Developing culturally competent health knowledge: Issues of data analysis of cross-cultural, cross-language qualitative research

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Abstract: *There is a growing awareness and interest in the development of culturally competent health knowledge. Drawing on experience using a qualitative approach to elicit information from Mandarin- or Cantonese-speaking participants for a colorectal cancer prevention study, the authors describe lessons learned through the analysis process. These lessons include benefits and drawbacks of the use of coders from the studied culture group, challenges posed by using translated data for analysis, and suitable analytic approaches and research methods for cross-cultural, cross-language qualitative research. The authors also discuss the implications of these lessons for the development of culturally competent health knowledge.*

Introduction

The concept of culturally competent care has been promoted for at least 3 decades. For instance, Leininger (1973) called on nurses in the United States to pay attention to cultural variations and to provide care that meets the needs of different cultures and subcultures. With the increasing cultural, ethnic, and linguistic diversity of clients in many countries, providing culturally competent care is no longer a luxury but "a necessity" (Meleis, 1996, p. 1). According to anthropologists and sociologists, meanings and perceptions of a disease vary, because each patient's view of the disease is culturally shaped (Kleinman, Eisenberg, & Good, 1978). Hence, to succeed in changing an individual's behaviors to promote her or his health, the information and approach ought to be culturally relevant and competent.

The need for culturally competent care provides researchers with the challenges of developing a knowledge base, as well as theories that can guide educators in developing culturally competent curricula and assist clinicians in delivering appropriate care. As part of the effort, more researchers are using qualitative methods to explore culturally specific concepts (Blumhagen, 1982; Lundberg, 1999; Torsch, & Ma, 2000; Tsai, 1999; Williams, 1986) or to develop group-specific measurements (Aroian, Norris, Tran, & Schappler-Morris, 1998; Freidenberg, Mulvihill, & Caraballo, 1993). Others are integrating qualitative methods into the development of health promotion and intervention programs (Jackson et al., 2002; Lipson, Omidian, & Paul, 1995; May, Mendelson, & Ferketich, 1995; Michielutte, Sharp, Dignan, & Blinson, 1994).

To collect qualitative, cross-cultural, and cross-language data from the target population is highly desirable but represents unique logistic and analytic challenges. For example, the 28.4 million immigrants who reside in the United States do not necessarily have English as a first language (Lollock, 2001); they might hold different health concepts, values, and beliefs from the researchers, who often are not members of the studied populations and/or are not proficient in the target populations' languages and cultures (Rumbaut, 1999). Even when researchers and the studied populations have the same ethnic background and speak the same languages, they often still differ vastly culturally because of socioeconomic status, immigration history, and other factors. Well-trained bilingual and bicultural staff might not be available for certain ethnic groups or regions in which the studies are conducted. As a result, researchers often are unable to build a research team that has linguistic and cultural competence to collect and analyze adequately data gathered from the population of interest. Some ethnic groups are understudied because of a lack of linguistically and culturally competent research staff; in many health studies, researchers rely on English.

Trustworthiness, or validity of data, is an important issue. The greater part of the literature addresses the cultural and linguistic challenges faced by researchers using quantitative research designs and the strategies developed for cultural, conceptual, functional, and linguistic equivalence in measurements for construct validity (Brislin, 1970; Hui & Triandis, 1985; Orlandi, Weston, & Epstein, 1992). In comparison, little has been discussed related to the trustworthiness issues of cross-cultural, cross-language qualitative research or qualitative components of mixed-method studies (i.e., using both qualitative and quantitative approaches). The focus of the discussion has been mostly on translation and translator/interpreter effect on data generation (Adamson & Donovan, 2002; Edwards, 1998; Esposito, 2001; Jentsch, 1998; Temple, 1997, 2002) rather than on data analysis (Twinn, 1997). Some feminist or antiracism scholars engaged in cross racial-ethnic study (e.g., White researcher and Black researched) have raised issues of matching race and ethnicity between the researcher and the researched (Best, 2003; Bhopal, 1995, 2001; DeVault, 1995; N. Tang, 2002). Their discussions often focus on racism, Whiteness, the

racialized power relationship and its effects on data generation, and representation of the voice. Although relevant, these discussions address a small piece of the complexities of cross-cultural, cross-language research.

