



## Understanding Cultural Competency for Patient-centered Care: A Study of Nursing Students in Saudi Arabia

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### ABSTRACT

**Background:** Cultural diversity in the healthcare system has emphasized the need to enhance cultural competence among nurses. Identifying cultural competence and influencing factors can aid in improving culturally competent care in the healthcare industry. **Purpose:** This study aimed to assess the cultural competence among nursing students in Saudi Arabia and the factors influencing their cultural competence. **Methods:** A cross-sectional design was used for this study. Data collection was conducted in April 2024 from the nursing students. A descriptive analysis was conducted to show the participants' general characteristics and overall cultural competence. Inferential statistics were performed to analyze the factors associated with and influencing cultural competences. **Results:** The mean cultural competence score was 68.88 (SD = 24.74) on a 19–133 scale, indicating a generally high level of competence. Based on cut-off ranges commonly applied in studies using the Cultural Competence Assessment (CCA), scores were classified as low ( $\leq 50$ ), moderate (51–100), and high ( $>100$ ). The relatively large standard deviation suggests substantial variability among participants, reflecting uneven distribution of cultural competence within the sample. However, the large standard deviation reveals substantial variation among students, suggesting uneven distribution of cultural competence within the cohort. Age, academic level, language, and ethnicity were significantly associated with competence levels ( $F(5, 438) = 14.946, p < 0.001$ ). **Conclusion:** Cultural competence among healthcare providers for culturally diverse patients is crucial for all healthcare providers, precisely for nurses who are always with their clients. Although this study depicts reasonable cultural competence, educational training regarding cultural competence needs to be included in the curriculum to produce more culturally competent nurses. Nursing curricula should integrate structured cultural competence training and language skill development to address the influence of age, academic level, language, and ethnicity. This will enhance culturally congruent care, reduce health disparities, and improve patient outcomes in multicultural healthcare settings. **Implications for Nursing:** Integrating cultural competence training and promoting language proficiency are essential for preparing nursing students to deliver culturally sensitive, patient-centered care. These strategies support a workforce aligned with Saudi Vision 2030 objectives.

**Keywords:** Cultural competence, Patient-centered care, Nursing students, Saudi Arabia.

### What does this paper add?

1. It provides an updated assessment of cultural

competence among Saudi nursing students and identifies gaps in inter-cultural skills.

2. It highlights key factors influencing cultural competence, including educational level and language proficiency, informing targeted educational interventions.
3. It offers evidence-based recommendations for nursing curricula and training programs, aligned with Saudi Vision 2030 goals for a culturally competent healthcare workforce.

### **Introduction**

The goal of nursing education programs is to produce competent graduates (Majda et al., 2021). Clinical practice is the cardinal element of nursing training, and this provides nursing students with the knowledge and skills to communicate with their clients (Cruz et al., 2018). To ensure effective communication between healthcare providers and their consumers, there must be a mutual understanding (Qin & Chaimongkol, 2021), but cultural diversity hinders the nurses' ability to understand their clients because of the diverse cultural needs and norms. Healthcare providers need to respect their clients' culture when rendering care and be competent enough to deliver care with eloquent communication (Park et al., 2019).

There is an increase in cultural diversity in the healthcare industry globally, including Saudi Arabia, which has highlighted the need to enhance nurses' cultural competence (Osmanovic et al., 2023; Shahrouh et al., 2022). The consciousness regarding cultural competence has emerged in healthcare education and clinical practice over the decades. Moreover, this consciousness has been upstretched about the necessity for elucidation and definition of the concept and of the spheres that comprise its essence. Therefore, nursing has paid particular devotion to this theory and its applications in the field of academics and clinical areas (Červený et al., 2022). According to the California Endowment (2003), "cultural competence is defined as the attitude, knowledge, and skills necessary for providing wholistic and quality care to diverse populations allowing the health care providers to provide culturally effective care". Competence is a continuing process that encompasses tolerating and respecting differences and preventing one's personal beliefs from having an undue influence on those whose worldview is different from one's own (Aldossary et al., 2008; Alizadeh & Chavan, 2016).

