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Abstract

Cultural sensitivity and competency are skills needed for agricultural professionals including nutrition and dietetics practitioners. The objective of the current study was to examine the learning transference of cultural sensitivity topics taught in a cultural foods course into case study assessments of a capstone-level course. This study is a cross-sectional, content analysis of cultural sensitivity assessment rubric (CSAR) scores for two case study assessments. The study was conducted in a land-grant, research-intensive university and 55 students (60%) from a capstone-level dietetics course participated. T-tests were used to compare CSAR scores between students who had completed a cultural foods course and those who had not. Students who completed the cultural foods course, n= 39 (71%), on average scored significantly higher ($p<0.037$) on the CSAR, 2.11/10, versus an average score of 1.03/10 among the students who had not completed the course, n=16 (29%). Students who completed the cultural foods course were more likely to apply cultural sensitivity knowledge and awareness without explicit elicitation than those who had not completed the course. Findings reinforce the use of intentional assessments of cultural sensitivity and competency topics and provide support for laying a cultural sensitivity foundation in undergraduate education.

Introduction

Cultural sensitivity training is a component of high-quality, individualized healthcare (Betancourt, 2004). Cultural sensitivity is the ability to provide healthcare services "responsive to individual cultural health beliefs and practices, preferred languages, health literacy levels, and communication needs" (Koh et al., 2014). Epidemiological studies suggest racial and ethnic minorities present with higher rates of diabetes and heart disease in the U.S. (Centers for Disease Control and Prevention, 2014; Mozaffarian et al., 2015), and they do not receive the same quality of care as non-Hispanic white patients (U.S. DHHS, 2011).

Statistics on the ethnic makeup of healthcare professionals show a disproportionately low representation of ethnic minorities compared to the ethnic makeup of the U.S. population. The ethnicity of dietetics and nutrition professionals also mirrors this trend. However, being a member of an ethnic group does not guarantee that an individual is culturally competent to provide care, although they may have implicit insights into cultural interactions and advantages in verbal and non-verbal communication (Wallace et al., 2009; Heiss et al., 2013). These health disparities warrant increased cultural sensitivity training for healthcare professionals (Meyer et al., 2013) and present several challenges that are enhanced by improving knowledge of cultural sensitivity awareness and training.

Additionally, data on who receives medical nutrition therapy (MNT) or preventive nutrition services are limited. However, dietetics and nutrition professionals provide

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services to diverse communities and workplace settings, such as acute-inpatient care (23-32%), long-term care (10-26%), and community/public health settings (7-10%) (Rogers, 2016). A 2012 study on the supply and demand of dietetics and nutrition professionals projected a 42% growth in clinical nutrition–inpatient and outpatient services, 36% in clinical nutrition-long-term care, 34% in community nutrition, 35% in food and nutrition management, 28% in consultation and business, and 24% education and research between 2010 and 2020 (Hooker, et al., 2012). Cultural sensitivity is imperative for successful work within emerging areas of practice for dietitians and nutrition professionals.

Cultural sensitivity is an iterative process where individuals learn knowledge and enhanced skills the more these are applied. Measuring cultural sensitivity is a challenge complicated by the lack of an operational definition of cultural sensitivity, especially in providing healthcare services (Sue, 2006). Dietetics programs must meet cultural sensitivity standards and competencies set by the Accreditation Council for Education in Nutrition and Dietetics (ACEND®) (Accreditation Council for Education in Nutrition and Dietetics, 2017). Generally, colleges and universities offer a variety of opportunities for students to gain valuable cultural sensitivity knowledge and awareness, such as cultural foods and counseling courses (McArthur et al., 2011), service learning (Horacek et al., 2009; Meaney et al., 2008), distance learning (Lipson and Desantis, 2007), study abroad (Accreditation Council for Education in Nutrition and Dietetics, 2012; Caffrey et al., 2005), internships, and community volunteering opportunities. Less than 20% of dietetics programs require a specific course on cultural sensitivity (Knoblock-Hahn et al., 2010). Financial or academic reasons may factor into students' ability to participate in these time-consuming and costly activities such as study abroad. Although programs may include sufficient knowledge items related to cultural sensitivity, there is limited information about the transference of this knowledge into awareness and attitudes specific to nutrition and dietetics (Knoblock-Hahn et al., 2010).

