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**Translation of the Verran and Synder-Halpern Sleep Scale into
Spanish**

Leis, Berta, M.S.

The University of Arizona, 1990

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TRANSLATION OF THE VERRAN AND SNYDER-HALPERN
SLEEP SCALE INTO SPANISH

by
Berta Leis

A Thesis Submitted to the Faculty of the
COLLEGE OF NURSING
In Partial Fulfillment of the Requirements
For the Degree of
MASTER OF SCIENCE
In the Graduate College
THE UNIVERSITY OF ARIZONA

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December 16, 1990
Date

DEDICATION

I dedicate this work to my dearest mother, Dr. Bertha Leis, and my loving father, Dr. Jose Leis, who have encouraged me to creatively unfold as a human being in my journey towards self-discovery and enlightenment. I applaud my parents for their ingenious molding of the life entrusted, for reflected in this work is an evolution of their consciousness...

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ABSTRACT

The purpose of this study was to translate the Verran and Snyder-Halpern (VSH) Sleep Scale into Spanish and assess equivalence of translation. Criteria for establishing cross-cultural equivalence and concepts in translation served to guide the research and provide impetus in developing a flow chart for equivalence of meaning in asymmetrical translation. Nineteen Mexican national or Mexican-American bilingual subjects were recruited from the community. The translation protocol contained two phases. Phase One consisted of four steps, specifically: 1) content equivalence analysis, 2) back translation, 3) analysis of translations and back translations, and 4) bilingual meaning error checks. Phase Two involved field pretesting using the random probe technique. Descriptive statistics were used in Phase One. Qualitative data analysis was done in Phase One and Phase Two. Findings indicated tool items were relevant in the target culture and cultural equivalents were available. In addition, equivalence of meaning was established.

CHAPTER 1

INTRODUCTION

Overview

Immense cultural diversity exists within American society today. Uniformity is no longer the perspective, rather a growing appreciation for a great eclectic mix. The United States was once considered a melting pot of diverse ethnic and cultural groups. However, a social movement in the mid-1960s resulted in heightened group consciousness and increased visibility to racial minorities. This fostered new and positive symbols of ethnicity and a rejuvenation of cultural group identity (Acosta-Belén & Sjostrom, 1988; Spector, 1985).

Within a culturally diverse society, delivery of health care is a challenge. Nurses frequently encounter clients of different cultures in practice. In addition, future projections indicate increased contact between nurses and diverse cultural groups (deChesnay, 1983). Clearly, a need for specialized knowledge and skilled care for minority clients exists. As a reflection of this need, the American Nurses' Association's 1976 Code for Nurses specified that consideration for lifestyles and individual value systems be incorporated into the nursing care of each client. Furthermore, in 1977, the National League for Nursing

mandated that accredited baccalaureate nursing programs include content regarding cultural diversity. All of these factors have contributed to investigation of cultural diversity as a vital area of nursing research (Tripp-Reimer, 1984).

Among the cultural groups encountered by nurses in the United States are blacks, Hispanics, Asian-Americans, Native Americans, and white ethnic groups. Of these various cultural groups, the fastest growing are the Hispanics. Between 1950 and 1980, their numbers grew by 265 percent compared to under 50 percent for the total United States population. In addition, it is projected that by 2020, Hispanics could constitute 15 percent of the population, thereby displacing blacks as the largest minority group in the United States. Currently, Hispanics comprise the largest minority group in the Western United States and have significant concentrations in Arizona, California, Colorado, and Texas (Acosta-Belén & Sjostrom, 1988). Therefore, it is likely that in the future the frequency with which nurses encounter Hispanic clients will increase.

Although Hispanics abound in American society, they encounter a number of barriers when seeking health care. Foremost among these barriers is language. Acosta-Belén and Sjostrom (1988) assert there are few Spanish-speaking

health care providers. Furthermore, health care providers involved in measuring the needs of the Hispanic population indicate minimal knowledge of Spanish (Marcos, Urcuyo, Kesselman, & Alpert, 1973). Moreover, this deficit in Spanish-speaking personnel poses a substantial language barrier which may disrupt communication between the health care provider and the Hispanic client (Acosta-Belén & Sjostrom, 1988).

According to Kasch and Lisnek (1984), obstacles to communication can impact on successful completion of important nursing objectives which use communication as a resource. In the model of Interpersonal Competence (Kasch & Lisnek, 1984), communication and nursing are linked in a framework grounded in a theory of interpersonal interaction. Communication is used as a strategic mode of nursing intervention. Specifically, communication is viewed as a resource to effect changes in a client's health care status, facilitating accomplishment of important objectives such as: establishing and maintaining the nurse-patient relationship, using language to relay information, and securing patient adherence or compliance. As an obstacle to communication, a language barrier may constrain accomplishment of nursing objectives which necessitate use of communication as a resource. Consequently, effective use of the nursing process and delivery of optimal care to

Hispanic clients may be hindered. It is essential, therefore, that strategies to lower the language barrier be implemented, enabling optimum use of communication as a resource.

Lowering the language barrier can be accomplished by various means. To a large extent the most efficient method is through the use of translation (Dijk, 1983). Translation refers to the transfer of thoughts and ideas from one language to another, whether the languages are in written or oral forms (Brislin, 1976). As a form of communication, translation is instrumental in cross-cultural encounters, for it permits better communication and thus understanding between cultures (Dijk, 1983). Historically, the major strength in the study of cultural diversity has been qualitative research methods (Tripp-Reimer, 1984). Currently, there is an insufficient number of instruments for measuring phenomena unique to nursing and a lack of quantitative measures appropriate for use in cross-cultural research (Jones 1987; Ventura, Hinshaw, & Atwood, 1981). Consequently, use of translation within cross-cultural nursing research is of vital importance. Through translation, instruments developed in one culture can be subsequently modified and adapted to a second culture, thus allowing for quantitative comparison between cultures (Flaherty, 1987).

It is within the realm of nursing research to appropriately translate available nursing tools, thereby adding to the body of nursing instruments and to quantitative measures that can be used cross-culturally. However, because instruments designed in one culture impose categories and assessments onto another culture, quantitative comparisons between cultures necessitate testing for cross-cultural equivalence of the instrument (Flaherty, 1987). Careful translation to a second language does not presuppose achievement of equivalent cultural meaning and relevance. Therefore, comparability of ideas and behaviors between the two cultures must be established in order to develop equivalent language versions of an instrument (Becerra & Shaw, 1984; Berry, 1980).

Purpose

The purpose of this study was to translate the instrument, the Verran and Snyder-Halpern Sleep Scale (Snyder-Halpern & Verran, 1987), into Spanish and assess equivalence of translation through the following: Content Equivalence Analysis (Flaherty, 1987), back-translation (Brislin, 1970, 1980), analysis of translations and back-translations, Bilingual Meaning Error Checks (Brislin, 1970), and pretesting using the Random Probe Technique (Becerra & Shaw, 1984; Brislin, 1970). The three research questions addressed in this study were:

1. Are items on the Verran and Snyder-Halpern (VSH) Sleep Scale relevant to the Mexican culture?
2. Do items on the VSH Sleep Scale have cultural equivalents in the Mexican culture?
3. Is equivalence of meaning present in the English and the Mexican-Hispanic versions of the VSH Sleep Scale?

Significance

The Verran and Snyder-Halpern (VSH) Sleep Scale (Snyder-Halpern & Verran, 1987) is a subjective sleep assessment tool indicative of sleep quality. The need to sleep is basic to all human beings, for sleep serves a restorative function, conserving energy and providing protection from exhaustion (Chuman, 1983). Sleep is also a biological rhythm inextricably tied to other biological rhythms and body functions (Hayter, 1983). According to Snyder-Halpern and Verran (1987), the many biological and psychological changes that occur during normal sleep make it a primary consideration in health care maintenance and care of the ill patient. Consequently, a tool which can validly and reliably measure sleep quality is vital to clients of all cultures.