Given the limited literature on data analysis issues of cross-cultural, cross-language qualitative research, our purposes in writing this article are threefold. The first purpose is to share our experience using coders from the target population in a colorectal cancer prevention study with Chinese Americans in a metropolitan area of the United States. The second purpose is to discuss implications of our experience for the development of culturally competent health knowledge. The last purpose is to stimulate more discussion and methodological studies to examine the issues to enhance researchers' skills to create culturally competent health knowledge in the future.

The study

Background

Fecal occult blood testing (FOBT) is a screening method that can reduce the probability of death caused by colorectal cancer (CRC) (Winawer et al., 2003). Surveys have indicated low levels of CRC screening in U.S. Asians (Shapiro, Seeff, & Nadel, 2001). A study of Chinese Americans over age 60 found that only 25% (compared to the 50% recommended in U.S. Healthy People 2010 goals (U.S. Department of Health and Human Services [DHHS], 2000) reported any prior FOBT screening (T. S. Tang, Solomon, & McCracken, 2001). Our project was designed to develop a culturally and linguistically appropriate intervention program and test its effectiveness and feasibility in promoting Chinese Americans' use of FOBT.

The project activity was conducted by researchers from the University of Washington in collaboration with the medical staff of International Community Health Services (ICHS), a community clinic providing medical services to Asian and Pacific Islanders residing in Seattle, Washington. Study protocols were approved by the University of Washington Human Subjects Division. There were three phases in the study: qualitative interviews, intervention material and quantitative survey instrument development, and a randomized controlled intervention trial. Because of the relevance to this article, only the processes of Phase 1 (qualitative interviews) are described here.

Qualitative interviews

The intervention involves development of an educational and motivational video and pamphlet. To produce culturally and linguistically appropriate materials, we began with a qualitative component to elicit information about the FOBT beliefs and behavior from our target Chinese American clinic population. Thirty Chinese Americans were recruited from ICHS and interviewed by multilingual and bicultural research staff. The interviewees were aged between 50 and 79 years and able to speak Cantonese, Mandarin, or English. By design, half of the participants were men. Of the 30 interviewees, 19 (63%) described their English language ability as "poor" or "none"; 14 (47%) reported any past experience with FOBT.

Semistructured interviews began with open-ended questions, such as What kinds of treatments have you received for health problems? and What have you heard about cancer of the colon and rectum? Following those questions, interviewers asked directed probes to elicit further detail about particular responses. Before the end of each interview, interviewers showed sample FOBT

kits and probed interviewees' understanding and past experience with FOBT. Each interview lasted approximately an hour and was audiotaped with the consent of the interviewee.

Interviews were translated into English (to audiotape) by interviewers who were certified medical translators and then transcribed by an English-speaking research assistant. After English language transcripts were reviewed by interviewers for accuracy and annotated for nonverbal content, six coders (five female and one male) with various professional training, ethnicity, and Chinese language competence (Table 1) reviewed each transcript. We developed an initial set of content codes by adaptation of the health behavior framework (previously known as the adherence model) (Bastani, Maxwell, Bradford, Prabhu Das, & Yan, 1999). Coders met bimonthly to discuss emerging themes, new information, and developing relationships among concepts. Eventually, codes were expanded from the initial set to encompass emerging topics that were specific to our target population. Coders 1 and 2 were the primary coders and were responsible for reconciling the coding of the larger team. Other coders offered their general impressions of the interviews to confirm the primary coders' findings and to provide alternative interpretations or questions for further consideration. When there were disagreements about appropriate code choices, team members discussed their ideas until consensus was achieved or until a new code was developed. Subsequently, these descriptive content codes were grouped together thematically and used to aid the development of intervention materials.[1]

