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Cultural and linguistic competence in chiropractic university students: Insights from a cross-sectional study

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ABSTRACT

Objective: Cultural and linguistic competence in health care is a universal necessity, compelling educational institutions to prepare graduates for diverse, multicultural environments. This study aimed to explore chiropractic students' perceptions of cultural and linguistic competency at a South African university.

Methods: A cross-sectional anonymous survey was distributed to bachelor of health sciences and master of health sciences chiropractic students at the University of Johannesburg from February 27, 2023, to March 24, 2023. The survey consisted of 33 Likert-scale questions related to 3 subscales: cultural competence, role of language, and student responsiveness. A digital presentation explaining cultural competency was provided to all potential participants. Data were analyzed using frequencies, descriptive statistics, exploratory factor analysis, and reliability testing.

Results: The response rate was 43.56% ($n = 105$) with participants predominantly aged 18-23 years (74.3%, $n = 78$), female (76.2%, $n = 80$), White (70.5%, $n = 74$), and identifying as Christian (63.8%, $n = 67$); 68.6% ($n = 72$) were bilingual. Students showed high agreement on the importance of cultural and linguistic competence in health care but expressed a need for additional training in these areas. An interesting association was found between the role of language and the year of study ($p = .043$) with junior students perceiving higher linguistic competency. The survey demonstrated acceptable reliability ($\alpha = 0.877$).

Conclusion: Student respondents expressed the importance of cultural competence and language proficiency and further demonstrated a clear need for further training to enhance their ability to serve diverse cultural and linguistic groups. The value of respecting patients' cultural backgrounds in clinical settings was aligned with global trends.

Key Indexing Terms: Cultural Competency; Language; Chiropractic; Education; Students

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INTRODUCTION

Cultural and linguistic competency in health care is emerging as a global key priority[1,2] and is expressed as the ability of individuals and systems to work with or respond effectively across cultures in a way that acknowledges and respects the culture of the person or organization served.[3] The practice of cultural and linguistic competence encompasses an understanding of cultural norms, values, and worldviews in a people's context[4] that supports collaboration, inclusivity, and global citizenship.[5,6] As health care is becoming increasingly diverse, cultural competence plays a crucial role in delivering equitable and patient-centered care.[7–9] Such diverse health care environments necessitate culturally competent health care professions, professionals, and policies to effectively address the needs of all community groups.[8,10,11]

Health care professionals are required to offer treatment plans that are personalized to the specific needs and preferences of their patients.[12] As patients have differing cultural backgrounds, a culturally competent health care professional prioritizes understanding the patients cultural values, beliefs, and preferences for their care.[13,14] The appropriate incorporation of patients' culturally significant practices, collaborating with cultural mediators or leaders, and adapting communication in a patient-preferred language can all promote trust with diverse patients to overcome the barriers between health care practices and cultural expectations.[13–15] This acknowledgment of patient cultural identity may lead to improved patient

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satisfaction and outcomes as patients are more likely to adhere to treatment plans and be active in their own care.[16–18] A culturally personalized approach can potentially reduce conflicts between health care and cultural beliefs, improve patient–doctor relationships, and offer more effective health interventions.[15,19] Culturally competent health care aligns with the United Nations agenda for Sustainable Development 2030, namely, goals 4 and 10, which emphasize the importance of integrating education that fosters understanding, respect, and sensitivity toward diverse cultures and by which culturally competent health care professionals can contribute to a more inclusive health system.[20,21]

Developing culturally competent health professionals relies on educational institutions to prepare and provide students with the knowledge, skills, and awareness to become culturally competent health care professionals.[22] The integration of cultural and linguistic competency training in curricula is essential for graduates that are not only proficient in clinical skills but also adept at navigating the complexities of cultural differences in health care settings.[23,24] Early training in cultural competency helps develop the interpersonal skills needed to build trust with patients from different cultural backgrounds.[2,24]

Currently, there is limited information on the cultural competency and education of health care workers.[21,23,25] Within this context, there is an even greater lack of focus on the chiropractic profession,[26] emphasizing a significant gap in research and educational development in cultural competency for future chiropractors in South Africa and abroad. Similar to other nations, South Africa's socioeconomic and cultural diversity presents comparable challenges and opportunities in cultural competency realisation.[2,27]