Currently, research of the Hispanic health care experience is needed. A tremendous deficit exists in research specifically addressing the Hispanic experience and its health care delivery (Arce, Galbis, Diaz, & Garcia,

1983; Becerra & Shaw, 1984). In addition, the importance of collecting accurate health data on the Hispanic population is being emphasized (Berkanovic, 1980). The effect of inadequate translations can result in response discrepancies indicative of erroneous translation rather than differences in people or variables being measured (Chapman & Carter, 1979). In addition, using a single Spanish-language translation for such diverse cultural groups as Mexicans, Puerto Ricans, and Cubans is currently regarded as inappropriate; for Spanish itself is heterogeneous in that it varies markedly when spoken by various subgroups within the Hispanic culture (Berkanovic, 1980; Flaherty, 1987). Development of the Mexican version of the VSH Sleep Scale is therefore deemed pertinent and valuable; for it would ensure adequacy of the translation and enable sleep research to be conducted within the Mexican-Hispanic culture.

Conceptual Framework

Investigation of cultural diversity has become an important area of nursing research. Nurses are continually encountering people of various cultures in practice, one of which is the Hispanics. This has resulted in an increased need for specialized knowledge which can be obtained through cross-cultural research in nursing science. Cross-cultural investigators who are skilled in a range of qualitative and quantitative methods can improve the quality of research and

theory (Tripp-Reimer & Dougherty, 1985). However, due to the multiplicity of languages, barriers in communication may delay the research process. In addition, Dijk (1983) asserts that poor permeation of information across languages and delayed dissemination of scientific knowledge may occur. Cross-cultural nursing research is therefore dependent upon intercultural communication (Figure 1).

One means of communicating across a language barrier is through translation. Translation is not merely a linguistic undertaking but a part of a larger domain, that of communication. Translation always involves communication within the context of interpersonal relations (Brislin, 1976). Through translation man can better communicate with his fellow man. Therefore, communication with Hispanic clients can be achieved through translation of the VSH Sleep Scale into Spanish.

As a form of communication, translation has a vital role in cross-cultural research. Specifically, instruments developed for one culture can be subsequently modified and adapted to a second culture (Brislin, 1976; Flaherty, 1987). Hence, available nursing tools can be translated into culturally relevant second languages. Success and failure with translation can then suggest further research on the translation process itself (Brislin, 1976).

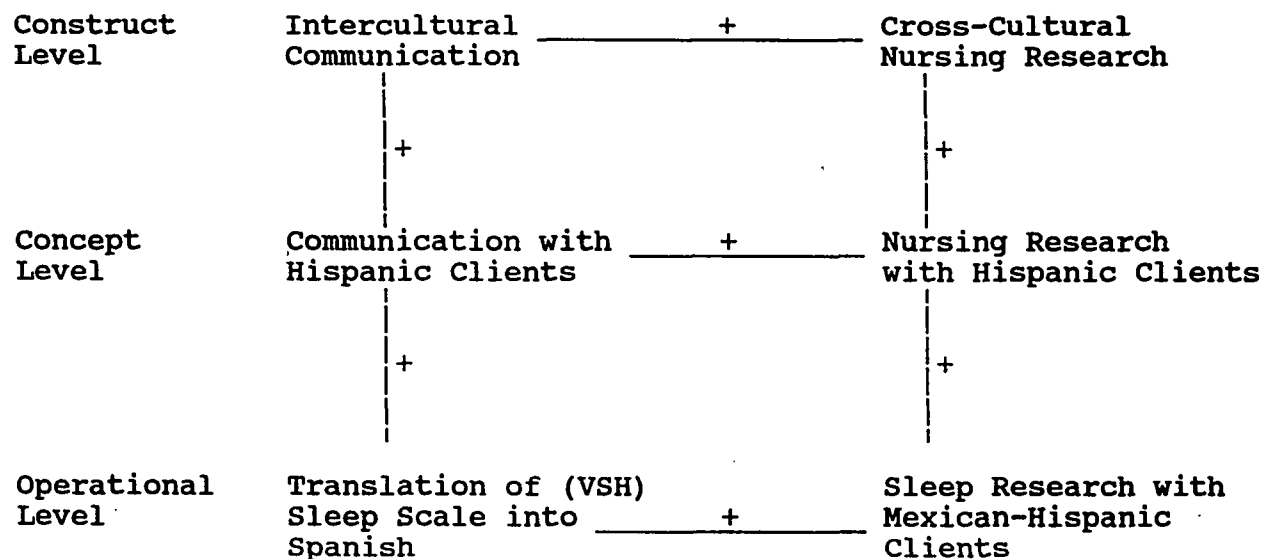


Figure 1. Conceptual framework for study

Note: Cross-cultural nursing research is dependent upon intercultural communication. Intercultural communication encompasses communication with Hispanic clients. Translation is a form of communication; hence communication with Hispanic clients is operationalized as translation of the VSH Sleep Scale into Spanish. Translation of the VSH Sleep Scale is needed to conduct sleep research with Mexican-Hispanic clients. Nursing research with Hispanic clients is operationalized as sleep research with Mexican-Hispanic clients. The former is more abstractly conceptualized as cross-cultural nursing research.

Currently, a deficit exists in research specifically addressing cultural differences in sleep perception. Translation of the VSH Sleep Scale into Spanish constitutes an initial step towards identifying sleep patterns of Hispanic clients. In order to make appropriate generalizations, however, researchers need to be aware of existing heterogeneity among Hispanics. Flaherty (1987) asserts there is a misconception "...that individuals and subgroups in the Hispanic community may be viewed interchangeably and the results of investigations with any single group may be generalized to all others" (p. 178). In actuality, the term Hispanic includes those born in Spain, Puerto Rico, Buenos Aires, in very diverse places, and represents the entire range of occupational and socioeconomic strata. Despite this, the majority of Hispanic research in the United States uses poor, inner-city populations and generalizes findings to all Hispanics. Thus, defining demographic characteristics and within-group differences among Hispanics enable appropriate generalizations and comparisons among studies (Flaherty, 1987).

Summary

Investigation of cultural diversity has become a vital area of nursing research. Due to increases in intellectual, political, economic, and tourist relations between nations,

an increasing need for intercultural communication exists (Dijk, 1983). Various cultural groups reside within American society, one of which is the Hispanics. Currently, Hispanics constitute the largest minority group in the Western United States. Although nurses frequently encounter Hispanics in the health care arena, minimal knowledge of Spanish contributes to a barrier in language. This barrier serves as an obstacle to communication, potentially disrupting the nurse-client relationship, thus hindering the optimal use of nursing process. Various strategies can be employed to reduce the language barrier; however, translation is deemed most effective in communications across language barriers. It is within the realm of cross-cultural nursing research to adequately translate available nursing tools into culturally relevant second languages. This contributes not only to the body of nursing instruments but to quantitative measures that can be used cross-culturally once cross-cultural equivalence has been established. In this study, the Verran and Snyder-Halpern (VSH) Sleep Scale was translated into Spanish and equivalence of translation was assessed. The availability of the VSH Sleep Scale in culturally relevant second languages would be a significant contribution to nursing, for sleep constitutes a basic need of all human beings and impacts on health care maintenance and intervention of the acutely ill client.

CHAPTER 2

LITERATURE REVIEW

In this chapter, literature relevant to translation in cross-cultural research is presented. In specific, the following are addressed: translation methods, translation types, namely symmetrical and asymmetrical, criteria for equivalence, and factors affecting translation quality. In addition, a flow chart for equivalence of meaning in asymmetrical translation is presented. A summary recapitulating the major points concludes the chapter.

Translation Methods

The following three types of translation methods are used in cross-cultural research. They are: one-way translation, back-translation, and translation by committee.

One-Way Translation

This procedure involves translating the original language form into the second language by a qualified bilingual person. Although one-way translation is the most common method of translation, it is viewed as the least acceptable method, for one single translation can result in serious discrepancies in meaning, thereby producing nonequivalent results. Other methods of translation are therefore recommended (Becerra & Shaw, 1984; Chapman & Carter, 1979).

Back-Translation

In this method, the original language form (source language) is rendered into the second language by one translator; the resulting version (target language) is blindly translated back into the original language by a second translator. Two translators are therefore required to produce one back-translation. In keeping the second translator unaware of the source form, the researcher receives two versions of the source language form from which items which translate poorly can be identified. Assessment of translation quality can therefore be accomplished even if the researcher does not have knowledge of the target language.

