d = .30) with alpha coefficient ($\alpha = 0.05$) and power ($\beta = 0.80$). Using G*Power 3.0.10 (Faul, Erdfelder, Lang, & Buchner, 2007) the required sample size for this study was 140. The actual sample size for this study was 137. Post-hoc power analysis using G*Power 3.0.10 (Faul et al.,

2007) indicated that the sample size of 137 was powered at $\beta = 0.79$ which was adequate to achieve the aims of this study.

Sampling & Recruitment

Using non-probability convenience sampling, undergraduate nursing students were recruited from a single institution in Northeast Tennessee. Participants were recruited from all undergraduate nursing education tracks, including the 1) traditional BSN; 2) accelerated BSN; 3) LPN-to-BSN; and 4) RN-to-BSN. Participants were required to meet the following criteria: 1) be at least 18 years of age or older, 2) be able to read and understand English, 3) be a nursing student, and 4) reside in the US. After IRB approval, an initial email inviting potential participants to complete the survey was sent from the College of Nursing's Office of Student Services to all eligible undergraduate nursing students. A second reminder email was sent using the same process one week later. Participation was voluntary and no incentives for participation were offered. There were 167 participants who provided informed consent to access the survey. Some participants did not complete part of or all the required survey elements. Only completed surveys were used yielding a total sample size of 137.

Human Subjects Protection

Prior to recruitment, the PI completed the Collaborative Institutional Training Initiative (CITI) on-line as required by the institution. This study was determined to be exempt through the Institutional Review Board (IRB). Once approved through the IRB, study recruitment began. The survey was designed using the secure platform, REDCap, that allows for anonymity in participation. No URLs were saved, and no identifiable data were collected during the study. Participation was voluntary and participants had the right to skip survey questions or close out of the survey at any time. Informed consent statements were presented to participants via survey

link and prior to presentation of any survey question. Participants who agreed to complete the survey simply clicked “I agree”.

Instrument

The researcher-developed instrument consisted of three parts: 1) 32-item Likert-type survey; 2) four Yes-No questions; and 3) nine demographic questions. After providing informed consent, participants were asked to rate their perceptions of eight photos of health care workers’ appearance across the four dependent variables (i.e., compassion, skill, knowledge, and trustworthiness) based on a four-point Likert scale ranging from (1) Strongly Disagree to (4) Strongly Agree (e.g., This health care worker appears skilled). The photographs included both a female without body modification (Photo 1); female with eyebrow piercing (Photo 2); female with purple hair (Photo 3); female with sleeve arm tattoo (Photo 4); male without body modifications (Photo 5); male with nose piercing (Photo 6); male with purple hair (Photo 7); and male with sleeve arm tattoo (Photo 8).

The second part of the survey consisted of four items to assess participants’ past or present history of tattoos, piercings, or vibrant hair color. Questions included: 1) I have/have had a tattoo; 2) I have/have had a vibrant hair color (Example: pink, blue, purple, etc.); 3) I have/have had body piercings/modification (other than standard ear piercing); and 4) I have been cared for in a health care facility by a worker with a tattoo/body piercing/vibrant hair color. Each item could be answered with Yes, No, or I don’t know/I don’t remember.

The final part of the survey consisted of a demographic questionnaire to allow for comparison between groups. The questionnaire consisted of 9 items, including undergraduate nursing track, semester of the nursing program, gender, age, race/ethnicity, marital status, region

of residence in Tennessee, and type of area in which the participant was raised (e.g., rural, urban, metropolitan). A final question asked about current or previous work in a health care facility.

Data Collection

Data was collected using REDCap, a secured survey platform supported by the academic institution. Data collection occurred over two weeks. Eligible participants received an email invitation to the research study that included a link to the survey. If participants chose to do so, they clicked on the link and were taken to an informed consent statement. Participants could not advance into the survey unless they clicked "I Agree" on the informed consent statement. From there, participants who agreed to participate were taken to the research survey beginning with presentation of the photos, followed by the "Yes/No/I don't know" questions, and concluding with the demographic questionnaire. Participants were permitted to skip questions if desired. Participants were also able to choose the date, time, and location for completing the survey. Data was then uploaded into the REDCap server and then downloaded from REDCap into Excel spreadsheets for data analysis.

Data Analysis

Demographic data were analyzed using descriptive statistics including percentages, frequencies, and means. Demographic variables included a) student program (e.g. traditional BSN, accelerated BSN, etc.); b) semester of study (e.g. 1st, 2nd., 3rd, etc.); c) gender; d) age; e) race/ethnicity; f) marital status; g) state geographic location (e.g. Northeast, Southwest, etc.); h) rurality/urbanity; and i) health care employment/experience. Participants were also asked to answer the following four "Yes or No" questions: 1) "I have/have had a tattoo"; 2) "I have/have had vibrant hair color (example: pink, blue, purple, etc.)"; 3) "I have/have had body

piercings/modification (other than standard ear piercing)"; and 4) "I have been cared for in a health care facility by a worker with a tattoo/body piercing/vibrant hair color".

Additional data analysis was conducted using SPSS Version 25. The dependent variables of interest included self-report perceptions of compassion, skill, knowledge, and trustworthiness on a four-point Likert-type survey as described above in the "Instrument" discussion. Although Likert scales are ordinal in nature, sometimes the variables are treated as continuous in nature allowing for more powerful statistical analysis (Polit & Beck, 2017). The independent variable of interest was health care worker appearance as represented in the eight photos of health care workers with various body modifications as described above in the "Instrument" discussion. Since there is only one independent variable with multiple levels and continuous dependent variables, analysis of the variance (ANOVA) is appropriate. Statistical assumptions required by ANOVA include normally distributed dependent variables, mutually exclusive groups, and homogeneity of the variance (Munro, 2005). Although in this study, the assumption of homogeneity of the variance was violated, ANOVA was still appropriate as it is robust against this violation (Munro, 2005; Polit, 1996). More specifically, a one-way ANOVA was used as there is a single independent variable.

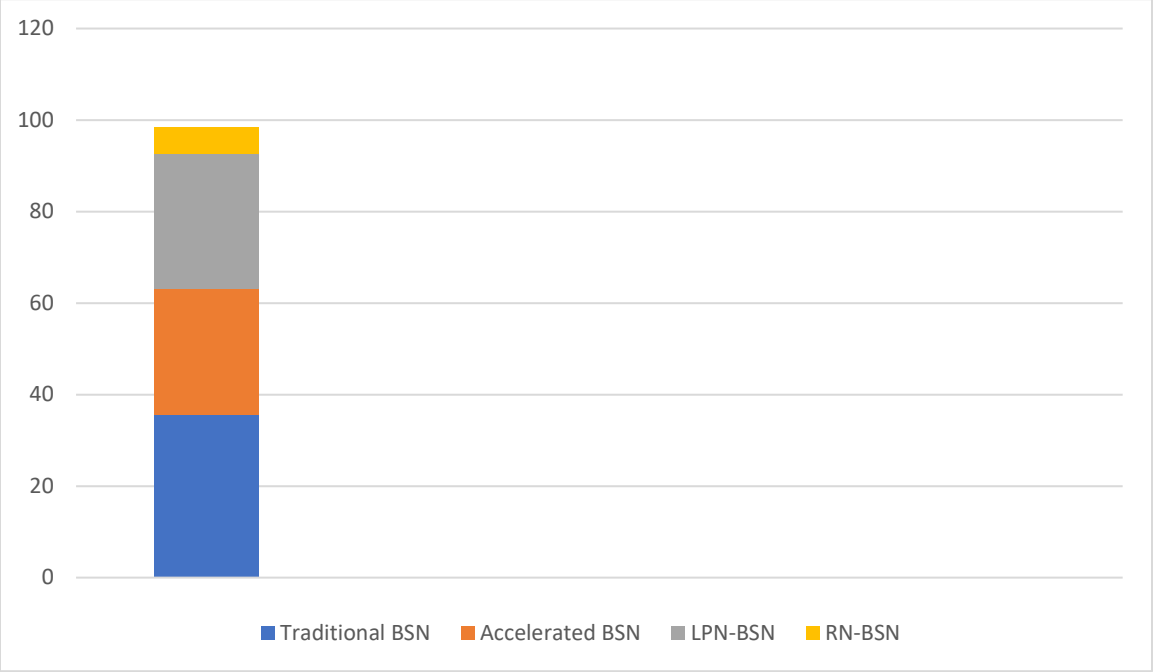
Results

Demographics

The final sample consisted of 137 undergraduate nursing students. Of these, the student programs represented included traditional BSN students (35.5%), LPN-to-BSN students (29.7%), accelerated BSN students (27.5%), and RN-to-BSN students (5.8%) (Figure 1).