The South African health care landscape has a complexity attributed to multifaceted historical, social, and economic factors that have established its current structure and function[28] and is represented by vast cultural, linguistic, and religious diversity.[23,29] South Africa's continuing socioeconomic differences subject its health system to significant disparities in health service quality and access that differentiate insolently between racial and socioeconomic groups.[30,31] Despite efforts to address these disparities in the form of the National Health Insurance, there still exist challenges in the access to health care for the country's majority.[32] South Africa's diverse population includes numerous ethnic or cultural groups represented by their associated languages, including isiZulu, isiXhosa, Afrikaans, English, Sesotho sa Leboa (Sepedi), Setswana, Sesotho, Xitsonga, siSwati, Tshivenda, and isiNdebele.[33] Each of these cultures comes with its own traditions and health practice influences. Such influences involve cultural beliefs that define attitudes toward health and disease, the use and role of traditional healers and medicines, health rituals and practices, communication challenges across South Africa's 11 official languages, and importantly the respect for communal decision making.[33–36] Understanding these influences on health attitudes and behaviors of specific cultural groups enhances clinical judgment and offers insights into how patients view their condition.[37] The integration of cultural nuances such as those above into health care delivery can potentially promote a more inclusive and effective health system.[17]

Most South African research emphasizes language as a significant impediment to efficient health care delivery.[38] Multilinguism or second language proficiency can allow health professionals to effectively communicate with patients from diverse linguistic backgrounds.[39] This competence is not only about understanding the spoken word but also about grasping the cultural context in which language is used, and this can influence patient behavior, perceptions of illness, and treatment preferences.[40] This form of communication and patient interaction is fundamental to patient-centered care.[41] Effective communication can reduce misunderstandings and ensure that patients fully comprehend their diagnoses and treatment plans. Moreover, in multilingual societies such as South Africa, where health care professionals may encounter patients who speak various indigenous languages, linguistic competence becomes a tool for further reducing health disparities and promoting equitable access to health care.[40]

There exists a challenge on how best to equip students with core cultural competencies within the specific needs of their local contexts.[42,43] This study, although rooted in a South African context, offers insights for educators worldwide by using the country's cultural and linguistic diversity as a lens to explore broader educational considerations. This study aimed to explore the perceptions of South African chiropractic students regarding cultural and linguistic competency to understand students' views and knowledge in this area to provide baseline data that can inform the development of targeted cultural competency educational strategies in chiropractic education.

METHODS

In this study, a quantitative, exploratory, and cross-sectional research design was employed. An adapted online survey was distributed anonymously to chiropractic students at the University of Johannesburg (UJ), located in Gauteng, Doornfontein, South Africa, using Google Forms (Google, LCC). The study population comprised 1st to 4th year bachelor of health sciences (BHSc) and 1st to 2nd year master of health sciences (MHSc) chiropractic students, totaling $n = 241$ at the time of the study with $n = 188$ BHSc students. Exclusions were made for students under 18 years old or unwilling to participate. Fourth year BHSc and 1st and 2nd year MHSc students engage in clinic-based patient interactions, whereas 1st to 3rd year BHSc students have yet to encounter such experiences. Although cultural competency had not been explicitly incorporated into the curriculum, the biopsychosocial model underlying the curriculum emphasizes patient-centered care and respect for patients' cultures, beliefs, and backgrounds. To introduce the concept of cultural competency, a brief digital presentation was shown to the BHSc and MHSc classes at the end of their respective lectures. The presentation, adapted from The Caregiver Hub[44,45] aimed for simplicity in conveying the concept. Data collection took place from February 27, 2023, to March 24, 2023.

After obtaining institutional permission and ethical clearance from the University of Johannesburg Research Ethics Committee (REC-1848-2022), the self-administered survey link along with an information letter and consent form as well as the digital presentation were disseminated through WhatsApp (WhatsApp, Facebook, Inc) by class representatives of each respective class. Students were informed that participation

was entirely voluntary and their responses would remain anonymous, ensuring that no individual could be identified through their responses.