If discrepancies are found when examining the two source language versions, insight into the competence of translators is gained. The researcher can then confer with the two translators and correct translation errors. If the two source language versions are identical, however, this suggests the target version is equivalent to the source language forms. Currently, back-translation is viewed as the most reliable method of producing equivalent translations. However, seeming equivalence between source, target and back-translated language versions may be accounted for by factors other than a good translation

(Becerra & Shaw, 1984; Brislin, 1970, 1980; Chapman & Carter, 1979).

Translation by Committee

In this approach, a group of bilinguals translates from the source to the target language. Errors in translation by one member can be caught by other committee members. Sources of error include: shared misconceptions by committee members due to varied linguistic experiences or social class, and translators collectively criticizing a colleague or unifying against the researcher, thus subduing the environment of interactive exchange. Translation by committee should be regarded as an adjunct to more reliable translation methods such as back-translation (Becerra & Shaw, 1984; Brislin, 1980).

Accuracy and Relevancy of Translation

After translation of a form is completed, the accuracy and relevancy of translation need to be evaluated. A number of pretest techniques have been developed for this purpose. They are: a committee of experts, bilingual pretesting, and field pretesting.

Committee of Experts

In this method, a panel of experts analyzes translated items and identifies translation discrepancies. This panel should be used only as an adjunct to field pretesting. It has been suggested that this method be used to adapt

instruments to regionally preferred language usage, and that the final target language form include word variations across Hispanic subgroups, i.e., Mexican, Puerto Rican, and Cuban (Becerra & Shaw, 1984).

Bilingual Pretesting

In this method, bilinguals complete the test instrument in the original and target language versions or different groups take different halves of the instrument in both versions. Response differences on identical items in the two versions can then be identified and further translations made on items eliciting discrepant response frequencies.

The advantage of this technique is the potential for use of sophisticated statistics; item correlations between forms can be computed to identify meaning discrepancies. The disadvantage of this method is using bilinguals, an atypical group, in the development of the instrument. Bilinguals may not similarly respond to an identical item in the source and target language. In addition, they may apply their knowledge and understanding of both languages when responding to a translation, thus making allowances for inappropriately translated items. This may result in a seeming equivalence between source and target forms. Furthermore, if bilingual subjects do not clearly understand both languages, low item correlations may result; for ambiguity about a single word in an item can alter the

meaning of that item (Becerra & Shaw, 1984; Brislin, 1970, 1980; Candell & Hulin, 1986; Chapman & Carter, 1979).

Field Pretesting

In this method, the final completed translation is administered to typical members of the target population. In the random probe technique, the researcher selects a random sample of items on the instrument and asks a probing question about each item. Examples include: "What do you think this question means?" or the subject may be asked to paraphrase the question. In addition, the researcher may ask, "What do you mean?" to further clarify the subject's reply. If the subject's response is inappropriate, the intent of the item is not being conveyed (Becerra & Shaw, 1984; Brislin, 1970, 1980).

Translation Types

Two basic types of translation are delineated in the literature: symmetrical and asymmetrical translation.

Symmetrical Translation

Symmetrical translation is decentered translation. The translation process is not centered around one language or culture. Rather, the source language version can be and usually is modified to achieve the greatest symmetry or closest equivalence between the source and target version. When decentering, the original source and target versions are both open to modification, the idiosyncrasies of each

language contributing to the final version. This process allows for a change of words and concepts that have no clear equivalents in the other language (Becerra & Shaw, 1984; Brislin, 1980; Chapman & Carter, 1979; Werner & Schoepfle, 1987). Commonalities are therefore stressed and the distinction between source and target versions eliminated (Werner & Campbell, 1970). Consequently, etic concepts (those behaviors occurring across cultures) emerge; to survive the decentering process, these concepts must be available in both languages. Emic concepts (those behaviors specific to one culture), however, are eliminated, for losing the emic term reflects an unavailable equivalent in the other language (Brislin, 1980).

Asymmetrical Translation

In some cases, use of symmetrical translation may be limited, such as when the instrument undergoing translation has a history of use within the original language. It may then be desirable for the items to remain unchanged when rendered into the target language (Chapman & Carter, 1979). When the original form cannot be changed and loyalty to the original language is required, an asymmetrical form of translation is needed (Werner & Campbell, 1970; Werner & Schoepfle, 1987). However, the goal of symmetrical translation: loyalty of meaning, equal familiarity, and colloquialness in each language (Werner & Campbell, 1970)

may still be appropriately applicable. The difficulty lies in achieving this goal when decentering is prohibited. Chapman and Carter (1979) recommended consideration of formal and functional equivalent methods of asymmetrical translation.

Formal Equivalent Translation. A formal equivalent translation is a literal translation closely following the form and structure of the source language. This type of translation may be bounded at the word level extending to translation of larger groups of words (Wilss, 1982). Although loyalty to the source language is maintained, literal translation of words and phrases may change the original meaning or result in a form which is unnatural in the second language (Chapman & Carter, 1979; Larson, 1984). Chapman and Carter (1979) cited the following as accounting for meaning distortions: differences in the structure of the second language, inadvertent treading on a socially sensitive topic within the second culture, and idiomatic usage which is meaningless when literally translated. Jones (1987) affirms that asymmetrical translation often results in an unnatural and exotic target language form. Because of the literal interpretation of language, the exotic aspects of the other culture become apparent and the differences between the two cultures are emphasized (Werner & Schoepfle, 1987). Communicating these differences is a desirable

outcome if the intent of the researcher is to learn a new vocabulary or to communicate the degree of acculturation between groups (Jones, 1987; Werner & Campbell, 1970). However, due to resulting awkwardness in the target language form and potential meaning distortions, careful use of a literal translation is suggested when loyalty of meaning, colloquialness, and equal familiarity are needed in each language.

Functional Equivalent Translation. Nonliteral translation is distinct from literal in that equivalences may occur at the level of the sentence or even larger units than the sentence. When the translator separates himself from the syntax or semantics of the source language form and allows the target language segment to unfold into its own unmistakable shape, a clear crossover from literal to nonliteral translation occurs. The borderline between the two forms of translation, however, is frequently crossed; for in any given passage, there may be varying degrees of literalness and nonliteralness (Wilss, 1982). Consequently, if equivalence of meaning is to be achieved in the uncentered, asymmetrical approach, flexibility in the translation must be tolerated (Chapman & Carter, 1979).

When using a functional equivalent translation, Chapman and Carter (1979) implied that the source language is translated nonliterally, incorporating natural forms of the

target language. Shifts in semantic perspective may involve shifts of meaning between source and target language forms while preserving functional equivalence (Wilss, 1982). For example, the Western notion regarding the lucky significance of a four-leaf clover is found comparable to the Iranian belief that the seeds of the wild rue plant when thrown into fire result in smoke which wards off evil. The translation of the item, "If you find a four-leaf clover, do you believe that it might bring you luck?" into Farsi, "If wild rue is thrown into the fire, do you think it will keep evil spells away from you?" incorporates the natural forms of the target language, in grammatical constructions and in use of lexical terms. Moreover, the source language situation is replaced by a target language text having a comparable communication function (Wilss, 1982). Culture symbol is replaced by culture symbol, as in "cada vez que muere un obispo" (every time a bishop dies) for "once in a blue moon." The resulting translation is native-sounding, with a loss of source language character and assimilation of characteristics from the target culture (Werner & Schoepfle, 1987).

Focusing on the closest cultural parallel to the original version exemplifies the literary form of asymmetrical translation. According to Werner and Campbell (1970), the goal of such a translation is, ideally, like

that of symmetrical translation: loyalty of meaning, equal familiarity, and colloquialness in each language.

Criteria for Equivalence

Establishing comparability of ideas is essential in translation. When a tool is designed in one culture, categories and assessments from that culture may be imposed onto another culture (Flaherty, 1987). If comparability of ideas is not established, interpretation of study results is difficult. Therefore, developing equivalent language versions of an instrument entails comparing ideas and behaviors between the two cultures with subsequent testing for cross-cultural equivalence (Becerra & Shaw, 1984; Flaherty, 1987).

According to Jones (1987), clarity in interpretation of study results can be strengthened when congruency exists between research goal and translation strategy. When the goal of a study is determining cultural differences, the translation is appropriately asymmetrical, for loyalty to the original language is needed. However, when the research goal is comparative and equal familiarity and colloquialness are sought in each language, symmetrical translation is appropriately used. The dilemma arises when the research goal is comparative yet symmetrical translation is prohibited. Despite careful translation, when a comparative goal is mismatched with uncentered translation, the

comparability of ideas is in question, for their meaning and relevance to the target culture are undetermined (Lindsey, Ahmed, & Dodd, 1985 as cited in Jones, 1987).

