



## Research Article

# Development of Cultural Humility and Ethnocultural Empathy in Nursing Students

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### Abstract

**Objective:** Differences in cultural backgrounds, values, beliefs, and practices between healthcare providers and clients can create challenges and lead to disparities, and adverse events. Healthcare providers' cultural humility and ethnocultural empathy promote services that meet patients' social and cultural needs. However, it is unclear how to best promote the development of cultural humility and ethnocultural empathy amongst nursing students. The transformative learning theory, developed by Jack Mezirow guided the study. Students who participate in a cultural immersion experience will report higher cultural humility and ethnocultural empathy compared to students who receive a lecture.

**Methods:** This study used a quasi-experimental, pretest-posttest control group design. A non-randomized, convenience sample of 47 students was utilized. The ethnocultural empathy scale and the cultural humility scale were used to assess nursing student's cultural humility and ethnocultural empathy. Open ended questions explored the meaningfulness of the experience. Data was analyzed with bivariate and multivariate analysis to compare pre- and post-intervention data and differences between groups. A thematic analysis appraised open ended question responses.

**Results:** Students who participated in a cultural immersion experience reported significant higher cultural humility and ethnocultural empathy scores. Open ended questions revealed that the cultural immersion experience was meaningful and aided in the development of cultural humility and ethnocultural empathy.

**Conclusion:** A cultural immersion experience was useful in promoting the development of cultural humility and ethnocultural empathy in nursing students.

**Keywords:** cultural humility, ethnocultural empathy, nursing students, nursing education

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## 1 INTRODUCTION

Racial and ethnic diversity is growing in the United States (USA), and the USA Census Bureau projects that minorities, now 37% of the USA population, will comprise

57% of the population in 2060<sup>[1]</sup>. Disparities in outcomes, such as significantly lower life expectancy, fewer years of life free of activity limitation caused by chronic conditions, and higher infant mortality rates for USA racial/ethnic

minorities, are well documented<sup>[2]</sup>. Healthcare disparities result in decreased productivity, increased health-care costs, and social inequity<sup>[2]</sup>. Maina et al.<sup>[3]</sup> suggested that providers' bias, stereotyping, and prejudice play a role in healthcare disparities. Cultural humility and ethnocultural empathy promote providers' patient-centered, quality care, development of mutual respect between healthcare providers and clients, and can prevent health imbalances<sup>[4,5]</sup>. However, little is known about how best to promote the development of cultural humility and ethnocultural empathy amongst nursing students.

## 1.1 Review of Literature

### 1.1.1 Problem and Significance

Differences in cultural backgrounds, values, beliefs, and practices between healthcare providers and patients can create challenges and lead to miscommunications, disparities, ethical dilemmas, and adverse events<sup>[6,7]</sup>. The USA Census Bureau projects that our nation will become more diverse and a majority-minority nation for the first time in 2043<sup>[1]</sup>. Therefore, future health care workers' understanding of and respect for diverse cultural backgrounds, and ability to provide culturally appropriate care is essential. However, there is a lack of consensus and understanding, and high-quality evidence regarding which interventions are most effective, for whom, in what context, and why students' cultural skills, knowledge and attitudes should be addressed<sup>[8]</sup>.

### 1.1.2 Cultural Humility

Tervalon and Murray-Garcia defined cultural humility as "a lifelong commitment to self-evaluation and critique, to redressing the power imbalances in the physician-patient dynamics, and to developing mutually beneficial and non-paternalistic partnerships with communities on behalf of individuals and defined populations"<sup>[9]</sup>. According to Hook et al.<sup>[4]</sup>, cultural humility is a subdomain of humility that focuses specifically on cultural differences and the "ability to maintain an interpersonal stance that is other-oriented (or open to the other) in relation to aspects of cultural identity that are most important to the person". In healthcare cultural humility promotes a stronger working alliance between provider and client, improved in treatment, self-awareness, respect and openness to the client's cultural values and worldviews. Cultural humility enables the practitioner to acknowledge and reduce power differentials between provider and client, develop self-reflection and awareness, and leads to improved patient outcomes<sup>[4,10]</sup>. Further, cultural humility is a commitment and active engagement in a lifelong process that individuals enter with patients, communities, colleagues, and with themselves<sup>[4,9]</sup>.

### 1.1.3 Ethnocultural Empathy

Ethnocultural empathy draws from theories of general and cultural empathy, refers to empathy toward others from racial and ethnic backgrounds different from one's own, and includes four major components: empathic feeling

and expression (EFA), empathic perspective taking (EP), acceptance of cultural differences (AC), and empathic awareness (EA)<sup>[5]</sup>. Ethnocultural empathy is a learned ability that allows understanding of how people from a different ethnic background think, feel and see things from others' perspectives<sup>[5,11]</sup>. The concept of ethnocultural empathy is multidimensional, dynamic and can be learned and developed over time<sup>[5]</sup>. Ethnocultural empathy may promote sense of value for diversity, relational skills needed to provide quality care to patients from a different racial or ethnic background and reduce prejudice<sup>[12]</sup>.

Cultural immersion experiences can increase awareness and understanding of cultural concepts<sup>[13]</sup>, promoted cultural humility<sup>[14]</sup> and experiential learning opportunities in the community can increase students' ethnocultural empathy<sup>[15]</sup>.

## 1.2 Theoretical Framework

The transformative learning theory developed by Jack Mezirow in the 1970s, guided this study<sup>[16]</sup>. Conceptual and operational definitions are shown in [Table 1](#).

## 1.3 Research Hypothesis

Students who participate in a cultural immersion experience will report increased cultural humility and ethnocultural empathy compared to students that receive a lecture and reflection assignment.

## 1.4 Research Design

A nonequivalent pre-post-test control group quasi-experimental design investigated the impact of a cultural immersion experience on nursing students' cultural humility and ethnocultural empathy and compared it to a group that received a culture lecture and completed a reflection assignment<sup>[17]</sup>. Open ended questions explored the participants' perception related to their experiences.

## 2 MATERIALS AND METHODS

### 2.1 Population and Sample

For the experimental group, a non-randomized, convenience sample of participants included first-year associate degree nursing students at a large urban community college. Eligibility criteria included: (a) being enrolled in the first semester of the selected community college and the Introduction to Nursing course; (b) 18 years of age; and (c) speak, read, and write English proficiently.

The control group was drawn from first level undergraduate nursing students enrolled at a mid-sized university. Eligibility criteria for the control group included: (a) being enrolled in the first semester of the selected University; (b) 18 years of age; and (c) speak, read, and write English proficiently.