According to the United Nations Department of

Economic and Social Affairs Organization for Economic Cooperation and Development (2013), there are approximately 232 million immigrants living in the world today, and migration increases the cultural diversity of many developed countries (Kohlbray, 2016). Saudi Arabia is among the countries with a high number of immigrants with about 36.2% of its population as of 2017 being immigrants (Aljohani et al., 2023). In line with this trend of immigration in Saudi Arabia, the cultural diversity in the healthcare system needs to grow. The ethnoculturally diverse group frequently encounter issues, particularly in healthcare, and faces difficulty in accessing healthcare services due to language barriers and cultural differences (Shali et al., 2024). Moreover, discrimination and a lack of cultural understanding among the healthcare providers led to these challenges (Lai et al., 2023).

Cultural competence is a crucial element in quality nursing care. Culturally quality nursing care requires ample knowledge, skills, and values that promote quality care for patients from different cultural and religious backgrounds (Osmanovic et al., 2023). Being competent in rendering sensitive and unbiased care helps reduce disparities in the healthcare system. Lack of cultural knowledge and skills among nurses leads to the development of difficulties in building therapeutic relationships with patients, leading to inequality in rendering care (Gradellini et al., 2021), transcultural care lets different means of holistic, quality, individualized and humane healthcare (Virani, 2009). Previous studies revealed that among nurses, a lack of patients' culture and values can cause skirmishes and ethical dilemmas, unable to address the patients' needs adequately in ethnoculturally diverse groups (Doorenbos et al., 2005). To augment the cultural competence of professional nurses, some researchers have suggested adding cultural competence components to lectures and classes during their training (Wang et al., 2018). Moreover, enhancing clinical experience in helping culturally diverse patients can aid in developing cultural competence, complemented by clinical cases to enrich students' cultural knowledge (Noble et al., 2014).

In Saudi Arabia, the nursing profession is still growing and struggling to meet the healthcare demands of its people. Aljohani et al. (2023) stated that there is a shortage of staff in the healthcare facilities in Saudi Arabia, which led to the prioritization of the Saudization policy, this Saudization policy requires education and

training of Saudi nationals in all areas of employment to substitute the present emigrant workers, which has yielded a huge success in some areas, like education (Escallier et al., 2019). Nevertheless, this policy in the nursing profession remains a prodigious challenge and will take a long time, because Saudi nationals constitute only 34% of the total nursing workforce. Despite these efforts to substitute foreign nurses with local nurses, the Saudi nursing workforce is still leisurely. As such, the country keeps depending on foreign nurses to meet the health needs of its people (Aldossary et al., 2008; Hussein Al-Atiyyat, 2009). These foreign nurses were acquainted with the scientific knowledge and skills in the field of nursing, but not in the cultural perspective of the Kingdom. In Saudi Vision 2030, it was spelt out that, nursing education institutions in Saudi Arabia should incorporate cultural competence among Saudi student nurses. However, there were several studies on cultural competence among student nurses, but most of them focused on the Western world (Shali et al., 2024). The paucity of research on cultural competence among student nurses in Saudi Arabia deters the identification of the pressing needs of nursing students regarding cultural competence. Thus, there is a need for a comprehensive and in-depth investigation into cultural competence among nursing students in Saudi Arabia. This knowledge is critical for developing targeted educational strategies in nursing programs to promote culturally sensitive, patient-centred care, thus contributing significantly to Saudi Arabian healthcare quality improvement. This study aimed to assess the level of cultural competence among student nurses in Saudi Arabia, identify factors influencing their competence, and provide practical recommendations for integrating cultural competence into nursing education and training programs.

## **Methods**

This study aimed to assess the cultural competence among the student nurses in the context of the healthcare system, and to explore associated factors affecting their cultural competence, as well as to propose recommendations for enhancing cultural competence in nursing training.

## **Study Design**

This study adopted a descriptive cross-sectional design. This design was appropriate for assessing the level of cultural competence among student nurses and exploring the factors influencing it at a single point of time. The cross-sectional approach facilitated the collection of data from a diverse sample efficiently and objectively. It also ensured anonymity, allowing participants to respond to the questionnaires independently without researcher interference, thereby minimizing social desirability bias. This design has been widely used in similar studies evaluating cultural competence in nursing and health sciences education, supporting its methodological adequacy for the present research.