This study utilized a questionnaire adapted from a previously published study[23] that had incorporated items sourced from validated self-assessment checklists developed by the National Center for Cultural Competence at Georgetown University to promote cultural and linguistic competency.[46] Participants responded to 33 Likert-style questions that aimed to determine the diversity of the sample population, their perceptions of cultural and linguistic competence, and their relative responsiveness.[23] The 5-point Likert responses ranged from *strongly disagree* (scored 1) to *strongly agree* (scored 5) with higher total scores indicating greater cultural competence. To ensure relevance to the South African context, the survey was adapted, incorporating specific items to gauge students' perceptions of language in South African health care. Pilot testing on 5 UJ chiropractic students confirmed the survey's validity with no changes made prior to distribution; these pilot responses were subsequently excluded from the data. The survey comprised 4 sections: section A collected biographical data (eg, age, sex, year of study, ethnicity home country, province of birth, religion, language of speaking and learning, and number of languages spoken), section B focused on the role of language in South African health care, section C addressed cultural competence, and section D explored students' receptiveness to the curriculum's emphasis on cultural competency and their interest in professional development opportunities to better serve linguistically and culturally diverse populations.

The data were analyzed using IBM SPSS Version 28 (IBM Corp), underwent frequencies, descriptive statistics, and exploratory factor analysis (EFA) with Cronbach alpha for Likert-scale questions. Normality was tested with Shapiro-Wilk and Kolmogorov-Smirnov tests to assess the distribution of the data. For age, the Shapiro-Wilk test was used as the group sizes were less than 50. The results indicated that almost all variables were not normally distributed, leading to the use of nonparametric tests (Kruskal-Wallis and Mann-Whitney U tests). For year of study, the Kolmogorov-Smirnov test was applied to the junior group as the group size exceeded 50; however, the results still showed that the data was not normally distributed. For the senior group, the Shapiro-Wilk test was used, and similar findings of nonnormality were observed. Although the majority of variables were not normally distributed for the year of study, the group sizes were sufficiently large and similar, allowing for the use of parametric tests. Consequently, the *t* test was applied for the parametric analysis for year of study.[47]

RESULTS

Demographic Information of the Sample Population

There was a total of $n = 105$ responses obtained, which resulted in a response rate of 43.56%. Out of the $n = 105$ participants in this study, 38.1% ($n = 40$) were between 21 and 23 years and the majority were female (76.2%, $n = 80$), White in ethnicity (70.5%, $n = 74$), and of South African nationality (97.1%, $n = 102$). Christianity was represented by 63.8% ($n = 67$) of the sample. Most of the respondents were from their 1st year of study (20.0%, $n = 21$). Further biographical data is represented in Table 1.

Table 1 - Demographic Information of the Respondents

Characteristic	Percentage	Number
Age in years		
18–20	36.2	38
21–23	38.1	40
24–26	19.0	20
27–29	2.9	3
30+	3.8	4
Sex		
Female	76.2	80
Male	23.8	25
Ethnicity		
White	70.5	74
African	14.3	15
Indian	11.4	12
Colored	3.8	4
Nationality		
South African	97.1	102
Other	2.1	3
Religion		
Christianity	63.8	67
Islam	7.6	8
Hinduism	4.8	5
Judaism	4.8	5
Buddhism	1.0	1
Other	1.0	1
None	17.1	18
Year of study		
1st year BHSc	20.0	21
2nd year BHSc	17.1	18
3rd year BHSc	18.1	19
4th year BHSc	14.3	15
1st year MHSc	16.2	17
2nd year MHSc	14.3	15

Table 2 provides a breakdown of the language demographics among the respondents. Regarding home language, English was the most prevalent at 46.3% ($n = 105$). For language of learning or teaching, English was dominant (70.0%, $n = 91$). In terms of the number of languages spoken by respondents, the majority indicated they were bilingual (68.6%, $n = 72$). Additional languages spoken included German, French, Arabic, Dutch, Fanakalo, Greek, Hebrew, Italian, Spanish, Turkish, and sign language, each representing 1.0% ($n = 1$) of respondents or less.

Psychometric Properties of the Survey

For the EFA, the method of principal axis factoring with a Varimax rotation was used. Initially, all the items were assessed for factorability, and the item "I believe that health care professionals should speak at least 2 official languages" was omitted as its measure of sampling adequacy value was less than .6, indicating that this item was not sufficiently correlated with other variables to be useful for the EFA.[47] For the remaining items, a Kaiser-Meyer-Olkin measure of sampling adequacy of .789 was obtained[48] with a significant p value for the Bartlett's Test of Sphericity, $\chi^2(231) = 1005.503$, $p < .001$. The communalities at extraction were >.3 with the exception of "I use/will use bi- or multilingual staff/volunteers to interpret during consultations if

