

## RESEARCH ARTICLES

# Intercultural Disposition and Communication Competence of Future Pharmacists

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**Objective.** To determine the influence of an educational intervention on pharmacy students' intercultural disposition and perceived communication competence.

**Methods.** The relationship between intercultural disposition and the intercultural communication competence of pharmacy students was assessed using a brief educational intervention in the form of a role-play and a pretest-posttest experimental design.

**Results.** There was a strong correlation between intercultural disposition and intercultural communication competence ( $p < 0.01$ ). The intervention did not have a statistically significant influence on the communication competence of the students ( $p > 0.01$ ). Among the 4 dimensions of intercultural disposition, attributional complexity was the only factor that moderated the effect of the intervention on pharmacy students' communication competence.

**Conclusion.** Methods to improve pharmacy students' intercultural competence should be further explored. Other sections of the conceptual framework should be tested in future studies.

**Keywords:** intercultural disposition, intercultural competence, cultural sensitivity, communication

## INTRODUCTION

The pharmacy profession has evolved from being simply a provider of pharmaceuticals to a provider of clinically oriented, sophisticated patient care services. The passage of the Omnibus Budget Reconciliation Act in 1990 (OBRA '90) mandated that pharmacists offer to counsel all Medicaid outpatients regarding prescription medications.<sup>1</sup> According to Berger, "patient counseling and pharmaceutical care require much more than the provision of information...they also require the formation of a therapeutic alliance."<sup>2</sup> Many patients require excess care because of complications arising due to improper use of medication.<sup>3</sup> Studies have shown that good pharmacist-patient communication may improve medication compliance and medication use behavior among patients.<sup>4-7</sup> Research shows that 50% of the people suffering from chronic diseases do not adhere to their treatment regimens and hence do not derive optimum benefits.<sup>3</sup> Medication noncompliance accounts for higher annual mortality rates than accidents, influenza, and pneumonia combined, and costs society over \$175 billion.<sup>8</sup>

Further, with the growing cultural diversity in the United States, it is becoming essential for pharmacists not

just to be competent communicators but also efficient intercultural communicators.<sup>9</sup> Various ethnic groups within the United States have contrasting views on the concepts of disease, patient-provider communication styles, and beliefs about medications.<sup>10</sup> These contrasting views, including patients' perceptions of the severity of their illness and susceptibility to their therapy, also influence the interaction between patients and pharmacists.<sup>11</sup> There is some literature that emphasizes the training of healthcare professionals in managing patients from different cultures; however, very little empirical research in the pharmacy domain addresses this issue.<sup>6,10,12,13</sup> This paper attempts to address this gap by meeting the following objectives:

1. To test the relationship between intercultural disposition and intercultural communication competence;
2. To test the effectiveness of an educational intervention in the form of a novel role-playing exercise on future pharmacists' intercultural communication competence;
3. To present a conceptual framework of the relationship between intercultural disposition, intercultural communication competence, overall communication competence, and patient health outcomes.

The findings have the potential to enhance the quality of pharmacy communication training and practice. The following sections will demonstrate how pharma-

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cist-patient communication may be an important factor in improving patient outcomes and the importance of interculturally competent pharmacists.

### **Influence of Healthcare Communication on Outcomes**

Hepler and Strand introduced the concept that an empathetic and trusting relationship between pharmacists and patients is an integral component of pharmaceutical care.<sup>6</sup> Past research in the fields of medicine, nursing, pharmacy, and other health care professions has found that ongoing relationships involving trust and caring by healthcare providers towards patients is essential for enhancing patient health-related outcomes.<sup>4-6</sup> For example, the Canadian Association of Chain Drug Stores (CACDS) found that a good pharmacist-patient relationship not only saved significant workplace costs and reduced physician and emergency room visits but also increased medication compliance among the patients.<sup>14</sup> On the other hand, low patient ratings of their relationship quality with the health care provider seem to be highly associated with problems in communicating healthcare information.<sup>15</sup>

Communication has been cited as being an important component in the provider-patient relationship. The quality of communication between patients and health care providers is significantly correlated with patient-reported health improvements.<sup>7</sup> Inadequate information or inappropriate communication from the health provider contributes to health-related problems.<sup>16</sup> For example, nonadherence to pharmacologic treatments for geriatric depression may seriously impair patient health, and some of the main causes of such nonadherence are lack of information, misperceptions about the illness, and poor patient-health professional communication.<sup>17</sup> Noncompliance to antihypertensive medications is one of the main reasons for adverse drug events and long-term negative outcomes such as strokes and cardiac arrests.<sup>18</sup> Among other factors, inadequate communication from the healthcare provider contributes to patient noncompliance.<sup>18</sup> In a review of the research on effects of pharmacist-patient communication, De Young reported the results of more than 30 studies suggesting that pharmacists' communication leads to increased knowledge and better patient compliance.<sup>16</sup> Patient-pharmacist communication is, therefore, a vital part of the patient's healthcare, irrespective of whether those involved are from the same or different cultural backgrounds.