Various types of equivalences must therefore be ascertained in development of equivalent language versions of a tool (Becerra & Shaw, 1984; Berry, 1980). Two types which are preconditions to comparison are conceptual equivalence and functional equivalence.

Conceptual Equivalence

Conceptual equivalences assure that concepts being studied have comparable meanings in the target culture (Becerra & Shaw, 1984) and imply that responses recorded measure the same basic construct in the two cultures (Flaherty, 1987). Although some universal concepts such as "illness" or "mother" have direct equivalents across cultures, other concepts have no direct equivalent in another culture and convey similar information with comparable definitions (Becerra & Shaw, 1984). Such a definition may have a function equivalent to the source item and thus achieve equivalent cultural meaning through use of functional equivalence (see Chapman & Carter, 1979).

Functional Equivalence

When behaviors in two different cultures have developed in response to a problem shared by both social-cultural groups, functional equivalences are said to exist.

Functional equivalences pre-exist as naturally occurring phenomena; they cannot be created but are discovered. And even though behavior in one social-cultural group may not appear to be related to its parallel in the other culture (Berry, 1980), translation of the culture symbol from the source language to the target language evokes the same functional response (Werner & Campbell, 1970).

Checks for Cross-Cultural Equivalence

Specific methods used to determine cross-cultural equivalence include the following: Content equivalence (Flaherty, 1987), Semantic equivalence (Flaherty, 1987), Meaning error checks (Brislin, 1970), Technical equivalence (Flaherty, 1987), and Criterion equivalence (Flaherty, 1987). Content equivalence, semantic equivalence and meaning error checks examine the relevancy of items and equivalence of meaning.

Content Equivalence

Content equivalence entails examining each item of the tool to determine its relevancy to both cultures in the study. Each item must occur as a natural phenomenon in the culture and be recognized as such by members of the culture. Specifically, a panel of experts familiar with both cultures rates each item as "irrelevant," "relevant" or "questionable relevance." Items rated as "irrelevant" by one member of the panel or "questionable relevance" by two or more members

should be dropped. It is recommended that items receiving only one rating of "questionable relevance" be reconsidered for inclusion.

Semantic Equivalence

According to Flaherty (1987), Brislin's (1970) back-translation technique is essential in establishing semantic equivalence. Flaherty suggests semantic equivalence is achieved when loyalty to an idea is maintained in the language of each culture. After back-translation is complete, a bilingual panel of experts examines the two versions item by item to determine meaning discrepancies. Specifically, each item is rated on a 3-point scale, where 3 equals "exactly the same," 2 equals "almost the same," and 1 equals "different." It is recommended that items rated mixed scores of 2 or 3 be reconsidered and in some cases reworded. Those items would need to be reexamined by back-translation. Items rated "different" should be dropped.

Meaning Error Checks

Brislin (1970) also uses bilinguals in checking for meaning errors. Bilingual raters examine the original and target versions, and write down errors which could lead to differences in meaning. This meaning error check is a direct test of original-target language equivalence as is Flaherty's 3-point scale. Brislin, however, uses the correlation and percentage overlap indices to describe the

meaning errors. The correlation index is determined by deriving the correlation between the number of errors found by two or more raters over a large number of passages. The latter is the percent overlap in different raters finding exactly the same meaning errors.

Technical and Criterion Equivalence

Technical and Criterion equivalences also need to be considered when determining cross-cultural equivalence. Technical equivalence refers to the effect of culture on the data collection method. A method of data collection that seems natural in Western culture may be uncomfortable for certain cultural groups. For example, the use of pencil and paper data collection may be unfamiliar to many Third World countries and therefore bias data collection. Finally, criterion equivalence determines if the instrument has the same level of sensitivity and specificity in both cultures being studied. If the interpretation of results are the same in both cultures under study, then criterion equivalence is achieved.

Factors Affecting Translation Quality

Basing Translations on Bilinguals

Seeming item equivalence. Questions have been raised on the validity of basing translation analyses on bilingual respondents. According to Candell and Hulin (1986), the semantic structures of bilinguals differ from the semantic

structures of monolinguals. The language one uses determines how one categorizes events and objects in the world. Therefore, theoretically, a person who possesses two languages has two ways of categorizing experiences and thus optional ways of perceiving (Segalowitz, 1980). Whereas monolinguals would not have the knowledge and understanding to allow for adjustments or reinterpretations of translated items, bilinguals may apply their knowledge and understanding of both source and target languages when engaging in translation (Candell & Hulin, 1986).

For example, Candell and Hulin (1986) evaluated the equivalence of the Job Descriptive Index (JDI) (Smith, Kendall & Hulin, 1969), a job satisfaction inventory, and its French Canadian translation. The item "a source of pleasure," used to determine degree of satisfaction within the work environment, was literally translated into French Canadian. According to Candell and Hulin, this translation conveys meaning the French Canadian normally reserves for sensually exquisite events or activities, such as a countryside picnic or beautiful work of art. It is not one usually used in describing great satisfaction within the work environment. A bilingual would probably recognize this item as context inappropriate, and yet make allowances for the context when responding to it. Such allowances could

result in seeming item equivalence, even with obvious translational discrepancies.

Language homogeneity. A misconception held in cross-cultural research is that language homogeneity or equal fluency in English and Spanish exists among Hispanics in the United States (Flaherty, 1987). Generally, learning of two languages is done because each language serves a different communicative function and is necessary in the particular social setting. However, each communicative function places different linguistic demands on the speaker, resulting in mastery of languages which is not absolutely balanced (Segalowitz, 1980). A great many bilinguals may be limited in their second language skills, but this second language may nevertheless be an important means of communication. For this reason Segalowitz (1980) defines bilingual as "anyone who is able to use and frequently does use at least two languages for communication, regardless of that person's fluency" (p. 57).

Failure to consider language fluency and preference can seriously affect research that uses only English or only Spanish-language versions of an instrument. The researcher should assess the subject's comfort and fluency in the language used in the research and clarify this in the findings (Flaherty, 1987). Regional differences in Spanish should also be considered. Nonresponse or respondent

confusion may occur from inaccurate use of regionally preferred words (Becerra & Shaw, 1984). "Even when idiomatic differences in Spanish do not affect meaning, recent work (Berkanovic, 1980) shows that it may significantly reduce the perception about seriousness of the interview and create response bias" (Flaherty, 1987, p. 182).

Context and Redundancy

Context and redundancy have major effects on the quality of the translated version (Brislin 1970, 1980). According to Werner and Schoepfle (1987), when a unit for translation is too small, "...it may not contain enough information to fully grasp the contextual clues crucial for the appropriate interpretation of that unit" (p. 368). A word in isolation is more difficult to understand than if heard in a sentence. Translation of a single item therefore improves when the item is part of a sentence and further improves when the item is within a paragraph. Ample context thus increases the quality of translation (Brislin, 1980).

Redundancy is advantageous because it increases the translator's certainty about the meaning. Additional material is available to the translator for measuring the area of interest. Two phrases in a passage that refer to the same concept enable the translator to be certain of the

passage's meaning (Becerra & Shaw, 1984; Brislin 1970, 1980).

Translators

Basing translations on incompetent or inexperienced translators may affect translation quality and create seeming equivalence between source, target, and back-translated versions (Brislin, 1970, Chapman & Carter, 1979). Translators may be able to produce equivalent back-translations from poorly written target language versions by assumption or inference. In addition, when translating from the source to the target version, an inexperienced translator may retain the grammatical form of the source version. Although this target version would be easily back-translated to the source language, it would be worthless for the purpose of asking questions of target language monolinguals (Brislin, 1970).

Chapman and Carter (1979) assert it is difficult obtaining competent translators sensitive to shades and variations of meaning in a psychological or educational measuring device. The researcher should therefore obtain a translator familiar with the involved content; for experience and familiarity with the concepts present in the source language materials may increase quality of translation (Brislin, 1970).

