Research Paper

Identifying areas of improvement for cultural competence in pharmacy curricula: A multi-school study using the self-assessment of perceived level of cultural competence (SAPLCC) questionnaire

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ABSTRACT

Introduction: The implementation of culturally competent healthcare services has been considered a key strategy for the provision of patient-centered care; however, a need remains to address the requirements of teaching cultural competence, including identifying gaps, designing and evaluating curricula, and assessing students' progress toward program objectives. The objective of this study was to explore the applicability of the Self-Assessment of Perceived Level of Cultural Competence (SAPLCC) questionnaire in the identification of improvement areas in cultural competence content in pharmacy curricula.

Methods: This study used previously-collected SAPLCC data from student pharmacists at eight United States pharmacy schools. Total and factor-specific SAPLCC scores were calculated based on the 14 factors published previously and grouped into six domains (knowledge, skills, attitudes, encounters, abilities, and awareness). Differences in overall scores by domain and factors across various student characteristics were examined using analysis of variance.

Results: The overall mean total SAPLCC score was classified as moderate. Third-year students had significantly higher SAPLCC mean scores than first-year students, and African American students scored significantly higher than their counterparts. At the factor-level, students scored higher in the Attitudes and Awareness domains and scored lower in the Knowledge, Skills, and Encounters domains.

Conclusions: The application of the SAPLCC in schools participating in this preliminary study allowed for the identification of content areas that may benefit from revision. The SAPLCC may be a useful tool for mapping cultural competence curricular content by each specific domain and identifying areas of potential improvement regarding cultural competence training within pharmacy curricula.

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Introduction

Although there are many definitions of cultural competence and related terms (cultural competency, cultural sensitivity, cultural humility, culturally responsive, cultural safety, etc.), we use the term "cultural competence" and follow the definition provided by the Office of Minority Health in the National Standards for Culturally and Linguistically Appropriate Services in Health Care (CLAS Standards). Cultural competence is "the set of congruent behaviors, attitudes, and policies that come together in a system, agency, or among professionals that enables effective work in cross-cultural situations;" culture "refers to integrated patterns of human behavior that include the language, thoughts, communications, actions, customs, beliefs, values, and institutions of racial, ethnic, religious, or social groups," and competence "implies having the capacity to function effectively as an individual and an organization within the context of the cultural beliefs, behaviors, and needs presented by consumers and their communities."[1] Considering that globalization and the resultant changes in demographics worldwide are leading to a multicultural and even more diverse society, the United Nations Educational, Scientific and Cultural Organization goes further and uses the term intercultural competences as the "abilities to adeptly navigate complex environments marked by a growing diversity of peoples, cultures, and lifestyles."[2] Consequently, it is necessary now to focus on the concept of global health, which "places a priority on improving health and achieving equity in health for all people worldwide"[3] and the healthcare providers worldwide who must become competent in providing care to patients from various cultural backgrounds.[4]

Over the last few decades, the implementation of culturally competent healthcare services has been considered one of the key strategies for the provision of patient-centered care. Specifically, in the United States (US), the 2013 CLAS Standards provided a blueprint for individuals and healthcare organizations to advance health equity, improve quality, and help eliminate health care disparities.[5] Although incorporating cultural competence into pharmacy curricula was one recommendation from the 2009 American Association of Colleges of Pharmacy (AACP) Curricular Change Summit,[6] a 2013 review found that pharmacy has been among the professions with delayed incorporation.[7] Several reviews of cultural competence training in pharmacy, nursing, and medicine programs have provided three important findings: (1) there is a great need to address the requirements of teaching cultural competence, including identifying gaps, designing and evaluating curricula, and assessing students' progress toward program objectives, as well as assessing the impact of this training in the provision of patient-centered, culturally sensitive health care; (2) the heterogeneity of the interventions (content, scope, design, duration, implementation, and outcomes) make it difficult to draw generalizable conclusions; and (3) there is a lack of scientific rigor in the published literature related to assessing cultural competence in curricula.[7–10]

In 2013, changes were introduced into the educational outcomes developed by the Center for the Advancement of Pharmacy Education (CAPE), and training in cultural competence was distributed among the four defined domains of educational outcomes (foundational knowledge, essentials for practice and care, approach to practice and care, and personal and professional development).[11] The CAPE Educational Outcomes include examples of student learning objectives for each subdomain to guide curricular revision and encourage each school to review these statements in order to meet specific program needs.