Table 2 - Language Profile of the Respondents

Grouping	Percentage	Number
Home language		
English	46.3	105
Afrikaans	33.5	76
IsiZulu	3.5	8
Sepedi	3.1	7
Sesotho	3.1	7
Setswana	1.8	4
IsiXhosa	1.3	3
IsiNdebele	0.9	2
Other	6.6	15
Language of learning/teaching (at school)		
English	70.0	91
Afrikaans	24.6	32
French	1.9	2
German	1.0	1
Greek	1.0	1
IsiZulu	1.5	2
Sesotho	0.8	1
Number of languages spoken		
Monolingual (English only)	13.3	14
Bilingual	68.6	72
Multilingual (3 or more)	18.1	19
Additional languages spoken		
German	3.8	4
French	2.9	3
Arabic	1.0	1
Dutch	1.0	1
Fanakalo (blends elements of various languages)	1.0	1
Greek	1.0	1
Hebrew	1.0	1
Italian	1.0	1
Italian	1.0	1
Spanish	1.0	1
Turkish	1.0	1
Sign language	1.0	1

necessary" (.276) and "In my interactions with patients, I do/will respect their culture" (.293); however, these were included nonetheless as their measure of sampling adequacy values were greater than .600. Founded on the Kaiser criterion, the EFA resulted in 6 empirical factors, which explains 52.75% of the variance after rotation. These 6 factors were named cultural impact, cultural, competency development, linguistic competency, cultural competency, and cultural sensitivity.

Whereas the EFA revealed 6 empirical factors based on correlations among variables, we chose to use the 3 theoretical factors (role of language, cultural competence, and student responsiveness), grounded in existing literature, to align with prior studies and ensure consistency.[23] This approach provided a more robust interpretation of the data within the broader research context.

Reliabilities were tested for the theoretical factors from the EFA. A subscale of a questionnaire is considered acceptable for reliability or internally consistency if the Cronbach alpha is in the rage between .600 and .800.[49,50] The study showed that the following subscales showed satisfactory reliability with Cronbach alpha values of role of language with 5 items (.698), cultural competence with 16 items (.868), and student responsiveness with 2 items (.796). It was appropriate to report the mean interitem correlation for the role of language; the Cronbach alpha value for this subscale was $<.7$ and had less than 10 items. The ideal range of the mean interitem correlation is between .2 and .4,[47] and role of language showed a corrected item–total correlation value of .314.

Chiropractic Student Respondents' Perceptions of Concepts Related to Linguistic and Cultural Competence

Table 3 provides detail on the survey responses, ranging from *strongly disagree* to *strongly agree*, in the total sample for each subscale, namely, role of language, cultural competence, and student responsiveness. Table 4 presents the mean, median, and standard deviation for each of the 3 subscales. Below each subscale is presented items of the questionnaire that showed agreement and strong agreement.

Role of Language

A significant portion of respondents (51.4%, $n = 54$) strongly agreed with an additional 37.1% ($n = 39$) expressing agreement, indicating a widespread belief that multilingualism is essential in South African health care. Respondents both agreed (41.9%, $n = 44$) and strongly agreed (41.9%, $n = 44$) that health care professionals should be proficient in at least 2 official languages. Furthermore, a high level of commitment to respecting patients' language preferences during interactions was noted as 96.2% ($n = 101$) of respondents either agreed or strongly agreed with this sentiment. More than half of the respondents (51.4%, $n = 54$) agreed, whereas 36.2% ($n = 38$) strongly agreed with efforts aimed at improving language skills for patients speaking different languages. Finally, readiness to utilize bilingual or multilingual staff/volunteers for interpretation purposes was evident with 49.5% ($n = 52$) in agreement and 38.1% ($n = 40$) strongly agreeing with this approach when necessary during consultations.

Cultural Competence

The survey revealed a strong consensus among respondents regarding cultural competence. Notably, 84.8% ($n = 89$) strongly agreed and 14.3% ($n = 15$) agreed to respecting patients' culture during interactions. Similarly, 60.0% ($n = 63$) strongly agreed and 35.2% ($n = 37$) agreed that health education and medical treatment meanings may vary among cultures. Additionally, 64.8% ($n = 68$) strongly agreed and 33.3% ($n = 35$) agreed that religion and beliefs can influence responses to illness. Regarding seeking information for diverse groups, 49.5% ($n = 52$) agreed and 38.1% ($n = 48$) strongly agreed. Moreover, there was significant support for using cultural advisors during consultations with 44.8% ($n = 47$) agreeing and 41.0% ($n = 43$) strongly agreeing. Finally, 72.4% ($n = 76$) strongly agreed and 21.0% ($n = 22$) agreed to refraining from culturally insensitive behaviors.