Summary

Establishing comparability of ideas and behaviors is essential in translation. Content equivalence can be especially useful when asymmetrical translation is required within the framework of a comparative goal. Figure 2 summarizes how equivalence of meaning can be attained in asymmetrical translation. When tool items are considered relevant in both cultures, this suggests conceptual or functional equivalences are present. Thus, meaning discrepancies in such items may indicate more careful translation is needed. When tool items are considered questionably relevant, however, meaning discrepancies may indicate conceptual nonequivalence; even a careful translation may not establish equivalence of meaning. Therefore, even if an idea represented by a tool item is translated using lexical choices and structures appropriate to the target language, equivalence of meaning may not be attained.

Relevance of tool items in the target culture suggests availability of direct and indirect cultural equivalents in that culture. Cultural parallels convey comparable information and may be characterized as direct or indirect equivalents. Use of cultural parallels presupposes assimilation of target language characteristics and therefore assures colloquialness and equal familiarity in

the target language. In addition, loyalty of meaning may be achieved when incorporating cultural parallels within a functional equivalent translation.

Even though a literal translation of a direct equivalent may be appropriate, closely adhering to the form of the source language may result in meaning distortions. Therefore, using the natural grammatical forms of the target language is essential. An accurate translation may necessitate using the continuum from literal to nonliteral translation. The flexibility inherent in functional equivalent translation allows for maximal movement along the continuum. The original and target language forms must then be examined to assure equivalence of meaning.

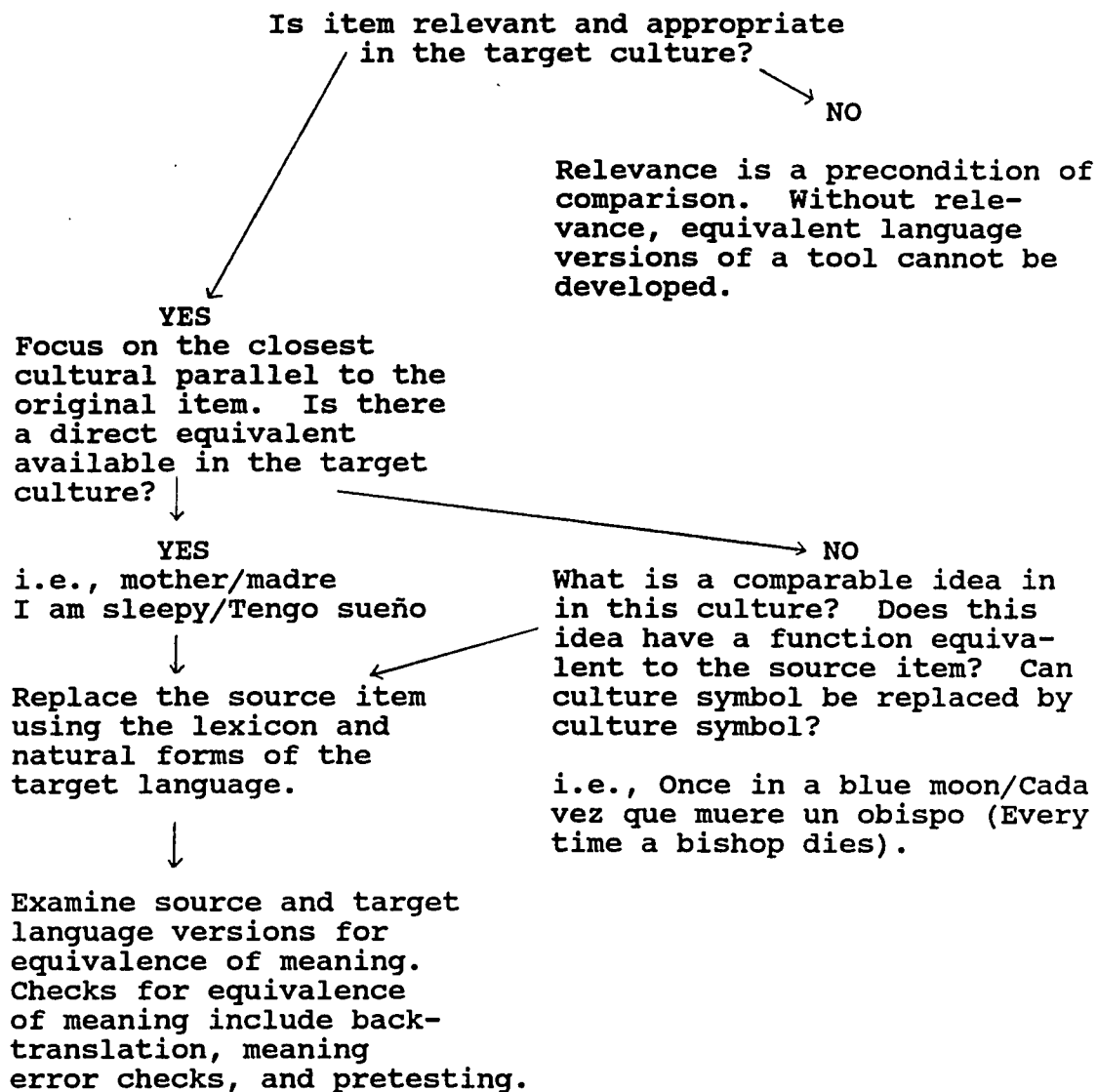


Figure 2. Flow Chart for Equivalence of Meaning in Asymmetrical Translation

Note: Relevance of tool items in the target culture suggests availability of direct and indirect cultural equivalents in that culture. With careful translation, equivalence of meaning can be attained and an equivalent target language form can be developed.

CHAPTER 3
METHODOLOGY

Design

The development and evaluation of the Mexican-Hispanic version of the Verran and Snyder-Halpern (VSH) Sleep Scale (Snyder-Halpern & Verran, 1987) was addressed in this study. The VSH Sleep Scale was translated into Spanish and equivalence of translation assessed through: Phase One: back-translation and the meaning error standard (Brislin, 1970) and Phase Two: field pretesting through the Random probe technique (Brislin, 1970). Throughout Phase One and Phase Two, ongoing revision of the Spanish version of the VSH Sleep Scale was required to correct translational discrepancies.

Translation Protocol

In this study, the VSH Sleep Scale was translated into Spanish and equivalence of translation assessed through Phase One and Phase Two.

Phase One

Phase One consisted of four steps. They were:

1. Content Equivalence Analysis (Flaherty, 1987).
2. Back-translation (Brislin, 1970, 1980).
3. Analysis of translations and back-translations.

4. Bilingual Meaning Error Checks (Brislin, 1970, Flaherty, 1987).

Content equivalence analysis. The purpose of this step was to determine if each item of the VSH Sleep Scale was relevant to the Mexican-Hispanic culture. Three bilingual subjects were asked to rate each item as "relevant," "questionably relevant" or "irrelevant." Items rated "questionably relevant" or "irrelevant" were noted as such by the researcher to determine item translatability into Spanish and suitability for inclusion in the (VSH) Sleep Scale.

Back-Translation. The VSH Sleep Scale was translated into Spanish by one bilingual subject and the resulting target version blindly translated back to English by a second bilingual subject. The English back-translation was then compared to the source English version for translation discrepancies. Six bilingual subjects were used to complete three concurrent cycles of back-translation. Due to asymmetrical translation, only the target version was open for modification. Sequential back-translation was therefore not required.

Analysis of Translations and Back-Translations. The purpose of this step was to produce one target language version in preparation for bilingual meaning error checks. One bilingual subject was used to critically analyze the

three target versions, the three back-translated English versions and the original VSH Sleep Scale. It was expected that fewer translation discrepancies would result.

Bilingual Meaning Error Checks. Three bilingual subjects individually examined the original VSH Sleep Scale and the target language version and noted errors which would lead to differences in meaning. Specifically, the subjects were asked to rate each item on a 3-point scale, where 3 equaled "exactly the same," 2 equaled "almost the same," and 1 equaled "different." Meaning errors were compared in two ways: the correlation index, and the percentage overlap index. In the correlation index, the correlation between the number of errors found by the bilingual raters were derived. In the percentage overlap index, the percent overlap in different raters finding exactly the same meaning errors was determined.

After completion of the meaning error checks, the researcher conferred with the bilingual raters to clear up errors in meaning. Items rated in combinations of 3 and 2 were reexamined and reworded. In addition, items which were reworded were reexamined by one-way translation from Spanish to English.