The updated 2016 doctor of pharmacy (PharmD) accreditation standards from the Accreditation Council for Pharmacy Education (ACPE) placed greater emphasis on the CAPE Educational Outcomes and included cultural sensitivity (Standard 3.5) and self-awareness (Standard 4.1) as key educational outcomes related to the provision of culturally competent care.[12] However, there are other standards that include statements related to cultural competence such as promoting prevention, health education, and wellness (Standard 2.3), population-based care (Standard 2.4), advocating for patients' best interests (Standard 3.3), recognizing social determinants of health (SDOH) impacting disparities in health outcomes and inequities in access to quality care (Standard 3.5), and improving communications during the patient-provider encounters (Standard 3.6). Additionally, ACPE Standard 13.2 requires the inclusion of didactic content and learning experiences that expose students to diverse patient populations (age, gender, race/ethnicity, socioeconomic factors, etc.). Although, the wording of these standards is considerably broad, which poses a challenge when implementing these topics into pharmacy curricula, the following learning outcomes are noted as required elements of the PharmD curriculum in the ACPE Standards 2016: explore the potential impact of cultural values, beliefs, and practices on patient care outcomes (cultural awareness); explore how cultural factors influence providers' ability to deliver care services (healthcare systems); practice verbal, non-verbal, and written communication strategies that promote effective interpersonal dialog and understanding to advance patient care (professional communication); develop self-awareness, in this case recognizing and addressing biases and stereotypes that highly impact the provision of culturally competent services (professional development); and evaluate cultural practices in the use of natural products and alternative and complementary therapies, and their potential impact on pharmacotherapy.

Both pharmacy schools and pharmacy students could benefit from self-assessment and the development of content for the full range of knowledge, skills, and attitudes involved in providing culturally competent care to multiracial, multilingual, multigenerational, and/or culturally diverse populations. These considerations can inform decision making for integrating cultural competence content into the focus of teaching and learning experiences. The Self-Assessment of Perceived Level of Cultural Competence (SAPLCC) questionnaire is a previously-developed tool for pharmacy schools that can help to guide curricular development and revision and also inform decisions about the competencies students should demonstrate by graduation.[13] The primary objective of this study was to use the SAPLCC to assist in the identification of topics that can be used for curricular revision, based on results of students' self-assessment of their perceived level of cultural competence in several US schools/colleges of pharmacy (S/COP). Such revisions would be important to increase students' competence for providing appropriate care to diverse patients.

Methods

This study was an exploratory secondary analysis of SAPLCC questionnaire data previously collected from student pharmacists at eight S/COPs across the US. The SAPLCC questionnaire was developed as a measure of self-reported cultural competence for use in student pharmacists. The tool is freely available by request to the author. An overview of the tool, including questionnaire development,[14,15] previous application among pharmacy and medical students,[13,16] and supporting validity evidence of the revised version (Cronbach's alpha 0.95)[17] have been published elsewhere. As used in the current study, the revised version of the SAPLCC (Table 1) consists of 75 items grouped into 14 factors (F) organized into six domains of cultural competence (Knowledge, Skills, Attitudes, Encounters, Awareness, and Abilities). Briefly, a convenience sampling strategy was used where study investigators approached faculty from other schools and invited them to participate. Following institutional review board approval, faculty from each school sent emails with the survey links to students with appropriate reminder emails. The participating S/COPs were from the South ($n = 3$), West (n = 3), Midwest ($n = 1$), and East ($n = 1$), with five being private institutions.

Students responded to each item on a four-point scale (1 = not at all, 2 = a little, 3 = quite a bit, 4 = very). Considering that the Likert method assumes equal weights for all items and students' answers to each item can be summed to create the composite score,[18,19] we followed the same methodology used in previous studies that have applied the SAPLCC to assess pharmacy and medical students' perceived levels of cultural competence.[13,16] Accordingly, total mean cultural competence scores were calculated as the arithmetic mean across responses to all SAPLCC items, and subscale scores (factor level) were calculated as the arithmetic mean of responses to all items within each factor. To aid with interpretation, mean scores were classified as low (mean score < 2), moderate (mean score 2–3), and high (mean score > 3), which is similar to previous studies using SAPLCC.[13,16] Analyses of variance (ANOVAs) were conducted to test for differences in mean factor scores across levels of academic year, gender, age, and self-reported race/ethnicity. Tukey's honestly significant differences was used for post hoc analysis with each ANOVA. Since this study was primarily exploratory in nature and the comparisons among the different student characteristics are independent,[20] no additional adjustments for experiment-wide multiple comparisons beyond the post hoc analyses for each ANOVA were conducted.[21] SPSS, version 19 (IBM Corp.) was used for all data analyses with $P < .05$ denoting statistical significance.