Table 1. Characteristics of coders

Coder	Professional Training	Gender	Ethnic Background	Chinese Language Proficiency
1	Bachelor's degree (psychology); registered nurse; Master's in public health	Female	Second-generation Chinese Canadian	Moderately proficient in reading, writing, and speaking Mandarin; speaks some Fukien dialect
2	Bachelor's degree (anthropology)	Female	Filipino American	None
3	Advanced nurse practitioner Ph.D. (nursing science)	Female	First- generation Taiwanese Chinese immigrant	Mandarin as a first language; fluent in reading, writing, and speaking Mandarin
4	Ph.D. candidate (health services)	Female	Second-generation Chinese American	Fluent in Cantonese; moderately proficient in reading, writing, and speaking Mandarin
5	Medical doctor Master's in public health	Male	Korean American	None
6	Ph.D. (anthropology)	Female	European American	None

Lessons learned and implications

Tripp-Reimer (1984) wrote, "Much research in cultural diversity consists of investigations which can be classified as qualitative. An important but often unaddressed issue in qualitative research concerns questions of accuracy" (p. 353). The discussion of accuracy, trustworthiness, validity, or rigor of qualitative research is not new to the literature (see Angen, 2000; Davies & Dodd, 2002; Morse, 1999; Sparkes, 2001; Whittemore, Chase, & Mandle, 2001). As the debates regarding

these concepts of qualitative research continue, one important point derived from the literature is that research is not value free. How a researcher comes to understand the social world affects how data are produced with the researched and interpreted by the researcher.

This proposition is self-evident in cross-cultural, cross-language research. In one definition, culture is defined as a pattern of beliefs, values, customs, and symbols that are learned, shared, and symbolically transmitted from generation to generation (Chrisman, 1991). People use the frame of reference provided by their culture to make sense of life, to decide their actions, and to make judgment about their and others' behaviors. How knowledgeable researchers are about the cultural beliefs and value orientations of their studied population has an important effect on their interpretation of findings (Munet-Vilaró, 1988). Some have recommended that research should be headed by a researcher who shares the ethnic and linguistic background of the researched, or an "insider," so that the researcher can make culturally relevant and appropriate decisions (Bhopal, 2001; Munet-Vilaró, 1988). Others have described the importance of including members of the studied ethnic group in the research team to assist with developing culturally competent knowledge (Edwards, 1998; Henderson, Sampselle, Mayes, & Oakley, 1992; Sawyer et al., 1995). The latter is often used when the researchers who lead the study do not share the background of the researched.

Benefits and drawbacks of the use of coders from the studied culture group

In our study, all interviewees were immigrants from China, Hong Kong, or Taiwan. Despite the fact that all were ethnically Chinese, participants came from different places of origin with varying social, cultural, political, and economic structures and historical relationships with the United States (Wong, 1998). Even the language (Mandarin) is used somewhat differently in each country. For example, *tu-tou* (in Mandarin) means potato in China, but the same term is used for peanut in Taiwan. Thus, an interviewee's experience and expressions of that experience might not be understood well by a Chinese coder who was raised in a different Chinese society or environment.

Among our coders, one was an immigrant from Taiwan, one was a second-generation Chinese American who was fluent in Cantonese and had extensive knowledge about Hong Kong, and one was a second-generation Chinese Canadian who lived in Taiwan to learn Mandarin. These coders functioned as cultural brokers to convey the participants' concepts for other coders during the data analysis phase. For example, in some cases, interviewees contrasted the U.S. health care system with their home country's systems. Chinese coders were able to use their knowledge about those systems to help other coders understand the context of interviewees' comments. Interviewees also spoke of their beliefs about health, illness, and CRC, as well as how they used Chinese and Western medicine for their health. It was not uncommon to see names of traditional Chinese herbal products and Chinese medicine concepts in the interview transcripts (e.g., "I asked Doctor C. and he did not have any better way to deal with this problem. Normally I would take *bao ji wan* when I had hyperacidity" and "*Huai hua* could soften hard stool…. This medicine can take care of heat inside the intestine and stomach"). Chinese coders who were familiar with the products and health beliefs could provide supplemental information to help other coders contextualize interviewees' narratives in the course of the analysis.

