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Lisa Brown
DePaul University, LISA.BROWN928@GMAIL.COM

Saad Iqbal
DePaul University, ssiqbal786@gmail.com

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By

Lisa Brown RN, BSN

Saad Iqbal RN, BSN

Susan Krawczyk DNP, APRN, CRNA

Joseph D. Tariman, Ph.D., RN, ANP-BC, FAAN

Authors Information

Lisa Brown RN, BSN (principle author, corresponding author) is a student registered nurse anesthetist attending NorthShore University HealthSystem School of Nurse Anesthesia and DePaul University in Chicago, Illinois. Telephone: 219-869-9095 Email: lisa.brown928@gmail.com

Saad Iqbal RN, BSN (coauthor) is a student registered nurse anesthetist attending NorthShore University HealthSystem School of Nurse Anesthesia and DePaul University in Chicago, Illinois. Telephone: 773-297-9737 Email: ssiqbal786@gmail.com

Susan Krawczyk DNP, APRN, CRNA (coauthor) is a faculty member at the NorthShore University HealthSystem/DePaul University School of Nurse Anesthesia and a clinical CRNA at Loyola University Medical Center, in Maywood, IL. Email: skrawczyk@northshore.org

Joseph D. Tariman, Ph.D., RN, ANP-BC, FAAN (coauthor) is a faculty member and co-director for the DNP program at DePaul University in Chicago, Illinois. Email: jtariman@depaul.edu

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Cultural Competence in Student Registered Nurse Anesthetists in Illinois

Abstract

Objective: To determine the level of perceived cultural competence in student registered nurse anesthetists (SRNAs) in Illinois and make educational recommendations.

Methods: A descriptive, cross-sectional study was completed using the Clinical Cultural Competency Questionnaire (CCCQ) to evaluate the perceived level of cultural competence among SRNAs in Illinois. Four domains of clinical cultural competency [knowledge, skills, attitudes (awareness), and encounters] were evaluated and reported.

Results: The survey response rate was 16.7% (N=57). A statistically significant positive correlation was observed between cultural knowledge and age (*p=0.03).* There is a statistically significant difference in cultural knowledge between students attending a nurse anesthesia program in suburban Northeastern Illinois and students attending a large, urban university in the city of Chicago, with CCCQ knowledge *Mean Rank* scores of *38.44 and 13.77,* respectively. The overall level of perceived clinical cultural competence of SRNAs was low (*M*=3.13; *SD*=0.54*; Range*=2.17 to 4.89) in this study.

Conclusion: SRNAs need additional cultural education and training in their program of study to enhance their perceived level of cultural competence and to deliver culturally competent anesthesia care. The desire to become culturally competent coupled with deficient levels of cultural knowledge among SRNAs merits further work.

Keywords: cultural competence, cultural competence education, student registered nurse anesthetist, SRNA

Introduction

Cultural competence is of paramount importance in the United States. The US Citizenship and Immigration Services report each year over 700,000 immigrants from countries around the world are naturalized as US citizens.[1] According to Colby and Ortman, half of the American population is forecasted to belong to a group other than non-Hispanic whites by 2044.[2] By 2060, the number of Asians and Hispanics will increase from 5.4 percent and 17.4 percent to 9.3 percent and 28.3 percent of the total U.S. population.[2,3] Additionally, one in four patients accessing healthcare may not share the same cultural background as their providers by 2020.[4] According to the Association of American Medical Colleges, a majority of healthcare providers are Caucasian despite the diversifying patient population.[5] Furthermore, underrepresented minorities comprise 8.6% of the anesthesia workforce yet account for 32% of the U.S population.[6] This disparity speaks to the significance and relevance of cultural competence in anesthesia practice.

Cultural competence is realized when providers display personal awareness and culturally-specific skills in delivering care to a multi-cultural patient population.[7] Culturally competent care empowers patients and puts them at ease with medical treatments.[8] Lack of culturally competent care negatively impacts patients. They may not seek treatment for fear of being misunderstood, resulting in potential neglect and harm.[4] Moreover, a deficiency in cultural competence among healthcare providers can be detrimental, as details about a patient's traditional practices must be considered to prevent interactions between herbal supplements, anesthetics, medications, and procedures. In the field of anesthesia, any miscommunication or lack of thoroughness can lead to errors and impact patient safety.[4]

Culture encompasses an individual's religion, race, gender identity, sexual preferences, attitudes, life experiences, and subscribed social norms; each human exhibits a unique cultural identity which influences personal interactions.[3] Cultural competence is a dynamic and continual process requiring individuals to demonstrate cultural awareness, knowledge, skills, and comfort when interacting with people of cultural backgrounds different from their own. The diverse U.S. patient population requires anesthesia providers to be culturally competent to enhance patient safety and outcomes, yet there is little information available concerning the current level of cultural competence among anesthesia providers.