Table 1

Description of the Self-Assessment of Perceived Level of Cultural Competence (SAPLCC)[a] questionnaire: domains and factors.

Domain	Factors number of items)	Description
Knowledge	F1-Addressing population health issues (7 items)	Knowledge that healthcare providers should have about the specific needs of patients according to their gender and age, two characteristics of population diversity.
	F2-Understanding the context of care (9 items)	Knowledge about population demographics and health disparities; the impact of discrimination and legislation in healthcare; the differences between Western-Eastern medicine; and different healing traditions.
Skills	F3-Providing culturally responsive and effective services (7 items)	Delivering culturally competent services (physical examinations; treatment plans; education and counseling; and preventive services) that consider patients' perceptions of health and illness, as well as their language and health literacy limitations.
	F4-Dealing with cross-cultural conflicts (4 items)	Overcoming issues that could create conflicts during cross-cultural encounters (conflicting ethical issues among healthcare providers; shared responsibility for patients' understanding of diagnostics and treatments which may affect their adherence with drug therapy; ethical conflicts related to different cultural habits or religious beliefs; etc.)
Attitudes	F5-Recognizing disparities-related discrimination (6 items)	Attitudes regarding main sources of discrimination that are of particular importance when providing care to underserved populations such as those who are disabled; poor; older; Black/African American; Hispanic; Native American; and others.
	F6-Recognizing social determinants of health (5 items)	Attitudes regarding main population characteristics contributing to differences in health outcomes such as poverty level, lack of education, and unhealthy environments and lifestyles.
	F7-Improving interpersonal/intercultural interactions (4 items)	Importance that healthcare providers give to personal interactions with different groups during their professional career and practice (colleagues; residents; students; staff; and patients.)
Encounters	F8-Increasing comfort during cross-cultural encounters (3 items)	Increasing comfort with the three main pillars of providing culturally competent care: differences in culture, language, and approach to health (standard vs. complementary medicine.)
	F9-Managing cross-cultural communication challenges (8 items)	Addressing major challenges that exist when there are differences in the communication styles used during particular patient-provider interactions: giving bad news; interpreting nonverbal cues; assessing levels of pain or stress; recommending behavioral changes;and addressing derogatory comments.
Abilities	F10-Assessing population health needs (8 items)	Abilities healthcare providers should have to accurately assess patients' health needs according to their age and personal characteristics and situations.
	F11-Applying multicultural knowledge (5 items)	Application of knowledge when working in multicultural environments (e.g., being prepared to sustain conversations and discussions about different cultural groups; communication models; multicultural research; biases and stereotypes; and acculturation models.)
Awareness	F12-Engaging in self-reflection (3 items)	Self-reflecting about one's own diversity characteristics and how these influence the provision of care.
	F13-Understanding barriers to health care (4 items)	Identifying and addressing common constraints patients have when navigating healthcare systems and/or using healthcare services that do not follow the patient-centered model.
	F14-Confronting racial dynamics (2 items)	Addressing race privilege, bias, and discrimination related to the provision of and access to health care services.

F = factor.

[a] Table included with permission from the SAPLCC's author Margarita Echeverri, PhD, MSc, Center for Minority Health and Health Disparities Research and Education, Xavier University of Louisiana, College of Pharmacy, mechever@xula.edu.

Results

Participants

A total of 875 students, out of an estimated maximum 2,193 students invited to participate, completed the SAPLCC from across the eight universities. As some universities targeted the study to a specific class while others invited all enrolled students to participate, we estimated total enrollments[22] and response rates independently by university (range = 10%–87%) and calculated an overall response rate for the study (40%) (Table 2). Participants' ages ranged from 19 to 54 years (mean [M] = 25.5; SD = 5.2). Although there was a higher participation of first-year students, the other academic years were well represented (Table 3). More than half of the respondents were women and a higher percentage self-identified as White. Although there are different classifications of race/ethnicity and it is not possible to identify a person in a specific group, in the collection of data participants self-identified themselves using the categories of race defined by the US Office of Management and Budget and adopted by the US Census Bureau.[23,24] An "other" category was included for those who did not self-identify with any of the three main categories included in this study. The average of minority enrollment in the eight programs was 17.6% (range = 5.9%–40.2%) vs. 13.6% reported by AACP for all programs in the country.[22] It is important to note that in the available institutional data from S/COPs, Asian students are not included in the minority category. In summary, four universities served more White students while the other four served more Asian students. The two universities with high minority enrollment served more African American and Hispanic students than the national average. In general, the sample was fairly consistent with national body of pharmacy students.