In addition to their value as cultural brokers on the team, it was often easier for the Chinese coders than non-Chinese coders to comprehend interviewees' beliefs and actions and to capture the subtle cultural meanings embedded or unstated in the verbatim account of the interview. Because non-Chinese coders did not have the ties to certain cultural concepts, they were often

unable to identify the concepts based on the words or phrases in the transcripts. In some cases, they chose descriptions that indicated only the face meaning of an interviewee's phrase. For example, interviewees often mentioned certain foods in their interview. Several coders marked the passages referring to foods as "potential causes of CRC." Coder 3 (Taiwanese) identified interviewees' references to foods as "influences of Chinese medicine" (i.e., referring to yin-yang or hot-cold balance) as well as "potential causes of CRC." Sawyer et al. (1995) stated that the interpretation phase of cross-cultural research is possibly "the most difficult step where cultural knowledge must be incorporated into the research process. Cultural knowledge allows the participant's or subject's cultural frame of reference to be considered during data analysis and may, therefore, yield the most useful results" (p. 962). In reading identical transcripts, coders from the studied groups and their counterparts with other cultural backgrounds highlight the same phrases or sentences; yet, due to their different levels of understanding of the studied culture, they might choose different descriptions for the same quote. As we experienced in our study, the involvement of coders who share the cultural background as the interviewees provided opportunities to develop deeper and richer codes that not only describe "what it is" but also capture "how it becomes," which pertains to the embedded cultural meanings.

Despite the advantages of including "insiders," or coders who are members of the studied ethnic groups, in the analysis process, there are also drawbacks to relying solely on these coders to interpret the data. In our study, we found that non-Chinese coders tended to question the meaning of words used (e.g., participants used the phrase "blow to spirit"), ask for reasons behind the choice of words or translation, and search for good equivalents for concepts to determine if those are specific to Chinese culture. In contrast, Chinese coders less often questioned the meaning of words used by interviewers. The shared cultural and linguistic background with the interviewees made it easier for them to make sense of the interviews, even when the English translation was less fluent. Bhopal (1995) stated, "For insiders, the danger of subjectively distorting data is real, because acquaintance with the subject matter is perhaps likely to colour the way phenomena are seen" (p. 161). Our experience suggested that the insider's knowledge might make these coders overlook behaviors or concepts that are unique but recognized only by those who come from other cultural groups. She went on to suggest that if the insiders are not aware of their own cultural and social specificity (e.g., being women vs. men, being middle class vs. working class), they might ultimately report findings that reflect their own experiences rather than the experiences of the researched. The insider's knowledge might also make these coders see all of the behaviors and concepts identified in the transcripts as being attributed only to culture but not to other factors (e.g., gender, socioeconomic status, or individual family traits), if they are not self-reflexive.

Our approach of using members of the target population demonstrated that matching the cultural background between coders and participants is invaluable in facilitating the culturally sensitive data analysis process. However, we also learned of the drawbacks of this approach. Our experience suggested that non-Chinese coders' participation might be able to counterbalance these drawbacks. The ideal composition of the analytic team for cross-cultural research is a question worth considering: Who and how many people should participate in data coding to ensure a culturally sensitive process? Also, when the team grows larger, the time and cost required for such an approach pose a feasibility issue, particularly for studies with limited resources. More methodological studies are needed to explore different approaches to identify the most feasible and valid strategies for future use.

Challenges posed by using translated data for analysis

Translation is one source of threat to the accuracy of cross-cultural, cross-language qualitative research. It is known that concepts do not always exist across cultures and languages. Translators need to be creative in finding ways to convey concepts from one language into another. Other authors have recommended the use of professional, certified translators when language is a concern (Esposito, 2001). Their assumption is that data produced by certified translators are more trustworthy than those produced by their counterparts who are not certified. We asked, Are professional, certified translators the answer to the assurance of accuracy for cross-cultural, cross-language qualitative research?