Figure 1

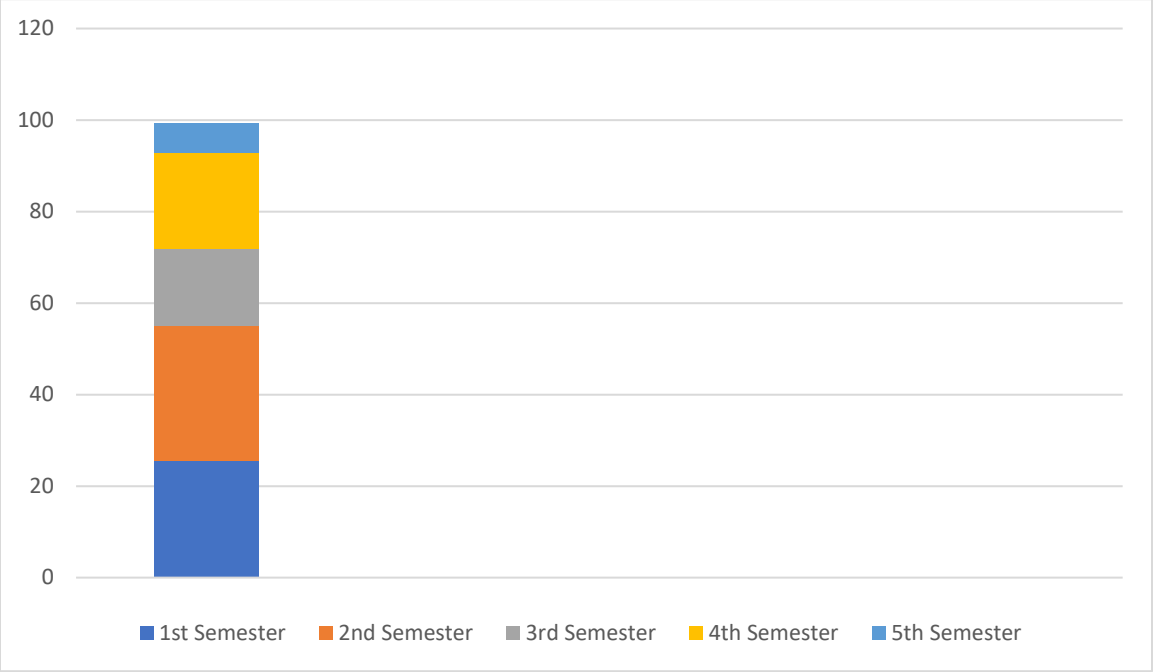
Students by Program Type



The majority of participants reported enrollment in second semester (29.7%), followed by first semester (25.4%), fourth semester (21%), third semester (16.7%), and fifth semester (6.5%) (Figure 2).

Figure 2

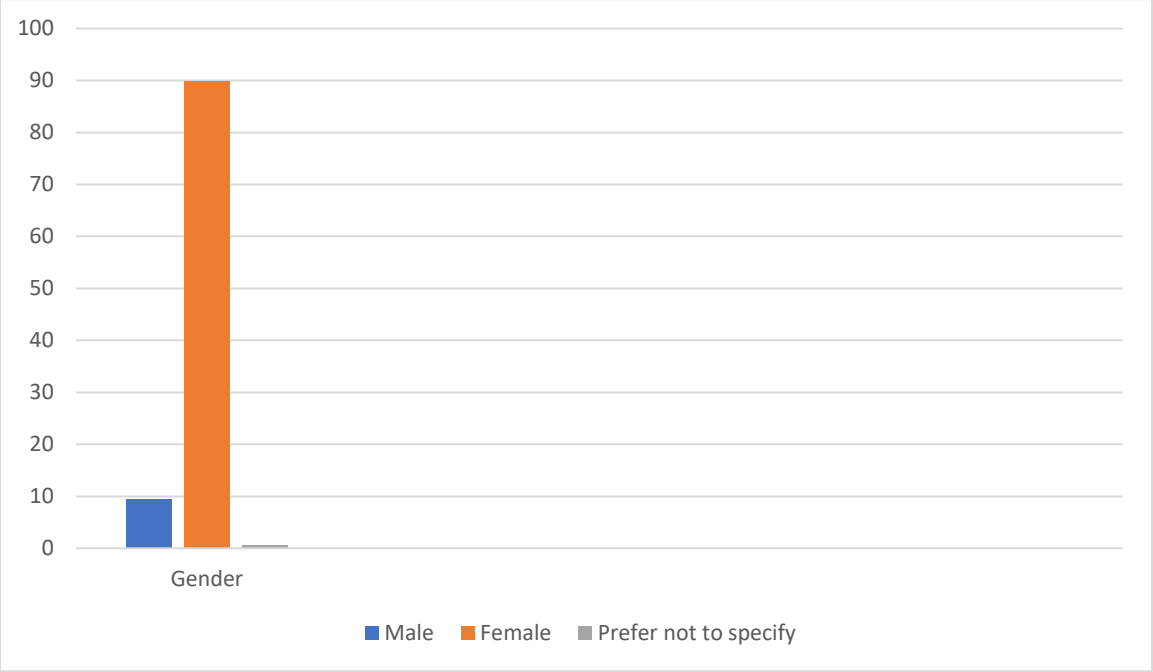
Students by Semester



As expected, a majority of participants were female (89.9%) with the remainder reporting male (9.4%) and preferring not to specify (0.7%) (Figure 3).

Figure 3

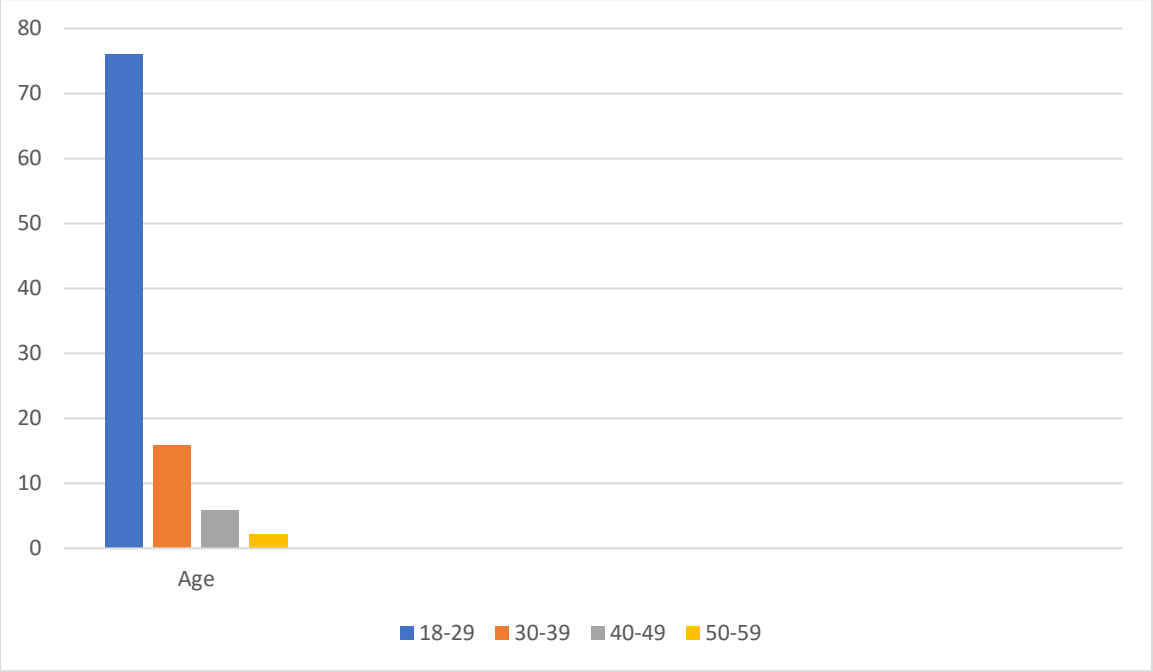
Students by Gender



Most participants were age 18 – 29 (76.1%), followed by 30 – 39 (15.9%), 40 – 49 (5.8%), and 50 – 59 (2.2%) (Figure 4).