Total and factor mean scores of cultural competence

Mean scores were calculated for the total SAPLCC scale and each factor independently (Table 4). The M (SD) total SAPLCC scale score was 2.74 (0.45), which can be characterized as a moderate level of cultural competence. While nearly 70% of participants had a moderate SAPLCC score (between 2 and 3) for perceived cultural competence, 27% scored in the high level (> 3) and only 3.3% scored in the low level (< 2).

When looking at mean scores at the factor level, five factors had high mean values (F6, F7, F12, F13, and F14), while the other nine factors had mean values in the moderate category, and no factor fell in the low category. However, when looking at the percentages of participants in each category, only two factors had a majority of students reporting subscale scores that fell into the high category: F6 - Social Determinants (71.5%) and F12 - Self-Reflection (54.3%). On the other hand, five factors had high percentages of participants scoring in the low category: F1 - Health Issues (19.7%), F2 - Context of Care (29.5%), F3 - Effective Services (30.4%), F4 - Cross-Cultural Conflicts (31.7%), and F9 - Communication Challenges (24.9%).

Mean scores by student characteristics (academic year, gender, race, and age)

Mean scores were computed by students' academic year, gender, race, and age for the total SAPLCC score and each of the 14 factors measuring cultural competence (Table 5). When looking at the total SAPLCC score, significant differences were found by academic year and race but not by gender or age. Third-year (P3) students had higher SAPLCC scores (M = 2.87) than first-year (P1) students (M = 2.62), African American students scored significantly higher (M = 2.93) than their Asian and White counterparts, and Asian students (M = 2.78) scored significantly higher than White students (M = 2.63).

At the factor level, statistically significant differences ($P < .05$) were found, by academic year in 10 factors, by gender in four factors, by race in all 14 factors, and by age in six factors (Table 5). Comparing students by year in the program (e.g., first-year vs. second-year), scores were generally higher by academic year across all SAPLCC factors with P3 students reporting significantly higher scores than P1s in all factors in the Knowledge, Skills, Encounters, and Awareness domains but not in the Attitudes and Abilities domains. For analyses by student gender, female students had statistically significant higher scores for Patient Discrimination (F5) and Intercultural Interactions (F7), while male students scored statistically higher in Context of Care (F2) and Communications Challenges (F9). When looking at student race, African American students reported significantly higher scores than their counterparts in all factors. However, Asian students had also significantly higher scores than their White counterparts in the factors for Cross-Cultural Conflicts (F4), Patient Discrimination (F5), Self-Reflection (F12), and Racial Dynamics (F14). Student age was also the source of notable differences in several SAPLCC factors. Generally, younger students had lower factor scores than their older counterparts in Health Issues (F1), Effective Services (F3), and Cross-Cultural Conflicts (F4). On the other hand, younger students exhibited higher factor scores than older students for Intercultural Interactions (F7), Self-Reflection (F12), and Racial Dynamics (F14).

Table 2
Estimated response rates.

Target sample	All registered students				Incoming class	Graduation class			Total
University[a]	A	B	C	D	E	F	G	H	
Number of participants	467	79	44	116	74	22	53	20	875
Estimated enrollment, n[22]	536	295	238	409	153	115	239	208	2,193
Estimated response rate, %	87	27	18	28	48	19	22	10	40

[a] Letters were used to protect the identity of programs participating in the study.

Table 3
Demographics of participants.

	n (%)
Academic year	
Year 1	307 (35.1)
Year 2	201 (23.0)
Year 3	182 (20.8)
Year 4	185 (21.1)
Gender	
Male	293 (33.5)
Female	579 (66.2)
Race[a]	
Asian	251 (28.7)
Black	192 (21.9)
White	342 (39.1)
Other[b]	90 (10.3)
Age	
< 25 years	476 (54,4)
25–29 years	244 (27.9)
≥ 30 years	155 (17.7)
Total (N)	875

[a] Race was self-reported based on the standard racial categories used by the US Census Bureau.[23]
[b] Designation included any other classification (mixed, biracial, Hispanic, Native American, etc.).

Table 4
Self-assessment of Perceived Level of Cultural Competence (SAPLCC) questionnaire items grouped by factors and domains.