Half of the coders in our study were not proficient in Mandarin, and the majority did not know Cantonese.[2] Thus, all of the interviews were translated into English by certified medical translators before the interviews were transcribed in English. When translators encountered concepts that do not exist in Mandarin and Cantonese, literal translations or phonetic translations were used. For example, a translator wrote, "When I had thyroid cancer, '*wai dan gong*' [Translation: 'exercise'] was very popular…. I started to do wai dan gong." Wai dan gong is an exercise activity that involves low levels of body movement and promotes *qi* (or *chi*, the concept of energy in Chinese medicine) through each movement. In English, the word *exercise* usually refers to physical activity that requires vigorous effort. Although such a choice of translation would not be completely wrong, it would not fully convey the value of wai dan gong in the Chinese sociocultural context and the possible link between the interviewee's decision to do wai dan gong and his thyroid cancer.

Even when the concepts have been introduced fully into Chinese society and incorporated into its language, one translator's choice of translation will not necessarily be in agreement with that of other translators. For example, (unknown to the non-Chinese coders), the English terms *stress* and *pressure* have the same Chinese characters in commonly used Chinese-English dictionaries. There were several discussions, raised by Chinese coders, about whether "stress" would be a better translation than "pressure." As a result, some English transcripts were scrutinized, and the translation subsequently refined.

We asked earlier, Are professional, certified translators the answer to the assurance of accuracy for cross-cultural, cross-language qualitative research? Our experience showed problems arising from this common belief. Temple (2002) stated, "Translation is more than an exchange of words from one language to another. Translators, as much as researchers, produce texts from their own perspectives" (p. 846). We would further suggest that translators' perspectives, shaped by their culture and lived experience, is not the only factor. Their knowledge about the subtleties of the languages to which they translate also influences their choices of words and the transcripts they produce. Whether data produced by professional, certified translators are more trustworthy than by their counterparts is perhaps likely to depend on how fully the translators are aware of these issues and how mindful they are in their translation process.

Esposito (2001) stated, "Because of language barriers, I could not immerse myself in the actual words used by the women. Analysis and interpretation are accomplished as one would analyze and interpret a silhouette" (p. 576). As we experienced in our study, when researchers have language barriers and can conduct analysis only through translated data, the depth of analysis might be limited. They are left to wonder whether the findings identified in the translated data result from "true" underlying concepts or from translation issues. These researchers cannot check the quality of the translated data on their own and might only assume that the translation was

done appropriately. Input from coders who know the target languages and the cultures in the analysis process is integral to minimizing threats to the accuracy, trustworthiness, or validity of the cross-cultural, cross-language qualitative research findings.

Another challenge observed in our study relates to the choices of quotes made by coders who are not proficient in the target language. At one meeting, one non-Chinese coder drew other coders' attention to the phrase "ordinary time," because it appeared repeatedly in one transcript. However, this phrase is a literal translation of "normally." Therefore, because of the language barrier, this coder was unable to know that a frequently occurring phrase might not have an important meaning but, rather, was due to a translation issue. This unexpected experience illustrates that even with carefully translated transcripts, language incongruence during the coding process can still be a source of threat to the trustworthiness of a cross-language study. To enhance cultural competence, language congruence with participants is needed not only in the data collection process but also throughout the analysis process.

Suitable analytic approaches and methods for cross-cultural, cross-language qualitative research

Temple and Edwards (2002) stated that language is not simply a tool or technical label for conveying concepts. Rather, language is "an important part of conceptualization, incorporating values and beliefs. It carries accumulated and particular cultural, social, and political meanings that cannot simply be read off through the process of translation" (p. 5). When researchers analyze the data filtered through translators' choices of wording and phrasing, they are drifting away from the interviewees' original interpretation of their experience. As more coders are involved in the analysis process, more layers of interpretation are likely to be added onto the original meaning.