### 2.2 Study Procedure

All students in the experimental group experienced

**Table 1. Conceptual and Operational Definitions of the Variables in This Study**

| Variable              | Conceptual Definition   | Operational Definition   |
|-----------------------|---|--|
| Cultural Humility     | Cultural humility is a subdomain of humility that focuses specifically on cultural differences and the “ability to maintain an interpersonal stance that is other-oriented (or open to the other) in relation to aspects of cultural identity that are most important to the person” <sup>[4]</sup> . | Cultural humility scale: 12 items, 1-5-point scale with 1 representing “strongly disagree” and 5 “strongly agree” <sup>[4]</sup> .<br>Higher scores indicate higher cultural humility.   |
| Ethnocultural Empathy | Ethnocultural empathy is a learned ability that allows understanding how people with a different ethnic background think and feel and to see things from others’ perspectives <sup>[1,5]</sup> .  | Ethnocultural empathy scale (SEE): 31 items with 4 subscales, 6-point Likert-type scale with 1 = strongly disagree that it describes me to 6 = strongly agree that it describes me <sup>[5]</sup> . Higher scores indicate higher ethnocultural empathy. |
| Cultural Immersion    | Cultural immersion is an educational method that aims to increase cultural knowledge and sensitivity through direct interactions with culturally diverse populations.   | Cultural immersion experience: Students are confronted with cultural values, practices, and beliefs different than their own, promoting meaning-making, shaping beliefs, behaviors, and mindset  |

cultural immersion as part of their required course work. All students of the control group received a culture lecture and completed an assigned reflection exercise as part of their course work. Self-assessments were conducted at the beginning and at the end of the culture lecture and reflection assignment for the control group, and before and after the cultural immersion for the experimental group. Participants were recruited by the primary investigator by email after post measures. Data was collected via an anonymous Qualtrics link. To avoid a type II error, a power analysis using G\*Power was utilized to determine the size of the sample needed for this study. Because of COVID-19 restrictions, all research activities including data collection were completed online. Students in the intervention group visited online local cultural events or conducted an online interview with members of the chosen culture group in their metropolitan area. Students of the control group received an online lecture and reflection exercise.

This study took place from January to May 2021. Study participants completed the cultural humility and SEE scales online via Qualtrics pre-and post-intervention.

**2.3 Protections of Human Subjects**

Institutional Review Board approval was obtained at the selected College and the University. To reduce the Hawthorne effect, post-hoc consent was used. Students received an email and the link to the online consent form from the researcher, forwarded from the course faculty. Students were instructed to use their unique identifier to indicate if they “agree” or “do not want” their answers included in data analyses.

**2.4 Instruments**

Demographic information, including age, gender, ethnicity, marital status, parents’ education, media usage, multilingualism, international travel, and work or living overseas, was assessed at baseline.

Cultural humility was assessed pre and post-intervention

with the cultural humility scale<sup>[4]</sup>. For this study, the original (other-reported) scale was modified with permission from the author to a self-report scale. The scale consists of 12 items. Items are scored with a 1-5-point Likert scale with higher scores indicate higher cultural humility. Cronbach’s alpha coefficients are 0.86 (95% confidence interval (CI) [0.82, 0.89]) for the full cultural humility scale, 0.88 (95% CI [0.84, 0.91]) for the positive subscale, and 0.84 (95% CI [0.79, 0.88]) for the negative subscale<sup>[4]</sup>.

Ethnocultural empathy was assessed with the SEE, developed, and tested by Wang et al.<sup>[5]</sup> in 2003. This scale is a self-report instrument that measures empathy toward people of racial and ethnic backgrounds different from one’s own. The scale has 31 items and four subscales, uses a 6-point Likert-type scale. Cronbach’s alpha scores for the 31-item total scale is 0.91, and other internal consistency estimates for each of the four factors were: (a) EFE  $\alpha=0.90$ ; (b) EP  $\alpha=0.79$ ; (c) AC  $\alpha=0.71$ ; and (d) EA  $\alpha=0.74$ . Two-week test-retest reliability scores are: SEE total  $r=0.76$ , EFE  $r=0.76$ , EP  $r=0.75$ , AC  $r=0.86$ ; and EA  $r=0.64$ .

Five open-ended questions provided students the opportunity to share their perceptions of the cultural immersion activity and lecture and reflection assignment.

**2.5 Intervention**

The cultural immersion experience is an assignment for all first-semester students. During the first week of the semester, students were randomly assigned to groups of 6 students by the instructor. With the instructor’s approval, each group selected a culture (the chosen culture had to be different from any of the group members’ culture). Students had the option to either attended a cultural event or contact either a community center or member of their chosen culture. Each group researched their chosen culture and developed a 20-minute presentation which they shared with their class. Topics included in the presentation were language and communication patterns, family and gender

role practices, health care beliefs and practices, nutrition and dietary practices and a summary of the cultural immersion experience attended by the group. All students participated in the experience.

The comparison group received an online lecture examining effects of culture on communication, relationships, values, rituals, behaviors, implicit bias, and health issues related to minority groups. After the lecture students were directed to view a 2-minute video about cultural humility and complete a reflection exercise related to cultural awareness, cultural humility, and effects of culture on communication.

## 2.6 Data Analysis

The latest version on SPSS (27.0) was used for all statistical analysis. The data analysis plan was conducted in three phases. First, all study variables were presented using descriptive statistics. The second phase of data analysis was bivariate analysis (independent samples t-test, Pearson's *r* correlations). Any explanatory variables that are related to pretest to posttest change at a statistically significant level ( $P < 10$ ), were included in the third phase of data analysis (multivariate analysis) for each respective dependent variable scale and subscale. The third phase of data analysis was Multivariate Analysis. Specifically, a repeated measures general linear model was used. A reliability analysis indicated a sufficient level of internal consistency reliability (Cronbach's  $\alpha > 0.70$ ). Items CH\_3 CH\_11 CH\_12 of the cultural humility scale were removed to increase the alpha over 0.70.

## 3 RESULTS

One hundred and three students of the control group completed the pre and post intervention survey. The final data set for the control group included 29 students, resulting in a 28.2 % response rate. For the experimental group 30 students completed the pre survey and 28 students completed the post survey. The final data set for the control group included 18 students, resulting in a 60 % response rate.

### 3.1 Descriptive Analysis

Descriptive data indicated that the average study participant was 25.00 [standard deviation (*SD*)=6.57, minimum (MIN)/maximum (MAX)=19.00-43.00] years old and spent about three hours per day on social media (mean (*M*)=2.91, *SD*=1.50, MIN/MAX=1.00-7.00). The study group was about one third experimental ( $n=18$ , 38.3%) and two-thirds control ( $n=29$ , 61.7%). The overall sample was predominantly female ( $n=39$ , 83.0%), of a White/Caucasian racial identity ( $n=28$ , 59.6%), of a single, no regular partner marital status ( $n=29$ , 61.7%), and reported the highest parent education level of a college degree ( $n=31$ , 66.0%). About 20 % of the sample was multilingual ( $n=10$ , 21.3%) and had lived or worked overseas ( $n=9$ , 19.1%). Over two-thirds of the sample had traveled overseas ( $n=32$ , 68.1%). The most frequently reported central or important aspect of participants' cultural background was religion ( $n=18$ , 39.1%). Over three-

quarters of these participants reported this aspect of their cultural background was very important ( $n=35$ , 76.1%) (Table 2).

