Nursing and Health Sciences Workforce Diversity Research Using PhotoVoice: A College and High School Student Participatory Project

Sandra Benavides-Vaello, PhD, RN; Janet R. Katz, PhD, RN; Jeffery Chaichana Peterson, PhD; Carol B. Allen, PhD, RN; Robbie Paul, PhD; Andrea Lelana Charette-Bluff, M.Arch.; and Phyllis Morris, MSN, RN, CRNI

ABSTRACT
This participatory study used PhotoVoice and qualitative description to (a) mentor baccalaureate nursing and college students in workforce diversity research; (b) explore barriers and facilitators encountered by rural American Indian, Hispanic, and other high school students when attending college and pursuing careers in nursing or the health sciences; and (c) model a process of social action to help existing and future students. Baccalaureate nursing and graduate students participated in all stages of research, including dissemination. Five themes emerged from analysis of PhotoVoice data: (a) being afraid; (b) believing; (c) taking small steps; (d) facing fears; and (e) using support systems. Findings underscore the importance of helping students participate in efforts to increase workforce diversity through research. Increasing nursing and health sciences workforce diversity may require strategies developed within and tailored to specific cultures and communities. [J Nurs Educ. 2014;53(4):217-222.]

Diversifying nursing and other health professions to more closely reflect the demographics of the United States is an ongoing and vital endeavor to reduce health disparities (Flores, 2012). A lack of diversity results in lower trust and access to care (Saha & Shipman, 2008; Wilkinson & Randhawa, 2012; Winkelman, Ned, Ahn, Koehler, & Kennedy, 2009) that may be improved by increasing the number of providers working in rural and underserved communities. Because providers tend to return to their communities after obtaining degrees and licensure, nursing’s commitment to recruiting and retaining students from underrepresented and rural communities can affect health on several levels (Grumbach, 2011). Education and income levels are both social determinants of health (Braveman, Egerter, & Williams, 2011; Montez & Zajacova, 2013). Nursing can influence these determinants at both the community and individual levels. Giving high school, baccalaureate nursing (BSN), and graduate students from underrepresented communities opportunities to improve their education and income addresses health at the individual level, whereas improved health care and the addition of role models to work toward policy changes addresses health at the community level (Riley, 2010).

Pipeline programs to increase diversity usually begin in middle or high school, continue through college, and focus on financial aid, emotional and academic support, mentoring, and role modeling (Katz, 2007; Lupton, Vercammen-Grandjean,
Forkin, Wilson, & Grumbach, 2011; Sullivan & Suez-Mittman, 2010). Pipeline programs at the high school level should also address minority students’ perceptions that family obligations are a barrier to attending college (Evans, 2007; Katz, Oneal, & Paul, 2011; Katz, O’Neal, Strickland, & Doutrich, 2010). In rural and minority low-income communities, pipeline programs may simply provide students their first view of education and career opportunities (Katz, Smart, & Paul, 2010).

Despite more than 20 years of pipeline programs, the progress has been slow. The majority of nurses in clinical, educational, or research practice continue to be White: 83.2% compared with 65.6% of the U.S. population. American Indian/Alaska Natives make up 0.8% of the population and 0.3% of nurses. Hispanics and African Americans comprise 15.4% and 12.2%, respectively, of the U.S. population, and 3.2% and 5.4% of nurses (U.S. Department of Health and Human Services, Health Resources & Services Administration, 2010). Although nursing is more diverse than other health professions, it does not meet the needs of current society; rather, a major discrepancy exists between minority representation in nursing (and other health professions) and the actual numbers of minorities in the U.S. population (Sullivan & Suez-Mittman, 2010).

Increasing the numbers of underrepresented students in nursing and health science careers is a work in progress that demands innovative and effective solutions. To date, research on recruitment and retention has primarily emphasized pipeline programs. Pipeline programs are important; yet, creative research and interventions are still needed to help to understand, articulate, and act on the barriers that students—particularly underrepresented and rural students—identify and prioritize as keeping them from obtaining an RN, advanced practice, and research degrees.