Figure 4

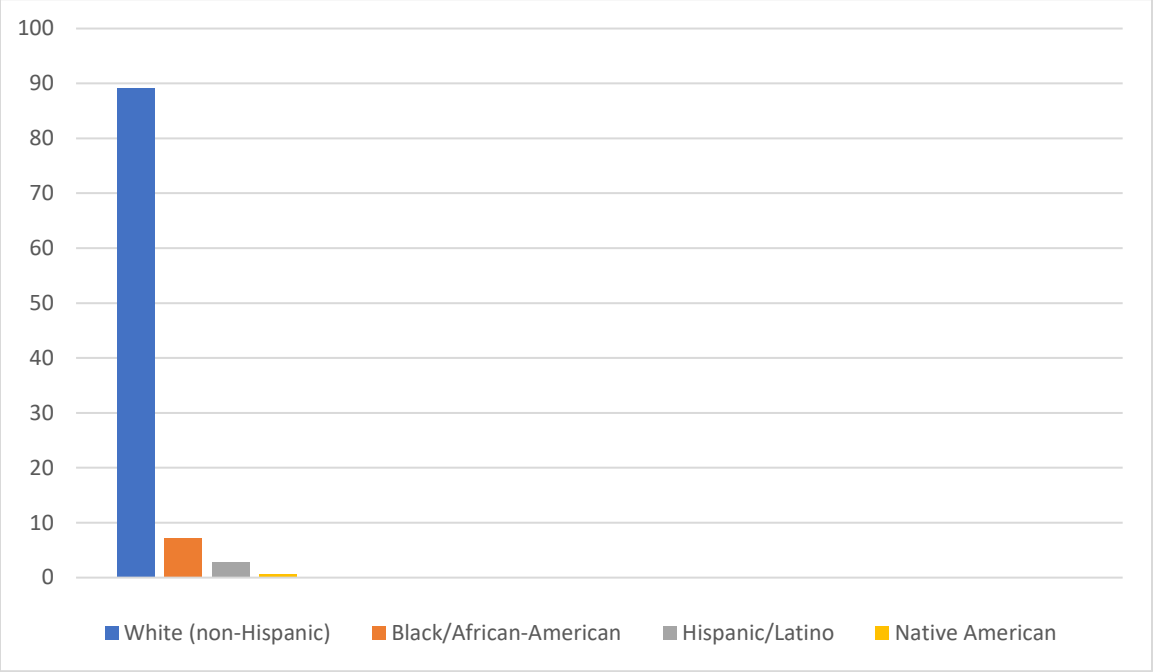
Students by Age



Most participants were White (non-Hispanic) (89.1%), followed by Black/African American (7.2%), Hispanic/Latino (2.9%), and Native American (0.7%) (Figure 5).

Figure 5

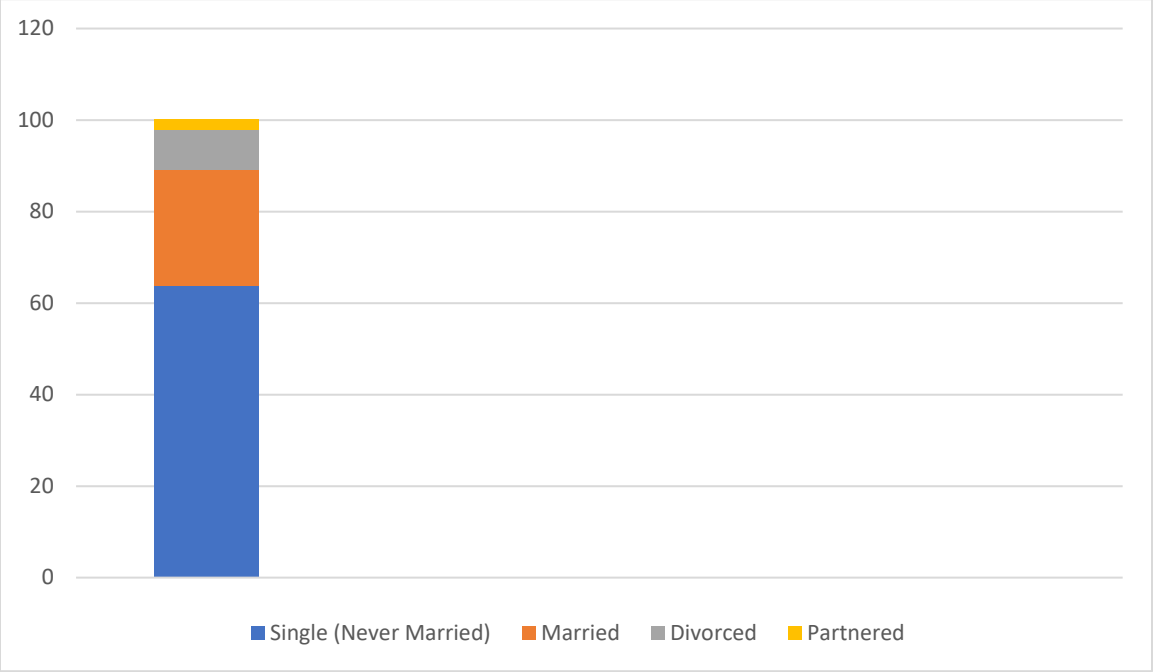
Students by Race/Ethnicity



A majority reported being single (i.e. never married) (63.8%), followed by married (25.4%), divorced (8.7%), and partnered (2.2%) (Figure 6).