Data indicated that the average pretest cultural humility score was 4.33 (*SD*=0.47, MIN/MAX=2.78-5.00) and posttest cultural humility score was 4.46 (*SD*=0.47, MIN/MAX=2.67-5.00). Thus, the average study participant (via the pre/post difference score) evidenced and change of 0.13 (*SD*=0.36, MIN/MAX=-0.67-1.00) from pretest to posttest regarding cultural humility. The average pretest ethnocultural empathy score was 4.83 (*SD*=0.61, MIN/MAX=3.42-5.94) and posttest ethnocultural empathy score was 4.86 (*SD*=0.66, MIN/MAX=3.39-5.97). Thus, the average study participant (via the pre/post difference score) evidenced and change of 0.02 (*SD*=0.38, MIN/MAX=-0.81-0.84) from pretest to posttest regarding ethnocultural empathy (Table 3).

The average pretest EFA score was 5.00 (*SD*=0.72, MIN/MAX=3.27-6.00) and posttest EFA score was 4.98 (*SD*=0.66, MIN/MAX=3.73-5.93). Thus, the average study participant (via the pre/post difference score) evidenced and change of 0.02 (*SD*=0.46, MIN/MAX=-1.00-0.87) from pretest to posttest regarding EFA. The average pretest EP score was 3.97 (*SD*=1.03, MIN/MAX=2.00-6.00) and posttest EP score was 4.13 (*SD*=1.14, MIN/MAX=1.71-6.00). Thus, the average study participant (via the pre/post difference score) evidenced and change of 0.16 (*SD*=0.61, MIN/MAX=-1.43-1.14) from pretest to posttest regarding EP (Table 3).

The average pretest acceptance of cultural differences score was 5.42 (*SD*=0.68, MIN/MAX=3.00-6.00) and posttest acceptance of cultural differences score was 5.40 (*SD*=0.84, MIN/MAX=2.60-6.00). Thus, the average study participant (via the pre/post difference score) evidenced and change of -0.03 (*SD*=0.55, MIN/MAX=-1.40-1.20) from pretest to posttest regarding acceptance of cultural differences (Table 3).

The average pretest EA score was 4.98 (*SD*=0.87, MIN/MAX=2.00-6.00) and posttest EA score was 5.11 (*SD*=0.88, MIN/MAX=2.25-6.00). Thus, the average study participant (via the pre/post difference score) evidenced and change of 0.12 (*SD*=0.65, MIN/MAX=-1.75-1.50) from pretest to posttest regarding EA. The distribution of all the difference scores was approximately normal as the skewness and kurtosis were not approximately three times each respective standard error of each (Table 3).

### 3.2 Bivariate Analysis

Data indicated that the experimental and control groups did not differ significantly at pretest by cultural humility,  $t(45)=-0.17$ ,  $P=0.87$ , EA,  $t(45)=-1.83$ ,  $P=0.08$ , EFA,  $t(45)=-0.94$ ,  $P=0.35$ , acceptance of cultural differences,  $t(45)=-0.88$ ,  $P=0.38$ , and EA,  $t(45)=0.16$ ,  $P=0.88$ . However, the

**Table 2. Descriptive Analysis of Categorical Demographic Characteristics (n=47)**

| Variable  | M (SD)       | MIN/MAX     |
|---|--------------|-------------|
| Age   | 25.00 (6.57) | 19.00-43.00 |
| Hours per day spent on social media   | 2.91 (1.50)  | 1.00-7.00   |
| <b>Variable</b>   | <b>n</b>     | <b>%</b>    |
| <b>Study group</b>  |              |             |
| Experimental  | 18           | 38.3        |
| Control   | 29           | 61.7        |
| <b>Gender</b>   |              |             |
| Male  | 7            | 14.9        |
| Female  | 39           | 83.0        |
| Other   | 1            | 2.1         |
| <b>Race/Ethnicity</b>   |              |             |
| White/Caucasian   | 28           | 59.6        |
| Black or African American   | 7            | 14.9        |
| Hispanic or Latino  | 3            | 6.4         |
| Asian/Pacific Islander  | 8            | 17.0        |
| Other   | 1            | 2.1         |
| <b>Marital status</b>   |              |             |
| Single, no regular partner  | 29           | 61.7        |
| Married/Domestic partnership  | 17           | 36.2        |
| Widowed   | 1            | 2.1         |
| <b>Education</b>  |              |             |
| Some high school, no diploma  | 1            | 2.1         |
| High school graduate, diploma or the equivalent   | 4            | 8.5         |
| Some college credit, no degree  | 9            | 19.1        |
| Trade/technical/vocational training   | 2            | 4.3         |
| College degree  | 31           | 66.0        |
| <b>Is the study participant multilingual?</b>   |              |             |
| Yes total   | 10           | 21.3        |
| Experimental group  | 8            |             |
| Control group   | 2            |             |
| No  | 37           | 78.7        |
| <b>Has study participant ever traveled overseas?</b>  |              |             |
| Yes   | 32           | 68.1        |
| No  | 15           | 31.9        |
| <b>Has study participant ever lived or worked overseas?</b>   |              |             |
| Yes   | 9            | 19.1        |
| No  | 38           | 80.9        |
| <b>Please identify the aspect of your cultural background that is most central or important to you:</b> |              |             |
| Religion  | 18           | 39.1        |
| Ethnicity   | 8            | 17.4        |
| Gender  | 1            | 2.2         |
| Family/community  | 4            | 8.7         |
| Sexuality   | 1            | 2.2         |
| Age   | 2            | 4.3         |
| Socioeconomic status  | 2            | 4.3         |
| Race  | 1            | 2.2         |