Attainment of cultural sensitivity skills in higher education for nutrition and dietetics professionals is not well studied. Nutrition and dietetics students are favorable to incorporating more cultural-related material into the dietetics curricula (McArthur et al., 2011; Kessler et al., 2009). Exposure to cultural sensitivity topics in dietetics (such as health beliefs and traditional food habits) or international service-learning projects increased confidence in counseling ethnic populations among dietetic students (Kollar and Ailinger, 2002; Wright and Lundy, 2014). Moreover, ACEND® expects that curricula demonstrate a progression in knowledge and skills.

Similar to cultural sensitivity, transfer of learning is a dynamic process (Bransford et al., 2000). The transfer of learning is "the ability to extend what one has learned in one context to new contexts" (Bransford et al., 2000). By providing students with knowledge of cultural sensitivity and applying this knowledge in carefully developed learning activities, students may develop skills that transfer into future learning and professional activities. Therefore, nutrition and dietetics educators need to assess students' knowledge and transfer of learning relative to cultural sensitivity at varying levels of education to understand better how they pertain to future professional practice.

The purpose of this study was to examine the transfer of learning from cultural sensitivity topics taught in a cultural foods course into case study assessments of a capstone level course, Medical Nutrition Therapy II (MNT-II). Additionally, researchers used qualitative methods to explore the cultural sensitivity topics that students are most and least likely to apply in medical nutrition case study assessments. We hypothesized that students who completed a cultural foods course before enrolling in the MNT-II, were more likely to demonstrate the transfer of knowledge and awareness to cultural sensitivity-related topics in a case study assessment than those who had not completed the course.

Materials and Methods

A qualitative content analysis approach (Riffe et al., 2014) was used to develop a cultural sensitivity assessment rubric (CSAR), [Supplemental File 1]. Before study commencement, the primary author met with the MNT-II course instructor to determine the logistics for students and establish access to course management software. Course management software typically used for organizing course content and grade reporting was used to collect responses to the student assessments. The study was deemed exempt by the Institutional Review Board at Michigan State University.

Setting

The study was conducted in a land-grant, research-intensive university. Cultural sensitivity content from the Global Foods and Culture course was assessed in MNT-II, a capstone level course for dietetics majors. Both courses are required for students majoring in dietetics, and Global Foods and Culture may be taken any semester after students have met two university pre-requisites and achieved junior-level standing. Two dietetics-focused learning objectives from Global Foods and Culture led to the selection of the course for content assessment: 1) to recognize the elements of culture that relate to and influence food behaviors of individuals and groups; 2) apply cultural food behavior analysis as an approach to his/her intended profession. The associated course lectures served as a basis for the topics in the CSAR, discussed in detail in the instrument section. Additionally, content from the Global Foods and Culture course meets the knowledge and skills required for the ACEND® education accreditation standards related to cultural sensitivity for the didactic program in dietetics.

The course selected to assess transference of knowledge and skills of cultural sensitivity, MNT-II, is a capstone level course for seniors who have completed 88 credits or more and completed in the final semester and year of the program. The MNT-II course covers critical care aspects of MNT and counseling. Course learning outcomes assessments are case studies, quizzes, and exams. Two case studies include independent and group activities on appropriate intervention and counseling strategies, were

selected for the current study. The case studies include cultural sensitivity objectives, and although not explicitly stated, it is expected that students apply prior knowledge and skills from previously completed courses, including Global Food and Culture.

Subjects

Students were recruited from MNT-II in 2014. The primary author attended two class periods during the fifth and sixth weeks of classes to explain the study and recruit students. Demographic data was collected from the university registrar's office to reduce error in self-reporting of grade point average and course grades. For this reason, it was necessary to obtain written informed consent, and 55/91 (60%) of students agreed to participate in the study.