Respondents showed agreement with various statements related to cultural awareness and sensitivity. Specifically, 42.9% ($n = 45$) agreed and 36.2% ($n = 38$) strongly agreed to mitigating culturally insensitive comments or behaviors.

Table 3 - Response Distribution and Summary Statistics for the Survey Item Responses per Subscale for the Total Sample

Subscales and Items	Disagree/ Strongly Disagree *n* (%)	Neutral *n* (%)	Agree/ Strongly Agree *n* (%)	Mean	Median	SD
Role of Language						
I believe that multilingualism is essential in SA health care (multilingualism is the use of more than one language either by an individual speaker or by a group of speakers).	3 (2.9)	9 (8.6)	93 (88.5)	4.36	5.00	0.798
I believe that health care professionals should speak at least 2 official languages.	6 (5.7)	11 (10.5)	88 (83.8)	4.20	4.00	0.848
In my interactions with patients, I do/will respect their language.	2 (1.9)	2 (1.9)	101 (96.2)	4.56	5.00	0.634
In my interactions with patients who speak languages other than my own, I attempt/will attempt to improve my language skills.	4 (3.9)	9 (8.6)	89 (87.6)	4.19	4.00	0.86
I use/will use bi- or multilingual staff/volunteers to interpret during consultations if necessary.	2 (1.9)	11 (10.5)	92 (87.6)	4.24	4.00	0.714
Cultural competence						
In my interactions with patients, I do/will respect their culture	1 (1.0)	0 (0.0)	104 (99.1)	4.82	5.00	0.515
I recognize that the meaning or value of health education and medical treatment may vary among cultures.	0 (0.0)	5 (4.8)	100 (95.2)	4.55	5.00	0.588
I accept that religion and other beliefs may influence how individuals and families respond to illness, disease, and death.	0 (0.0)	2 (1.9)	103 (98.1)	4.63	5.00	0.524
I seek information from individuals, families, and key community informants that will help to respond to the needs and preferences of culturally and ethnically diverse groups.	1 (1.0)	12 (11.4)	92 (87.6)	4.25	4.00	0.690
I use/will use staff/other volunteers to act as cultural advisors during consultations if necessary.	3 (2.9)	12 (11.4)	90 (85.8)	4.24	4.00	0.766
I do not participate in culturally insensitive comments or behaviors.	2 (1.9)	5 (4.8)	98 (93.4)	4.64	5.00	0.667
I try to mitigate others' culturally insensitive comments or behaviors.	2 (1.9)	20 (19.0)	83 (79.1)	4.13	4.00	0.785
I am aware of specific health disparities and their prevalence within cultural communities.	4 (3.8)	16 (15.2)	85 (80.9)	4.07	4.00	0.775
My patients' cultural norms may influence communication, such as eye contact.	5 (4.8)	8 (7.6)	92 (87.7)	4.23	4.00	0.823
Culture has an impact on life activities, such as gender roles.	0 (0.0)	10 (9.5)	95 (90.5)	4.39	4.00	0.658
I am aware of the impact that culture has on life activities, such as customs or superstitions.	2 (1.9)	2 (1.9)	101 (96.2)	4.41	4.00	0.631
I am aware of the impact of culture on life activities, such as the use of alternative medicine.	0 (0.0)	9 (8.6)	96 (91.5)	4.38	4.00	0.641
I understand the impact of culture on life activities, such as the value of Western medical treatment.	1 (1.0)	8 (7.6)	96 (91.4)	4.34	4.00	0.663
I provide/will provide services to those who are LGBTQ+ (lesbian, gay, bisexual, transgender, and queer).	1 (1.0)	6 (5.7)	98 (93.4)	4.61	5.00	0.643
Even though my professional or moral viewpoints may differ, I accept individuals and families as the ultimate decision makers for services and support impacting their lives.	0 (0.0)	3 (2.9)	102 (97.1)	4.59	5.00	0.549
I am aware of the socioeconomic and environmental risk factors that contribute to health disparities of culturally and linguistically diverse cultural populations.	1 (1.0)	8 (7.6)	96 (91.4)	4.30	4.00	0.649
Student responsiveness						
I would like the university to ensure that principles and practices promoting cultural competence are included in the chiropractic curriculum.	3 (2.9)	17 (16.2)	85 (80.9)	4.14	4.00	0.893
I need further professional development and training to improve my knowledge and skills in the provision of services and support to culturally and linguistically diverse groups.	6 (5.8)	18 (17.1)	81 (17.1)	4.04	4.00	0.950