Domains and factors	Statistics			Mean score category, %		
	N	Mean[a]	SD	Low[b]	Moderate[c]	High[d]
Knowledge domain						
F1 health issues	875	2.36	0.77	19.7	66.8	13.5
F2 context of care	875	2.27	0.69	29.5	59.9	10.6
Skills domain						
F3 effective services	875	2.40	0.75	30.4	51.5	18.1
F4 cross-cultural conflicts	875	2.24	0.87	31.7	55.2	13.1
Attitudes domain						
F5 patient discrimination	875	2.96	0.79	7.9	52.9	39.2
F6 social determinants	875	3.50	0.54	0.8	27.7	71.5
F7 intercultural interactions	875	3.23	0.76	4.0	46.5	49.5
Encounters domain						
F8 comfort in encounters	875	2.79	0.72	8.8	63.1	28.1
F9 communication challenges	875	2.42	0.71	24.9	60.1	15.0
Abilities domain						
F10 needs assessment	875	2.88	0.73	7.1	63.0	29.9
F11 cultural knowledge	875	2.99	0.51	1.6	70.5	27.9
Awareness domain						
F12 self-reflection	875	3.32	0.65	1.5	44.2	54.3
F13 barriers to health care	875	3.18	0.52	1.2	57.1	41.7
F14 racial dynamics	875	3.04	0.77	6.5	55.0	38.5
Total scale	875	2.74	0.45	3.3	69.7	27.0

F = factor.
[a] Ranges 1 to 4.
[b] Scores < 2.0.
[c] Scores between 2.0 and 3.0.
[d] Scores > 3.0.

Discussion

Domains and factors

We used the SAPLCC to estimate the perceived level of cultural competence in a sample of students in eight pharmacy schools/colleges in the US. In summary, results show high percentages of students scoring in the high level (mean score > 3) for the Social Determinants (F6) and Self-Reflection (F12) factors in the Attitudes and Awareness domains. Students scored in the low level (mean score < 2) for the Health Issues (F1) and Context of Care (F2) factors in the Knowledge domain; in the Effective Services (F3) and Cross-Cultural Conflicts (F4) factors in the Skills domain; and in the Communication Challenges (F9) factor in the Encounters domain (Table 4). These results could indicate that a significant proportion of curricular content may be focused on the Attitudes and Awareness domains. Additional efforts may be needed in the Knowledge and Skills domains. It is also possible that attitude and awareness are self-developed

Table 5
Student scores of cultural competence: mean differences (range 1 to 4) at the factor level.

Domains and factors (n)	Year					Gender			Race					Age (years)			
	P	P1 (307)	P2 (201)	P3 (182)	P4 (185)	P	Men (293)	Women (579)	P	Black (192)	Asian (251)	White (342)	Other (90)	P	< 25 (476)	25–29 (244)	≥ 30 (155)
Knowledge domain																	
F1 health issues	.001	2.16[b]	2.26	2.6[a]	2.57	.07	2.43	2.33	.001	2.64[a]	2.35[b]	2.25[b]	2.19[b]	.023	2.3[b]	2.44[a]	2.42
F2 context of care	.001	2.1[b]	2.18	2.47[a]	2.45	.008	2.36[a]	2.22	.001	2.52[a]	2.28[b]	2.14[b]	2.17[b]	.30	2.24	2.3	2.32
Skills domain																	
F3 effective services	.001	2.19[b]	2.22	2.68[a]	2.67[a]	.07	2.47	2.37	.006	2.48[a]	2.49[a]	2.31[b]	2.33[b]	.001	2.29[b]	2.53[a]	2.53[a]
F4 cross-cultural conflicts	.001	2.04[b]	2.07	2.5[a]	2.5[a]	.08	2.31	2.2	.001	2.41[c]	2.33[c]	2.13[c]	2.05	.03	2.17[b]	2.35[a]	2.29
Attitudes domain																	
F5 patient discrimination	.25	2.9	3.02	2.93	3.02	.001	2.82	3.03[a]	.001	3.23[c]	3.06[c]	2.73[c]	2.98[c]	.84	2.97	2.94	2.94
F6 social determinants	.04	3.45[b]	3.59[a]	3.5	3.49	.34	3.47	3.51	.001	3.6[a]	3.55	3.42[b]	3.47	.63	3.52	3.48	3.48
F7 intercultural interactions	.22	3.25	3.28	3.26	3.13	.001	3.09	3.3[a]	.004	3.34[a]	3.31[a]	3.13[b]	3.14[b]	.005	3.3[a]	3.19	3.08[b]
Encounters domain																	
F8 comfort in encounters	.03	2.7[b]	2.8	2.91[a]	2.79	.69	2.8	2.78	.001	2.99[a]	2.82	2.64[b]	2.81	.11	2.74	2.82	2.87
F9 communication challenges	.006	2.3[b]	2.39	2.57[a]	2.44	.05	2.49[a]	2.38	.001	2.66[a]	2.45	2.29[b]	2.28[b]	.40	2.43	2.44	2.35
Abilities domain																	
F10 needs assessment	.001	2.69[b]	2.84	3.09[a]	3.04	.72	2.9	2.88	.003	2.96[a]	2.9	2.9	2.62[b]	.77	2.89	2.9	2.85
F11 cultural knowledge	.009	2.91[b]	3.03	3.06[a]	3.01	.54	3.01	2.98	.001	3.12[a]	2.98	2.94	2.92[a]	.78	3	2.99	2.97
Awareness domain																	
F12 self-reflection	.10	3.27	3.41	3.32	3.33	.31	3.29	3.34	.001	3.59[c]	3.36[c]	3.15[c]	3.31	.005	3.38[a]	3.31	3.19[b]
F13 Barriers to health care	.009	3.1[b]	3.23[a]	3.21	3.23	.107	3.14	3.2	.001	3.3[a]	3.18	3.1[b]	3.24	.771	3.19	3.18	3.15
F14 racial dynamics	.44	3.07	3.09	2.98	3.01	.234	3	3.07	.001	3.49[c]	3.14[c]	2.71[c]	3.1	.004	3.12[a]	2.92[b]	3.02
Total score	.001	2.62[b]	2.71	2.87[a]	2.84	.58	2.75	2.73	.001	2.93[c]	2.78[c]	2.63[c]	2.65	.60	2.73	2.76	2.74