Figure 6

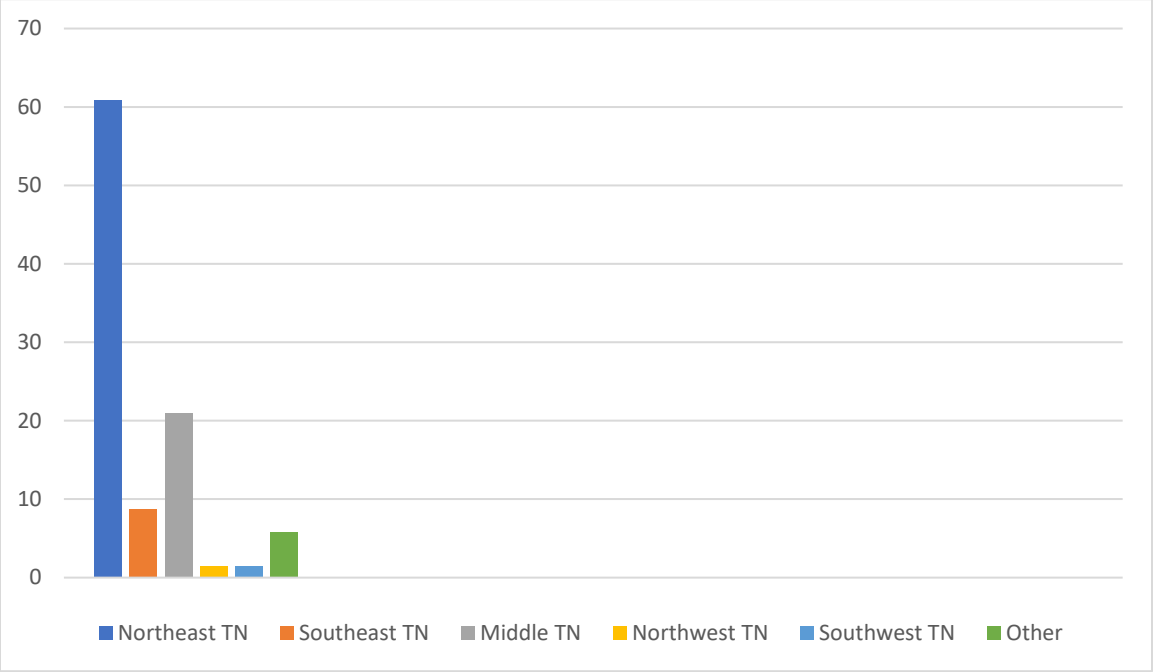
Students by Marital Status



Participants currently residing in Northeast TN made up most of the sample (60.9%), followed by Middle TN (21%), Southeast TN (8.7%), another location not listed (5.8%), Northwest TN (1.4%), and Southwest TN (1.4%) (Figure 7).

Figure 7

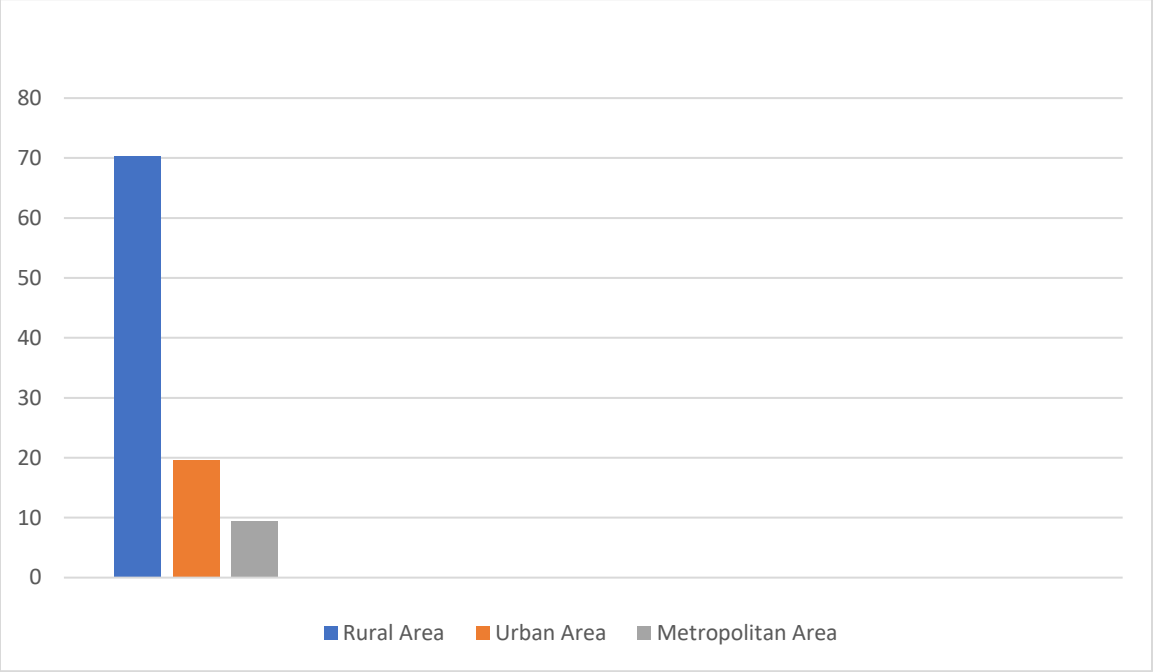
Students by Current Residence



Most participants (70.3%) grew up in a rural area, followed by an urban area (19.6%), and a metropolitan area (9.4%) (Figure 8).

Figure 8

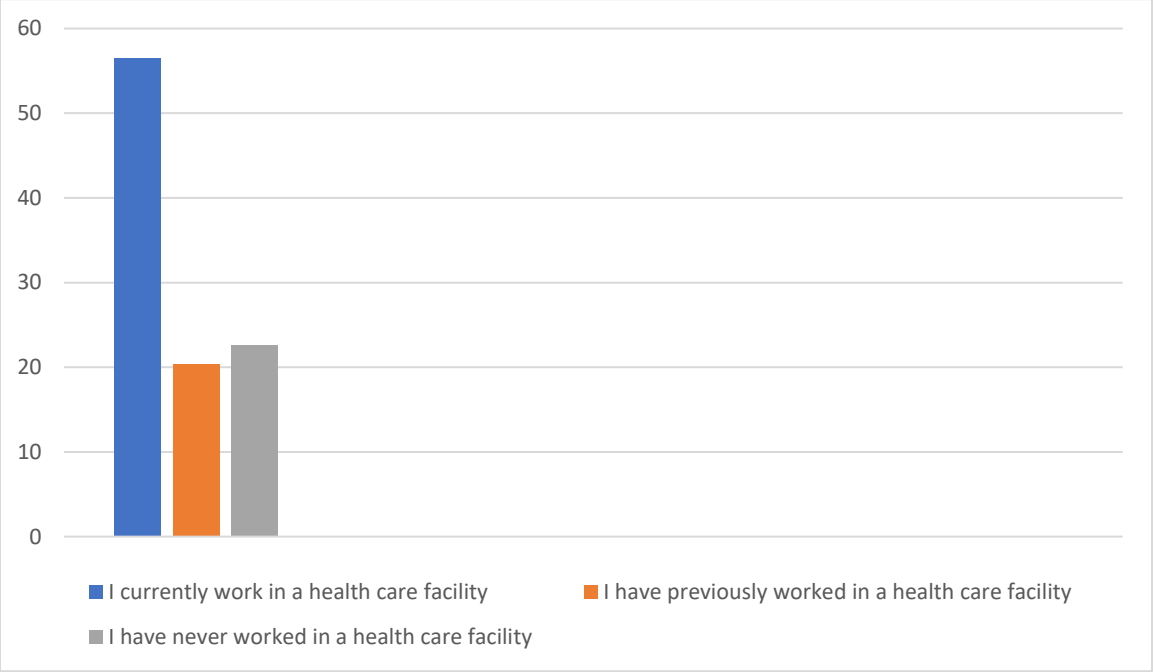
I Grew up in a(n)…



A little over half of participants (56.5%) reported currently working in a health care facility, followed by those who reported previously working in a health care facility (20.3%), and those who have never worked in a health care facility (22.5%) (Figure 9).