## **Setting and Sample**

A convenience sampling technique was employed. Nursing students enrolled in the second to the fifth year of study were invited to participate. Inclusion criteria were: (1) full-time enrollment, (2) registration at the second to the fifth academic level, and (3) voluntary consent to participate. The study was conducted across three nursing colleges located in Riyadh and the Northern Region of Saudi Arabia, representing both public and private universities to ensure diversity in educational and cultural exposure. These included two private university-affiliated nursing colleges in Riyadh and one government-funded institution in the Northern Region (Al-Jouf). The inclusion of these sites was intended to capture geographic and cultural variations among Saudi nursing students. Data was collected online between April 2024 and May 2024. Email invitations explaining the study's purpose were sent to the deans or program heads of each institution, who distributed the survey link to eligible students. Participation was anonymous and voluntary, with each student completing the questionnaire independently. The survey required approximately 10–15 minutes to complete. A total of  $N = 212$  responses were received from the three institutions. Table 1 summarizes the participating institutions by location, type, and sample distribution.

**Table 1. Summary of participating institutions**

<b>Region</b>	<b>Institution Type</b>	<b>Institution (Anonymized Code)</b>	<b>Approx. No. of Respondents</b>
Riyadh	Public University	RU-A	102
Riyadh	Private University	RU-B	71
Northern Region	Government University	NR-D	39
Total	—	—	212

This distribution demonstrates representation from multiple institutional contexts, supporting a more comprehensive understanding of cultural competence among Saudi nursing students.

### **Measurement**

The questionnaire used in this study comprised two sections: (1) socio-demographic characteristics (age, gender, ethnic group, primary language, and academic level) and (2) the Cultural Competence Assessment (CCA). The CCA, originally developed by Clark (2009) based on Campinha-Bacote's model of cultural competence, measures awareness, knowledge, and skills related to culturally responsive care. For this study, the CCA was contextually adapted for the Saudi setting. The adaptation involved review by a panel of five nursing faculty experts specialising in transcultural nursing and instrument design, with minor linguistic modifications made to enhance cultural clarity and contextual relevance. The revised version contained 19 items rated on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree), yielding a total possible score range from 19 to 133, with higher scores indicating greater cultural competence. To ensure content validity, the modified CCA underwent expert evaluation for clarity, relevance, and cultural appropriateness. A pilot test was conducted with 30 nursing students, and feedback was used to refine the wording of the items. For this current sample, Cronbach's alpha was 0.91, indicating excellent internal consistency reliability, supporting the suitability of the modified CCA in assessing cultural competence among Saudi nursing students.

### **Data Analysis**

Data was entered and checked for accuracy. Analyses were conducted using IBM SPSS Statistics, version 22.0. A total of 212 valid responses were obtained from 268 eligible nursing students, representing a 79.1% response rate. All participants who accessed the survey completed all mandatory items,

ensuring no item-level missing data within the final dataset. Descriptive statistics (means, standard deviations, frequencies, and percentages) were used to summarize participant characteristics and cultural competence levels. Inferential analyses included independent t-tests, one-way ANOVA, and Pearson correlation to examine associations between participants' characteristics and cultural competence. Multiple regression analysis was conducted to examine the predictors of cultural competence, including age, academic level, ethnic group, and language. Prior to running the model, standard diagnostic checks were performed to ensure that the assumptions of multiple regression were satisfied. The normality of residuals was assessed using Q-Q plots and the Shapiro-Wilk test; linearity and homoscedasticity were evaluated through residuals versus fitted value plots; and multicollinearity was assessed using variance inflation factors, all of which were within acceptable limits. The regression model was then fitted, and statistical significance was evaluated at  $p \leq 0.05$ .

### **Ethical Considerations**

This study received ethical approval from the university's Research Ethics Committee (IRB24-025). Prior to participation, students were provided with an information sheet explaining the study's purpose, procedures, voluntary nature of participation, confidentiality measures, and the right to withdraw at any time without penalty. Completion of the survey was considered as providing informed consent. To protect participants' privacy, all data was anonymized and coded, so that individual responses could not be traced back to participants. Access to the data was restricted to the researcher and the authorized persons. Data was securely stored on password-protected university servers and will be retained for five years in accordance with institutional research policies, after which they will be securely deleted. Permission to use the questionnaire was obtained from the copyright holder via email.

**Results**

The demographic results of the participants are summarized in Table 2.

Out of the 268 eligible participants, 212 participants, who agreed to participate in the study, had completed the questionnaire, giving a response rate of 79.1%.