Further, the current level of perceived clinical cultural competence has not been previously examined in student registered nurse anesthetists (SRNAs). Hence, this study was conducted with two goals: to assess the current level of clinical cultural competence among SRNAs in the State of Illinois using a reliable and validated questionnaire and to identify educational gaps in their program of study. Based on study results, a robust discussion on opportunities and strategies to enhance the cultural competence among SRNAs in clinical practice is included in this article.

The Process of Cultural Competence in the Delivery of Healthcare Model guided this study. This model defines cultural competence as a process wherein a healthcare provider never assumes his or her own proficiency and continually and willingly endeavors to function within a client's cultural milieu.[9,10] Cultural awareness is defined as "the self-examination and in-depth exploration of one's own cultural and professional background," and cultural knowledge is defined as "the process of seeking and obtaining a sound educational foundation about diverse cultural and ethnic groups."[9,10] Cultural skill refers to the gathering and processing of culturally specific information and performing thorough, patient-specific assessments.[9,10] The construct of

cultural encounters encompasses active and meaningful cross-cultural interactions and the construct of cultural desire involves the aspiration to partake in the life-long journey of becoming culturally competent.[9,10]

Methods and Materials

Design. A descriptive, cross-sectional, online survey study design utilizing the Clinical Cultural Competency Questionnaire (CCCQ) was employed to evaluate the perceived level of overall cultural competence among SRNAs enrolled in nurse anesthesia programs in Illinois. Four domains of clinical cultural competency [knowledge, skills, attitudes (awareness), and encounters] were evaluated and reported.

Sample. The sample consisted of SRNAs enrolled in a nurse anesthesia program in the state of Illinois. Individuals enrolled in these programs have, at minimum, one year of critical care nursing experience and a Bachelor of Science in Nursing degree.[11] There are five nurse anesthesia programs in the state: NorthShore University HealthSystem School of Nurse Anesthesia (NSUHS), Rosalind Franklin University of Medicine and Science Nurse Anesthesia Program (RFUMS), Rush University College of Nurse Anesthesia (RUMC), Southern Illinois University Edwardsville School of Nurse Anesthesia (SIUE), and Millikin University and Decatur Memorial Hospital Nurse Anesthesia Program (DMH). Program durations average 36 to 40 months, the average graduating class size is between 20-25 students, and an average of 68 students are currently enrolled at each school, thus, there are approximately 340 SRNAs in the state of Illinois.[11] Each school registers their students for membership with the American Association of Nurse Anesthetists (AANA) and the Illinois Association of Nurse Anesthetists (IANA). Exclusion criteria include subjects less than eighteen years of age, certified registered

nurse anesthetist, anesthesiologists, students not attending a nurse anesthesia program in the state of Illinois, and participants who completed less than 75% of the survey.

Setting. This study utilized Qualtrics Online Survey Research Platform. This platform allowed participants to complete the online survey using any electronic device with internet access.

Instrument. The Clinical Cultural Competency Questionnaire (CCCQ) is a validated and reliable survey that quantitatively measures cultural knowledge, skill, awareness, and encounters using a series of five-point Likert-type scale questions (or items).[12] The tool operationally measures *cultural knowledge* with ten items; *cultural skill* with fifteen items; *cultural encounters* with twelve items; *cultural attitudes,* a reflection of cultural awareness, with twenty-one items.[16] In keeping with the conceptual model utilized in this study, the level of clinical cultural competence is determined by adding the totals of each subscale; higher scores indicate greater levels of cultural competence and lower scores indicate lower levels of cultural competence.[9,10] The CCCQ instrument was adapted by researchers with permission from the primary author of the instrument and administered in conjunction with a six-item demographic survey to study participants.

Recruitment and Data Collection. After approval from Institutional Review Board (IRB) of DePaul University was obtained, the electronically prepared study materials (CCCQ survey, recruitment email, study information sheet) were electronically distributed to study participants by the executive director of the IANA. Researchers adhered to all rights of study participants. All correspondences and data collection procedures secured the anonymity of participants. A reminder email containing the same information as the initial recruitment email was sent two weeks after the original communication.

Initial recruitment measures did not result in the desired sample size, and an amendment was submitted to the IRB for additional recruitment approaches. Following IRB approval, the program directors of all nurse anesthesia programs in the state of Illinois were contacted and asked to forward the survey link to the SRNAs. Again, all correspondences and data collection secured the anonymity of the study participants. The survey was closed on January 10, 2019, after the desired sample size was met. The anonymous data set was exported from Qualtrics into Statistical Package for Social Sciences (SPSS) data file for statistical analysis.