Instruments

The authors developed an assessment based on MNT-II case study objectives and cultural sensitivity topics from the Global Foods and Culture course using content analysis methodology (Wright and Lundy, 2014). Three open-ended questions were developed and included at the end of two case study quizzes. The questions were purposefully worded differently for each case study to explore whether responses differed between students who had taken Global Foods and Culture and those who had not. In the first case study, the word “culture” was omitted, and in the second case study, the word was included as follows, “1. Name two ways in which you can have a more targeted and successful medical nutrition therapy (cultural) encounter with this client/patient. 2. What are three ways you can bridge the (cultural) gap between you and the client/patient to improve MNT counseling? (Or three ways to avoid (cultural) barriers between you and a client?) 3. How will each of these three considerations help you bridge the (cultural) gap between you and the client/patient?”

The CSAR was developed to assess the open-ended responses to these questions. Initially, a 20-item CSAR that included all possible cultural sensitivity topics taught in the Global Foods and Culture was created. The primary author and a teaching assistant who had completed the course met five times to confirm CSAR content and assignment of points. These discussions led to redefining and combining of items. Only items with adequate inter-rater reliability were used. The final CSAR, has 11 items to score from 0-10 points. Students' responses were assessed for each CSAR item. If the item was not mentioned, it was scored as zero. If the item was mentioned but not individualized/personalized to the patient, the student received a score of one. If a student individualized/personalized the item to the patient’s culture, it received a score of two. Responses to the first question could earn up to four points; the second and third questions responses could earn up to six points.

Case Study Elements

Questions for this study were embedded into two case study quizzes that were completed online via course management software. The first case study was a patient with chronic kidney disease who was of Native American ethnicity and the Catholic religion. The second case study required an assessment of a patient with chronic obstructive pulmonary disease of Asian-American ethnicity and the Methodist religion. Additional questions were added to the end of the first case study quiz to examine information regarding participation in cultural experiences such as travel abroad or service learning, and courses teaching information about communication, health beliefs, and foods of other cultures as found in previous studies (McArthur et al.. 2011: Pierce et al.. 2012).

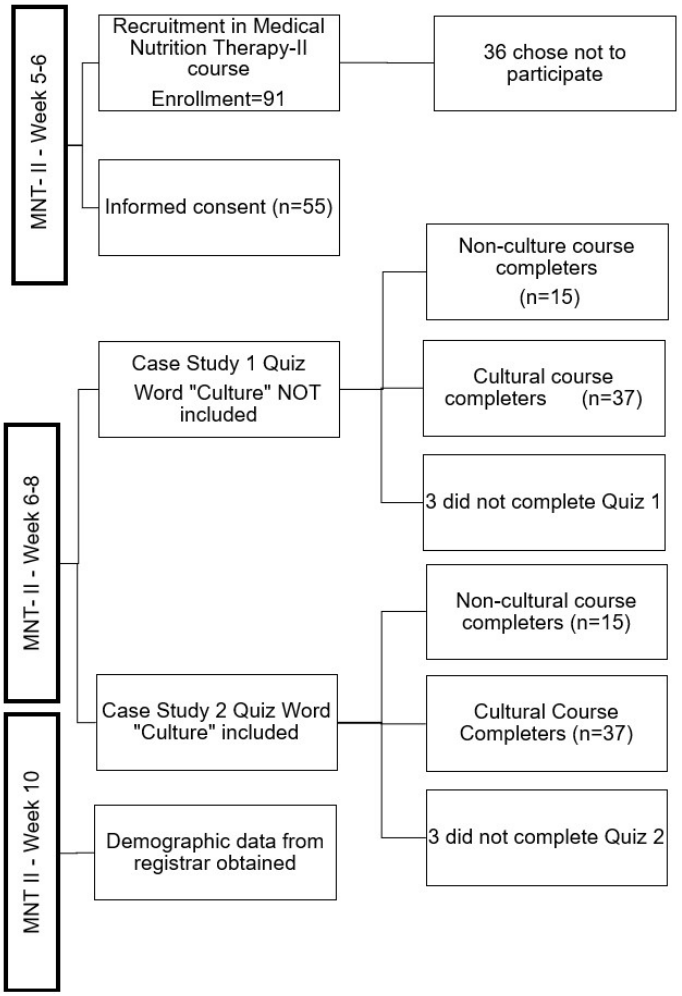

Figure 1. Flow chart of study participants and data collection.[z]
[z] Study began on week 5 of the 16-week semester.