### **Intercultural Issues**

Cultural differences are an added complexity to an already difficult communication situation.<sup>19</sup> There are 3

main risks involved in allowing pharmacists with no training in cultural diversity to deliver pharmaceutical care to diverse populations.<sup>10,12</sup> First, because the pharmacist does not understand the patients' perceptions concerning the meaning of becoming sick and the response to therapy, services to that population are compromised. Second, differing beliefs and expectations of the patient and pharmacist may lead to hostility, misunderstanding, and confusion. Finally, not understanding the influences of ethnicity on biological variation in drug metabolism, response, and sensitivity can lead to suboptimal responses to drug therapy.<sup>10</sup> Being sensitive to the beliefs of others and understanding and respecting their culture are critical to the process of acquiring patient trust and satisfaction.<sup>10</sup>

Historically, health care providers have taken a "generic" approach to their ethnically diverse patients and this has often caused poor provider-patient communication and noncompliance with drug therapy.<sup>20</sup> Among the most accessible of all health care providers, pharmacists have a unique opportunity to address the health care needs of people from different cultures. One way to accomplish this is through multicultural patient care, which is a means of improving the communication, counseling, and compliance-management skills of health care providers.<sup>12</sup> However, Chevannes found that various educational programs have failed to prepare health professionals to care for ethnic minority patients adequately.<sup>13</sup> Health professionals admit that they are not knowledgeable enough to provide quality care to ethnic minorities and also lack the skills to facilitate intercultural communication with patients.<sup>13</sup>

Gudykunst suggested that people subconsciously or unconsciously choose whether they want to communicate effectively, and once they choose to do so, they need to know when and how.<sup>21</sup> Thus, becoming culturally competent and practicing multicultural patient care is a choice that pharmacists can be made aware of, preferably at an early stage, when they are still students. Given this awareness they should also be given adequate tools to practice multicultural patient care effectively. As Hepler and Strand stated, "In working with patients from other cultures, healthcare providers can learn as they go, but this is dangerous when dealing with people's health and can lead to misunderstandings and costly mistakes, including misdiagnosis and violating patients' own ethical beliefs."<sup>6</sup>

Hence, training pharmacy students in various aspects of communication with intercultural patients is an important agenda for pharmacy educators. Multicultural patient care has the potential to improve

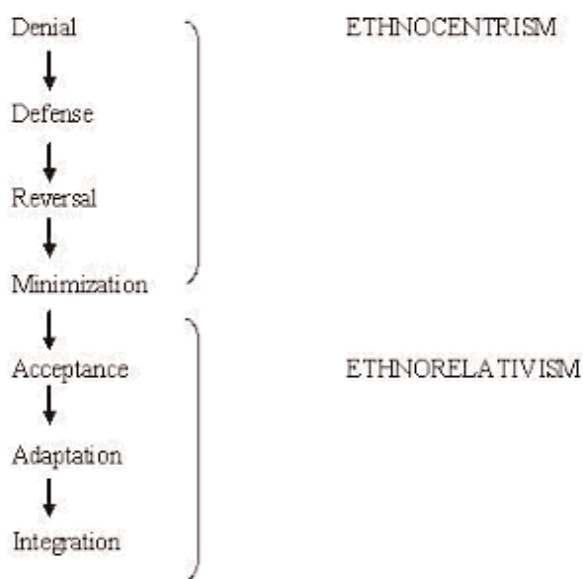


Figure 1. Developmental Model of Intercultural Sensitivity.<sup>24</sup> Reprinted from the *International Journal of Intercultural Relations*, volume 27. Hammer MR, Bennett MJ, Wiseman R. Measuring intercultural sensitivity: the intercultural development inventory. Pages 421–443; 2003, with permission from Elsevier.

communication between the health care provider and patient, increase patient satisfaction with the provider and the encounter, increase patient cooperation with drug therapy plans, and improve the quality of care and enhance patient health.<sup>12</sup>

Adams describes several key points in the quest for becoming culturally aware.<sup>22</sup> First, he states that culture is learned, with genetics playing no role. Secondly, culture is so deeply embedded that we are often unconscious of it. It is not until we encounter others who think and behave differently that we realize other ways exist. Third, the beliefs, values, attitudes, and behaviors that are ingrained into individuals of all cultures are very hard to change. Therefore, pharmacists need to become more culturally sensitive and willing to use cultural knowledge when interacting with patients and offering counseling.

Bennett identified 6 orientations that people seemingly move through in acquiring intercultural competence, namely denial, defense reversal, minimization, acceptance, adaptation, and integration (Figure 1).<sup>23,24</sup> An elaborate description of these constructs has been provided by Hammer and Bennett, and for the purposes of this discussion these 6 stages adequately describe the progress of a person from a more ethnocentric orientation, which can be defined as avoiding cultural differences, to a more ethnorelative orientation, which can be defined as seeking cultural differences.<sup>23,24</sup>

In addition to being culturally sensitive, Gudykunst, Wiseman, and Hammer suggest that a general cross-cultural attitude or intercultural disposition, an inherent trait in an individual, is also an important determinant of a person's intercultural communication competence. A person also needs to possess the ability to be an astute, noncritical observer of their own and other people's behavior.<sup>21</sup> Intercultural disposition has been shown to be positively correlated with intercultural communication competence.<sup>25</sup> Although no empirical evidence was found in the pharmacy literature, pharmacy students with different intercultural dispositions may benefit differently from the training provided in cultural communication. Thus, it is important to first determine what type of training or intervention may have the potential to improve students' intercultural communication competence. Given such information, pharmacy educators may be able to distinguish between students with high and low intercultural disposition and provide additional or differential training, if required, to students with low intercultural dispositions, in order to improve their intercultural communication competence.