|  |    |      |
|--|----|------|
| Social/political beliefs & values  | 4  | 8.7  |
| Attire/food/daily life   | 5  | 10.9 |
| Missing  | 1  |      |
| <b>How important is this aspect of your cultural background?</b>                                   |    |      |
| Not at all important   | 0  | 0.0  |
| Nominally important  | 2  | 4.3  |
| Somewhat important   | 4  | 8.7  |
| Important  | 5  | 10.9 |
| Very important   | 35 | 76.1 |
| Missing  | 1  |      |
| <b>If there is a 2nd aspect of your cultural background that is important to you, please list:</b> |    |      |
| Religion   | 2  | 6.3  |
| Ethnicity  | 7  | 21.9 |
| Gender   | 5  | 15.6 |
| Family/community   | 7  | 21.9 |
| Age  | 1  | 3.1  |
| Socioeconomic status   | 3  | 9.4  |
| Social/political beliefs & values  | 1  | 3.1  |
| Attire/food/daily life   | 6  | 18.8 |
| Missing  | 15 |      |
| <b>How important is this aspect of your cultural background?</b>                                   |    |      |
| Not at all important   | 0  | 0.0  |
| Nominally Important  | 0  | 0.0  |
| Somewhat important   | 7  | 21.9 |
| Important  | 5  | 15.6 |
| Very important   | 20 | 62.5 |
| Missing  | 15 |      |
| <b>If there is a 3rd aspect of your cultural background that is important to you, please list:</b> |    |      |
| Religion   | 1  | 5.0  |
| Ethnicity  | 5  | 25.0 |
| Sexuality  | 3  | 15.0 |
| Age  | 5  | 25.0 |
| Socioeconomic status   | 3  | 15.0 |
| Social/political beliefs & values  | 1  | 5.0  |
| Attire/food/daily life   | 2  | 10.0 |
| Missing  | 27 |      |
| <b>How important is this aspect of your cultural background?</b>                                   |    |      |
| Not at all important   | 0  | 0.0  |
| Nominally important  | 2  | 10.0 |
| Somewhat important   | 3  | 15.0 |
| Important  | 3  | 15.0 |
| Very important   | 12 | 60.0 |
| Missing  | 27 |      |

experimental group did evidence a significantly higher mean score regarding EP at pretest in comparison to the control group ( $M=4.52$ ,  $SD= 0.86$  vs.  $M=3.63$ ,  $SD=0.99$ , respectively),  $t(45)=-3.18$ ,  $P<0.01$  (Table 4).

Pearson's  $r$  correlation indicated that cultural humility difference scores was not significantly related to age,  $r(45)=0.20$ ,  $P=0.17$ , or number of hours per day spent on social media,  $r(45)=-0.01$ ,  $P=0.95$  (Table 5).

**Table 3. Descriptive Analysis of Continuous Study Variables (n=47)**

| Variable  | M (SD)       | MIN/MAX    | Skew (SE)    | Kurtosis (SE) |
|---|--------------|------------|--------------|---------------|
| Pretest cultural humility                                   | 4.33 (0.47)  | 2.78-5.00  | -1.36 (0.35) | 2.96 (0.68)   |
| Posttest cultural humility                                  | 4.46 (0.47)  | 2.67-5.00  | -1.61 (0.35) | 3.69 (0.68)   |
| <b>Cultural humility difference scores</b>                  | 0.13 (0.36)  | -0.67-1.00 | 0.12 (0.35)  | 0.21 (0.68)   |
| Pretest ethnocultural empathy                               | 4.83 (0.61)  | 3.42-5.94  | -0.31 (0.35) | -0.42 (0.68)  |
| Posttest ethnocultural empathy                              | 4.86 (0.66)  | 3.39-5.97  | -0.29 (0.35) | -0.61 (0.68)  |
| <b>Ethnocultural empathy difference scores</b>              | 0.02 (0.38)  | -0.81-0.84 | -0.34 (0.35) | -0.28 (0.68)  |
| Pretest empathic feeling and expression                     | 5.00 (0.72)  | 3.27-6.00  | -0.62 (0.35) | -0.26 (0.68)  |
| Posttest empathic feeling and expression                    | 4.98 (0.66)  | 3.73-5.93  | -0.50 (0.35) | -0.77 (0.68)  |
| <b>Empathic feeling and expression difference scores</b>    | -0.02 (0.46) | -1.00-0.87 | -0.13 (0.35) | -0.36 (0.68)  |
| Pretest empathic perspective taking                         | 3.97 (1.03)  | 2.00-6.00  | 0.17 (0.35)  | -0.79 (0.68)  |
| Posttest empathic perspective taking                        | 4.13 (1.14)  | 1.71-6.00  | 0.02 (0.35)  | -0.97 (0.68)  |
| <b>Empathic perspective taking difference scores</b>        | 0.16 (0.61)  | -1.43-1.14 | -0.30 (0.35) | -0.04 (0.68)  |
| Pretest acceptance of cultural differences                  | 5.42 (0.68)  | 3.00-6.00  | -1.58 (0.35) | 2.72 (0.68)   |
| Posttest acceptance of cultural differences                 | 5.40 (0.84)  | 2.60-6.00  | -1.66 (0.35) | 2.24 (0.68)   |
| <b>Acceptance of cultural differences difference scores</b> | -0.03 (0.55) | -1.40-1.20 | -0.09 (0.35) | 0.54 (0.68)   |
| Pretest empathic awareness                                  | 4.98 (0.87)  | 2.00-6.00  | -1.07 (0.35) | 1.81 (0.68)   |
| Posttest empathic awareness                                 | 5.11 (0.88)  | 2.25-6.00  | -1.11 (0.35) | 1.11 (0.68)   |
| <b>Empathic awareness difference scores</b>                 | 0.12 (0.65)  | -1.75-1.50 | -0.30 (0.35) | 0.79 (0.68)   |

Pre/post cultural humility difference scores were not significantly related to group,  $t(45)=-1.48, P=0.15$ , gender,  $t(44)=-0.45, P=0.65$ , racial/ethnic identity,  $t(45)=-0.61, P=0.54$ , marital status,  $t(44)=-1.14, P=0.26$  education level,  $t(45)=0.63, P=0.53$ , if the study participant ever traveled overseas,  $t(45)=0.34, P=0.74$ , and if the study participant had lived or worked overseas,  $t(45)=-0.51, P=0.61$ . However, pre/post cultural humility difference scores were related to if the study participant was multilingual,  $t(45)=-1.87, P<0.10$ , at a statistically significant level, where a lower mean difference score was evidenced by a response of *Yes* ( $M=-0.06, SD=0.34$ ) to being multilingual relative to *No* ( $M=0.18, SD=0.36$ ). Ten participants were multilingual in the experimental group and two in the control group. Those who were multilingual reported greater cultural humility compared with those who were not (Table 6).

### 3.3 Multivariate Analysis Cultural Humility

Table 7 presents a repeated measures general linear model examining pretest to posttest changes in cultural humility scores by study group while controlling for the item “Is the study participant multilingual?” Multivariate analysis indicated, that while including the item “Is the study participant multilingual?” changes in pretest to post cultural humility scores by study group were statistically significant,  $F(1, 44)=7.87, P<0.01$ . Specifically, pretest to posttest changes among the experimental group ( $M=4.35, SD=0.38$  vs.  $M=4.57, SD=0.35$ , respectively), were greater compared to those of the control group ( $M=4.32, SD=0.52$  vs.  $M=4.39, SD=0.53$ , respectively). Data analysis also indicated that the

pretest to posttest changes in the cultural humility scale scores by study group evidenced a large Partial Eta Squared effect size of 0.15 (Figure 1).