The study described in this article was designed to determine the perceived barriers and supports for attending college and nursing school among populations of largely rural Hispanic and Native American youth. In addition, the study worked to teach research skills to BSN and other college student counselors. PhotoVoice was the approach used to provide a means of self-expression and opportunities for students to talk to policy makers and community members about their concerns and to help formulate solutions to benefit the health of communities. The primary aims were to (a) mentor baccalaureate nursing and college students in workforce diversity research; (b) explore barriers and facilitators encountered by rural American Indian, Hispanic, and other high school students when attending college and pursuing careers in nursing or the health sciences; and (c) model a process of social action to help existing and future students. The imperatives to increase diversity in nursing and health professions, to improve health disparities in the United States, and to assist BSN and other college students learning about research were the motivations for the current study.

**METHOD**

Qualitative description methodology was used with PhotoVoice to provide a participatory research approach (Wang & Burris, 1997). Students attending a 2-week summer residency program designed to recruit and retain disadvantaged students into nursing and health science careers were invited to participate in the study. College student counselors participated as co-researchers with faculty.

**PhotoVoice**

PhotoVoice encourages participants to photograph what they consider to be phenomena, people, places, and items significant to their daily existence. These images are used to prompt group-based discussions and lead to social action toward policy change. The theoretical underpinnings include Freire’s (1970) approach to critical education and feminist theories that suggest, “Power accrues to those who have voice, set language, make history, and participate in decisions” (Wang, Cash, & Powers, 2000, p. 82). The approach has been successfully used with a variety of populations, including adolescents in educational settings. Goodhart et al. (2006) described a PhotoVoice project that engaged college students in exploring issues related to safety, nutrition, sexual health, substance abuse, and parking on their college campus. Strack, Magill, and McDonagh (2004) reported on a Baltimore after-school program that provided opportunities for low-income youth between the ages of 11 and 17 years to successfully complete a community needs assessment. PhotoVoice research has also included communities describing environmental hazards in their homes as part of the National Children’s Study (Postma et al., 2010) and low-income families at risk for homelessness reflecting on home stability (Peterson, Antony, & Thomas, 2012). Studies with adolescents range from a detailed PhotoVoice project with immigrant Latino adolescents who described issues that both challenged and facilitated their adaptation and quality of life in their schools and communities (Streng et al., 2004) to Latinas performing community assessments (Hannay, Dudley, Milan, & Leibovitz, 2013), an exploration of community violence (Chonody, Ferman, Amitrano-Welsh, & Martin, 2013), and a health and food project with at-risk teens (Thomas & Irwin, 2013).

The approach used in the current PhotoVoice study is similar to others in an intentional move from a didactic transfer of knowledge to a dialogical construction of knowledge (Carleson, Engebretson, & Chamberlain, 2006). For instance, PhotoVoice not only documents the phenomena but also works to affect change through participant and researcher reflection and action (Newbury & Hoskins, 2008, p. 23). This goal differentiates PhotoVoice from photo elicitation, a method that has long been popular in visual ethnographic research (Harper, 1998, 2002; Pink, 2001; Schwartz, 1989). PhotoVoice is a participatory approach that involves participants as co-researchers, from the production of photographs through their analysis and dissemination to targeted policy makers and other audiences. Photo elicitation is an umbrella term that may include PhotoVoice but describes the practice of inserting photographs as props in research interviews to spur more in-depth interview responses, especially among reticent populations (Oliffe & Bottorff, 2007). PhotoVoice was used for the current study because it not only collects data, but it also may create the knowledge and motivation needed to take social action toward change (Braag, Bekeemeier, Spigner, & Huebner, 2011). It has been suggested that novel experiences, such as discussing perceptions throughphoto-
tographs, can provoke among all involved in the process, including faculty, counselors, student participants, and recipients, emotions of dissemination that “lead to more significant cognitive changes than would occur without the emotional element” (Carleson et al., 2006, p. 849).

Setting
A 2-week summer residential (on-campus) program was the setting for the current study. The purpose of the program was to encourage high school students to finish high school, go to college, and, eventually, become health professionals. During the program, health professionals from racial or ethnic groups similar to the students’ served as role models and mentors or worked as counselors. The curriculum included math, science, and English course work; cultural experiences; trust exercises, such as a ropes course; and days at the human anatomy and simulation laboratory.