Figure 9

Employment at a Health Care Facility

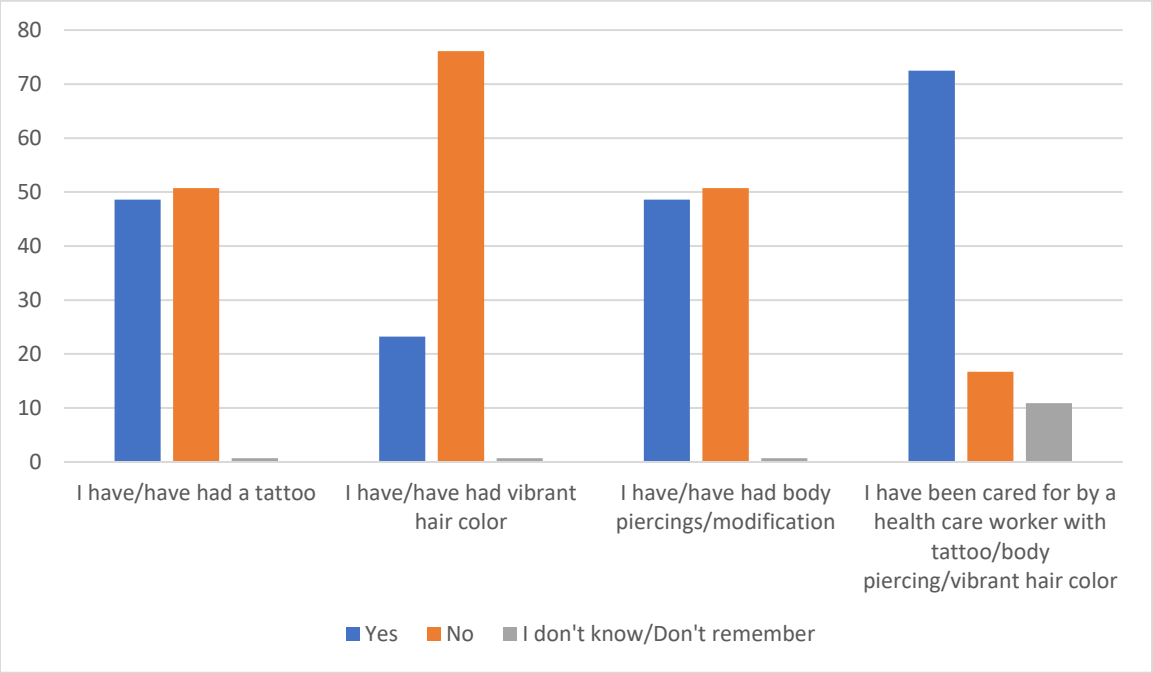


Yes/No/I Don't Know Questions

Figure 10 demonstrates the responses to the "Yes/No/I don't know" questions. In response to the question "I have/have had a tattoo", about half of the participants (50.7%) answered "No", while 48.6% of the participants answered "Yes". One participant (0.7%) responded with "I don't know". In response to the question "I have/have had vibrant hair color", a majority (76.1%) answered "No", 23.2% answered "Yes", and 0.7% answered "I don't know/I don't remember". A slight majority (50.7%) answered "No" to "I have/have had body piercings/modification (other than standard ear piercing)", followed by 48.6% answering "Yes", and 0.7% choosing "I don't know/I don't remember". Finally, 72.5% of participants reported being cared for in a health care facility by a worker with a tattoo/body piercing/vibrant hair color, while 16.7% answered "No", and 10.9% answered "I don't know/I don't remember".

Figure 10

Yes/No/I Don't Know Questions



One-Way ANOVA

To recall, the dependent variables (i.e., compassion, skill, knowledge, and trustworthiness) were measured using self-report on a four-point Likert-type scale where (1) = Strongly Disagree; (2) = Disagree; (3) = Agree; and (4) = Strongly Agree. The independent variable of health care worker appearance was represented in eight photos of various body modifications as already described. As shown in Table 1, there was a statistically significant difference between groups as indicated by the one-way ANOVA for each of the dependent variables: a) compassionate $F(7,1086) = 10.547$, $p = .000$; b) skilled $F(7,1088) = 9.228$, $p = .000$; c) knowledgeable $F(7,1087) = 9.523$, $p = .000$; and d) trustworthy $F(7,1087)$, $p = .000$.

Table 1

One-Way Analysis of Variance of Perceptions of Health Care Worker Appearance on Compassion, Skill, Knowledge, and Trustworthiness in Undergraduate Pre-licensure Nursing Students

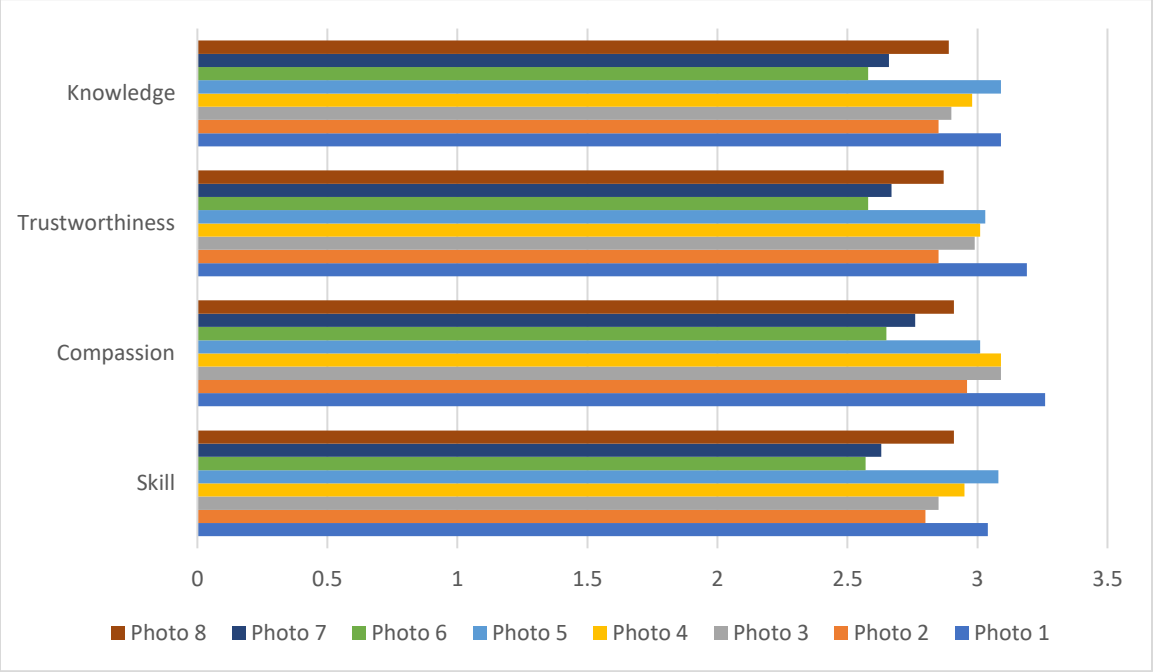
Variable	Source	*SS*	*df*	*MS*	*F*	*p*
Compassion	Between Groups	35.749	7	5.107	10.547	.000*
	Within Groups	525.861	1086	.484		
	Total	561.610	1093			
Skill	Between Groups	32.021	7	4.574	9.228	.000*
	Within Groups	539.328	1088	.496		
	Total	571.349	1095			
Knowledge	Between Groups	32.593	7	4.656	9.523	.000*
	Within Groups	531.495	1087	.489		
	Total	564.088	1094			
Trustworthiness	Between Groups	37.638	7	5.377	10.510	.000*
	Within Groups	556.110	1087	.512		
	Total	593.748	1094			

*$p < 0.05$

Post-hoc analyses were conducted using Fisher's Least Significant Difference (LSD). Results for both descriptive and post-hoc analyses are reported for each dependent variable below. Figure 11 shows the means for each of the dependent variables.

Figure 11

Dependent Variable Means



Skill

For the question, "This health care worker appears skilled," participants rated Photo 5 (male without body modifications) highest (M = 3.08), followed by Photo 1 (female without body modifications) (M = 3.04), Photo 4 (female with sleeve arm tattoo) (M = 2.95), Photo 8 (male with sleeve arm tattoo) (M = 2.91), Photo 3 (female with purple hair) (M = 2.85), Photo 2 (female with eyebrow piercing) (M = 2.80), Photo 7 (male with purple hair), and Photo 6 (male with nose piercing) (M = 2.57).