The framework developed in this study proposes a link between a pharmacist's intercultural disposition and his or her intercultural communication competence (Figure 2). Intercultural disposition consists of 4 factors: *ethnocentrism*, the feeling that one's culture is superior to others<sup>25</sup>; *empathy*, the ability to empathize with people from other cultures<sup>25</sup>; *world-mindedness*, being accurate in perceiving differences and similarities between one's own culture and the patient's culture<sup>25</sup>; and *attributional complexity*, the tendency to attribute complex causes to other people's behaviors.<sup>25</sup>

### Conceptual Framework

The framework proposes that intercultural communication competence is influenced by an individual's intercultural disposition. Intercultural communication competence may also be influenced by some educational training, which will be empirically tested in this study. Additionally, a moderating influence of intercultural disposition on the effectiveness of training in improving intercultural communication competence is proposed. Training may improve intercultural communication competence of pharmacists who already have a high intercultural disposition, to a greater extent than pharmacists who have a low intercultural disposition.

The rest of the proposed framework described here is not tested in this study but has the potential to serve as a guide for future research as well as a useful pedagogical tool. Intercultural communication competence contributes to the overall communication competence of

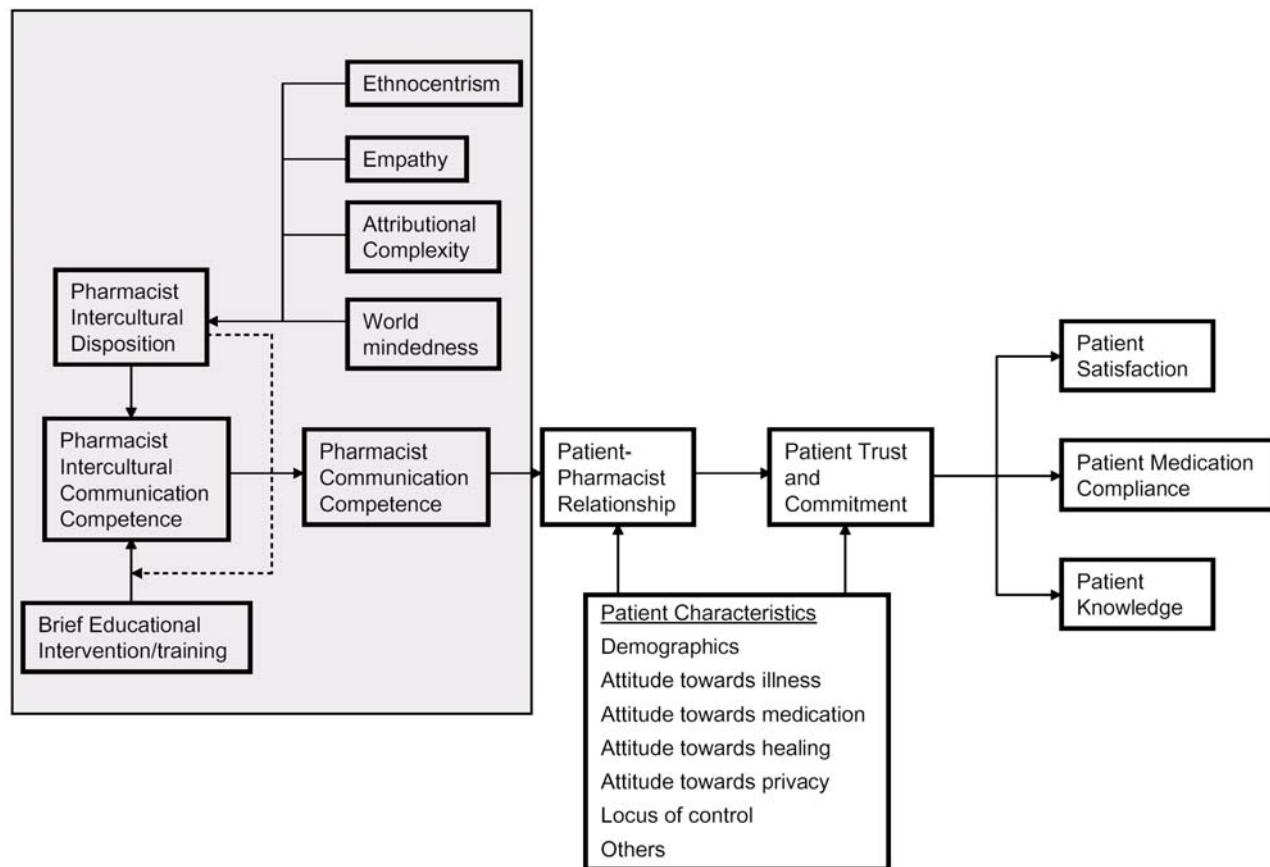


Figure 2. Conceptual framework of the relationship between pharmacists' intercultural disposition and patient outcomes. The shaded area is empirically tested in this study.

pharmacists, which in turn has a positive influence on the pharmacist-patient relationship. A good pharmacist-patient relationship fosters patient trust and commitment, which in turn lead to better patient compliance, improved knowledge, and satisfaction with health care. In addition to pharmacist communication, patient factors like demographic characteristics, attitudes towards illness and medication, and health locus of control may also influence the pharmacist-patient relationship and patient trust and commitment towards the pharmacist.<sup>11</sup> In emphasizing the importance of developing intercultural sensitivity among students, Loo states that, "there is growing need to sensitize managers, staff, and, in particular, professionals-in-training in our educational system to cross-cultural differences...Such efforts should not only lead to the effective management of cultural diversity in organizations but also help individuals in their own strategic career development."<sup>26</sup>

## METHODS

This study attempted to validate a brief educational intervention to sensitize future pharmacists to cross-cultural differences. Based on the conceptual framework, the following hypotheses and propositions were tested:

1. Future pharmacists' intercultural disposition is positively related to their perceived intercultural communication competence, where:
  - a. Future pharmacists' ethnocentrism is negatively related to their perceived intercultural communication competence;
  - b. Future pharmacists' empathy is positively related to their perceived intercultural communication competence;
  - c. Future pharmacists' attributional complexity is positively related to their perceived intercultural communication competence; and
  - d. Future pharmacists' world-mindedness is positively related to their perceived intercultural communication competence.
2. A brief educational intervention will significantly increase future pharmacists' intercultural communication competence.
3. Intercultural disposition moderates the influence of educational intervention/training on future pharmacists' intercultural communication competence.