Pearson’s r correlation indicated that ethnocultural empathy difference scores was not significantly related to age,  $r(45)=0.21, P=0.16$ , or numbers of hours per day spent on social media,  $r(45)=0.07, P=0.69$  (Table 8), and an independent-samples t-test indicated that pre/post difference scores were not significantly related to gender,  $t(44)=-0.49, P=0.63$ , racial/ethnic identity,  $t(45)=-1.60, P=0.12$ , marital status,  $t(44)=-1.20, P=0.24$ , education level,  $t(45)=0.53, P=0.60$ , if the study participant was multilingual,  $t(45)=-0.53, P=0.69$ , if the study participant ever traveled overseas,  $t(45)=-0.24, P=0.81$ , and if the study participant had lived or worked overseas,  $t(45)=0.30, P=0.77$ . However, pre/post ethnocultural empathy difference scores were related to study group,  $t(45)=-1.94, P<0.10$ , at a statistically significant level, where a higher mean difference score was evidenced by the experimental group ( $M=0.16, SD=0.34$ ) relative to the control group ( $M=-0.06, SD=0.38$ ) (Table 9).

### 3.4 Multivariate Analysis Ethnocultural Empathy

Multivariate analysis indicated that changes in pretest to post ethnocultural empathy scores approached statistical significance,  $F(1, 45)=3.71, P=0.059$ . The pretest to posttest changes among the experimental group ( $M=5.03, SD=0.53$  vs.  $M=5.19, SD=0.62$ , respectively), were greater to those of the control group ( $M=4.71, SD=0.63$  vs.  $M=4.65, SD=0.61$ , respectively). The analysis evidenced a medium Partial Eta

**Table 4. Assessment of Bias: Independent Samples T-Test Analysis of Pretest Scale Scores by Study Group ( $n=47$ )**

| Variable                                  | <i>n</i> | <i>M</i> ( <i>SD</i> ) | <i>t</i> / <i>F</i> ( <i>df</i> ) | <i>P</i> |
|---|----------|------------------------|-----------------------------------|----------|
| <b>Cultural humility</b>                  |          |                        | -0.17 (45)                        | 0.87     |
| Experimental                              | 18       | 4.35 (0.38)            |                                   |          |
| Control                                   | 29       | 4.32 (0.52)            |                                   |          |
| <b>Empathic awareness</b>                 |          |                        | -1.83 (45)                        | 0.08     |
| Experimental                              | 18       | 5.03 (0.53)            |                                   |          |
| Control                                   | 29       | 4.71 (0.63)            |                                   |          |
| <b>Empathic awareness subscales</b>       |          |                        |                                   |          |
| <b>Empathic feeling and expression</b>    |          |                        | -0.94 (45)                        | 0.35     |
| Experimental                              | 18       | 5.12 (0.64)            |                                   |          |
| Control                                   | 29       | 4.92 (0.76)            |                                   |          |
| <b>Empathic perspective taking</b>        |          |                        | -3.18 (45)                        | 0.003    |
| Experimental                              | 18       | 4.52 (0.86)            |                                   |          |
| Control                                   | 29       | 3.63 (0.99)            |                                   |          |
| <b>Acceptance of cultural differences</b> |          |                        | -0.88 (45)                        | 0.38     |
| Experimental                              | 18       | 5.53 (0.47)            |                                   |          |
| Control                                   | 29       | 5.35 (0.79)            |                                   |          |
| <b>Empathic awareness</b>                 |          |                        | 0.16 (45)                         | 0.88     |
| Experimental                              | 18       | 4.96 (1.03)            |                                   |          |
| Control                                   | 29       | 5.00 (0.78)            |                                   |          |

**Table 5. Pearson’s *r* Correlation Analysis of Pre/Post Cultural Humility Difference Scores by Continuous Study Variables ( $n=47$ )**

| Variable                               | 1 | 2    | 3     |
|--|---|------|-------|
| 1. Cultural humility difference scores | - | 0.20 | 0.01  |
| 2. Age                                 |   | -    | -0.18 |
| 3. Hours per day spent on social media |   |      | -     |

Squared effect size of 0.08 (Table 10 and Figure 2).

Data indicated that mean differences by study group were not significantly related to EFA,  $t(45)=-1.06, P=0.29$ , EP,  $t(27.13)=-1.54, P=0.14$ , and acceptance of cultural differences,  $t(45)=-1.01, P=0.32$ . However, bivariate analysis did reveal that the experimental group ( $M=0.42, SD=0.65$ ) evidenced a higher mean pretest to posttest difference score relative to the control group ( $M=-0.06, SD=0.58$ ) in reference to EA scores,  $t(45)=-2.61, P<0.01$ , (Table 11).

Multivariate analysis indicated that changes in pretest to post EA scores by study group was statically significant,  $F(1, 45)=6.81, P<0.01$ . The pretest to posttest changes among the experimental group ( $M=4.96, SD=1.03$  vs.  $M=5.38, SD=0.94$ , respectively), were greater to those of the control group ( $M=5.00, SD=0.78$  vs.  $M=4.94, SD=0.81$ , respectively). The analysis evidenced an approximately large Partial Eta Squared effect size of 0.13 (Table 12 and Figure 3).

A Pearson’s *r* correlation indicated that higher cultural humility difference scores were significantly related to

higher ethnocultural empathy difference scores,  $r(45)=0.61, P<0.001$  (Table 13).

**3.5 Qualitative Component**

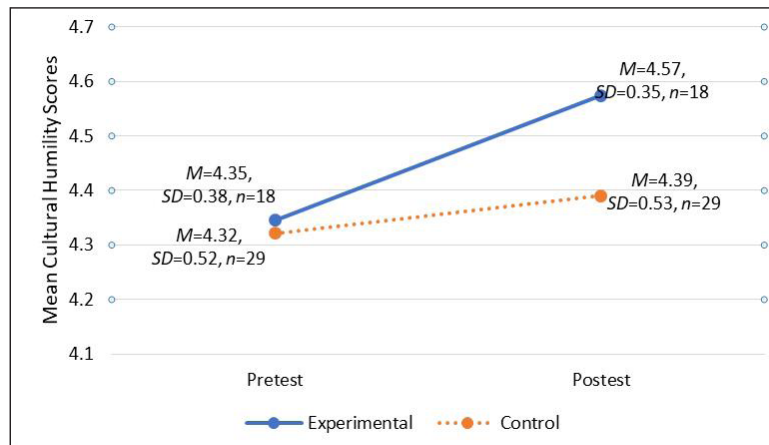
**3.5.1 Control Group**

Five open-ended questions were added to the post-survey, and thematic analysis was used to analyze the data. In response to the question, “Do you attend cultural events in your community?”, 24 students responded. 19 reported that they did not attend cultural events in their community and five report attending events such as festivals, social/ political events, or visiting a museum. In answer to question two, “What kind of experiences have you had interacting with people whose culture is different than your own?”, seven students reported that they had positive, good experiences interacting with people whose culture is different than their own, only one reported having some bad experiences, and the interactions mostly took place at work, school or with friends. One student reported living overseas, one being married to a person with a different cultural background, one grew up in a diverse community and one interacts with other cultures by exploring diverse