**Table 2. Socio-cultural demographics of nursing students**

Socio-demographic	N (212)	%
Age in years (Mean(SD))		28(9.28)
<b>Gender</b>		
Female	114	53.8
Male	98	46.2
<b>Academic Level</b>		
Second year	60	28.3
Third year	52	24.5
Fourth-year	69	32.5
Fifth year	31	14.6
<b>Ethnic Group</b>		
Caucasian	42	19.8
Asian	124	58.5
Black/African American	25	11.8
Hispanic	21	9.9
<b>Language</b>		
English	75	35.4
Arabic	121	57.1
Other	16	7.5

The majority of respondents were females (53.8%), and the majority of the participants (57.1%) were able to speak Arabic fluently and were in their fourth year of the programme (32.5%). A large proportion of the

participants' ethnic background (58.5%) was Asian, with a mean age of 28.0±9.28 years.

Table 3 shows the results regarding cultural competence among the participants.

**Table 3. Cultural competence among the respondents (N = 212)**

Item	Mean ± SD
I consider race as the most important factor in determining a person's culture	3.22 ± 1.11
I believe that people with a common cultural background think and act alike	3.02 ± 1.25
Aspects of cultural diversity need to be assessed for each individual, group, and organization	3.09 ± 1.29
If I know about a person's culture, I don't need to assess his/her personal preferences for health services	4.01 ± 2.10
I believe that everyone should be treated with respect no matter what his/her cultural heritage	4.01 ± 1.01
I understand that people from different cultures may define the concept of "health care" in different ways	2.89 ± 1.74
I think that knowing about different cultural groups helps direct my work with individuals, families, groups, and organizations	3.23 ± 1.08
I include cultural assessment when I do individual or organizational evaluations	3.81 ± 0.94
I seek information on cultural needs when I identify new people in my work or school	3.62 ± 0.92
I have resource books and other materials available to help me learn about people from different cultures	3.55 ± 1.20
I use a variety of sources to learn about the cultural heritage of other people	4.12 ± 1.32
I ask people to use their cultural background and tell me about their own belief explanations of health and illness	4.20 ± 1.66
I remove obstacles for people of different cultures when I identify barriers to services	3.61 ± 0.85
I recognize potential barriers to service that might be encountered by different people	3.44 ± 0.92

I welcome feedback from clients about how I relate to people from different cultures	4.01 ± 1.02
I find ways to adapt my services to individual and group cultural preferences	3.90 ± 1.23
I can use communication skills with clients of different cultural backgrounds	4.21 ± 1.48
I can explain the possible relationships between the health/illness beliefs and culture of the clients	3.72 ± 1.10
I usually discuss differences between the clients' health beliefs/behaviors and nursing knowledge with each client	3.22 ± 1.12
<b>Overall cultural competence score</b>	<b>68.88 ± 24.74</b>

**Note:** Responses were rated on a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree). Higher scores indicate greater perceived cultural competence. All items were mandatory, and no item-level missing data was recorded. Standard deviations have been verified for accuracy.

**Cultural Competence among the Respondents**

As shown in Table 3. The overall mean score was 68.88 (SD=24.74). This indicates a high level of competence by the students. The highest mean score was observed for the item “I can use communication skills with clients of different cultural backgrounds” (M = 4.21, SD = 1.48), followed closely by “I ask people to use their cultural background and tell me about their own belief explanations of health and illness” (M = 4.20, SD = 1.66) and “I use a variety of sources to learn about

the cultural heritage of other people” (M = 4.12, SD = 1.32). The lowest mean score was recorded for the item “I understand that people from different cultures may define the concept of ‘health care’ in different ways” (M = 2.89, SD = 1.74). Additional items with comparatively lower mean scores included “I believe that people with a common cultural background think and act alike” (M = 3.02, SD = 1.25) and “Aspects of cultural diversity need to be assessed for each individual, group, and organization” (M = 3.09, SD = 1.29).