F = factor; P1 = first-year student; P2 = second-year student; P3 = third-year student; P4 = fourth-year student.
[a] These groups had significantly higher mean scores than their respective counterpart with the lowest score (P < .05).
[b] These groups had significantly lower mean scores than their respective counterpart with the highest score (P < .05).
[c] These groups were significantly different between each other (P < .05).

traits, whereas knowledge and skills need to be taught. Statistically significant differences in cultural competence scores were found in all 14 factors of cultural competence based on various student characteristics. These differences would make sense when considering that different approaches, educational interventions, and areas of focus in specific curriculum and cultural competence coverage may be used at each university. While some universities may have content embedded into different courses, others may have a separate course (mandatory or elective) in cultural competence or may use a mix of these options throughout the communication content of the curriculum.

Cultural competence by academic year

Although, it is generally expected that students' competencies increase throughout the academic program, considering that this is a cross-sectional study, it is not possible to state that there was an increase of cultural competence level along the academic years. The current results do show significant differences by academic year in most of the factors, with P3s scoring higher than P1s in almost all cultural competence factors. However, in the factors related to Attitudes (F5, F6, and F7), Self-Reflection (F12), and Awareness of

Racial Dynamics (F14), there were no significant differences among students from different years. This could indicate that no additional content was included in the curriculum in these topics. Alternatively, competence in these areas may have been developed prior to pharmacy school or these may be innate traits which do not change substantially over time. Interestingly, Recognizing Social Determinants of Health (F6) and Self-Reflection (F12) were the factors with higher mean scores, while Understanding Health Issues (F1), Understanding Context of Care (F2), Providing Effective Services (F3), Addressing Cross-Cultural Conflicts (F4), and Dealing with Communication Challenges (F9) were the factors with lower mean scores. These results suggest that, in general, students may be aware of patients' differences in income, education, environment, etc., but may have little insight about the impact of these determinants on poor health outcomes and/or do not feel prepared to address these barriers during patient-provider encounters. This discrepancy between awareness and skills or readiness for action is similar to other studies. For example, Okoro et al[25] reported higher scores in knowledge and self-awareness but not in skills among a group of pharmacy students. Similarly, Gard et al[26] found that although most medical residents had previous training on SDOH, only a small proportion of residents reported being highly competent at identifying or addressing these points. Another study found that Spanish proficiency and social interaction with Latino populations were positively related to medical students' cultural competence, but these variables were not associated with clinical experience and comfort when working with Latino patients.[27]

Considering that students apply and reinforce their cultural competence skills while working with other professionals in diverse and multicultural settings, such as on advanced pharmacy practice experiences (APPEs), we expected that fourth-year students (P4s) would have higher mean scores in most of the domains, specifically in the Encounters and Abilities domains. The results showed a decreasing trend in all factor scores for P4s except Patient Discrimination (F5), Self-Reflection (F12), Barriers to Healthcare (F13), and Racial Dynamics (F14). The lack of significant differences between P3s and P4s may indicate a need to include developmental exercises to address the main issues faced by student pharmacists during APPEs. It is critical to include opportunities for fourth- or final-year students to self-reflect and discuss real cases encountered during APPEs when working with culturally diverse peers, healthcare providers, and patients.[28,29] These self-reflection exercises are instrumental in building problem-solving skills to better serve patient populations with diverse and multiracial backgrounds.