**Table 6. Independent Samples T-Test Analysis of Pre/Post Cultural Humility Difference Scores by Categorical Study Variables (n=47)**

| Variable  | n  | M (SD)       | t/F(df)    | P    |
|---|----|--------------|------------|------|
| <b>Study group</b>  |    |              | -1.48 (45) | 0.15 |
| Experimental  | 18 | 0.23 (0.37)  |            |      |
| Control   | 29 | 0.07 (0.35)  |            |      |
| <b>Gender (Missing=1)</b>                                   |    |              | -0.45 (44) | 0.65 |
| Male  | 7  | 0.06 (0.36)  |            |      |
| Female  | 39 | 0.13 (0.36)  |            |      |
| <b>Race/Ethnicity</b>                                       |    |              | -0.61 (45) | 0.54 |
| White/Caucasian   | 28 | 0.10 (0.39)  |            |      |
| Other   | 19 | 0.17 (0.33)  |            |      |
| <b>Marital status (Missing=1)</b>                           |    |              | -1.14 (44) | 0.26 |
| Single, no regular partner                                  | 29 | 0.08 (0.39)  |            |      |
| Married/Domestic partnership                                | 17 | 0.20 (0.31)  |            |      |
| <b>Education level</b>                                      |    |              | 0.63 (45)  | 0.53 |
| College degree  | 31 | 0.15 (0.38)  |            |      |
| No college degree   | 16 | 0.08 (0.34)  |            |      |
| <b>Is the study participant multilingual?</b>               |    |              | -1.87 (45) | 0.07 |
| Yes   | 10 | -0.06 (0.34) |            |      |
| No  | 37 | 0.18 (0.36)  |            |      |
| <b>Has study participant ever traveled overseas?</b>        |    |              | 0.34 (45)  | 0.74 |
| Yes   | 32 | 0.14 (0.39)  |            |      |
| No  | 15 | 0.10 (0.32)  |            |      |
| <b>Has study participant ever lived or worked overseas?</b> |    |              | -0.51 (45) | 0.61 |
| Yes   | 9  | 0.07 (0.41)  |            |      |
| No  | 38 | 0.14 (0.36)  |            |      |



**Figure 1. Pretest to posttest changes in the cultural humility scale scores by study group.**

restaurants, museums, and music.

The themes that emerged from responses to question three, “What did you learn from the culture presentation and reflection assignment?” were diversity, values, and beliefs, learning and understanding, and care planning. Students reported that they learned that diverse groups have unique values and beliefs, and those might differ from their

own. They learned that culture affects values and beliefs that must be respected and incorporated into the care plan. Students also recognized that learning and understanding the effects of culture is essential and an ongoing process.

Question four, “How might a patient’s culture influence your nursing practice?”, produced three themes: nursing care, nurse/patient interactions, and nurses’ perception.

**Table 7. Repeated Measures General Model Examining Pretest to Posttest Changes in Cultural Humility Scores by Study Group While Controlling for the Item Is the Study Participant Multilingual? (n=47)**

| Timepoint       | n  | M (SD)      | F(df)        | P     | PES <sup>1</sup> |
|-----------------|----|-------------|--------------|-------|------------------|
|                 |    |             | 7.87 (1, 44) | 0.007 | 0.15             |
| <b>Pretest</b>  |    |             |              |       |                  |
| Experimental    | 18 | 4.35 (0.38) |              |       |                  |
| Control         | 29 | 4.32 (0.52) |              |       |                  |
| <b>Posttest</b> |    |             |              |       |                  |
| Experimental    | 18 | 4.57 (0.35) |              |       |                  |
| Control         | 29 | 4.39 (0.53) |              |       |                  |

Notes: <sup>1</sup>Partial Eta Squared Effect Size of 0.13 is an approximately large effect size.

**Table 8. Pearson’s r Correlation Analysis of Pre/Post Ethnocultural Empathy Difference Scores by Continuous Study Variables (n=47)**

| Variable                                    | 1 | 2    | 3     |
|---|---|------|-------|
| 1. Cultural humility difference scores      | - | 0.21 | 0.07  |
| 2. Age                                      |   | -    | -0.18 |
| 3. # of hours per day spent on social media |   |      | -     |

**Table 9. Independent Samples T-Test Analysis of Pre/Post Ethnocultural Empathy Difference Scores by Categorical Study Variables (n=47)**

| Variable  | n  | M (SD)       | t/F(df)    | P     |
|---|----|--------------|------------|-------|
| <b>Study group</b>  |    |              | -1.94 (45) | 0.059 |
| Experimental  | 18 | 0.16 (0.34)  |            |       |
| Control   | 29 | -0.06 (0.38) |            |       |
| <b>Gender (Missing=1)</b>                                   |    |              | -0.49 (44) | 0.63  |
| Male  | 7  | -0.05 (0.29) |            |       |
| Female  | 39 | 0.03 (0.39)  |            |       |
| <b>Race/Ethnicity</b>                                       |    |              | -1.60 (45) | 0.12  |
| White/Caucasian   | 28 | -0.05 (0.36) |            |       |
| Other   | 19 | 0.13 (0.39)  |            |       |
| <b>Marital status (Missing=1)</b>                           |    |              | -1.20 (44) | 0.24  |
| Single, no regular partner                                  | 29 | -0.02 (0.38) |            |       |
| Married/Domestic partnership                                | 17 | 0.12 (0.38)  |            |       |
| <b>Education</b>  |    |              | -0.53 (45) | 0.60  |
| College degree  | 31 | 0.00 (0.34)  |            |       |
| No college degree   | 16 | 0.06 (0.45)  |            |       |
| <b>Is the study participant multilingual?</b>               |    |              | -0.53 (45) | 0.69  |
| Yes   | 10 | -0.02 (0.25) |            |       |
| No  | 37 | 0.03 (0.41)  |            |       |
| <b>Has study participant ever traveled overseas?</b>        |    |              | -0.24 (45) | 0.81  |
| Yes   | 32 | 0.01 (0.41)  |            |       |
| No  | 15 | 0.04 (0.31)  |            |       |
| <b>Has study participant ever lived or worked overseas?</b> |    |              | 30 (45)    | 0.77  |
| Yes   | 9  | 0.06 (0.52)  |            |       |
| No  | 38 | 0.02 (0.35)  |            |       |

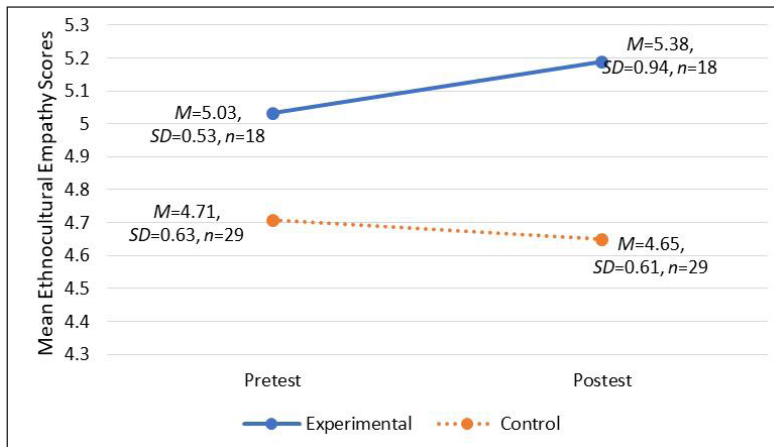
Students recognized nursing care has to be adapted to include cultural preferences, and that culture will affect interactions between nurses and patients.