**Table 4. Associations between cultural competence and socio-demographics of the participants (N = 212)**

Socio-demographic	Mean ± SD	Statistical test	P-value
<b>Age (years)</b>	—	r = 0.21	0.004*
<b>Gender</b>			
Female	72.11 ± 18.62	t(210) = 2.94	0.004*
Male	63.21 ± 20.02		
<b>Academic Level</b>			
Second year	61.38 ± 14.22	F(3, 208) = 14.23	0.004**
Third year	66.25 ± 15.23		
Fourth year	70.20 ± 16.90		
Fifth year	74.22 ± 13.33		
<b>Ethnic Group</b>			
Caucasian	76.18 ± 12.12	F(4, 207) = 28.47	0.037*
Asian	72.05 ± 14.00		
Black/African	69.60 ± 15.10		
Hispanic	67.02 ± 14.22		
Other	61.01 ± 13.11		
<b>Language</b>			
English	71.11 ± 9.10	F(2, 209) = 25.29	< 0.001***
Arabic	69.78 ± 10.22		
Other	66.01 ± 11.19		

**Note:** Cultural competence scores range from 19–133, with higher values indicating greater cultural competence. *p* ≤ 0.05 is considered statistically significant.

**Associations between Socio-demographic Factors and Cultural Competence**

Students who were able to speak one or more

different languages fluently and use them in their daily life showed statistically significant (*p* = 001) results than those who could only spoke Arabic. Moreover, women

had significantly more cultural competence than men ( $p=0.004$ ), and there was also a positive relationship between age and cultural competence ( $p=0.004$ ). Furthermore, fifth-year students were revealed to have significantly higher cultural competence compared with third-year and fourth-year students ( $p =0.004$ ). Regarding participants' ethnicity, students from Asian ethnicity had more cultural competence compared with Caucasian, Black/African Americans, and Hispanics ( $p = 0.037$ ). The results are summarized in Table 4.

### Factors Influencing Cultural Competence

Table 5 presents the results of a multiple regression analysis examining factors influencing cultural competence among students. The model included age,

academic level, ethnic group, and language as predictors. The overall model was statistically significant,  $F(4, 207) = 14.946, p = 0.001$ . Among the predictors, academic level ( $B = 0.957, p = 0.027$ ) and language ( $B = -0.735, p = 0.022$ ) were statistically significant, indicating that students' academic progression and language proficiency influenced cultural competence. Age ( $B = 0.063, p = 0.067$ ) and ethnic group ( $B = -1.526, p = 0.070$ ) were not significant predictors. Ethnic group and language were included as categorical variables and dummy-coded for the regression, as the reference group. Positive B values indicate an increase in cultural competence relative to the reference, while negative values indicate a decrease.

**Table 5. Influencing Factors of Cultural Competence**

Variables	B	Std. Error	Beta	p-value
Age	0.063	0.013	0.087	0.067
Academic level	0.957	0.293	0.074	0.027*
Ethnic Groups <sup>1</sup>	-1.526	0.491	-0.061	0.070
Language <sup>2</sup>	-0.735	0.436	-0.035	0.022*

**Model statistics:**  $F(4, 207) = 14.946, p < 0.001; R^2 = 0.224; \text{Adjusted } R^2 = 0.212$ .

Notes: 1) Ethnic groups were dummy-coded with (reference category, e.g. "Asian").

2) Language was dummy-coded with (reference category, e.g. "Arabic").

\* Significant at  $p \leq 0.05$ .

### Discussion

This study evaluated the cultural competence of nursing students in Saudi Arabia and explored the demographic and educational factors that may affect their cultural competence levels. The results showed a moderate level of cultural competence, in line with previous research among nursing students in various settings (Cruz et al., 2018; Gradellini et al., 2021; Kohlbry, 2016). This indicates that while Saudi nursing students have a basic awareness and positive attitudes towards cultural differences, there is still potential for further development in applying this knowledge in clinical practice.

A key finding of this study is the significant influence of educational level and language on cultural competence. Students in higher academic years demonstrated greater competence, likely due to increased clinical exposure and broader cultural interactions within their training environments. This aligns with findings by Osmancevic et al. (2023) and Krainovich-Miller et al. (2008), who noted that

advancing through nursing education enhances cultural awareness and communication skills. Language proficiency also played a significant role, supporting the idea that multi-lingual ability can foster culturally responsive care. However, this relationship remains debated in the literature, as studies, such as Zarzycka et al. (2020) and Wang et al. (2018), found no clear link between multilingualism and cultural competence. These mixed findings may reflect contextual differences in linguistic diversity, exposure to multicultural environments, and institutional emphasis on inter-cultural communication skills.