Results of Fisher's LSD post-hoc analysis revealed statistically significant differences in perceptions of skill based on health care worker appearance. There was a statistically significant difference between Photo 1 (female without body modification) and Photo 2 (female with eyebrow piercing) (M = 3.04; M = 2.80; p = 0.005), Photo 1 and Photo 3 (female with purple hair) (M = 3.04; M = 2.85; p = 0.021), Photo 1 and Photo 6 (male with nose piercing) (M = 3.04;

M = 2.57; p = 0.000), and Photo 1 and Photo 7 (male with purple hair) (M = 3.04; M = 2.63; p = 0.000). There was a statistically significant difference between Photo 2 (female with eyebrow piercing) and Photo 5 (male without body modifications) (M = 2.80; M = 3.08; p = 0.001), Photo 2 and Photo 6 (male with nose piercing) (M = 2.80; M = 2.57; p = 0.006), and Photo 2 and Photo 7 (male with purple hair) (M = 2.80; M = 2.63; p = 0.040). There was a statistically significant difference between Photo 3 (female with purple hair) and Photo 5 (male without body modifications) (M = 2.85; M = 3.08; p = 0.006), Photo 3 and Photo 6 (male with nose piercing) (M = 2.85; M = 2.57; p = 0.001), and Photo 3 and Photo 7 (male with purple hair) (M = 2.85; M = 2.63; p = 0.010). There was a statistically significant difference between Photo 4 (female with sleeve arm tattoo) and Photo 6 (male with nose piercing) (M = 2.95; M = 2.57; p = 0.000) and Photo 7 (M = 2.63; p = 0.000). There was a statistically significant difference between Photo 5 (male without body modifications) and Photo 6 (male with nose piercing) (M = 3.08; M = 2.57; p = 0.000), Photo 5 and Photo 7 (male with purple hair) (M = 3.08; M = male with purple hair; p = 0.000), and Photo 5 and Photo 8 (male with sleeve arm tattoo) (M = 3.08; M = 2.91; p = 0.040). There was a statistically significant difference between Photo 6 (male with nose piercing) and Photo 8 (male with sleeve arm tattoo) (M = 2.57; M = 2.91; p = 0.000). There was a statistically significant difference between Photo 7 (male with purple hair) and Photo 8 (male with sleeve arm tattoo) (M = 2.63; M = 2.91; p = 0.001).

Compassion

For the question, “This health care worker appears compassionate,” Photo 1 (female without body modification) was rated highest (M = 3.26). Photo 3 (female with purple hair) and Photo 4 (female with a sleeve arm tattoo) followed with the same rating (M = 3.09). These were followed by Photo 5 (male without body modifications) (M = 3.01), Photo 2 (female with the

eyebrow piercing) (M = 2.96), Photo 8 (male with the sleeve arm tattoo) (M = 2.91), Photo 7 (male with purple hair) (M = 2.76), and Photo 6 (male with the nose piercing) (M = 2.65).

Post-hoc analysis using Fisher's LSD revealed statistically significant differences in perceptions of compassion based on health care worker appearance. There was a statistically significant difference between Photo 1 (female without body modification) and Photo 2 (female with eyebrow piercing) (M = 3.26; M = 2.96; $p = 0.000$), Photo 3 (female with purple hair) (M = 3.26; M = 3.09; $p = 0.046$), Photo 4 (female with sleeve arm tattoo) (M = 3.26; M = 0.47; $p = 0.047$), Photo 5 (male without body modifications) (M = 3.26; M = 3.01; $p = 0.003$), Photo 6 (male with nose piercing) (M = 3.26; M = 2.65; $p = 0.000$), Photo 7 (male with purple hair) (M = 3.26; M = 2.76; $p = 0.000$), and Photo 8 (male with sleeve arm tattoo) (M = 3.26; M = 2.91; $p = 0.000$). There was a statistically significant difference between Photo 2 (female with eyebrow piercing) and Photo 6 (male with nose piercing) (M = 2.96; M = 2.65; $p = 0.000$), and Photo 7 (male with purple hair) (M = 2.96; M = 2.76; $p = 0.019$). There was a statistically significant difference between Photo 3 (female with purple hair) and Photo 6 (male with nose piercing) (M = 3.09; M = 2.65; $p = 0.000$), Photo 7 (male with purple hair) (M = 3.09; M = 2.76; $p = 0.000$), Photo 8 (male with sleeve arm tattoo) (M = 3.09; M = 2.91; $p = 0.037$). There was a statistically significant difference between Photo 4 (female with sleeve arm tattoo) and Photo 6 (male with nose piercing) (M = 3.09; M = 2.65; $p = 0.000$), Photo 7 (male with purple hair) (M = 3.09; M = 2.76; $p = 0.000$), and Photo 8 (male with sleeve arm tattoo) (M = 3.09; M = 2.91; $p = 0.037$). There was a statistically significant difference between Photo 5 (male without body modifications) and Photo 6 (male with nose piercing) (M = 3.01; M = 2.65; $p = 0.000$), and Photo 7 (male with purple hair) (M = 3.01; M = 2.76; $p = 0.003$). There is a statistically

significant difference between Photo 6 (male with nose piercing) and Photo 8 (male with sleeve arm tattoo) (M = 2.65; M = 2.91; p = 0.002).

Knowledge

For the question, "This health care worker appears knowledgeable," Photo 1 (female without body modification) and Photo 5 (male without body modification) were both rated highest (M = 3.09), followed by Photo 4 (female with sleeve arm tattoo) (M = 2.98), Photo 3 (female with purple hair) (M = 2.90), Photo 8 (male with the sleeve arm tattoo) (M = 2.89), Photo 2 (female with eyebrow piercing) (M = 2.85), Photo 7 (male with purple hair) (M = 2.66), and Photo 6 (male with nose piercing) (M = 2.58).

Again, results of Fisher's LSD post-hoc analysis revealed statistically significant differences in perceptions of skill based on health care worker appearance. There was a statistically significant difference between Photo 1 (female without body modification) and Photo 2 (female with eyebrow piercing) (M = 3.09; M = 2.85; p = 0.003), Photo 3 (female with purple hair) (M = 3.09; M = 2.90; p = 0.020), Photo 6 (male with nose piercing) (M = 3.09; M = 2.58; p = 0.000), Photo 7 (male with purple hair) (M = 3.09; M = 2.66; p = 0.000), and Photo 8 (male with sleeve arm tattoo) (M = 3.09; M = 2.89; p = 0.016). There was a statistically significant difference between Photo 2 (female with eyebrow piercing) and Photo 5 (male without body modifications) (M = 2.85; M = 3.09; p = 0.004), Photo 6 (male with nose piercing) (M = 2.85; M = 2.58; p = 0.002), and Photo 7 (male with purple hair) (M = 2.85; M = 2.66; p = 0.026). There was a statistically significant difference between Photo 3 (female with purple hair) and Photo 5 (male without body modifications) (M = 2.90; M = 3.09; p = 0.025), Photo 6 (male with nose piercing) (M = 2.90; M = 2.58; p = 0.000), and Photo 7 (male with purple hair) (M = 2.90; M = 2.66; p = 0.004). There was a statistically significant difference between Photo 4

(female with sleeve arm tattoo) and Photo 6 (male with nose piercing) (M = 2.98; M = 2.58; p = 0.000), and Photo 7 (male with purple hair) (M = 2.98; M = 2.66; p = 0.000). There was a statistically significant difference between Photo 5 (male without body modifications) and Photo 6 (male with nose piercing) (M = 3.09; M = 2.58; p = 0.000), Photo 7 (male with purple hair) (M = 3.09; M = 2.66; p = 0.000), and Photo 8 (male with sleeve arm tattoo) (M = 3.09; M = 2.89; p = 0.020). There was a statistically significant difference between Photo 6 (male with nose piercing) and Photo 8 (male with sleeve arm tattoo) (M = 2.58; M = 2.89; p = 0.000). There was a statistically significant difference between Photo 7 (male with purple hair) and Photo 8 (male with sleeve arm tattoo) (M = 2.66; M = 2.89; p = 0.006).

Trustworthiness

For the question, "This health care worker appears trustworthy," Photo 1 (female without body modification) was rated the highest (M = 3.19), followed by Photo 5 (male without body modifications) (M = 3.03), Photo 4 (female with a sleeve arm tattoo) (M = 3.01), Photo 3 (female with purple hair) (M = 2.99), Photo 8 (male with the sleeve arm tattoo) (M = 2.87), Photo 2 (female with eyebrow piercing) (M = 2.85), Photo 7 (male with purple hair) (M = 2.67), and Photo 6 (male with the nose piercing) (M = 2.58).