Study Participants
High school students who attended the summer program were eligible to be included in the PhotoVoice study. The program attendees were recruited through visits to Tribal schools and local high schools and through a Health Resources and Services Administration (HRSA) Workforce Diversity grant program targeting disadvantaged rural students. As defined by the HRSA, rural disadvantaged includes students from low-performing high schools, low-income families, or the first generation to attend college. All participants met at least one or more of the criteria. Counselors were graduate and undergraduate nursing students, a medical student, and an architecture graduate student. Human subjects research approval was obtained from the institution’s review board for this study to include work with minors and vulnerable populations.

Procedures
BSN and other college-level student counselors received two training sessions on PhotoVoice methods, analysis, and dissemination and on how to successfully lead PhotoVoice focus groups. Study participants received training on the purpose, techniques, and processes of PhotoVoice, along with the research question: What are your perceptions of barriers and supports for going to college and becoming a nurse or other health professional? Participants were encouraged to take as many photographs as they wished over a 5-day period, illustrating the people, places, and things that conveyed their perspectives. Participants were asked to select five photographs they felt best represented their ideas. Digital images (photographs) were organized by focus group assignment, printed, and distributed to the corresponding participant, with copies provided to the focus group leader. Next, focus groups of five to six student participants each and one counselor or faculty leader presented their photographs using the mnemonic SHOWEd technique (Dahan et al., 2007). The SHOWEd process is designed to stimulate group interaction and the development of ideas. Focus groups were 1 hour in length and were audiorecorded to capture the discussions and align the photographs with the participants. Following the focus groups, participants and focus-group leaders reconvened for 45 minutes to report and begin data analysis. All focus-group interviews were transcribed verbatim, and notes were collected from a note taker at the 45-minute session to record group interactions.

Data Analysis
Using the constant comparison approach (Lindlof & Taylor, 2002), researchers and the student researchers identified categories for themes through a series of meetings and iterative discussions guided by van Manen’s (1990) selective or highlighting approach. Data were organized into exclusive and exhaustive categories for open and axial coding. In open coding, the initial step was conducted in the interviews themselves as participants and researchers engaged in a process of selecting, capturing, discussing, and thematizing photographs using SHOWEd: S (What do you see here?) H (What’s really happening here?) O (How does this relate to our lives?) W (Why does this situation, concern, or strength exist?) eD (What can we do about it? What things would you change to make things better? What things would you encourage to stay the same?). At the axial coding level, themes were iteratively compared and contrasted.

Criteria used to judge study rigor included credibility, dependability, transferability, authenticity, and confirmability (Lincoln & Guba, 1985; Polit & Beck, 2008; Sandelowski, 2000). Credibility was shown when audiorecording, and verbatim transcripts and findings were reviewed for plausibility by Native American and Hispanic staff of the university, by program counselors, and eventually by the participants themselves. Dependability, or stability and consistency of the data over time, was judged through collecting audit trails of data collection and analysis. The vivid descriptions of participants’ perceptions and meanings through photographs and text ensured the transferability of findings to other settings. To address authenticity, all participant perspectives were included in data analysis to provide as wide of a range of views as possible. Finally, this diversity in viewpoints in data analysis addressed the confirmanility of the findings, especially as participants themselves reviewed them. In addition, the participants reviewed the findings so their voices were reflected and honored (Katz et al., 2011) while producing useful and reliable results.

RESULTS
Participant Characteristics
Forty-five high school students (20 Native American, 19 Hispanic, 1 African American, 1 Pacific Islander, and 4 White non-Hispanic) participated in the study. Five participants were male and 40 were female, with an average age of 16.6 years. The majority of Native American and Hispanic participants came from rural or small urban locations. All participants were disadvantaged, as defined by the HRSA. Overall, participants indicated a growing awareness of themselves living within a larger system and the need to face difficulties head on to progress.