Phase Two: Field Pretesting--Random Probe Technique

In this phase, the researcher asked subjects a probing question about each item on the VSH Sleep Scale, i.e., "What

do you think this question means?" Subjects were also asked to paraphrase the item. If the subject's reply was inappropriate, then the intent of the question was not being conveyed. Six bilingual subjects were used. If discrepancies in meaning occurred, the researcher conferred with one bilingual subject to reword errors and reexamine those items by one-way translation from Spanish to English.

Setting and Sample

Subjects were recruited from the general community of a large Southwestern city.

For Phase One, a convenience sample of 13 subjects was used. Subjects were Mexican national or Mexican- American Hispanics. The criteria for selection were as follows:

1. Alert
2. 18 years of age or older
3. Self-declared bilingual who
 - a) was able to read, write, and speak English and Spanish
 - b) was able to and frequently used both languages as a means of communication, regardless of level of fluency
4. Stated familiarity and comfort with content in the (VSH) Sleep Scale

5. Stated competence as a translator. Criterion No. 5 pertained to Step 3 only (analysis of translations and back-translations)

For Phase Two, a convenience sample of six subjects was obtained. Subjects were Mexican national or Mexican-American Hispanics who met the following criteria:

1. Alert
2. 18 years of age or older
3. Self-declared bilingual who
 - a) was able to read, write, and speak English and Spanish
 - b) was able to and frequently used both languages as a means of communication, regardless of level of fluency
4. Stated familiarity and comfort with content in the (VSH) Sleep Scale.

Protection of Human Subjects

This proposal was approved by the Ethical Review Committee of the University of Arizona, College of Nursing (Appendix A). Subjects were presented with a study disclaimer outlining the purpose and methodology of the study (Appendix B). In addition, subjects were informed of their right to withdraw at any time from the study. Anonymity of subjects was ensured through assignment of code numbers for data collection.

Instrumentation

The Verran and Snyder-Halpern (VSH) Sleep Scale is a subjective sleep measure indicative of quality of sleep (Appendix D). It contains 15 sleep characteristics which represent three sleep factors: sleep effectiveness, sleep disturbance, and sleep supplementation. These three sleep factors comprise the three sleep scales included in the instrument. Definitions of the scales and characteristics are provided in Appendix G. In addition, a taxonomy of sleep characteristics is provided in Appendix H.

Effectiveness is composed of the sleep dimensions quality and length of sleep. It is the accomplishment of the desired outcomes of sleep or the fulfillment of its purpose as viewed by the individual. This factor is associated with the following sleep characteristics: rest upon wakening (RUA), subjective quality of sleep (SQS), total sleep period (TSP), total sleep time (TST), and sleep sufficiency evaluation (SSE). RUA is the subjective estimate of how rested one is upon wakening. SQS refers to the individual's perception of adequacy of the amount of sleep. Whereas TSP is an estimate of total time from settling down for sleep to awakening in the morning, TST is the estimate of amount of time spent in actual sleep during the TSP. The estimate of adequacy of the amount of sleep defines SSE (Snyder-Halpern & Verran, 1987).

Disturbance is composed of the sleep dimensions fragmentation and latency. It refers to those things that interfere with or interrupt the individual's sleep period. Associated sleep characteristics are: mid- sleep awakening (MSA), wake after sleep onset (WASO), movement during sleep (MDS), sleep latency (SL), soundness of sleep (SS), quality of disturbance (QD), and quality of latency (QL). The number of awakenings during the sleep period characterizes MSA, whereas a subjective estimate of sleep disturbance due to awakening depicts QD. WASO is an estimate of the amount of time spent awake during the total sleep period. MDS is defined as the subjective estimate of the amount of movement during sleep. Whereas SL is the estimate of the amount of time from settling down to sleep until falling asleep, QL is the subjective estimate of difficulty in going to sleep. The subjective estimate of sleep depth depicts SS (Snyder-Halpern & Verran, 1987).

The third sleep factor, supplementation, refers to additional sleep or napping outside of the primary sleep period. The following sleep characteristics are associated with supplementation: wake after final arousal (WAFA), daytime sleep (DTS), AM sleep (AMS), and PM sleep (PMS). WAFA is the estimate of time in bed from initial morning arousal to final awakening. DTS describes the estimate of time asleep during the morning and the afternoon other than

the primary sleep period (Snyder-Halpern & Verran, 1987). Whereas AMS is the estimate of time asleep during the morning other than the primary sleep period, PMS is the estimate of time during the afternoon and evening other than the primary sleep period (J. A. Verran, personal communication, June 5, 1990).

The VSH Sleep Scale is in the form of a visual analogue scale using a 100-millimeter response line. This response line is scored from 0 to 100 points, from left to right. For each of the 15 items, the subject places a vertical slash on the response line where he feels it most accurately describes his night's sleep. A higher score on an item reflects a greater value of that sleep characteristic. Exceptions to this are sleep characteristics SS and SSE, questions number 7 and 15, which are reversed scored to indicate greater sleep disruption and sleep effectiveness.

The VSH scale was developed based on sleep characteristics obtained from a literature review. During initial testing on healthy subjects, factor analysis for construct validity yielded two sleep factors, termed sleep disturbance and sleep effectiveness. Theta reliability was 0.82 (Snyder-Halpern & Verran, 1987). The VSH scale was subsequently revised and a second study with healthy subjects undertaken to test the revised VSH. In this study, the two-factor taxonomy was supported, except for two

characteristics in the Effectiveness factor (DTS and WAFA), which loaded below the expected 0.40 criterion. Without these two items, a theta of .80 was obtained for the Effectiveness subscale. DTS and WAFA were retained and included under the Supplementation factor. Theta reliabilities of 0.87 and 0.75 were obtained respectively for the Disturbance subscale and the Effectiveness subscale. In a subsequent study on hospitalized medical-surgical subjects, factor analysis by subscale supported the seven-item Disturbance factor and five of seven items for the Effectiveness factor. Theta coefficients for the Disturbance subscale and Effectiveness subscale were 0.86 and 0.89 respectively (Verran & Snyder-Halpern, 1988).

In the current VSH Sleep Scale (Appendix D), the Effectiveness, Disturbance, and Supplementation factors are separate scales representing distinct dimensions of sleep. Theta coefficients across groups have evidenced moderate reliability for the Effectiveness scale, adequate reliability for the Disturbance scale, and inconsistent reliabilities for the Supplementation scale. Further research will focus on the Supplementation scale.

Data Collection Procedure

During collection of data, the researcher used the following: the study disclaimer, the subject demographic data sheet, and the standardized instruction sheet regarding

translation protocol. Each step in the translation protocol contained corresponding standard written instructions.

Once subject suitability was determined, the purpose of the study and the translation protocol were explained. In addition, the subject was introduced to the (VSH) Sleep Scale. Subjects were then provided with a study disclaimer delineating subject rights and the right to withdraw from the study at any time. The study disclaimer was available in English (Appendix B) and in Spanish (Appendix C). A time commitment of one half hour was delineated for completion of translation materials.

Upon informed consent, the researcher completed the subject demographic data sheet (Appendix I). The subject was then provided with the standardized instruction sheet which corresponded to the step in translation protocol. Standardized instruction sheets were available in English (Appendix J) and in Spanish (Appendix K). At this time written instructions were read aloud by the researcher and questions regarding the instructions answered.

A meeting time and place were negotiated individually with each subject. The majority of respondents preferred to complete subject materials in the presence of the researcher as opposed to on their own. When necessary, however, a one-week time period was designated for follow-up by the researcher and return of subject materials.

Data Analysis

Phase One of the translation protocol involved quantitative and qualitative analysis of data. Descriptive statistics, specifically frequency counts, were used to summarize data in Step 1: Content Equivalence Analysis and Step 4: Bilingual Meaning Error Checks. Step 2: Back-Translation, Step 3: Analysis of Translations and Back-Translations, and Step 4 involved qualitative analysis of data. The target language version of the VSH Sleep Scale was developed, analyzed and revised as necessary in preparation for Bilingual Meaning Error Checks. After analyzing quantitative information in Step 4, the researcher conferred with the bilingual raters. Discussion with the bilingual raters gave added perspective to quantitative results and clarified translational discrepancies.