Intercultural disposition has been operationalized by Gudykunst et al and this operationalization has been

assessed by Bush et al.<sup>21,25</sup> Gudykunst et al's framework for intercultural disposition includes (1) the ability to empathize with people from other cultures, (2) being astute noncritical observers of their own and other people's behavior, (3) being less ethnocentric, and (4) being accurate in perceiving differences and similarities between the sojourner's own culture and the host culture.<sup>21</sup>

Bush et al used 4 subscales to measure intercultural disposition based on this operational definition, which will be used in this study.<sup>25</sup> Some of the wordings of the items within the scales were changed and some items were discarded in the present study to make them relevant to subjects across cultures and not specific to the American culture.<sup>25</sup> For example, the item, "America may not be perfect, but the American way has brought us about as close as human beings can get to a perfect society," was discarded since it was specific to Americans. The items appearing in the survey instrument are presented in Appendix 1.

A 6-item intercultural communication subscale specific to healthcare professionals and validated by Ulrey and Amason was used to measure perceived intercultural communication competence (Appendix 1).<sup>19</sup> This scale was developed by Redmond and Bunyi who reported a Cronbach's alpha of 0.85, and Ulrey and Amason reported an alpha of 0.83.<sup>19</sup> Further Ulrey and Amason also conducted a confirmatory factor analysis and found that all 6 items loaded on a single factor. The authors also found evidence of discriminatory analysis for this scale. Hence this scale was found to be appropriate for the purposes of this study.<sup>19</sup>

A pretest-posttest design was used and data were collected using questionnaires that the students were asked to complete in a required communications class. The questionnaire was administered to students in the experimental group prior to conducting an educational intervention intended to enhance intercultural communication competence. The posttest was administered 1 week after the intervention. Although the pretest and posttest questionnaires were administered to the control group at the same time intervals as the study group, the control group did not participate in the intervention.

The intervention was in the form of short vignettes (Appendix 2). Brief descriptions of some customs and traits of different cultures were presented. Pharmacy students were then asked to volunteer to communicate with "patients" (actors) belonging to different cultures, some of whom had difficulty communicating in English. This method of role-play has been used successfully in various educational settings, including medicine, pharmacy, and business.<sup>27-30</sup> Specifically, role-play has been widely used to study aspects of communication skills.<sup>31,32</sup>

The role-play scenarios used in this study were developed based on in-depth personal interviews with pharmacists. Pharmacists were asked to describe problems they faced when trying to communicate with patients/customers belonging to different cultures. Further, a patient perspective was also obtained by asking students from different cultural backgrounds about problems they thought they or others from their culture would face when trying to communicate with a pharmacist or procure certain health services.

Three role-play scenarios were included in the intervention. One actor was Hispanic and posed as a patient who was unable to communicate in English. Another actor posed as a hearing-impaired person who could use only sign language to communicate. The third actor was an Indian female. Each role-play scenario instructed the actors to approach the "pharmacists" (student volunteers) and ask for their assistance, while displaying some generalized characteristics of their culture. The patient actors were invited guests and not part of the class. The student actors were told only that they had to act the part of the pharmacist and counsel the patient that approached them. Once each role-play exercise was completed, the students in the audience were asked what they learned from the scenario. The instructor then explained what was done right or what could have been done differently by the "pharmacist" (student) to better serve the patient. The instructors guide for conducting the role-play is provided in Appendix 2.

### **Sample**

Third (P3) and fourth (P4) professional year pharmacy students at the University were surveyed. The P3 student group ( $n = 75$ ) served as a control and did not receive the educational intervention. A control group is helpful for identifying bias in the results due to history, maturation, and testing or instrumentation.<sup>33</sup> The intervention was administered to the P4 student group ( $n = 66$ ) as part of a required communications course. Both groups were surveyed before and after the intervention. P3 and P4 students were compared on various characteristics. The 2 groups were similar with respect to age and gender distribution. The average age in the P3 and P4 classes was approximately 23 years. Nearly 30% of the P3 students were male, compared with 34% of the P4 students. The majority of the students in both groups were white or Caucasian (93%). The two groups were also compared on their pretest scores on the 4 dimensions of intercultural disposition and communication competence, and no significant differences were observed. Hence, the data obtained from the P3 students could serve as control data.

Table 1. Bivariate Correlations Between Intercultural Communication Competence and the Four Dimensions of Intercultural Disposition

	Pearson Correlation				
	Empathetic Tendency	Attributional Complexity	World-mindedness	Ethnocentrism	Communication
Empathetic Tendency, n=140	1				
Attributional Complexity, n=140	0.403*	1			
World-mindedness, n=139	0.480*	0.330*	1		
Ethnocentrism, n=138	-0.415*	-0.183	-0.493*	1	
Communication, n=139	0.430*	0.572*	0.466*	-0.229*	1

\*Correlation is significant at the 0.01 level (2-tailed).

Table 2. Adjusted Means of Intercultural Communication Scores for Experimental and Control Groups in the Pretest and Posttest

	Mean Score	99% CI
Control group		
Pretest	52.55	47.5 - 57.6
Posttest	54.75	49.8 - 59.7
Subject group		
Pretest	51.69	46.4 - 57.0
Posttest	55.51	48.9 - 62.1

\*Covariates in the model: ET = 62.42, AC = 59.42, WM = 53.08, E = 46.96.