Themes
Five themes emerged from the data: (a) being afraid, (b) believing, (c) taking small steps, (d) facing fears, and (e) using support systems. Two overlapping concepts were threaded through all themes: (a) overcoming obstacles as a process and
a journey and (b) learning how to negotiate tensions between their own thoughts and feelings and family.

Theme #1: Being Afraid. For many participants thinking about going to college brought about fears of failure, isolation, and the loss of friends and family. The photographs and accompanying participant narratives depicted fears of wasting time, money, and family resources and having to overcome many large obstacles. Many participants feared that they would not succeed in higher education and equated this potential defeat as a harbinger of failure for the rest of their lives. Completing college and obtaining a degree embodied a brighter future for them and their families. Comments such as “my fear is being alone” and “fears of not being...good enough for the college” (male Native American, age 17) were common. A 16-year-old Latina participant remarked, “I just have a fear I’m not going to do as well as I’m doing in high school right now. And then my dreams are down the toilet and then it’s just over.” One photograph depicted money falling into a garbage can.

Theme #2: Believing. Given the anxieties expressed in theme one, the importance of faith and believing that success was possible was a shared conviction among participants. Participants were consistently optimistic while at the same time vague about how to achieve goals. Nonetheless, a general sense of belief in success and somehow forging ahead were emphasized. Photographs showed clouds with the light beyond, a dark corridor with light at the end, and participants taking pictures of themselves as happy and forward moving. One student said, “We could pass through rough times and just fall, and it will be hard to get back up, but somehow we will and we’ll finish what we need to do. We will get through what we need to do.”

Theme #3: Taking Small Steps. In trying to give expression to what success meant to them, participants photographed and discussed the idea of “taking small steps” to overcome obstacles. None of the participants viewed the road to higher education as being easy. However, many of the participants suggested that taking large steps could result in making catastrophic mistakes. Failure in college represented the end, a position from which one could not recover. Images representing this theme consisted of a ladybug on a tree, described as being small in a big world. One participant noted, “You’re taking small steps. You go forward not backwards.” Other participants equated “steps” to reaching a career as being natural and acceptable. Another participant’s depiction was much more literal: “It’s just life that some people can’t afford to get a higher degree. But I think we need people to be in the lower levels and then going up to be doctors and researchers and big professions. You don’t know how to go. So you’re just taking small steps.”

Theme #4: Facing Fears. Photographs of the ropes course and dark corridors with light at the end were also used to illustrate the critical necessity of being able to understand, identify, and directly face one’s fears. To cope effectively and to succeed, participants voiced awareness that college was not to be avoided due to fears. Fears must be recognized, faced, and addressed by finding support and moving toward important goals. Participants connected successful completion of the ropes course to their ability to face their fears. The ominous presence of the ropes seemed to compare to higher education. A participant relayed her thoughts in a photograph of another participant on the course by saying, “She’s going somewhere where she wouldn’t want to go, but has to.” The participant highlights the necessity of facing fears to reach the desired destination. In this case, the ropes course was a metaphor for the frightening and unknown, but necessary, path to college and, ultimately, success.

Theme #5: Using Support Systems. Even as participants illustrated their understanding of the difficulties, they also voiced their understanding of the tools required to succeed. Photographs depicting harnesses, pulleys, helmets, hands clasped with other individuals, and newfound friends acknowledged that they would not be able to complete their degree program alone. Participants also acknowledged that knowing support was needed was not enough to activate this resource. Support would not be handed to them, so finding it was ultimately up to the individual. These perceptions about support and related networks were common, particularly among first-generation college study participants (n = 41), who did not have peers or family with specific knowledge about higher education. The required tools identified ranged from family to friends to college staff and faculty, but also included inner strength. A 16-year-old Native American participant reported that strength was required to resist guilt about leaving home, something she knew did not support her success: “I want to go to college far away from home, but the people around you, they give you all this crap, guilt about, ‘Oh, you’re leaving us. You’re never coming back. You’re going to make new friends.’”