Table 4 - Descriptive Statistics (Mean, Median, Standard Deviation, Minimum, and Maximum) per Subscale

Subscale	Mean	Median	SD	Minimum	Maximum
Role of language in South Africa health care	4.32	4.50	0.573	2.25	5.00
Cultural competence	4.41	4.43	0.386	3.38	5.00
Student responsiveness	4.09	4.00	0.840	1.00	5.00

Moreover, 51.4% ($n = 54$) agreed and 29.5% ($n = 31$) strongly agreed to being aware of health disparities within cultural communities. Furthermore, 46.7% ($n = 49$) agreed and 41.0% ($n = 43$) strongly agreed that patients' cultural norms influence communication. Respondents also acknowledged the impact of culture on life activities, such as gender roles, with 48.6% ($n = 54$) strongly agreeing and 41.9% ($n = 51$) agreeing. Additionally, 49.5% ($n = 52$) strongly agreed and 46.7% ($n = 49$) agreed to being aware of culture's impact on customs and superstitions. Similarly, 46.7% ($n = 49$) strongly agreed and 44.8% ($n = 47$) agreed to being aware of culture's influence on activities such as the use of alternative medicine.

In response to the following statement, "understanding culture's impact on life activities like the value of Western medical treatment," there was 47.6% ($n = 50$) agreement and 43.8% ($n = 46$) strong agreement. Regarding providing services to LGBTQ+ individuals, 68.6% ($n = 72$) strongly agreed and 24.8% ($n = 26$) agreed. Furthermore, 61.9% ($n = 65$) of respondents strongly agreed and 35.2% ($n = 37$) agreed to accepting individuals and families as decision makers for services impacting their lives. Last, there was 52.4% ($n = 55$) agreement and 39.0% ($n = 41$) strong agreement to being aware of socioeconomic and environmental risk factors contributing to health disparities among diverse cultural populations.

Student Responsiveness

Despite overall high agreement on cultural competence questions, a substantial number of respondents (41.9%, $n = 44$) agreed with an additional 39.0% ($n = 41$) strongly agreeing that the university should integrate principles and practices promoting cultural competence into the chiropractic curriculum. Similarly, significant support was observed with 41.9% ($n = 44$) of respondents agreeing and 35.2% ($n = 37$) strongly agreeing that they require further professional development and training to enhance their knowledge and skills in serving culturally and linguistically diverse groups.

Differences in Chiropractic Students' Perceptions of Cultural and Linguistic Competence Across Age Groups and Years of Study

For the purposes of reporting, age and year of study were recoded and age was categorized as years 18–20, 21–23, and 24+. As seen in Table 5, the Kruskal-Wallis H test was conducted to compare the ranks of 3 age groups (18–20 years, 21–23 years, and 24+ years) across the 3 factors. For cultural competence, the 21–23 year group had the highest mean rank (61.05), significantly higher than the 18–20 year group (46.14). The Kruskal-Wallis H test was nonsignificant ($H = 4.886$, $p = .087$). For role of language, the ranks were quite similar across the groups with the 21–23 year group having the highest mean rank (54.61). The test showed no significant differences between the groups ($H = .646$, $p = .724$). For responsiveness, the ranks were also similar across age groups with the 24+ years group having the highest mean rank (54.20). The Kruskal-Wallis H test showed no significant differences between the groups ($H = .150$, $p = .928$).