Analysis

The initial 20-item CSAR was tested for interrater reliability (Riffe et al., 2014), and only 11 items had a Cohen’s kappa of 0.7 or higher; therefore, only these items were included in the final CSAR. Descriptive statistics, chi-square analyses, and t-tests were completed with STATA/IC 12 (Statacorp, College Station, TX, USA) to compare scores and descriptive data between students who had completed a cultural foods course versus those who had not.

Results and Discussion

Fifty-five students agreed to participate in the study. Demographics and student characteristics are presented in Table 1. The overall participant demographics matched those of the students in the major at the university; more than 90% were non-Hispanic, white women and from the

state of Michigan. There were no significant differences between Global Foods and Culture course completers than non-completers in age, cumulative grade point average, or participation in cultural sensitivity activities. Participation in off-campus volunteer opportunities, study abroad, leisure travel abroad, service-learning, and completing a course on communication, health beliefs, and foods of other cultures was 47% or higher among respondents. The case study assessment scores averaged 2.3/10 for the first case study and 2.6/10 for the second. When comparing scores for the first case study quiz (did not include the word culture) between students who completed the Global Foods and Culture course and those who did not, the scores for course completers were significantly higher at 2.11 vs. 1.03 ($p<.037$). When scores were compared for the second case study quiz (included the word culture), there were no significant differences; with 2.82 for completers and 2.68 for non-completers.

The CSAR was used to identify what cultural sensitivity topics were most or least likely to be addressed by students using the frequency of responses for each of the 11 topics. Table 2, shows that when the questions did not include the word "culture" in the first case study quiz, responses were more likely to include trust and rapport, cultural norms, values and beliefs, and understanding of verbal and written communication. The least likely responses included religious food preferences or avoidances, sociodemographic factors, and cultural dietary practices. When the word "culture" was included in the second case study quiz questions, student responses differed slightly and included cultural dietary preferences but were less likely to include religious food preferences or avoidances. Additional data not presented in this study include group work on assessment, diagnosis, intervention, monitoring and evaluation, and developing a sample menu for each of the two case studies. This data revealed little to no cultural adaptations, and therefore no further analyses were completed.

There is an increased emphasis on preparing future dietetics and nutrition professionals to serve a diverse and aging workforce, given the increasing diversity in the U.S. population. The current study contributes knowledge about developing cultural skills and knowledge relevant to dietetics practice and educational research. Additionally, the Academy of Nutrition and Dietetics, which guides dietetics education and practice, embraces "a global perspective on nutrition" (Connor, 2015). From the assessments in this study, we can speculate that transfer of learning from Global Foods and Culture occurred as demonstrated by higher scores ($p<0.037$) in the first case study quiz of students who had completed the course before taking MNT-II. However, once the word "culture" was included in the assessment, differences in the score averages between the two groups of students were negligible. Additionally, overall scores were low, with the average score in these case study quizzes combined being 2.45 out of 10, indicating that students need to be more aware of the cultural needs of patients or clients.

One way to enhance awareness is to provide students with multiple opportunities to apply their knowledge and awareness on these topics. These assessments should begin during undergraduate education as cultural sensitivity is a skill that is enhanced through an iterative process.

Table 1. Demographic, cultural sensitivity assessment rubric scores (CSAR), and cultural competence building learning activities comparisons between students who completed cultural foods course vs. non-completers. (n=55)