Twenty-two of the 45 study participants returned to the summer program and reviewed study results with the new summer students to confirm interpretations and themes. Participants made a poster of the results, which they shared in an oral presentation with parents, guardians, family members, and two vice presidents from the university. Students were able to discuss the findings clearly and were confidently empowered to speak on their own behalf. Parents responded with pride in the work the students had done. One mother stated, “This is so important, so incredible. Thank you.” Other parents remarked about not knowing that “the kids” (i.e., the students) were experiencing these things and found the presentation to be informative and impressive. The participants’ experience served as a rehearsal for going back to their communities and initiating a dialogue with school leaders and local policy makers. Although rudimentary, such action is a necessary and critical step toward instigating social change.

DISCUSSION

Barriers and facilitators identified by participants in this study are similar to those found in previous studies among underrepresented college aspirants (Barfield, Cobler, Lam, Zhang, & Chitiyo, 2012; Tran et al., 2009). Many of these barriers are addressed in pipeline programs, but action is also needed in the communities and schools of origin, in college and university precollege and early college curricula, and in professional schools. Similar to Pacific Islanders, most of the students in this study were raised in collectivistic cultures, thus the needs of the nuclear and extended families, as well as the community, are considered in decision making (Katz, 2005, 2007; Tran et al., 2009). Leaving family and community to go to college is a
momentous decision that requires students to consider how others, not just themselves, are affected. Participants in this study were reluctant to leave their families for a variety of reasons, including fear of the college environment, concern about leaving single parents to cope with younger siblings, and loss of social support and confidants. High school counselors and college recruiters can help reduce anxiety by providing anticipatory guidance and meeting with potential college students and their families to address specific concerns of both parties. This will facilitate the selection of a college location, development of plans for maintaining the desired level of contact with family, sharing responsibilities for the care of family members, and handling family emergencies. Precollege experiences—such as the summer program or similar opportunities for the student to leave home for a short time, to experience immersion in new environments, and to receive guidance from peers and faculty in developing strategies to manage the new setting and distance from family—were identified by participants as helpful in overcoming fears.

LIMITATIONS

It is expected that the phenomena explored in this study will ring true with educators and others involved in the recruitment and retention of students for careers in nursing and health sciences. However, differences may exist in the experiences and needs of students from differing cultural backgrounds and communities. Programs or policies need to carefully identify similarities and differences among the populations. One of the desired outcomes of the PhotoVoice approach is to develop a set of actions to address issues identified in the project (Wang, Yi, Tao, & Carovano, 1998).

CONCLUSION

It is apparent from the current study that students want to succeed and are willing to work hard to reach their goals. However, despite all that can be learned (i.e., the content) from a participant’s point of view regarding how to help students successfully navigate the college recruitment and retention process, another important result of this study rests on the ability of such a process to encourage the students to help themselves by reflecting on (a) their individual assets (e.g., their inner strength), (b) their current behaviors that are likely to help or hurt their ability to succeed (i.e., taking small versus big steps), and (c) the collective resources available to them (i.e., their community of like-minded individuals, as well as university and programmatic resources).

The study participants recognized and expressed willingness, or an individual motivation to tackle fears; however, whether they also recognized structural barriers, such as poverty or race, was not captured. If the latter is true, then ethnic minority students of low socioeconomic backgrounds are more aware of these issues than are given credit. This provides researchers and educators with a direction for developing finely tuned interventions and programs. Nursing and health sciences educators and government and private agencies must continue working to increase workforce diversity through pipeline and scholarship programs. However, this study demonstrates that students at the high school level need support making their way from the known home environment to the unknown college environment in ways that may vary by community. Future research is needed to uncover hidden cultural and class rules that students bring from their home communities. Researchers will be able to theorize not only about the individual strengths and weaknesses brought by individuals but also larger structural considerations that affect the patterns of thought, social interactions, and cognitive strategies that students draw upon as they adapt to their new environment and that may persist despite their acculturation to college life.

REFERENCES


data on Native American high school students perceptions of college and a career in nursing. International Journal of Nursing Education and Scholarship, 7(1). doi:10.2202/1548-923x.1971
Peterson, P.C., Antony, M.G., & Thomas, R.J. (2012). “This right here is all about living”: Communicating the “common sense” about home stability through CBPR and PhotoVoice. Journal of Applied Communication Research, 40, 247-270.