CI=confidence interval

### Analysis

SPSS 11.0 was used to perform statistical analyses. Before testing the hypotheses, the reliability of various scales used in the study was measured by calculating Cronbach's alpha. The pretest and posttest samples were not matched; therefore, to strengthen the inferences made from the results an alpha (significance) level of  $p < 0.01$  was used for all the analyses.

### RESULTS

All scales except the ethnocentrism scale ( $\alpha = 0.550$ ) showed good reliability and had coefficient alphas greater than 0.60, which is the minimum requirement for a reliable scale.<sup>34</sup> The ethnocentrism scale was considerably modified from the original version and only 4 items were included, which could explain the low reliability of the scale. To preserve the operational definition of intercultural disposition, all 4 items of ethnocentrism were summed before using them for further analyses.

### Testing the Hypotheses

The first hypothesis, that future pharmacists' intercultural disposition will be significantly correlated to their perceived intercultural communication competence, was tested by deriving simple Pearson's correlations between scores on the 4 dimensions of intercultural

disposition and perceived communication competence. The pretest scores for P3 and P4 groups were used for this analysis. Intercultural communication scores were significantly and positively correlated with empathetic tendency, attributional complexity, and world-mindedness, and significantly negatively correlated with ethnocentrism ( $p < 0.01$ ). Hence, subhypotheses 1a through 1d were supported, lending support to the first hypothesis (Table 1).

To test the second hypothesis, that a brief educational intervention/training will significantly increase future pharmacists' intercultural communication competence, a  $2 \times 2$  analysis of variance was used to assess differences between the pretest and posttest scores of the experimental group to measure the effectiveness of the intervention after controlling for the 4 factors that constitute intercultural disposition. The 2 main assumptions of ANCOVA, equality of error variance, and homogeneity of regression equations were tested and found not to be violated.<sup>34</sup> Subjects were regrouped as (1) pretest and posttest (PREPOS) and (2) control group and experimental group (CONEXP), and these 2 new variables were used as independent variables. The interaction between the 2 independent variables was assessed and, after controlling for variation that may have occurred due to history, maturation, and testing or instrumentation, found to be insignificant. This indicates that the intervention did not have a significant influence on the communication competence of the experimental group, or the intercultural disposition of the subjects; hence, the second hypothesis was not supported. Attributional complexity and world-mindedness were observed to be significant covariates in the analysis ( $p < 0.0001$ ) (Table 2).

To test hypothesis 3, that intercultural disposition will moderate the influence of educational intervention/training on future pharmacists' intercultural communication competence, each of the 4 dimensions of intercultural disposition were split into 2 categories (high and low), using the median of the group as a cut-off point. Only the experimental group was included in this analy-

Table 3. Mean Intercultural Communication Scores for High and Low Ethnocentrism Groups

Ethnocentrism Group*	Communication Score (SD)
Pretest	
Low (n=39)	59.7 (18.3)
High (n=26)	43.1 (20.2)
Posttest	
Low (n=22)	51.0 (18)
High (n=21)	55.6 (20.3)

\*Low ethnocentrism score = score less than or equal to 45. High ethnocentrism score = score greater than 45 based on median split.  
 $p < 0.01$

sis since the previous analysis showed there was no significant history, maturation, or testing bias in the data. Separate  $2 \times 2$  ANCOVAs were performed with the disposition variable, PREPOS as the independent variables, and intercultural communication competence as the dependent variable. Interaction between PREPOS and the disposition dimension was observed to determine whether disposition moderated the influence of the intervention on perceived communication competence.

Empathetic tendency and world-mindedness did not show significant interactions with PREPOS, while attributional complexity and ethnocentrism had significant interactions with PREPOS ( $p < 0.01$ ) (Table 3). Hence, simple effects of ethnocentrism and attributional complexity were assessed. There was a significant difference in communication scores between low and high attributional-complexity groups in the pretest, but not in the posttest ( $p < 0.001$ ) (Table 4). The low attributional-complexity group scored lower on communication than the high attributional-complexity group in the pretest. Pretest and posttest communication scores were significantly different in the low and high attributional-complexity groups ( $p < 0.01$ ). Surprisingly, the communication scores of students in the low attributional-complexity group seemed to increase, while those of students in the high attributional-complexity group seemed to decrease in the posttest. This is further discussed in the next section.

No significant differences were observed between the pretest and posttest communication scores for both high and low ethnocentrism groups ( $p < 0.01$ ). Hence, the third hypothesis was not supported.

## DISCUSSION

The main objective of this study was to empirically test the relationship between intercultural disposition and intercultural communication competence; and also test the effectiveness of an educational intervention on future pharmacists' intercultural communication compe-

Table 4. Mean Intercultural Communication Scores for High and Low Attributional Complexity Groups

Attributional Complexity Group*	Communication Score (SD)
Pretest	
Low, n=31	40.4 (15.2)
High, n=35	64.4 (17.9)
Posttest	
Low, n=27	51.8 (18.2)
High, n=16	55.6 (20.9)

\*Low attributional complexity score = score less than or equal to 60. High attributional complexity score = score greater than 60 based on median split.  
 $p < 0.01$

tence. The results of the analyses indicate that intercultural disposition and intercultural communication competence are significantly correlated among pharmacy students. The educational intervention tested was not statistically significant in improving pharmacy students' intercultural communication competence. One dimension of intercultural disposition, attributional complexity, significantly moderated the influence of the educational intervention on communication competence. This suggests that once the pharmacist figures out why a patient is behaving in a certain manner, he or she would be able to deal with the patient more efficiently.