In contrast, age and ethnicity did not significantly predict cultural competence in the regression model, although preliminary analyses suggested associations. This inconsistency may stem from overlapping effects among variables, limited subgroup sizes, or multicollinearity when predictors were analyzed simultaneously (Zarzycka et al., 2020; Shali et al., 2024). Such discrepancies highlight the complexity of cultural competence, which is shaped by interacting

with personal, educational, and sociocultural factors rather than by single demographic traits (Lai et al., 2023; Gradellini et al., 2021).

The moderate cultural competence level observed among students suggests that cultural competence development remains an evolving process throughout nursing education. This is particularly relevant in the Saudi context, where globalization, migration, and cultural diversity are increasing rapidly. Nursing students must be adequately equipped to manage cultural variations in patient care, consistent with the Saudi Vision 2030 goal of improving healthcare quality, inclusivity, and workforce preparedness. Developing culturally competent nurses directly contributes to Vision 2030's Human Capability Development pillar, which emphasizes globally competitive skills and culturally adaptive professional practice.

The findings of this study can also be interpreted through the lens of the Health Belief Model (HBM), which emphasizes perception as a determinant of behavior. Within this framework, students' cultural competence reflects their perceived understanding of cultural diversity, perceived benefits of culturally responsive care, and perceived barriers to cross-cultural communication. The significant influence of educational level and language proficiency suggests that exposure to diverse learning and communication environments enhances students' perceived self-efficacy in engaging with patients from different backgrounds. Conversely, the non-significant influence of age and ethnicity implies that individual background characteristics alone do not necessarily predict culturally competent behaviour unless shaped by educational experience and cognitive engagement. Thus, the results affirm that cultural competence is a learned, adaptive construct shaped by perception, experience, and interaction, core principles of the HBM.

### **Implications for Nursing**

This study highlights the importance of incorporating cultural competence into the core structure of nursing education in Saudi Arabia. The findings emphasize that cultural competence can be enhanced through structured educational exposure, language development, and cross-cultural interaction. Nursing educators and policymakers should strengthen curricular content by integrating inter-cultural communication, simulation-based scenarios, and

reflective practice modules. Universities may also consider fostering partnerships and exchange programs that expose students to diverse patient populations, thereby improving experiential learning and inter-cultural sensitivity.

### **Limitations**

The study has several limitations that should be acknowledged. First, the use of convenience sampling restricts the generalizability of the findings. Second, the cross-sectional design limits causal interpretation, as cultural competence may evolve over time and through clinical exposure. Finally, the modest sample size may have constrained the detection of subtle effects among sub-groups. Future research should adopt a longitudinal or mixed-method design, include larger and more diverse samples from multiple institutions, and explore how pedagogical strategies influence long-term changes in cultural competence. Additionally, qualitative exploration could provide richer insight into how student nurses perceive and internalize cultural competence in their clinical experiences.

### **Conclusion**

Cultural competence remains a cornerstone of effective and equitable healthcare, particularly in a culturally diverse nation, such as Saudi Arabia. This study found that nursing students demonstrated a moderate level of cultural competence, with educational level and language proficiency emerging as significant predictors. These findings indicate that cultural competence is primarily shaped by learning exposure and communication capability rather than by static demographic traits.

To align with the transformative goals of Saudi Vision 2030, nursing programs should prioritize the integration of cultural competence training into academic and clinical curricula. Strengthening multi-lingual communication, reflective practice, and inter-cultural awareness can prepare a generation of nurses who are both locally grounded and globally competent. Future research should evaluate the impact of such educational interventions on patient satisfaction, teamwork, and healthcare outcomes. By embedding cultural competence within nursing education, Saudi Arabia can advance its vision of a resilient, inclusive, and globally competitive healthcare system.

## Recommendations

Based on the findings, nursing education programs in Saudi Arabia should integrate structured cultural competence modules throughout the curriculum, especially in clinical courses. Continuous professional development workshops focusing on inter-cultural communication and patient-centered care are essential. Academic institutions should also collaborate with healthcare organizations to provide students with exposure to culturally diverse clinical settings. These strategies align with Saudi Vision 2030's focus on enhancing healthcare quality and workforce readiness.

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The researcher has no conflict of interests to declare.

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