Cultural competence by gender

Male participants reported higher mean scores in Context of Care (F2) and were more aware of Communication Challenges (F9), while female participants were more aware of Discrimination Practices (F5) and more open to addressing Intercultural Interactions (F7). Although we do not have a clear explanation about these differences in this study, women have been reported to show more empathy, have better listening skills, and greater ability to read body language and pick up nonverbal cues, whereas men have been reported to be more prone to display authority and have more direct and to-the-point interactions.[30] A review of physician gender effects in medical communication also reported that, in general, women engaged in more patient-centered communication, downplayed their own status, and engaged more in open, nonverbal, and equal exchanges of information, while men tended to be more likely to assert status differences.[31] The results on gender-based differences can serve to inform curricular revisions to include content on awareness and skills development by using evidence-based teaching methods.

Cultural competence by race

African American students scored higher than their counterparts in all factors. This finding is similar to what has been reported elsewhere using another established measure of cultural competence in pharmacy students where Asian students reported higher intercultural sensitivity than their White counterparts.[32] These differences may be explained, in part, by differences in the environment at each university, wide variations in the racial backgrounds of students in the samples in each university, and/or other variables not included in this study, such as socioeconomic status and personal experiences. Although differences by student race are not easy to explain, other studies have found that students of color had higher overall cultural competence scores than their counterparts, which may be explained by their personal experiences and history.[33–35] From this perspective, interactions among students on more racially diverse campuses may serve to challenge assumptions and broaden perspectives regarding racial, ethnic, and cultural differences.[36] These interactions are key in preparing student pharmacists to actively participate in diverse interprofessional healthcare teams, and provide care to diverse patient populations (Standard 3.4).[11,12]

Cultural competence by age

Interesting differences by students' age were found with younger students (< 25 years) reporting significantly lower scores in the Knowledge (F1 - Health Issues) and Skills (F3 - Effective Services and F4 - Cross-Cultural Conflicts) domains but higher scores in the Attitudes (F7 - Intercultural Interactions) and Awareness (F12 - Self-Reflection and F14 - Racial Dynamics) domains. Although efforts were made to find literature reporting age-related cultural competence differences among healthcare students, we could find only one study including this variable in the analysis. This study compared self-reported competence level among pharmacy students and found similar results with younger pharmacy students (21–25 years) reporting significantly higher mean scores on self-awareness of cultural identity than older students (≥ 30 years) and significantly lower scores in cultural knowledge and skills when compared to students 26 to 30-years-old.[37] Considering the changes in population demographics and percentages of U.S. pharmacy students by age range (≤ 25 years, 44%; 26–30 years, 41%; ≥ 31 years, 13%),[38] it may be time to include age as a covariate in studies examining cultural competence differences among pharmacy students.

Limitations and goals of future research

Given the nature of this multi-school and cross-sectional study, some limitations in the process and results deserve special consideration. The results showed a substantial variation across the different SAPLCC factors. Unfortunately, differences cannot be fully explained without a deeper understanding of the curricular content and courses offered by each university during the study period, as well as without having specific data regarding the total student population and their diversity characteristics (gender, race, and age). That level of curricular analysis was not within the scope of this study. Future efforts should examine the potential influence of school or curricular factors that may account for individual and group differences in cultural competence. Given the cross-sectional nature of the study and the lack of detailed curricular information for each S/COP, it is not clear when cultural competence content was delivered in relation to data collection, which may have influenced student SAPLCC responses. Regardless of when cultural competence content was delivered, the participating students were self-reporting their perceived level of cultural competence at that point in time, which should be considered when interpreting these results. Future studies are needed to examine more closely how cultural competence changes in students as they progress through the curriculum, as well as how particular cultural competence courses or experiences affect perceived cultural competence.

While all surveys were anonymous, student responses may be affected by their actual multicultural perceptions and experiences, which were not measured in the current study. As with any study using survey methods for potentially sensitive topics, social desirability bias must be considered. Additionally, this study was cross-sectional, so it did not include an intervention or control group to help explain differences in self-perceptions across the SAPLCC domains for students at different levels of progression along the curriculum and across the academic programs. The generalizability of the study is also limited since there were only eight schools involved, and some of them had a relatively low response rate (Table 2). Survey response rates alone are an insufficient estimate of non-response bias. Still, it is often taken as a crude indicator of potential non-response. This is why we have included the comparison of our overall sample to the national sample of pharmacy students based on AACP data. That comparison suggests a low potential for bias in our current overall sample since it is generally representative of the national student population.