Data Analysis. The data collected from the online survey were analyzed using the International Business Machine (IBM) SPSS software version 25.[13] A total of 57 surveys met the inclusion criteria. The demographic characteristics of the sample were summarized using frequencies and percentages (Table 1). The Cronbach's alpha coefficient value was calculated for each subscale of the CCCQ (Table 2). Next, the mean scores for each subscale were calculated, added, and then averaged to determine the total level of cultural competence among all participants. The Likert-type questions in the CCCQ inherently resulted in skewed data distributions and required the employment of nonparametric inferential statistics for the accurate determination of statistically significant differences in the CCCQ scores between groups (e.g., Mann-Whitney U test and Spearman's correlational test) and among three or more independent categorical groups (e.g., Kruskal-Wallis H Test).

Results

The sample was comprised of 40 females and 17 males. Approximately 78.9% of participants were Caucasian and 42.1 % spoke at least one language other than English. The average age of participants was 30 years old. There were participants from each of the five nurse anesthesia programs in the state of Illinois. Of the total sample, participants from NSUHS

comprised 54.4%, RFUMS participants comprised 15.8%, SIUE participants comprised 14%, RUMC participants comprised 12.3 %, and DMH participants comprised 3.5%. The breakdown of participants based on their year in anesthesia school was as follows: 31.6% were first year, 24.6% were second year, and 43.9% were third year (Table 1).

The CCCQ showed excellent validity and reliability. The overall calculated Cronbach's alpha coefficient for the survey was 0.961. The calculated Cronbach's alpha coefficients for all four subscales were all greater than 0.8 (Table 2).

The Likert-type questions were designed with five responses: 1. Not at all, 2. A little, 3. Somewhat, 4. Quite a bit, 5. Very. In keeping with the score analysis reported in a similar study, responses of 1 or 2 indicate very low levels of cultural competence, responses of 3 indicate fairly low levels of cultural competence, and responses of 4 or 5 indicate moderate to high levels of cultural competence.[14] Participants reported a fairly low level of cultural competence, with an overall mean score of 3.1 (*SD*=.54*; Range*=2.17 to 4.89). The reported overall mean scores for knowledge, skill, encounters, and attitudes (the measure of awareness) were 2.69, 2.86, 2.91, and 3.93, respectively. Spearman's correlation test revealed a statistically significant positive correlation between the mean scores for cultural knowledge and age (p= 0.03) (Figure 1). A Kruskal-Wallis H Test revealed a statistically significant difference in the mean ranks of cultural knowledge between participants attending RFUSM and RUMC (Figure 2). RFUMS students scored significantly higher than RUMC students in this subscale (p= 0.02). This finding indicates RFUMS students perceive significantly higher levels of cultural knowledge than RUMC students only, and no statistically significant difference in cultural knowledge exists among SRNAs in RFUSM and the SRNAs in three other nurse anesthesia schools in the state of Illinois.

More than half (N=30; 52,6%) of the study participants reported some form of cultural education in the their program of study. Of these 30 responses, 20 (66.6%) received a course, 3 (10%) attended a seminar, 2 (6.6%) partook in student presentations, 1 (3,3%) participated in short class discussions, 1 (3.3%) reported culturally relevant life experiences, and 1 (3.3%) expressed involvement in all of the above. However, there was no statistically significant difference in the overall mean scores on CCCQ between those who reported receiving education on culture and those that did not receive education (P=.384; 2-sided Mann-Whitney U). Further, non-parametric tests also showed no statistically significant correlation found between the overall mean scores on CCCQ and age (using Spearman's *rho*); no significant difference in the distribution of the overall mean scores on CCCQ between male and female groups (using Mann-Whitney U); and no statistically significant differences in the overall mean ranks on CCCQ between and among three or more independent groups according to ethnicity, nurse anesthesia school attended, and year in the anesthesia program (all the aforementioned test statistics had *p* values above the significance level of 0.05).