	All Mean (SD)	Non-course Completers Mean (+SD) n=16[z]	Course Completers Mean (+SD) n=39[y]	F	p=value
Age (n=55)	22.8 (1.45)	22.6 (1.30)	22.89 (1.56)	-0.64	<0.525
Cumulative GPA (n=55)	3.44 (0.28)	3.36 (0.29)	3.47 (0.28)	-1.27	<0.209
Grade in Global Foods and Culture (n=39)	3.55 (0.39)	NA	3.55 (0.39)	NA	NA
CSAR Score Quiz 1, n=52	2.29 (2.15)	1.03 (1.42)[x]	2.11 (1.71)[w]	4.607	0.037
CSAR Score Quiz 2, n=52	2.60 (1.55)	2.82 (1.71)[x]	2.68 (1.57)[w]	0.014	0.905
Participation in other cultural competence building activities	**n (%)**	**n (%)**	**n (%)**	**Chi-square**	**p-value**
Service Learning (n=53)	25 (47.2)	6 (11.3)	19 (35.8)	0.43	0.511
Off-campus volunteering (n=53)	44 (83.0)	14 (26.4)	30 (56.6)	1.58	0.209
Study Abroad (n=53)	42 (79.2)	4 (7.5)	38 (71.7)	0.28	0.596
Leisure Travel abroad (n=53)	36 (67.9)	7 (13.2)	29 (54.7)	4.34	0.037
Completed course on communication, health beliefs and foods of other cultures (n=52)	48 (92.3)	11 (21.1)	37 (71.2)	10.69	0.001

z paired t-tests showed a significant increase of 1.79 points (p=0.007) from quiz score 1 to quiz score 2, n=14.
y paired t-tests showed a significant increase of 0.69 points (p= 0.038) from quiz score 1 to quiz score 2, n=36
x n=15
w n=37

Table 2. Cultural sensitivity topics most and least commonly reported by frequency of responses using cultural sensitivity assessment rubric.

	3 Most Common Topics	3 Least Common Topics
Case Study 1 Quiz	1. Understanding verbal and written communication (n=17) 2. Cultural norms, values, beliefs (n=16) 3. Makes recommendations based on knowledge of culture (n=12)	1. Religious food preferences/avoidances (n=2) 2. Cultural dietary practices (n=4) 3. Specific health beliefs and practices (n=6)
Case Study 2 Quiz	1. Cultural norms, values, beliefs (n=27) 2. Makes recommendations based on knowledge of culture (n=25) 3. Cultural dietary preferences/avoidances (n=19)	1. Religious food preferences/avoidances (n=4) 2. Health beliefs and practices (non-food specific) (n=5) 3. Physical signs of communication (n=7)

These skills and knowledge must be learned and honed in practice-based educational activities such as service learning and coursework such as simulations, case studies, group work, and food service curricula, which are specific to nutrition and dietetics practitioners (Betancourt, 2004; McArthur et al., 2011; Brouse, 2007). These skills will enhance sensitivity and awareness in future professional activities.

Evidence in undergraduate nursing education also demonstrates that cultural experiences improve long-term cultural sensitivity skills that carry over to professional practice (Kollar and Ailinger, 2002). The experiences from undergraduate studies, especially those in which students can apply what they learn, can influence preferences for future practice (Kollar and Ailinger, 2002). Specifically, educational opportunities such as study abroad, diverse experiences, interactions, and integrative learning experiences are significantly associated with intercultural sensitivity (Salisbury et al., 2013). Therefore, providing students with various opportunities throughout their formal education and the incorporation of concepts throughout the required curriculum can enhance the development of cultural sensitivity.

Thus, educators and future nutrition and dietetics professionals should design and utilize assessments of cultural sensitivity knowledge and awareness relevant to professional practice. Additionally, because we asked students to name and explain considerations to bridge the gap with the patient without specifying the interest in examining cultural topics, students' responses could be based on information they had learned in previous or concurrent courses. Some common responses, not related to cultural topics identified from Global Foods and Culture, included counseling techniques such as motivational interviewing techniques (Rollnick and Miller, 1995; Brug et al., 2007). These answers suggest there is transfer of learning from other required courses in the dietetics curriculum, such as applying counseling techniques to higher level application-based courses. We need cultural sensitivity to be just as readily transferred within our students' knowledge and skill-based growth during their formal education. To achieve growth in cultural sensitivity, educators need to design assessments (similar to those used in the current study), include the word "culture" in questions to enhance awareness and encourage discussion of cultural sensitivity topics. By evaluating responses qualitatively, we found that topics from the Global Foods and Culture course, such as verbal and written communications and understanding cultural values and beliefs, students demonstrated understanding of how these topics transferred into the specific case study patients, similar to another study (Brouse, 2007).