As discussed previously, the Chinese coders in our study were invaluable in providing a framework for the non-Chinese coders regarding the sociocultural background that was embedded in the data but might not necessarily be known to the other coders as a result of cultural and/or language barriers. When one Chinese coder offered her perspective on the patient-doctor relations in China and Taiwan that contradicted some data, the Chinese Canadian coder was able to offer a counterperspective that she noticed in other interviews for further discussions. Use of a coding team served to establish the conventional criterion of confirmability of our data analysis, an aspect of trustworthiness that refers to the circumstance in which theoretical claims are supported by evidence from interviewees' accounts and alternative interpretations of the data are considered (Lincoln & Guba, 1985).

However, whose voice or story is eventually represented in the findings when the data from which coders work are no longer the raw data (i.e., the interview itself)? In our study, all the codes were grounded in the data, and alternative explanations were sought. However, because of the linguistic constraint, the findings had to be filtered through the interpretations of the translators, the Chinese coders, and the non-Chinese coders. Twinn (1997) suggested that phenomenology is not a suitable method for cross-language studies when translation is involved. She stated, "In phenomenological research, where understanding the essence of the phenomenon from the informants' perspective is the fundamental purpose of the research design, the use of translation must be seriously questioned when considering the rigor of the research process" (p. 423). As we discussed previously, translated data are products of translators' culture and lived experience as well as their knowledge of the subtleties of the language to which they translate. In certain situations, translators have to change sentence sequences in a paragraph or add a few

modifiers to preserve the meaning of that paragraph and, at the same time, make the translation grammatically appropriate for the other language. Before analysis begins, data have already been colored by the translators' interpretations of interviewees' narratives (in addition to the interviewer's interpretations during the interview) and their decisions about the preservation of original narratives in their translation. Our experience concurs with Twinn's suggestion that translated data need to be questioned seriously regarding their suitability for phenomenology. Not only for phenomenology, methods that focus on representing the voices of the researched (e.g., feminist inquiry) and analytic approaches that rely heavily on semantics, exact word usage, or the structures of narratives (e.g., discourse analysis, narrative analysis) also require serious examination and discussion for their use in cross-language research. After all, the transcripts in front of the coder are not exact, verbatim transcriptions of interviewees' perspectives on the audiotapes. Rather, they are re-presentation of the interviewees' perspectives through the translators' construction of the transcripts.

Closing thoughts

With the increasing diversity and globalization of modern societies, the demand for culturally competent health knowledge is an urgent research agenda. Although a growing body of researchers wishes to conduct studies with members from other cultural groups, they often are constrained by cultural and/or language barriers. Inclusion of members of the target population in the research team is highly recommended and should be used whenever qualified members are available. As a natural consequence, researchers have engaged in discussions of the effects of translation and interpreters on data and data collection procedures. Hiring professional translators to help with data collection allows the data collection to be undertaken in the primary language of the participants and provides opportunities to learn about their cultural knowledge and experiences (Edwards, 1998).

However, our experience suggests that limiting the participation of members of the target population to only data collection and translation is inadequate. Threats to the accuracy, trustworthiness, and/or validity of cross-cultural, cross-language qualitative research continue to exist if the data analysis process does not include those who understand the culture and language of the participants. Thus, to meet the demand of culturally competent health knowledge, the dialogue ought to be extended to include data analysis. We need to begin dialogues concerning ways to choose and refine analytic approaches when the researcher and the researched do not share a common culture and, particularly, a common language. Although it is impossible to eliminate all the errors and biases caused by researchers' cultural or language barriers, it is possible to enhance the cultural sensitivity and competence of the knowledge we create when we increase our awareness of how the problems can arise and deter the research goals.

Notes

1. A coalition of Chinese community members, including both men and women in the Seattle area, was formed earlier to help develop educational materials and implementation of the programs for this and similar other research projects. Based on their recommendations, an informational and entertaining ("soap opera") format was incorporated to appeal to the target audience.

2. Cantonese is one dialect spoken by the Chinese. It can be written in Cantonese or Mandarin. The written forms of these two languages are similar, except that the Cantonese written form includes characters used to represent sounds phonetically (Chen, 1999).

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