For question five, “Do you have any suggestion on how to prepare nursing students to care for patients with different cultural backgrounds than their own?”, the themes

**Table 10. Repeated Measures General Model Examining Pretest to Posttest Changes in Ethnocultural Empathy by Study Group (n=47)**

| Timepoint       | n  | M (SD)      | F(df)        | P     | PES <sup>†</sup> |
|-----------------|----|-------------|--------------|-------|------------------|
|                 |    |             | 3.77 (1, 45) | 0.059 | 0.08             |
| <b>Pretest</b>  |    |             |              |       |                  |
| Experimental    | 18 | 5.03 (0.53) |              |       |                  |
| Control         | 29 | 4.71 (0.63) |              |       |                  |
| <b>Posttest</b> |    |             |              |       |                  |
| Experimental    | 18 | 5.19 (0.62) |              |       |                  |
| Control         | 29 | 4.65 (0.61) |              |       |                  |

Notes: <sup>†</sup>Partial Eta Squared Effect Size of 0.13 is an approximately large effect size.



**Figure 2. Pretest to posttest changes in ethnocultural empathy scale scores by study group.**

**Table 11. Independent Samples T-Test Analysis of Pre/Post Ethnocultural Empathy Subscale Difference Scores by Study Group (n=47)**

| Variable                                  | n  | M (SD)       | t/F(df)       | P     |
|---|----|--------------|---------------|-------|
| <b>Empathic feeling and expression</b>    |    |              |               |       |
| Experimental                              | 18 | 0.07 (0.37)  | -1.06 (45)    | 0.29  |
| Control                                   | 29 | -0.08 (0.51) |               |       |
| <b>Empathic perspective taking</b>        |    |              |               |       |
| Experimental                              | 18 | 0.35 (0.73)  | -1.54 (27.13) | 0.14  |
| Control                                   | 29 | 0.05 (0.50)  |               |       |
| <b>Acceptance of cultural differences</b> |    |              |               |       |
| Experimental                              | 18 | 0.08 (0.62)  | -1.01 (45)    | -0.32 |
| Control                                   | 29 | -0.09 (0.51) |               |       |
| <b>Empathic awareness</b>                 |    |              |               |       |
| Experimental                              | 18 | 0.42 (0.65)  | -2.61 (45)    | 0.01  |
| Control                                   | 29 | -0.06 (0.58) |               |       |

open-mindedness, education and exposure were generated. Participants expressed that nursing students should have an open mind when caring for patients with different cultural backgrounds than their own. They also recognized that education about cultural beliefs, practices and culturally sensitive nursing care is essential. Educational tools to prepare nursing students should include lecture, videos, scenarios, and conferences, but also directly asking patients

about cultural preferences. Participants further recognized that exposure is a crucial component in preparing nursing students to care for a diverse patient population.

**3.5.2 Intervention Group**

All eighteen students responded to all five questions. To the first question, “In what type of interaction did you participate (visit of a cultural event, visit of a cultural

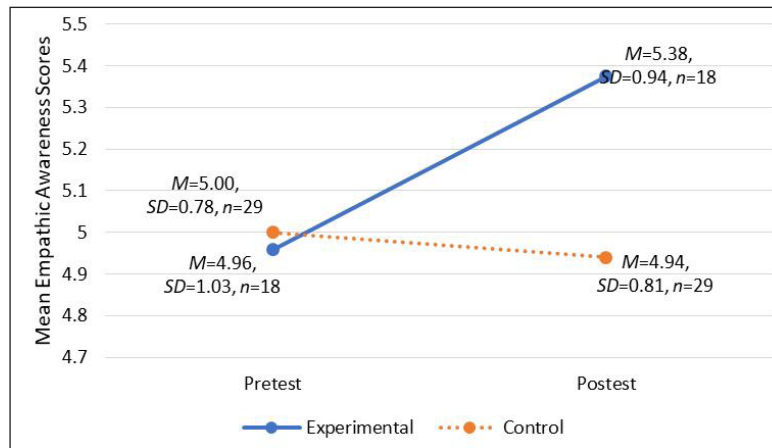
**Table 12. Repeated Measures General Model Examining Pretest to Posttest Changes in the Empathic Awareness Subscale by Study Group (n=47)**

| Timepoint       | n  | M (SD)      | F(df)        | P    | PES <sup>1</sup> |
|-----------------|----|-------------|--------------|------|------------------|
|                 |    |             | 6.81 (1, 45) | 0.01 | 0.13             |
| <b>Pretest</b>  |    |             |              |      |                  |
| Experimental    | 18 | 4.96 (1.03) |              |      |                  |
| Control         | 29 | 5.00 (0.78) |              |      |                  |
| <b>Posttest</b> |    |             |              |      |                  |
| Experimental    | 18 | 5.38 (0.94) |              |      |                  |
| Control         | 29 | 4.94 (0.81) |              |      |                  |

Notes: <sup>1</sup>Partial Eta Squared Effect Size of 0.13 is an approximately large effect size.

**Table 13. Pearson’s r Correlation Analysis of Pre/Post Cultural Humility Difference Scores and Ethnocultural Empathy Difference Scores (n=47)**

| Variable                                   | 1 | 2      |
|--|---|--------|
| 1. Ethnocultural empathy difference scores | - | 0.61** |
| 2. Cultural humility difference scores     |   | -      |



**Figure 3. Pretest to posttest changes in the empathic awareness subscale scores by study group.**

community center or an online meeting with a culture group member)?" thirteen students reported participating in an online meeting with a culture group member, and five students visited a cultural event. For question two, "What was it like to interact with people from a cultural group different from your own?", students described their experience of interacting with people from a different cultural group as eye-opening, a learning experience and enjoyable.