The year of the study was recoded as junior students (including 1st to 3rd year BHSc students) and senior students (including 4th year BHSc, 1st and 2nd year MHSc students). An independent samples t test was conducted, and a statistically significant association was found between the role of

Table 5 - Descriptive Statistics for Subscales by Age Group

					95% Confidence Interval for Mean					
Subscale	**Age in Years**	***n***	**Mean**	**SD**	**Lower Bound**	**Upper Bound**	**Min**	**Max**	**IQR**	**Mean Rank**
Role of language	18–20	38	4.40	0.379	4.28	4.53	4	5	0.56	54.14
	21–23	40	4.34	0.637	4.13	4.54	2	5	0.94	54.61
	24+	27	4.21	0.692	3.94	4.49	3	5	1.25	49.00
	Total	105	4.33	0.573	4.22	4.44	2	5		
Cultural competence	18–20	38	4.33	0.383	4.20	4.45	4	5	0.70	46.14
	21–23	40	4.51	0.392	4.39	4.64	4	5	0.75	61.05
	24+	27	4.38	0.360	4.23	4.52	3	5	0.38	50.72
	Total	105	4.41	0.386	4.34	4.49	3	5		
Student responsiveness	18–20	38	4.08	0.784	3.82	4.34	1	5	1.00	51.55
	21–23	40	4.11	0.812	3.85	4.37	1	5	1.38	53.56
	24+	27	4.07	0.978	3.69	4.46	1	5	1.50	54.20
	Total	105	4.09	0.840	3.93	4.25	1	5		

Min = minimum; Max = maximum; IQR = interquartile range.

language and the year of study ($t = 2.062$, $df = 74.308$, $p = .043$) with unequal variances assumed and a small effect size ($\eta^2 = .04$). Cultural competence ($t = -.511$, $df = 103$, $p = .611$) and student responsiveness ($t = 1.230$, $df = 103$, $p = .221$) were not statistically significant when correlated to the respondent's year of study.

DISCUSSION

This study aimed to explore chiropractic students' perceptions of cultural and linguistic competency at a South African university, addressing a significant gap in the literature as this subject has not been previously explored within the chiropractic educational and cultural context. This research highlights several key insights that, whereas rooted in the South African context, can prompt chiropractic institutions globally to reflect on their own cultural and linguistic complexities.

Despite the overall strong agreement on cultural competence by the student participants (41.9% of participants agreed and 39.0% strongly agreed), a notable proportion of respondents expressed a clear need for curricula with integrated principles and practices of cultural competence; this is similar to findings in other studies.[23,51] This sentiment emphasizes a widespread recognition by students of the importance of integrating cultural competence into academic training. Additionally, there was significant support for further professional development with 41.9% of respondents agreeing and 35.2% strongly agreeing that they require additional training to improve their knowledge and skills in serving culturally and linguistically diverse groups. These findings reflect a collective call among chiropractic students for both curricular and professional enhancements, possibly to equip themselves for effective and sensitive health care delivery in a multicultural South African context. This resonates with global trends that support the need for cultural and linguistic competence training in health education for more inclusive and equitable health care.[5,25,52] The participants in this study represent South Africa's sociopolitical context, which may not be fully mirrored in other settings, necessitating localized approaches within the broader framework of cultural competence chiropractic education.[1]

Another interesting observation from this study was that the junior chiropractic students self-reported a higher level of cultural and linguistic competency compared with students in the other years. This infers that the junior students perceived themselves to have a higher level of linguistic competency. Whereas this may have limited practical implications, it could still hold relevance in this research context and could possibly be attributed to the increased exposure to diversity through diversity in schooling, access to new technology, and engagement with social media, which may make younger generations more culturally aware.[51,53] It should be considered that, whereas younger students may be more socially and culturally aware, this may not necessarily translate to professional cultural competence.[54]

This study further observed that bilingual and multilingual participants appeared more likely to support the requirement for health care professionals to speak at least 2 official languages, whereas monolingual participants tended to believe 1 language was sufficient. However, this observation was not statistically significant and may be purely coincidental. The findings of high levels of agreement among chiropractic students regarding the importance of language competency were aligned with the results of the Matthews and Van Wyk study done in 2018.[23] A notable 88.5% of respondents believed health care professionals should be multilingual, and 87.6% expressed a commitment to enhancing their language skills. Additionally, 96.2% affirmed their respect for patients' languages, highlighting a strong willingness to improve interactions with nonnative speakers. Multilingualism enhances professional opportunities and strengthens patient–practitioner relationships by enabling health professionals to communicate more effectively with patients from diverse linguistic backgrounds, leading to deeper understanding, improved patient outcomes, and increased trust.[55] Multilingualism is also essential for reducing health disparities by enhancing access to care by creating inclusive health care environments.[55,56]