The current study used an updated version of the SAPLCC, which is the result of a recent factor analytic study that did not examine any second-order (or higher) factor structures.[17] This is important to note since an overall SAPLCC score was calculated here. Future research, using a larger sample size within each participating S/COP, may consider the potential presence and utility of higher-order factor models for the SAPLCC, including a formal examination of factor stability across schools.

As stated in the name, SAPLCC is a self-assessment tool of perceived level of competence, thus it should not be considered a standalone tool for curricular assessment. Students tend to overestimate their cultural competences,[39] so other tools (e.g., standardized patients, objective structured clinical examinations, and implicit bias association tests) should be used in conjunction with a close examination of what is actually being taught in the curriculum. Completing the SAPLCC can provide students an important opportunity to reflect on the different components of what it means to provide culturally appropriate services while simultaneously documenting their perceived strengths and weaknesses. This self-reflection aligns with the ACPE requirement for student self-reflection to promote personal and professional growth (Standard 4.1).[12]

Implications

Assessment of students' perceived level of cultural competence may inform the evaluation and revision of content and teaching strategies required to address the related educational standards in the pharmacy curriculum more adequately. Instead of focusing on comparing academic programs or racial/ethnic groups, this study focused on identifying areas that academics and researchers may consider when developing and evaluating curricular content for cultural competence. In this specific study, lower scores in the Knowledge and Skills domains suggest that participating S/COPs may need to review their pharmacy curricular content and associated teaching and assessment methods in these two domains. This study's use of student self-assessment data on cultural competence is notable. Although a previous study assessed cultural competence content in curricula of S/COPs, it was conducted almost 15 years ago and focused on curricular content included in the different programs instead of the assessment of student-reported cultural competence.[40]

Based on the results, and with the objective to address study limitations, we recommend mapping the cultural competence curriculum to the SAPLCC factors so it is possible to identify the content that may be revised in each specific domain, and also complement implementation of the SAPLCC with focus groups and/or student interviews.[29] Such efforts may help faculty better understand the impact of curriculum (content, approach, assessment, etc.) and student body characteristics (age, gender, race/ethnicity, etc.) in the differences in SAPLCC total- and factor- scores. Using the SAPLCC tool, students could also describe or define their own learning/training needs in specific domains and develop a personal plan to engage in awareness-raising activities and developmental exercises for personal and professional growth, as recommended in Domain 4 of CAPE's Personal and Professional Development[11] and the International Pharmaceutical Federation 2013 Global Education Report.[41] When considering teaching and learning approaches, cultural sensitivity may be addressed through active-learning activities, including pairing or grouping of diverse groups of students to complete activities or projects together in each of their respective environments, or in those of culturally-diverse or underserved populations, as well as activities that use a global perspective or foster international interactions. Immersion activities like these may help to reduce fears that contribute to misperceptions about population groups the students do not know or to which they have never been exposed. Pharmacy should also examine other healthcare professions, such as medicine and dentistry, which have developed programs to improve cultural competence. For example, the Achieving Diversity in Dentistry and Medicine project developed a pilot project to integrate cultural diversity in medical school curricula.[42] Medical schools have also developed the Tool for Assessing Cultural Competence

Training[43] for use as a checklist when assessing curricula with respect to cultural competence, which was recently used in pharmacy programs.[44]

Conclusions

The results of the study provide support for use of the SAPLCC as a practical tool to facilitate the identification of areas of improvement for cultural competence content in pharmacy curricula. SAPLCC results provide a single point-in-time view of what students perceive their cultural competence to be, which could be used as a baseline assessment to identify training needs that may need to be addressed in each specific program or student cohort. In addition to curriculum improvement, SAPLCC scores could be provided to students as a tool for their own personal and professional development throughout their studies. Future applications of the SAPLCC may help raise student cultural competence awareness by sharing scores with students individually and reporting total and domain mean scores for the cohort so that students can know where they fit in the cultural competence continuum.

Author statement

Manuscript contributions: Conception and study design: Margarita Echeverri, Elizabeth Unni; Data analysis, results and tables: Margarita Echeverri; Discussion and Conclusion sections: Margarita Echeverri, Elizabeth Unni, Spencer Harpe, and Jan Kavookjian; Writing, revision and approval: All authors.

Declaration of Competing Interest

None.

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