Phase Two of the translation protocol involved qualitative data analysis. The researcher analyzed responses to open-ended questions and assessed equivalence of translation between the original and Mexican-Hispanic versions of the VSH Sleep Scale.

Summary

In this chapter, the development and evaluation of the Mexican-Hispanic version of the VSH Sleep Scale were discussed. In specific, the design, translation protocol, and data analysis were addressed. In addition, the setting,

sample, protection of human rights, instrumentation, and data collection were presented.

CHAPTER FOUR

RESULTS OF DATA ANALYSIS

In this chapter the results of data analysis are presented. The characteristics of the sample are described followed by presentation of results corresponding to each step in Phase One and Phase Two of the translation protocol.

Characteristics of the Sample

A Mexican-Hispanic sample was used in this study. The personal characteristics of the sample are summarized in Table 1. The sample consisted of 19 subjects, 14 females and 5 males. The mean age of the sample was 45.7 years with a 16.67 standard deviation and a range of 56. The majority of respondents had attained high school education. The mean educational level was 13.7 years with a standard deviation of 4.5. Educational level ranged from 6 to 24 years of schooling. The majority of the subjects worked full time in paraprofessional roles. Job titles included secretary, cashier, administrative assistant, food service deliverer, custodian, transportation department representative, and technician.

Three of the four subjects employed part time were university students. Five of the subjects with unemployed status were retired.

Table 1. Mexican-Hispanic Sample: Characteristics of the Sample ($n=19$)

Variable	Frequency	Percentage
Sex		
Female	14	74
Male	5	26
Age in Years		
18-30	5	26
31-45	6	32
46-59	3	16
60-77	5	26
Education		
8th grade or less	3	16
Some high school	1	5
High school graduate	5	26
Some college	5	26
College graduate	2	11
Post-graduate	3	16
Employment		
Full-time	9	47
Part-time	4	21
Unemployed	1	5
Unemployed (retired)	5	26

Translation Protocol: Phase One

Content Equivalence Analysis

The 15 VSH Sleep Scale items are anchored by word descriptors of high and low value, therefore each item contains two components (Appendix D). Part a of the item depicts the component on the left of the continuum, whereas part b of the item refers to the component on the right of the continuum. Therefore, item 1a depicts "Did not awaken" whereas 1b refers to "Was awake 10 hours."

For the following discussion refer to Table 2. Forty-six percent of the items or 14 of 30 items were identified by all three raters as "relevant." However, one of the raters stated that even though items 3a, 4a, and 5a were relevant, they needed clarification because Hispanic subjects "would clue into sleeping as a night activity" as opposed to the various supplemental sleep periods reflected in these items.

Forty-six percent of the items or 14 of 30 items were considered "questionably relevant" by two of the three raters. Six of these items or 20 percent of 30 items were rated combinations of "questionably relevant" and "irrelevant" by three raters. These items were: 4b, 5b, 7a, 9b, 12b, and 13b. Respondents viewed expressions such as off and on, lightly, deeply, tossing and refreshing as having lack of relevance in the context of sleep. In

addition, expressions such as falling asleep and trouble in relation to sleep were viewed as being awkward in the Hispanic culture.

Table 2. Translation Protocol Phase One, Step One: Content Equivalence Analysis Frequency of Rating ($n=3$)

Item No.	Item Name	Relevant	Question-ably Relevant	Irrelevant
1a	Did not awaken	3		
1b	Was awake 10 hours	3		
2a	Had no sleep	3		
2b	Excluding time awake, had 10 hours of sleep	1	2	
3a	Did not sleep during the day yesterday	3		
3b	Slept 10 hours during the day	3		
4a	Did not sleep yesterday morning	3		
4b	Slept off and on yesterday morning		2	1
5a	Did not sleep yesterday evening	3		
5b	Slept off and on yesterday evening		2	1

Table 2--continued

Item No.	Item Name	Relevant	Question-ably Relevant	Irrelevant
6a	Fell asleep immediately	1	2	
6b	Did not fall asleep	1	2	
7a	Slept lightly		2	1
7b	Slept deeply	1	1	1
8a	Had no trouble with disrupted sleep	1	2	
8b	Had a lot of trouble with disrupted sleep	1	2	
9a	Didn't wake at all	3		
9b	Was awake off and on all night		2	1
10a	Had no trouble falling asleep	1	2	
10b	Had a lot of trouble falling asleep	1	2	
11a	Didn't move	2		1
11b	Tossed all night	1	2	
12a	Awoke exhausted	3		
12b	Awoke refreshed		2	1

Table 2--continued

Item No.	Item Name	Relevant	Questionably Relevant	Irrelevant
13a	After morning awakening, stayed awake	3		
13b	After morning awakening, dozed off and on		2	1
14a	Had a bad night's sleep	3		
14b	Had a good night's sleep	3		
15a	Had enough sleep	3		
15b	Did not have enough sleep	3		

In the following discussion, subjects' perceptions in terms of relevance of the expressions noted above are addressed. Discussion focuses on the items rated questionably relevant by two raters. In addition, items 7b and 11a are discussed.

Off and on. Subjects viewed the expression off and on (items 4b, 5b, 9b, 13b) as having questionable relevance in relation to sleep. They perceived sleep was not something that could be turned off and on as a light switch, car, or

appliance could be. However, one subject suggested "dormí a ratos" communicated the concept of sleeping "now and then." In item 13b, the concept dozed was regarded as questionable compared in the Mexican culture. One rater depicted dozed as "you don't quite fall asleep" and recommended use of the term "dormitar" as a direct equivalent.

Falling asleep, trouble sleeping, and tossed all night. The concepts of falling (items 6a, 6b, 10a, 10b) and tossing (item 11b) were perceived as out of context in relation to sleep. Falling was viewed as appropriate in literal interpretations such as "falling down to the ground." Tossing was also literally viewed as portrayed by the statement "you toss or throw a ball." Subjects regarded trouble (items 10a, 10b, 8a, 8b) in the context of sleep as awkward and thereby suggested the terms "trabajo" and "problema" as more appropriately connoting difficulty associated with sleep.

Slept lightly and slept deeply. The concepts of lightly (item 7a) and deeply (item 7b) were perceived as awkward and potentially inappropriate in the context of sleep. Subjects reported lightly was appropriately used when referring to the weight of an object. However, "sueño ligero" and "dormí ligeramente" were suggested as Hispanic correlates of sleeping lightly. Deeply, occurring in the context of extending far downward such as in "a deep canyon"

or "a deep pool of water" was perceived as appropriate by three raters; however, when applying its literal interpretation within the context of sleep, two raters viewed item 7b as "questionably relevant" and "irrelevant." The concept of deep sleep as reflecting a heavy, sound sleep was depicted by one rater in "tuve un sueño pesado" and "dormí profundamente."

Awoke refreshed. The concept refreshed (item 12b) was not perceived as naturally occurring within the context of sleep. Subjects reported the Spanish cognate "refrescante" referred to the cool sensation experienced when consuming a refreshing drink, e.g., Pepsi-Cola. The idea of waking up refreshed was not a phenomenon common to the Mexican culture for the emotional, affective connotations present in the Anglo culture were not relevant to the former.

Two raters reported item 2b needed increased clarification to facilitate understanding. This perspective was portrayed in the statement "it is difficult to understand even in English." When pondering the item, however, subjects were able to grasp its meaning.

Two raters viewed item 11a, didn't move, as relevant when pertaining to sleep. However, the third rater perceived item 11a as unclear and out of context, thereby rating it "irrelevant." This rater recommended that

redundancy be added to item 11a (Last night I did not move in bed) to clarify meaning.

Back-translation

Table 3 presents the forward (FT) and back-translations (BT) of the VSH Sleep Scale items. Six subjects participated in this step, three in FT and three in BT. Subjects involved in FTs were informed of the results from step one to increase sensitivity to questionably relevant items and contribute to accuracy of forward translations. Relevance of certain items was further clarified throughout this step. Some concepts identified in step one did not pose a problem in relevance. As indicated in Table 3, cultural equivalents were available for the following: off and on (items 4b, 5b, 9b, 13b); falling (items 6a, 6b, 10a, 10b), trouble (items 10a, 10b, 8a, 8b), and tossing (item 11b) in relation to sleep, slept lightly (item 7a), slept deeply (item 7b), and dozed off and on (item 13b).