Discussion

The results of this study found that SRNAs in the state of Illinois have moderate to high levels of cultural awareness but low levels of cultural knowledge. This finding aligns with Hart and Mareno's report of moderate to high levels of cultural awareness and low levels of cultural knowledge in undergraduate and graduate prepared nurses across the United States.[14] These results are also supported by Repo and colleagues, who discovered 74% of graduating nursing students in Southern Finland demonstrate cultural awareness but lack full cultural competence.[15] These results contradict Shepherd and colleagues assertion that healthcare providers exhibit practical cultural knowledge but lack cultural awareness.[16] Shepherd and colleagues claim

providers are unaware of their cultural prejudice and how this prejudice impacts patient care.[16] Smith asserts that this lack of cultural awareness is a pitfall among many providers, educators, and students and is remedied with self-assessment and reflection.[17] However, the results of this study show that SRNAs exhibit cultural awareness and a strong desire for cultural knowledge. This finding indicates a need for a dedicated course concerning cultural competence and clinical immersion experiences with multi-cultural patient encounters rather than self-assessment and reflection.

This study found a statistically significant correlation between cultural knowledge and age, with older participants reporting higher levels of cultural knowledge. Sargent and colleagues also report a positive correlation between age and cultural knowledge in the level of perceived cultural competence among occupational therapists.[18] Suarez-Balcazar and colleagues report cultural knowledge increases as years of experience increases, although this correlation is not attributed to age; instead, it is a result of increased exposure to cultural encounters in the workplace.[19]

This study found no relationship between ethnicity and cultural competence. This finding should be interpreted within the context that 78% of the participants in this current study identified themselves as White while only 22% were non-White. Conversely, Repo and colleagues report a positive correlation between ethnicity and one's overall level of cultural competence.[15] Repo and colleagues also report individuals who participate in exchange programs demonstrate higher levels of cultural competence.[15] This assertion is echoed in several other studies, as integrative and immersive cultural experiences significantly increase cultural competence. [20,21,22,23,24]

Immersive cultural education is a recommended strategy to improve cultural competence. Immersive cultural education, wherein students receive both formal classroom cultural education plus an immersive cultural experience in a foreign country, results in higher levels of cultural competence than formal classroom education alone.[23,24] Teaching strategies that employ international service-learning immersion projects contribute to students' cultural encounters, knowledge, skills, awareness, sensitivity, self-efficacy, and understanding of cultural barriers.[23,24] The addition of debriefing and reflective learning after these service-learning experiences enhances these educational benefits.[23,24] This form of immersive training increases the frequency of cross-cultural encounters, which positively correlates with increased levels of cultural competence.[15,18,19,20,21,22,23,24]

Another educational strategy to improve cultural competence among SRNAs involves presentations. Lectures and presentations created and disseminated by minority groups to students increase cultural attitudes and knowledge.[25] This strategy relies on the direct involvement of minorities and requires educators to realize their limitations when teaching curriculums about cultures other than their own. If direct minority involvement is not feasible, Upvall and colleagues recommend student mentors.[26] For example, some students have more knowledge, experience, and comfort when interacting with individuals of certain cultural groups. Pairing these students with individuals with limited cultural encounters facilitates meaningful learning and enhances cultural competence in both parties.[26]

The desire to become culturally competent coupled with very low levels of cultural knowledge among SRNAs merits further work. Additional educational needs assessments should be performed on state and national levels. The American Association of Nurse Anesthetists (AANA) asserts cultural awareness and cultural competence are essential for the delivery of

high-quality, patient-centered care, as these provider characteristics have been shown to improve patients' health, engagement, and satisfaction.[27] The results of this study add to the current body of knowledge and should be included in future analyses to identify specific areas for improvement. Educational programs should be created and implemented based on identified areas of weakness.

Research to determine the most effective means to increase cultural competence in SRNAs is necessary. Based on the results of this study, authors strongly feel the inclusion of a dedicated course on multiculturalism and clinical cultural competence in the DNP Program curriculum is essential. Authors recommend these programs employ cultural immersion techniques, peer mentoring, and minority guest speakers to increase efficacy. Future studies in this area should be individualized by institution using systematic, rigorous research design. The authors suggest a longitudinal, pre (1st year in the program) and post (4th year in the program) test with randomization into intervention (e.g. immersion group) versus non-intervention (e.g. non-immersion group).

The participants of this study included SRNAs enrolled in a nurse anesthesia program in the state of Illinois. The results from this study may not be reflective of the cultural competency of SRNAs on a national level. Another limitation of this study stems from study recruitment. Despite the email being sent to all SRNAs in the state of Illinois, it was difficult to recruit an equal number of participants from each school. Therefore, the sample size from each school varied considerably. SRNA participation was voluntary, and the sample size may not be representative of all the SRNAs in Illinois. The data must be interpreted with caution given that they were self-reported and could be perceived as being subjective in nature. Self-reported data

can lead to recall bias and social desirability bias, as the questions in this survey cover sensitive topics.[28]