Respondents in this study demonstrated strong agreement with cultural competency questions with a substantial 99% affirming respect for patients' cultures and 98.1% acknowledging the influence of religion and beliefs on responses to illness and also death. Additionally, 87.7% recognized how cultural norms impact communication. This high level of agreement may reflect a social desirability bias but may also indicate some level of cultural awareness and precompetence among these students. Although students are sensitized to cultural considerations through experiential learning, cultural competence is not yet a prioritized competency in this study and others,[23,57] and this is reflected by the notably low agreement on addressing culturally insensitive comments and highlights a need for a more supportive environment for promoting and developing cultural competence. To address this gap, health professions education should focus on developing cultural intelligence and offering transformative learning opportunities to better prepare students for working across cultural boundaries.[58,59] Trends from previous studies suggest that, as students progress through their program, they become more culturally comfortable, underscoring the need for strategically integrating cultural competency training at key points in the curriculum.[60]

To place perspective on the abovementioned findings, considering the demographic data is necessary (Table 1). The most represented age categories among the respondents were 18–20 years (36.2%) and 21–23 years (38.1%). These age groups are similar to other studies that have investigated varying concepts of cultural competency in health students.[23,24,61] Most of the respondents were females (76.2%), which is likely attributed to the higher enrollment of female students in the chiropractic program at UJ.[62] The largest student population group in this study was South African (97.1%) and White (70.5%), followed by African (14.3%) and Indian (11.4%) in ethnicity. Given that most chiropractic students in South Africa are White at UJ, whereas the country's population is predominantly Black African,[29,31] there is a critical need for these students to develop cultural competency. This will enable the profession to better serve the majority population by making chiropractic care more accessible through cultural sensitivity and language proficiency.[24]

As Table 2 depicts, all participants in this study were proficient in English with 13.3% speaking only English and the majority (68.6%) fluent in at least 1 additional language. Among them, 18.1% were multilingual, speaking 3 or more languages. Most bilingual students spoke English and Afrikaans (72.4%), whereas 7.6% could speak IsiZulu, and a small number (3.8%) spoke German. Despite English being

the 4th most common home language in South Africa (8.2% of the population), it is widely used in government.[63] Being bilingual or multilingual enhances cultural awareness and cognitive flexibility, which is valuable in diverse and globalized settings.[64]

This South African study offers takeaways for other chiropractic educators and institutions on the need for embedding responsive education strategies addressing cultural and linguistic competencies into curricula. The incorporation of culturally relevant content and perspectives that resonate with health professions students can endorse inclusive and equitable health care in the future.[5] Looking ahead, the investigation of the long-term impact of cultural competence health education on professional practice and patient care outcomes will be necessary to fully understand its value.

Limitations

The size of the predicted sample population was a notable study constraint. A more accurate depiction of chiropractic students' perceptions of cultural competency might have been obtained from a higher response rate. Furthermore, ethnicity groups could not be a reliable item for comparison in cultural competency as a significant percentage (70.5%) of participants were White, which is far more than half of the study population. The study prioritized theoretical factors over empirical ones, and this may present some challenges in directly translating theoretical concepts into actionable strategies. The findings are specific to self-assessment of the perceptions of students at a single university and may not be generalizable to all contexts. The fact that this research project is the first of its kind on chiropractic students in South Africa should be taken into account. Despite its limitations, this study added fresh knowledge to the chiropractic profession in South Africa and served as a springboard for additional investigation.

CONCLUSION

This study provides insights into chiropractic students' perceptions of cultural and linguistic competence at a single institution, highlighting the relevance of culture and language in chiropractic education. Whereas students recognized the value of cultural and linguistic awareness, they identified a need for further training to better serve diverse communities, informing curriculum development in chiropractic education. The prioritization of cultural competency training to more effectively engage with and support diverse communities aligns with global trends. The implications of this study extend beyond South Africa, offering considerations for chiropractic education institutions elsewhere. These findings also highlight the need for more contextually relevant cultural competency educational strategies to address systemic inequities and promote inclusivity.

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Author Contributions

Concept development: FI. Design: FI. Supervision: FI. Data collection/processing: MW. Analysis/interpretation: MW, FI. Literature search: MW, FI. Writing: FI, MW. Critical review: FI. During the preparation of this work, the author(s) used OpenAI (2023) ChatGPT 3.5 to enhance the writing process by improving language and not to analyze and draw insights from data. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

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