Post-hoc analysis using Fisher's LSD revealed statistically significant findings regarding perceptions of trustworthiness based on health care worker appearance. There was a statistically significant difference between Photo 1 (female without body modification) and Photo 2 (female with eyebrow piercing) (M = 3.19; M = 2.85; p = 0.000), Photo 3 (M = 3.19; M = 2.99; p = 0.018), Photo 4 (female with sleeve arm tattoo) (M = 3.19; M = 3.01; p = 0.035), Photo 6 (male with nose piercing) (M = 3.19; M = 2.58; p = 0.000), Photo 7 (male with purple hair) (M = 3.19; M = 2.67; p = 0.000), and Photo 8 (male with sleeve arm tattoo) (M = 3.19; M = 2.87; p =

0.000). There was a statistically significant difference between Photo 2 (female with eyebrow piercing) and Photo 5 (male without body modifications) (M = 2.85; M = 3.03; p = 0.042), Photo 6 (male with nose piercing) (M = 2.85; M = 2.58; p = 0.002), and Photo 7 (male with purple hair) (M = 2.85; M = 2.67; p = 0.036). There was a statistically significant difference between Photo 3 (female with purple hair) and Photo 6 (male with nose piercing) (M = 2.99; M = 2.58; p = 0.000), and Photo 7 (male with purple hair) (M = 2.99; M = 2.67; p = 0.000). There was a statistically significant difference between Photo 4 (female with sleeve arm tattoo) and Photo 6 (male with nose piercing) (M = 3.01; M = 2.58; p = 0.000), and Photo 7 (male with purple hair) (M = 3.01; M = 2.67; p = 0.000). There was a statistically significant difference between Photo 5 (male without body modifications) and Photo 6 (male with nose piercing) (M = 3.03; M = 2.58; p = 0.000), and Photo 7 (male with purple hair) (M = 3.03; M = 2.67; p = 0.000). There was a statistically significant difference between Photo 6 (male with nose piercing) and Photo 8 (male with sleeve arm tattoo) (M = 2.58; M = 2.87; p = 0.001). Lastly, there was a statistically significant difference between Photo 7 (male with purple hair) and Photo 8 (male with sleeve arm tattoo) (M = 2.67; M = 2.87; p = 0.023).

Two-way ANOVA

A two-way ANOVA was performed on the data to determine if there were statistically significant differences in perceptions of compassion, skill, knowledge and trustworthiness between students in differing program tracks (e.g. traditional, accelerated, etc.) and different semester levels (e.g. 1st, 2nd, etc.). This analysis revealed no statistically significant difference for any of the dependent variables between students in different nursing education program tracks. Similarly, there was no statistically significant difference for any of the dependent variables between students in various semesters.

Discussion

The results of this study indicate that nursing students may perceive health care workers' compassion, skill, knowledge, and trustworthiness differently based on various body modifications. Unsurprisingly, participants rated both the male and female without body modification highest on all four dependent variables. Although the male (M = 3.08) and female (M=3.04) without body modifications were rated the highest for "skilled", the male was rated slightly higher than the female health care worker. This is a particularly interesting finding considering that an overwhelming majority of the participants were female (89.9%), as it could suggest a belief that men are more skilled in the health care workplace than women. These results were reversed for "compassionate", where although the female (M = 3.26) and male (M = 3.01) health care workers without body modification were still rated the highest, the female was rated higher than the male. Once again, this finding could be related to beliefs that women possess more caring, sympathetic, and compassionate attributes than their male counterparts. This result could also suggest a bias within the sample, as a majority of participants were women. Further findings related to compassion showed that the second highest rated female photo was tied between the female with purple hair (M = 3.09) and the female with the arm sleeve tattoo (M = 3.09). This result suggests that when considering compassion, students may perceive little to no difference in females with various body modifications, including vibrant hair color and tattoos. Regarding "trustworthiness", results were similar to "compassionate", with the female health care worker without body modification (M = 3.19) rated higher than the male (M = 3.03) without body modification. These results point to the idea that when considering more emotional characteristics, such as compassion and trust, nursing students may hold women to a higher standard than men. Finally, regarding "knowledge", the male (M = 3.09) and the female (M = 3.09) with no body

modification were not only rated the highest amongst all the photos but were given the exact same rating from students. Knowledge was the only descriptor which produced the exact same result between the male and female health care worker, suggesting that in terms of knowledge, students may view male and female workers more equally.

For all four variables, the male and female with arm sleeve tattoos were rated the second highest following the male and female with no body modifications. This result may point to the idea that students perceive visible tattoos as more acceptable in the workplace than non-traditional hair colors or piercings. Considering that almost half (48.6%) of students reported having a tattoo, it is not unexpected that the ratings for the tattooed health care workers were second highest. These students, who have already made potentially permanent alterations to their bodies and will be entering the workforce in the future, may be more likely to view visible tattoos in the health care setting in a positive light.

Of every photograph of the female and male health care worker for each of the four variables, the male with the septum nose piercing was rated the lowest. This result could be attributed to a variety of reasons. One possibility is that nursing students may view men with facial piercings as less acceptable than women with facial piercings. Another possible explanation is that the specific type of piercing displayed in the photo of the male health care worker, a septum piercing, may be viewed as less acceptable than the piercing worn by the female health care worker, which was an eyebrow ring. Although the male with the nose piercing was rated the most negatively of all photographs, the female health care worker with the eyebrow piercing was also rated poorly across all variables. For all four variables, the male and female with facial piercings received the lowest ratings out of all photos for their respective gender. The data suggests that students view facial piercings as being the least acceptable form of body modification in a health

care setting. Although the exact same percentage of nursing students reported having body piercings or modification currently or in the past as with tattoos (48.6%), it is to be noted that specific types of piercings were not identified, meaning that students could have chosen "yes" as an answer to the question if they had multiple ear piercings which may be considered more acceptable to show in the workplace than facial piercings such as a nose, eyebrow, or lip piercing. In addition, it should be noted that "although the prevalence of body art is increasing as a cultural form of self-expression, perceptions of body art are slow to change" (Dorwart et al., 2010, p. 543). It is possible that although some students have some form of body modification, they still believe that it is unacceptable to show in a work setting. The second lowest rated across all four variables were the female and male with vibrant hair colors suggesting that, although boldly colored hair may be considered slightly more acceptable than facial piercings, it is still not viewed as a fully acceptable form of body modification in the workplace by nursing students.

Although tattoos, piercings, and vibrant colored hair were rated lower than no body modifications for the female and male health care worker for all four variables, the female was rated higher than the male in each. On the dependent variable "compassionate" the tattooed female ($M = 3.09$) was rated higher than the tattooed male ($M = 2.91$) despite having the same style of tattoo on the same body part. In addition, the difference between means was much greater when comparing the female to the male when considering piercings and vibrant hair color than with tattoos, illustrating that these two forms of body modification may be viewed as more appropriate for females to have. This begs the question of whether gender bias played a role in the responses, reflecting an idea that these forms of body modification are more acceptable for females than males. A similar response was found in O'Brien et al.'s (2019) study of the perception of professional appearance amongst dental hygiene students. The results showed that:

> The gender of the clinician photographed was shown to have a significant effect on the respondents' rating levels in all three areas (hairstyle, clinic attire, and ear accessories). In all three areas, male clinicians were rated as less professional than the female clinicians in all five of the related response items," which included descriptors of professionalism, hygiene, confidence, trust, and willingness to be treated by the provider. (O'Brien et al., 2019, p. 36)

In addition to having a similar result, there was a more equal distribution of gender amongst the participants in O'Brien et al.'s (2019) study, with 56% of participants being male students, and 44% female.