Two themes emerged for question three, "What did you learn from the culture project?": similar beliefs and practices across cultures, and self-awareness. Students reported learning about cultural beliefs and practices, recognized similarities and differences between groups, and health care implications such as diet and family roles. Students also reported gaining self-awareness through the cultural immersion. Responses reflected how students had changed their thinking and feelings about people from a different culture.

For question four, "How might a patient’s culture influence your nursing practice?", the following themes surfaced: Recognition of how culture affects patient care and culture sensitive care. Students identified that differences in cultural backgrounds between nurses and patients can influence interactions between providers and patients and recognized that nursing care needs to be sensitive and inclusive of patients’ cultural preferences. Sample responses included:

Three themes evolved for question five, "Do you have any suggestion on how to prepare nursing students to care for patients with different cultural backgrounds than their own?": exposure, self-awareness, and open-minded. Students conveyed that exposure, in the form of academic or personal activities that involve direct interactions with members of culture groups, are important in the preparation of nursing students to care for patients with different cultural backgrounds than their own. Students further recognized that self-awareness and being open-minded are necessary

for nursing students caring for a diverse patient population.

Participants responses to the open-ended questions suggest that both groups gained knowledge of normative behavior and beliefs of various cultural group, recognized that culture influences professional practice, and recognized that individualized intervention strategies are necessary with diverse patients. Both groups identified openness as a key behavioral trait for nurses and identified direct interactions with members of diverse culture groups as a method to prepare nursing students to care for patients with different cultural backgrounds than their own. While both groups appear to have similar learning outcomes and suggestions on how to prepare nursing students for diverse patient care, only the group that experienced the cultural immersion appeared to gain self-awareness, a key attribute of cultural humility, through reflection.

#### 4 DISCUSSION

Cultural humility and ethnocultural empathy are important for nursing students, especially given current news stories and heated conversations about race and disparities. The research hypothesis of this study “Students who participate in a cultural immersion experience will report increased cultural humility and ethnocultural empathy compared to students that received a lecture and reflection exercise” was supported by the findings. No previous studies identified a correlation between cultural humility and multilingualism. Language and culture are intertwined, being multilingual could promote cultural awareness, understanding and appreciation of differences. More studies would be beneficial to further investigate the effect of multilingualism on cultural humility. Findings support previous research in which a cultural immersion experience promoted the development of cultural humility<sup>[14]</sup>. Previous studies were mostly qualitative and quantitative studies used the Cultural humility scale as an other-rated measure. For this study, three items on the cultural humility scale were removed to improve reliability. These items showed satisfactory reliability on the other-reported scale but reduced the overall Cronbach’s alpha once converted to self-reported items. More psychometric testing of the self-reported cultural humility scale and more studies with the converted scale are necessary to compare findings.

Participants in the experimental group approached a statistically significant pretest to posttest change in ethnocultural empathy with a medium effect size. Analyzing the subscales of the SEE revealed that the experimental group evidenced a significantly higher mean pretest to posttest difference score relative to the control group in reference to EA. Empathetic awareness measures items that appear to focus on the awareness or knowledge that one has about the experiences of people from racial or ethnic groups different from one’s own<sup>[5]</sup>. Previous studies<sup>[5,15]</sup>, reported gender differences, with higher levels of ethnocultural empathy in females compared to males. Further, Wang

et al.<sup>[5]</sup> found that non-White college students had higher ethnocultural empathy levels than White students. In this study gender and ethnicity were not significantly related to ethnocultural empathy scores.

It appears that the experience of having personal contact or interactions with members of a different cultural group and presenting and discussing the cultural immersion experience created a multi-faceted process of learning, self-reflecting, understanding, perspective transformation and enhanced cultural humility and ethnocultural empathy. Transformative learning is a learner-centered process<sup>[16]</sup>. Participants in the cultural immersion group were actively engaged through discourse that caused critical reflection and questioned assumptions and expectations which ultimately lead to higher cultural humility and ethnocultural empathy compared to students that received a culture lecture and reflection assignment.

This study demonstrated a correlation between cultural humility and ethnocultural empathy, indicating that higher cultural humility difference scores are significantly related to higher ethnocultural empathy difference scores. This is the first study examining cultural humility and ethnocultural empathy together; further studies need to be conducted to support findings of this study. Due to the small sample size, unequal group size, and the first study of its kind, covariates were reported with a significant level higher than 0.05, further studies with larger sample size and significant levels of 0.05 are necessary to strengthen the results of this study. Further, it must be considered that cultural humility and ethnocultural are developed over time and levels might not reflect shortly after a learning experience.

The qualitative results demonstrate that participating in a cultural immersion experience promoted the development of cultural humility and ethnocultural empathy in nursing students. Students reported gaining culture-specific knowledge, but most importantly gaining self-awareness and a change in perspectives. The control and experimental group both identified that face to face encounters with people that are different from one’s own, are important in the preparation of nursing students to care for diverse patient populations, strengthening the need for academia to include interactive learning opportunities in the curriculum.

#### 5 CONCLUSION

Cultural humility and ethnocultural empathy promote the exploration, understanding and appreciation of cultural differences between patients and health care professionals, patient and provider satisfaction, better medical adherence, and improved health outcomes<sup>[4,5]</sup>. Cultural immersion can improve cultural humility and ethnocultural empathy in nursing students, but current nursing literature regarding cultural immersion is limited, and more rigorous research is needed to support this educational practice<sup>[18]</sup>.

This study with ADN nursing students, investigated how a cultural immersion experience affects the cultural humility and ethnocultural empathy compared to a group of BSN students who received a lecture and completed a reflection assignment. This study can act as a catalyst for future research on college student cultural humility and ethnocultural empathy development. Additional research studies focusing on cultural humility and ethnocultural empathy development may provide information to inform curriculum design, and educational philosophies. This study could also be adapted to be a qualitative study; interviews or focus groups with students would provide more detailed insight into how they feel their learning experience impacted them.

#### Key points for education, practice and/or research:

- Cultural immersion can improve cultural humility and ethnocultural empathy in nursing students. A local cultural immersion experience can be done at no cost to the student or institution and used in any setting.
- Cultural humility and ethnocultural empathy development are an ongoing process; cultural humility and ethnocultural empathy education should not be limited to prelicensure nursing students' curriculum.
- With the goal of creating more open-minded nurses, educators should emphasize the need for self-reflection and the ability to view situations from multiple perspectives.
- Additional research studies focusing on cultural humility and ethnocultural empathy development are necessary.

#### Acknowledgements

Not applicable.

#### Conflicts of Interest

The author declared no conflict of interest.

#### Author Contribution

The author contributed to the manuscript and approved the final version.

#### Abbreviation List

AC, Acceptance of cultural differences  
CI, Confidence interval  
EA, Empathic awareness  
EFE, Empathic feeling and expression  
EP, Empathic perspective taking  
M, Mean  
MAX, Maximum  
MIN, Minimum  
SD, Standard deviation  
SEE, Ethnocultural empathy scale

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