As was hypothesized, intercultural disposition is significantly correlated with intercultural communication competence for pharmacy students. This result is in concordance with previous findings among different populations by Bush and colleagues.<sup>25</sup> The results suggest that pharmacy education should not only aim to improve communication competence among students, but should also include exercises to increase cross-cultural sensitivity. Furthermore, although many factors influence communication competence, the intercultural disposition of pharmacy students may be a significant determinant of their perceived ability to communicate with people from different cultures.

After controlling for some measurement error and the 4 dimensions of intercultural disposition, the educational intervention did not significantly influence the subjects' intercultural communication competence. This result, along with the others, must be interpreted with caution. It does not necessarily mean that the intervention technique was ineffective. The main limitation of this study was that the pretest and posttest samples were not matched and results were based on mean differences. Samples were not matched due to sample size and response rate concerns. However, this limits interpretation of the results, and the results only show that the intervention did not

have a strong enough influence to change the group means, but may have had a significant positive influence on some students while having no influence on others. A second drawback that limits interpretation was that the posttest sample in the experimental group was smaller than the pretest sample (43 vs 66) due to absentees. Third, the posttest was conducted a week after the intervention was conducted, which could have introduced some recall bias. In other words, students may not have remembered the knowledge gained after the intervention since they may not have studied the material again until they were tested on the subject matter. Finally, it is also possible that the students who participated in the pretest did not participate in the posttest and vice versa. Although intercultural disposition had some moderating influence on the effectiveness of the intervention, this moderating influence was statistically significant only for 1 of the 4 dimensions of the construct. Students with a high attributional complexity seemed to have a lower perception of their communication competence after the intervention compared with the student group with low attributional complexity who reported higher scores on communication competence in the posttest. In other words, the intervention seemed to neutralize the differences in communication competence among the P4 students. It would be worthwhile for future research to explore this factor in depth with respect to improving students' intercultural communication competence.

One possible explanation of the results could be a phenomenon called *response shift bias*.<sup>35</sup> As the result of such a bias, an ability that at one time seems high in oneself, later seems lower due to some knowledge gained in the intervening time period. In the context of the results obtained in this study, students who had high attributional complexities prior to the intervention possibly thought they were good or even excellent in communicating with people from different cultures in the therapeutic context of the pharmacist-patient relationship, even though they may have never experienced such a situation. However, once they gained knowledge about the various barriers they might encounter when communicating with people from different cultures, their perception of their ability decreased, reflecting in the lower posttreatment communication scores. Thus, while the educational intervention may not improve intercultural competence, it may instead help pharmacy students to recognize their level of intercultural competence and maintain or improve their abilities.

As was cautioned previously, one should keep in mind in interpreting these results that the samples were not exactly matched and these results could have been

attributed to different respondents participating in the posttest. Also, perceptions of ability and actual abilities possessed by an individual are 2 different constructs; hence, the knowledge of a lack of intercultural communication skills may actually encourage individuals to work harder in gaining these abilities.

Finally, the intercultural disposition measures used in this study were adapted from marketing studies and although the measures were found to be reliable, their validity was not assessed in this study and could be a potential limitation. These measures have only been tested in the United States and hence their validity with responders from other cultures is also questionable. However, this should not be a major limitation in the context of this study since 93% of the responding sample was Caucasian or white. Future studies may be directed toward development of valid and reliable measures of intercultural disposition and intercultural communication.

## CONCLUSIONS

There is a strong correlation between intercultural disposition and intercultural communication competence. In this era of growing cultural diversity, pharmacy schools may consider including in their admission criteria a high intercultural disposition as one of the desired traits for applicants and assess this trait during the admission interview. This study like any other study has several limitations as discussed in the previous section. However, these limitations provide suggestions for future research. Further research is warranted in assessing the influence of different educational interventions on pharmacy students' intercultural communication competence. This study needs to be replicated using a matched pretest-posttest sample to gain a more concrete understanding of the influence of the intervention on communication and the moderating influence of disposition. Different interventions can be compared using this study design to evaluate whether one is better than the other. A single lecture on cross-cultural differences may not be sufficient training in preparing pharmacy students to practice effectively, and pharmacy educators may want to revise the syllabus to include more extensive cross-cultural education. The outcome of such interventions may not be improvement of intercultural competence, but rather a means of making pharmacy students realize their ability to communicate with patients from different cultures, and improving this ability. Finally, other sections of the conceptual framework should also be tested to provide evidence for the various relationships that have been proposed.