Something that may have an effect on one's idea of a professional image in the health care setting is prior experience and training in the field. Over half (56.5%) of the participants for this study reported currently working in a health care facility, followed by 20.3% reporting previous employment at a health care facility. These students have likely already been expected to adhere to dress code policies, which may prohibit visible body modifications. This may contribute to a preconceived idea that professional appearance in a work setting excludes visible body modifications, such as tattoos, piercings, and bold hair colors. In addition, participants' status as currently enrolled students in a nursing program may also contribute to their perceptions of professional appearance as most schools also have clearly defined dress code policies that closely align with the policies of their clinical partners.

Implications

There are implications for health care facilities and schools of nursing to consider as a result of this study. First, it is likely that students preparing to enter the work force will have some type of body modification, as almost half (48.6%) of the current sample reported having both a tattoo and a body piercing or modification currently or in the past. It is also likely that more students with body modifications will apply for admission and be accepted to schools of nursing. Denying students with body modification access to clinical sites may have serious consequences for the profession. It is possible that highly qualified students could be lost to attrition based only on the presence of body modifications if not permitted to enter clinical practicum sites. Considering the prevalence of body modifications in younger generations, it may be beneficial for health care facilities and schools of nursing to revisit their dress code policies to reconsider what is acceptable regarding body modifications. Additionally, changes in dress code policies regarding visible tattoos may be received positively by younger generations entering the workforce.

Limitations

As with any research study, limitations exist. First, an overwhelming majority (89.9%) of participants were female, meaning that there is a lack of male perspective in responses. This limitation could be responsible for gender bias in the results. Another limitation in the study was that an overwhelming majority (89.1%) of participants were White (non-Hispanic), resulting in a lack of racial/ethnic diversity. Further, there was unequal distribution of age groups, with 76.1% of participants being less than 30 years old. As discussed, there is a generational gap regarding body modification, as "nurses who are newer to the nursing profession at the ages of 22 to 29 years are… not afraid to express themselves through their appearance. However, older Americans have a more negative view of the tattooing trend… 51% of adults 50 to 64 years old believe that more people getting tattoos has been a societal change for the worse" (Thomas et al., 2010, p. 495).

Considering only 2.2% of participants were aged 50 – 59, input from this group is lacking in the study. In addition, these results cannot be generalized to other schools of nursing or health care facilities as the study was conducted using nursing students from one institution in Tennessee with a majority of participants (60.9%) representing only one part of the state. Even within states, specific cultural norms for appearance exist. It is possible that perceptions vary significantly across other parts of Tennessee and other U.S. states.

Conclusion

Body modifications, including tattoos, piercings, and vibrant hair colors have been practiced throughout history, remaining relevant throughout time and surging in popularity within the last few decades. Literature shows that younger generations are more likely to obtain body modifications as a form of self-expression, even those entering the health care field despite strict policies that many health care facilities have prohibiting visible body modifications. There is a scarcity of literature regarding how nursing students perceive the appearance of health care workers with visible body modifications, and this study aimed to begin to close that gap. Although there were differing perceptions about tattoos, piercings, and vibrant hair color for each of the four variables, findings show that nursing students perceive health care workers without body modifications to be the most compassionate, skilled, knowledgeable, and trustworthy. These findings may be beneficial to schools of nursing and health care facilities as they review and revise dress code policies in the future, taking into consideration the growing number of potential employees entering the workforce with body modifications as well as their ideas regarding professional image.

References

Akhtar-Danesh, N., Baumann, A., Kolotylo, C., Lawlor, Y., Tompkins, C., & Lee, R. (2013). Perceptions of Professionalism Among Nursing Faculty and Nursing Students. *Western Journal of Nursing Research, 35*(2), 248 – 271. doi: https://doi.org/10.1177/0193945911408623

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed). Lawrence Erlbaum Associates.

Cohen, M., Jeanmonod, D., Stankewicz, H., Habeeb, K., Berrios, M., & Jeanmonod, R. (2018). An observational study of patients' attitudes to tattoos and piercings on their physicians: The ART study. *Emergency Medicine Journal : EMJ, 35*(9), 538. doi:http://dx.doi.org/10.1136/emermed-2017-206887.

Daigle, A. (2018). Professional image and the nursing uniform. *The Journal of Continuing Education in Nursing, 49*(12), 555-557. doi:http://dx.doi.org/10.3928/00220124-20181116-06

Dorwart, S. D., Kuntz, S. W., & Armstrong, M. L. (2010). Developing a nursing personnel policy to address body art using an evidence-based model. *The Journal of Continuing Education in Nursing, 41*(12), 540-6; quiz 547-8. doi:http://dx.doi.org/10.3928/00220124-20100601-04.

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*, 175-191. https://doi.org/10.3758/BF03193146

Hanumanthayya, K., Balasubrahmanyam, G., Mohan, M., Mohan, S., & Nikhil, N. (2018). Hair Coloring – Hair Dyeing. *Journal of Medical Sciences, 8*(1), 13 –17. doi:10.26463/rjms/2018/v8/il/121003.

Koenig, L. M., & Carnes, M. (1999). Body piercing medical concerns with cutting-edge fashion. *Journal of general internal medicine, 14*(6), 379–385. https://doi.org/10.1046/j.1525-1497.1999.00357.x

Munro, B. H. (2005). *Statistical methods for health care research* (5th ed.). Lippincott Williams & Wilkins.

Newman, A. W., B.S., Wright, Seth W,M.D., M.P.H., Wrenn, K. D., M.D., & Bernard, A., B.S. (2005). Should physicians have facial piercings? *Journal of General Internal Medicine, 20*(3), 213-8. doi: http://dx.doi.org/10.1111/j.1525-1497.2005.40172.x.

O'Brien, M. B., Copus, A., Johnson, J., & Inglehart, M. R. (2019). Examining the Impact of Dental Hygienists' Professional Appearance: Patients' and dental student providers' perspectives. *Journal of Dental Hygiene, 93*(4), 33 – 43.

Owen, D. C., Armstrong, M. L., Koch, J. R., & Roberts, A. E. (2013). College students with body art: Well-being or high-risk behavior? *Journal of Psychosocial Nursing & Mental Health Services, 51*(10), 20 – 28. doi: http://dx.doi.org/10.3928/02793695-20130731-03

Polit, D. F. (1996). *Data analysis and statistics for nursing research*. Prentice-Hall.

Polit, D. F. & Beck, C. T. (2017). *Nursing research: Generating and assessing evidence for nursing research* (10th ed.). Wolters Kluwer.

Schmid, S. (2013). Tattoos – an historical essay. *Travel Medicine and Infectious Disease, 11*(6), 444 – 7. doi: http://dx.doi.org/10.1016/j.tmaid.2013.10.013

Schraff, A. (2006). *Body Modification.* Academic Therapy Publications.

Stracener, L. (2019, February 18). *Are tattoos becoming more common in professional fields as stigma lessens? Professionals weigh in.* The Standard. http://www.the-standard.org/are-tattoos-becoming-more-common-in-professional-fields-as-stigma/article_d47227e2-33b8-11e9-95f4-afefa90ffb1b.html

The art of hair coloring – A history. (2005). *Journal of the American Academy of Dermatology, 52*(3), P35 – P35. https://doi.org/10.1016/j.jaad.2004.10.155

Thomas, C. M., Ehret, A., Ellis, B., Colon-Shoop, S., Linton, J., & Metz, S. (2010). Perception of nurse caring, skills, and knowledge based on appearance. *The Journal of Nursing Administration, 40*(11), 489 – 497. doi: 10.1097/NNA.0b013e3181f88b48

West, M. M., Wantz, D., Campbell, P., Troutman, D., & Muthler, C. (2016). Contributing to a quality patient experience: Applying evidence based practice to support changes in nursing dress code policies. *Online Journal of Issues in Nursing, 21*(1), A1-A11. doi: http://dx.doi.org/10.3912/QJIN.Vol21No01Man04