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Table 1. Demographic Characteristics of Study Participants	n	%
Gender		
Male	17	29.8
Female	40	70.2
Self-identified Ethnicity		
African American/Black	1	1.8
Asian American	7	12.3
Latino/ Hispanic	1	1.8
Native Hawaiian/ Pacific Islander	1	1.8
White	45	78.9
Mixed Race	2	3.5
Other Spoken Languages		
Yes	24	42.1
No	33	57.9
Nurse Anesthesia Program		
Millikin University and Decatur Memorial Hospital Nurse Anesthesia program	2	3.5
NorthShore University HealthSystem School of Nurse Anesthesia/ DePaul University	31	54.4
Rush University College of Nursing Nurse Anesthesia Program	7	12.3
Rosalind Franklin University of Medicine and Science	9	15.8

Nurse Anesthesia Program		
Southern Illinois University Edwardsville School of Nursing/Anesthesia Nursing Specialization	8	14.0
Year in Program		
First Year	18	31.6
Second Year	14	24.6
Third Year	25	43.9
Education/Seminar/Course on Culture		
Yes	30	52.6
No	27	47.4
Types of Education/Seminar/Course		
Seminar/Lecture	17	
Class/Course	8	
Other Experience	1	
No education reported	4	

Table 2. Reliability of Individual Subscale		
CCCQ Subscale	Number of items	Cronbach's Alpha Coefficient Values for Subscales
Knowledge	16	0.877
Skills	15	0.956
Encounters	12	0.917
Attitudes	20	0.942
Overall CCCQ	63	0.961

Abbreviation: CCCQ, Clinical Cultural Competency Questionnaire

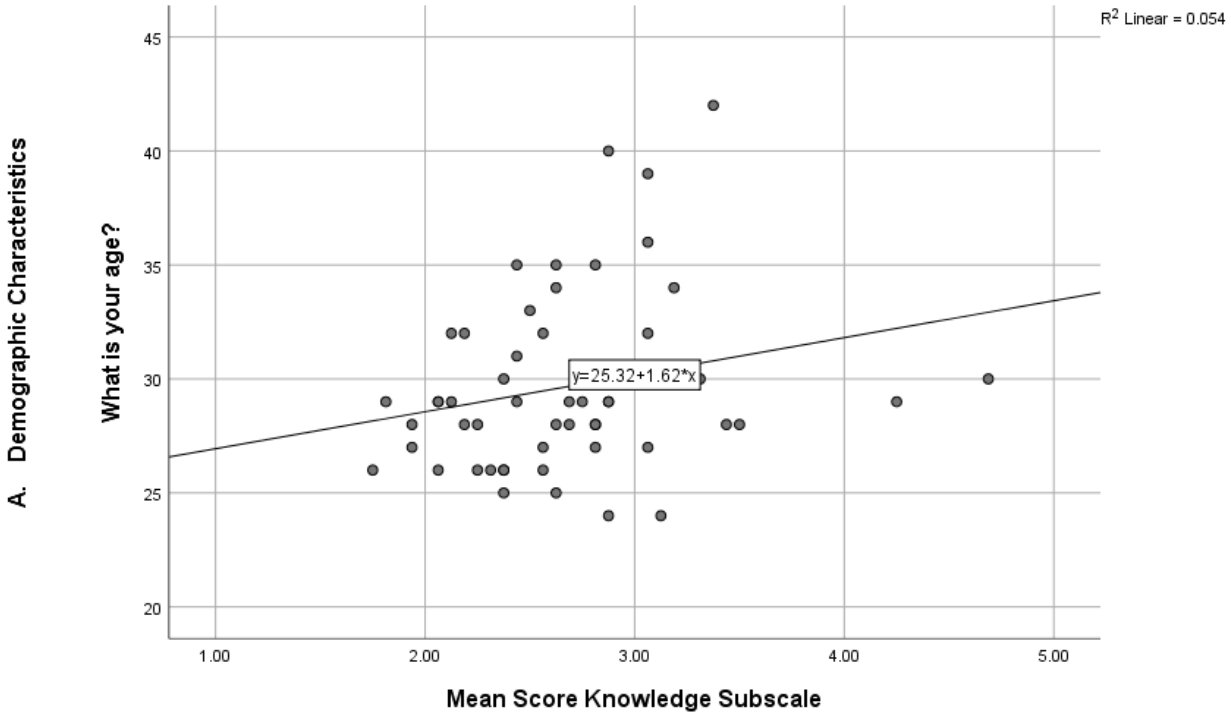

Figure 1. The relationship between participant age and mean cultural knowledge scores as demonstrated by a plot graft depicting a Spearman's correlation test. A statistically significant, positive correlation exists between participant age and mean scores for cultural knowledge (p= 0.03).