The current study has implications for the assessment of cultural sensitivity during undergraduate nutrition and dietetics education. First, cultural sensitivity skills and knowledge are transferable skills that students can learn and apply from one educational experience to a professional one (Betancourt, 2006). Providing early exposure to knowledge on cultural topics specific to nutrition and dietetics allows students more opportunities to practice these skills and apply this information during the remainder of their education, further enhancing their level of sensitivity and awareness as they advance professionally. Nutrition and dietetics programs may accomplish this by creating more opportunities for learning and assessing cultural sensitivity topics and increasing opportunities to gain cultural sensitivity knowledge and awareness through application-based practice. The questions designed for this assessment may be adapted for other case studies on healthcare-related assignments where cultural considerations are important. Also, findings from this study may inform the assessment of cultural competence in students focused on other healthcare professions and other forms of nutrition education (e.g., family and consumer sciences, public health).

Strengths and Limitations

Although there were some significant differences in applying cultural topics in a senior-level course case study assessment, students who took the cultural foods course also had higher participation in study abroad, service-learning, and leisure travel experiences. These learning activities could cumulatively influence the application and transference of cultural sensitivity knowledge elements assessed. Further, the timing of the second case study quiz coincided with similar questions in a pop quiz for the Global Foods and Culture course, in which all students in the non-completer group were concurrently enrolled. Responses were perhaps influenced in the second case study quiz, having completed a similar assessment. Students may be

spontaneously incorporating cultural sensitivity concepts when cultural sensitivity awareness assessments are not intentionally reinforced.

The strengths of this study include that the students were a homogenous group of undergraduate students, and demographic comparisons between the two examined were not significantly different. Additionally, the same instructor taught the Global Foods and Culture course using the same learning objectives and instructional process for all students enrolled in MNT-II. Finally, from a qualitative perspective, findings from this study allowed course instructors to find topics for improvement in cultural sensitivity knowledge and awareness. Specifically, recognition that religious food preferences are important considerations for medical nutrition therapy counseling may not be explicit to students when working with critically ill patient scenarios.

Transfer of learning relative to cultural sensitivity objectives was demonstrated in a senior-level nutrition course. Although our hypothesis that students who completed Global Foods and Culture before enrolling in MNT-II were more likely to apply cultural sensitivity topics on case study assessments were confirmed, it is unclear what other influencing factors were involved. Accredited programs or healthcare training, in this case in dietetics, are important in the progression of knowledge. One conclusion from students in the Global Foods and Culture course doing better on the assignment is that the learning objectives were clearly depicted because those who had the course were at increased likelihood of using cultural sensitivity knowledge. A critical concept, such as health beliefs, could potentially be ignored or forgotten in the healthcare setting when competing priorities for patient care exist, such as clinical manifestations. Under these circumstances, to provide a comprehensive approach to addressing healthcare problems, it is critical to include specific triggers for consideration of cultural influences. However, it is unclear when and where in the didactic and experiential training curricula this should be included for the greatest impact and warrants further investigation. The findings in the assessment of the first case study quiz demonstrated that students who completed the cultural foods course vs. non-completers attained higher CSAR scores without explicit use of the word “culture,” and was also evident among those taking the Global Foods and Culture course concurrently. This finding suggests that when educators consciously elicit this type of knowledge as part of the undergraduate preparation, students become more aware.

Summary

Our findings support the need to lay a cultural sensitivity foundation in nutrition and dietetics learning and reinforce cultural sensitivity and competency considerations in practice-based scenarios. The earlier students can build their knowledge and awareness on cultural sensitivity topics, the more opportunities educators have to create applied and problem-based assessments. Future studies should examine the transfer of learning that occurs between formal education and practice. Equipping agriculture professionals with cultural sensitivity knowledge and awareness during their formal education is essential for addressing the needs of diverse populations. Cultural sensitivity for dietetics and nutrition professionals is imperative for effectively addressing health problems deeply rooted within ethnic and cultural health disparities via culturally sensitive interventions and counseling, or at minimum, enhanced awareness.

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