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## REFERENCES

1. ASHP guidelines on pharmacist-conducted patient education and counseling. *Am J Health-Syst Pharm.* 1997;54:431-4.
2. Berger BA. Building an effective therapeutic alliance: competence, trustworthiness, and caring. *Am J Hosp Pharm.* 1993;50:2399-2403.
3. Vermiere E, Hearnshaw H, Van Royen P, Denekens J. Patient adherence to treatment: three decades of research, a comprehensive review. *J Clin Pharmacol Ther.* 2001;26:331-342.
4. Kaplan RM. Health outcomes and communication research. *Health Commun.* 1997;9:1.
5. Lowenberg J. The nurse-patient relationship reconsidered: an expanded research agenda. *Sch Inq Nurs Pract.* 1994;8:167-190.
6. Hepler CD, Strand LM. Opportunities and responsibilities in pharmaceutical care. *Am J Hosp Pharm.* 1990;47:533-543.
7. Safran DG, Taira DA, Rogers WH, Kosinski M, Ware JE, Tarlov AR. Linking primary care performance to outcomes of care. *J Fam Pract.* 1998;47:213-220.
8. McLennan R. Medication non-compliance: assuming serious proportions, 2002. Available at: [http://www.inpharm.com/External/InpH/1,,1-3-0-0-inp\\_intelligence\\_art-0-5816,00.html](http://www.inpharm.com/External/InpH/1,,1-3-0-0-inp_intelligence_art-0-5816,00.html). Accessed 09/20/03.
9. United States Census Bureau. Profiles of general demographic characteristics, 2000 Census of population and housing, 2001 May. Available at: <http://www.census.gov/prod/cen2000/dp1/2khus.pdf>. Accessed 09/20/03.
10. Levy R, Hawks J. Cultural diversity and pharmaceutical care. National Pharmaceutical Council 1999 May: [www.npcnow.org](http://www.npcnow.org). Accessed on September 20, 2003.
11. Hermansen CJ, Wiederholt JB. Pharmacist-patient relationship development in an ambulatory clinic setting. *Health Commun.* 2001;13:307-325.
12. Brown CM, English GN. Dealing with patient diversity in pharmacy practice. *Drug Topics.* Sept 6, 1999. Available at: [www.drugtopics.com](http://www.drugtopics.com). Accessed September 20, 2003.
13. Chevannes M. Issues in educating health professionals to meet the diverse needs of patients and other service users from ethnic minority groups. *J Adv Nurs.* 2002;39:290-298.
14. West D. Improved pharmacist-patient relationship saves time and money, CACDS study says. *Drug Store News.* March 2001:37-8.
15. Keating NL, Green DC, Kao AC, Gazmararian JA, Wu VY, Cleary PD. How are patients' specific ambulatory care experiences related to trust, satisfaction, and considering changing physicians? *J Gen Intern Med.* 2002;17:29-39.
16. De Young M. Research on the effects of pharmacist-patient communication in institutions and ambulatory care sites, 1969-1994. *Am J Health-Syst Pharm.* 1996;53(11):1277-91.
17. Wetherell JL, Unutzer J. Adherence to treatment for geriatric depression and anxiety. *CNS Spectr.* 2003;12:(Suppl 3):48-59.
18. Garfield FB, Caro JJ. Achieving patient buy-in and long term compliance with antihypertensive treatment. *Dis Manage Health Outcomes.* 2000;7:13-20.
19. Ulrey KL, Amason P. Intercultural communication between patients and health care providers: an exploration of intercultural communication effectiveness, cultural sensitivity, stress, and anxiety. *Health Commun.* 2001;13:449-463.
20. Taniguchi G, Verna C, Blair M, Espejo P, Roe K. A multicultural approach to providing pharmacy services. *Consultant Pharmacist.* Nov 1999;Forum.
21. Gudykunst W, Wiseman RL, Hammer MR. Determinants of a sojourner's attitudinal satisfaction: A path model In: Ruben B, ed. *Communication Yearbook.* New Brunswick, NJ: Transaction Publishing 1977:415-25.
22. Adams TS. Becoming cultured. RDH. *National Magazine for Dental Hygiene Professionals.* 2003;23:40-45.
23. Bennett MJ. Towards ethno-relativism: A developmental model of intercultural sensitivity In: Paige M, ed. *Cross-Cultural Orientation: New Conceptualizations and Applications.* New York, NY: University Press of America; 1986: 27-70.
24. Hammer MR, Bennett MJ, Wiseman R. Measuring intercultural sensitivity: the intercultural development inventory. *Int J Intercult Relat.* 2003;27:421-443.
25. Bush VD, Rose GM, Gilbert F, Ingram TN. Managing culturally diverse buyer-seller relationships: the role of intercultural disposition and adaptive selling in developing intercultural communication competence. *J Acad Marketing Sci.* 2001;29:391-404.
26. Loo R. A structured exercise for stimulating cross-cultural sensitivity. *Career Dev Int.* April 6, 1999:321.
27. Dawson K, Fassett WE. Interactive multimedia role-play simulation building skills in pharmacist-patient communication. AACP Annual Meeting. July 1993;94:VII-5.
28. Skelton JR, Hammond P. Medical narratives and the teaching of communication in context. *Med Teach.* 1998;20:548-551.
29. Haddad AM. Role playing and ethics instruction. *J Pharm Teach.* 1997;6:49-63.
30. Mercado SA. Pre-managerial business education: a role for role-plays? *J Further Higher Educ.* 2000;24:117-126.
31. Cooner AS, Dooley M. The Use of role-play in teaching medical students obstetrics and gynaecology. *Med Teach.* 1991;13:49-53.
32. Morrow NC, Hargie ODW. Improving interpersonal communication in pharmacy practice. *Pharm J.* 1985;234(July 6):23-5.
33. Singleton RA, Jr, Straits BC. Experimentation. In: *Approaches to Social Research.* 3rd ed. New York, NY: Oxford University Press;1999:179-209.
34. Hair JF, Anderson RE, Tatham RL, Black WC. *Multivariate Data Analysis.* 5th ed. Upper Saddle River, NJ: Prentice Hall;1998:88.
35. Cantrell P. Traditional vs. Retrospective pretests for measuring science teaching efficacy beliefs in preservice teachers. *Sch Sci Math.* 2003;103:177-186.

Appendix 1. Scales used to measure intercultural disposition.

Empathic tendency - perspective taking ( $\alpha = 0.780$ )

Range: 1 (describes me very well) to 6 (does not describe me well)

1. I believe that there are two sides to every question and try to look at them both.
2. I try to look at everybody's side of a disagreement before I make a decision.
3. When I'm upset at someone, I usually try to "put myself in his or her shoes" for a while.
4. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments. (R)
5. I sometimes find it difficult to see things from the "other guy's" point of view. (R)
6. I sometimes try to understand my friends better by imagining how this looks from their perspective.
7. Before criticizing somebody, I try to imagine how I would feel if I were in their place.

Attributional complexity ( $\alpha = 0.800$ )

Range: 1 (describes me very well) to 6 (does not describe me well)

1. I really enjoy analyzing the reasons or causes of people's behavior.
2. I am very interested in how my own thinking works when I make judgments about people or attach causes to their behavior.
3. To understand a person's personality or behavior, I have found it important to know how that person's attitudes, beliefs, and character traits fit together.
4. I think a lot about the influences that society has on other people.
5. I enjoy learning about other cultures through reading and movies.

World-mindedness ( $\alpha = 0.730$ )

Range: 1 (strongly agree) to 6 (strongly disagree)

1. It would be better to be a citizen of the world than of any particular nation.
2. Our responsibility to people of other races ought to be as great as our responsibility to people of our own area.
3. Any healthy individual, regardless of race or religion, should be allowed to live wherever he or she wants to in the world.
4. Our schools should teach the history of the world rather than of our own nation.
5. Our country should permit the immigration of foreign peoples even if it lowers our standard of living.

Ethnocentrism ( $\alpha = 0.550$ )

Range: 1 (strongly agree) to 6 (strongly disagree)

1. In many countries, people do not place a high value on human life-to them, life is cheap.
2. Primitive people have unsophisticated social and political systems.
3. Minority groups within a country should conform to the customs and values of the majority.
4. The main threat to basic American institutions during this century has come from the infiltration of foreign ideas, doctrines, and agitators.

Scale used to measure perceived intercultural communication competence ( $\alpha = 0.890$ )

Range: 1 (strongly agree) to 6 (strongly disagree)

1. I understand the feelings of patients from other cultures.
2. I communicate well with patients from other cultures.
3. I can easily resolve misunderstandings with patients from other cultures.
4. I understand the point of view of patients from other cultures.
5. I can empathize with patients from other cultures.
6. I can interpret the nonverbals of patients from other cultures.

Appendix 2. Instructor's guide for role-play scenarios.

What the pharmacist(s) did correctly or could have done better in dealing with each patient was told to the students in the audience (subjects) *after* the actors completed each role play. The educational section of the intervention, in which some typical traits of different cultures were presented to the class, is not provided here. Please contact the authors for a copy of the presentation.

**Scenario 1: Indian scenario. Patient: Female, "X." Pharmacists: two males.**

**X's character:** X has a quiet character. She does not talk much. She has come to the pharmacy with a prescription for Orthotricycline®, an oral contraceptive. Being an Indian lady she is not comfortable talking about contraceptives with a "male" pharmacist. She has questions regarding the oral contraceptive, but since she sees a male pharmacist at the pharmacy counter, she does not ask any questions. When she reaches the pharmacy counter she just slides the prescription upside-down to the pharmacist without saying anything.

**Expectations from the pharmacists:** Pharmacist needs to counsel X on the use and precautions of using the contraceptive. He needs to ask her if she will be comfortable talking to him at the counter or in the counseling room. He has to be proactive and ask her if she has questions. He also needs to ask her if she understands the information, he is giving her.

**Learning:** Indian females are generally uncomfortable talking about contraceptives and other feminine problems with healthcare professionals, particularly with male healthcare professionals. They are also very conservative when it comes to face-to-face conversations about feminine problems. They are uncomfortable when the physical distance between the counselor and the listener is less.

**Scenario 2: American Sign Language scenario. Patient: Deaf female, "Y"; Pharmacists: one male and one female pharmacist.**

**Y's character:** Y cannot hear (deaf) and uses sign language to communicate with people around her. She has a stomachache and has come to the pharmacy to get an over-the-counter (nonprescription) drug.

**Expectations from the pharmacists:** Pharmacists should first figure out a way to communicate with Y. They can use a pencil and paper or some sort of sign language to communicate. They need to make sure that their questions and Y's replies are well understood. They can either recommend a nonprescription drug to Y, ask her to schedule an appointment with her physician, or contact a professional interpreter to assist them.

**Learning:** Since verbal communication is not possible, it is difficult to interact with such patients. Also, the information that is conveyed may not be well understood by the patient or the pharmacists.

**Scenario 3: Hispanic scenario. Patients: 2 Hispanic males, "A" and "B." Pharmacists: one male and one female pharmacist.**

**Patients' characters:** A and B are both Hispanic. A cannot understand nor communicate in English. His friend, B, can understand and communicate partially in English. A has a prescription for Prevpac®, a combination of Amoxicillin, Clarithromycin, and Lansoprazole, to cure duodenal ulcers. Since A does not understand English at all, B serves as his interpreter and talks to the pharmacist and conveys the information.

**Expectations from the pharmacists:** The pharmacists should make sure that B will listen to what they have to say and interpret the information accurately to A in Spanish. They need to confirm the information that B conveys to them is accurate. B will act as a relay and the pharmacist needs to convey the dosing information of Prevpac to A.

**Learning:** Many Hispanic patients do not understand or communicate fluently in English. They need an interpreter or a partner when they go to a pharmacy. Language is a barrier in this scenario and we will see how difficult the use of an interpreter is. It is recommended that pharmacists learn common phrases and terms for communicating with Hispanic patients. They should also carry out in-house activities through which they can educate other pharmacists and technicians about Hispanic cultures and languages.