For example, item 4b, Table 3 depicted the forward translation of off and on as "a ratos." "A ratos" was back-translated into "a few moments at a time" and "from time to time." This is consistent in other items (5b, 9b) containing the expression off and on. In addition, subjects clarified "a ratos" as sleeping "ten minutes here and ten minutes there" and sleeping "intervals at a time" or "in little spurts." The concept falling asleep (items 10a and

Table 3. Translation Protocol Phase One, Step Two: Forward and Back-Translation of VSH Sleep Scale Items (No. of items = 30, $n = 6$ per item)

Item				
No.	n	Forward Translation	n	Back-Translation
1a	2	No desperté en toda la noche	1	I didn't wake up at all last night
			1	I did not (awake) wake up all night
	1	No desperté	1	I did not wake up in the night
1b	3	Estuve despierta diez horas	2	I was awake for ten hours
			1	I was awake ten hours
2a	2	No dormí en toda la noche	1	I didn't sleep at all last night
			1	I did not sleep all of last night
	1	No dormí	1	I did not sleep
2b	1	Encluyendo el tiempo despierta, tuve diez horas de sueño	1	Excluding the time I was awake, I still had ten hours of sleep
	1	Sin contar el tiempo que estuve despierta, dormí diez horas	1	Without counting the time I was awake, I slept ten hours
	1	Sin contar el tiempo despierta, dormí diez horas	1	Without counting the time I was awake, I slept ten hours

Table 3 (continued)

Item				
No.	n	Forward Translation	n	Back-Translation
3a	1	No dormí durante el día ayer	1	I didn't sleep during the day yesterday
	1	Ayer, no dormí en el día	1	Yesterday, I did not sleep during the day
	1	No dormí durante el día de ayer	1	I did not sleep all day yesterday
3b	3	Dormí diez horas durante el día	2	I slept 10 hours during the day
			1	I slept 10 hours for the whole day
4a	1	No dormí nada ayer en la mañana	1	I didn't sleep at all yesterday
	2	No dormí ayer en la mañana	1	I did not sleep yesterday morning
			1	I did not sleep or have a nap yesterday morning
4b	1	Dormí a ratos en la mañana	1	In the morning I slept for a few moments at a time
	1	Dormí a ratos ayer en la mañana	1	I slept from time to time during the morning
	1	Ayer en la mañana, dormí a ratos	1	Yesterday morning I slept from time to time

Table 3--continued

Item				
No.	<u>n</u>	Forward Translation	<u>n</u>	Back-Translation
5a	1	No dormí ayer en la noche	1	Last night I didn't sleep
	1	No dormí ayer por la tarde	1	I did not sleep yesterday afternoon
	1	No dormí ayer entre las seis y las diez	1	I did not sleep yesterday between six and ten o'clock p.m.
5b	1	Dormí a ratos en la noche	1	At night I slept for a few moments at a time
	1	Dormí a ratos por la noche	1	I slept from time to time at night or during the night
	1	Ayer entre las seis y las diez dormí a ratos	1	Yesterday between six and ten, I slept from time to time
6a	2	Me dormí inmediatamente	1	I went to sleep immediately
			1	I fell asleep right away
			1	I went to sleep immediately
6b	1	No me dormí	1	I didn't go to sleep
	1	No me pude dormir	1	I could not sleep
	1	No me quedé dormida	1	I did not stay asleep

Table 3--continued

Item				
No.	<u>n</u>	Forward Translation	<u>n</u>	Back-Translation
7a	1	Dormí ligeramente	1	Subject did not understand "ligeramente"
	2	Tuve un sueño liviano	2	I slept lightly
7b	1	Dormí profundamente Tuve un sueño pesado	1	I slept profoundly I had a bad dream--I slept soundly
	2	Dormí profundamente	2	I had a deep sleep
8a	1	Dormí muy bien. No se me interrumpió el sueño	1	I slept well. My sleep was not interrupted
	2	No tuve dificultad para dormir	1 1	I had no difficulty in sleeping I did not have a hard time to sleep
8b	1	Tuve problema porque se me interrumpió el sueño	1	I had problems because my sleep was interrupted
	1	Tuve dificultad en dormir	1	I had difficulty in sleeping
	1	Tuve dificultad en quedarme dormida	1	I had a hard time to fall asleep or to stay asleep

Table 3--continued

Item				
No.	<u>n</u>	Forward Translation	<u>n</u>	Back-Translation
9a	1	No recordé en toda la noche	1	I didn't wake up at all last night
	2	No desperté para nada	2	I did not wake up for anything
9b	1	Dormí a ratos durante la noche	1	During the night I slept for a few moments at a time
	1	Estuve despertando toda la noche	1	I kept waking up all night
	1	Toda la noche estuve despertando a ratos	1	All night I kept waking up from time to time
10a	1	No tuve trabajo durmiendo	1	I had no problem sleeping
	2	No tuve dificultad en dormirme	1	I had no difficulty in going to sleep
			1	I did not have a hard time falling asleep
10b	1	Tuve mucho trabajo para dormirme	1	I had a lot of trouble to go to sleep
	1	Me dió trabajo dormir	1	I had trouble going to sleep
	1	Tuve mucha dificultad para dormirme	1	I had a hard time falling asleep

Table 3--continued

Item				
No.	<u>n</u>	Forward Translation	<u>n</u>	Back-Translation
11a	1	No me moví	1	I didn't move
	2	No me moví en toda la noche	1	I did not move during the night
			1	I did not move all night
11b	1	Dí vueltas toda la noche	1	I tossed and turned all night
	1	Me dí vueltas en la cama toda la noche	1	I tossed around in bed all night
	1	Me moví toda la noche	1	I moved all night
12a	1	Recordé agotada	1	I woke up tired
	2	Desperté cansada	1	I awoke tired
			1	I woke up very tired
12b	1	Recordé descansada	1	I woke up rested
	2	Desperté descansada	1	I awoke rested
			1	I woke up very rested

Table 3--continued

Item				
No.	n	Forward Translation	n	Back-Translation
13a	1	Después que recordé, me quedé despierta	1	After waking up I stayed awake
	1	Cuando desperté no volvia dormió	1	When I awoke I did not go back to sleep
	1	Después de despertar, me quedé despierta	1	When I woke up I stayed awake
13b	1	Después de recordar en la mañana, me dormité de vez en cuando	1	After waking up in the morning, I dozed off every once in a while
	1	Después de despertar por la mañana, estuve dormitando	1	After I awoke in the morning, I kept sleeping from time to time (doze)
	1	Después de despertar en la mañana, dormité a ratos what was going on.	1	After waking up in the morning, I slept lightly from time to time. I was aware of
14a	2	Tuve mala noche	2	I had a bad night
	1	Tuve una mala noche	1	I had a bad night
14b	1	Tuve muy bien sueño anoche	1	I slept very good last night
	1	Dormí bien anoche	1	I slept well last night
	1	Pasé muy buena noche	1	I had a good night

Table 3--continued

Item				
No.	<u>n</u>	Forward Translation	<u>n</u>	Back-Translation
15a	1	Tuve bastante sueño	1	I had enough sleep
	1	Dormí suficiente	1	I slept sufficiently
	1	Dormí bastante	1	I slept enough
15b	1	No dormí bastante anoche	1	I didn't sleep enough last night
	1	No dormí suficiente	1	I did not sleep sufficiently
	1	No dormí bastante	1	I did not sleep enough

10b) was forward translated into "en dormirme" and "para dormirme" and back-translated into "going to sleep" and "falling asleep." Subjects clarified that "going to sleep" paralleled "falling asleep" in meaning, although "falling asleep" was not ordinarily used in communication. Finally, tossed all night (item 11b) was forward translated into "me movi" and "di vueltas." The back-translations, however, indicated that in the Mexican culture "me movi" nonspecifically pertained to movement during one's sleep, whereas "di vueltas en la cama" specifically paralleled tossing during the night.

Identifying cultural equivalents for other items on the VSH Sleep Scale was more difficult. For example, in item 5a Did not sleep yesterday evening, yesterday evening back-translated into "last night," "yesterday afternoon" and "yesterday between six and ten o'clock pm." The researcher learned that the concept evening is encompassed in the Mexican term "tarde." "Tarde translates literally into "afternoon," although it includes the time period from 12 noon to 8 p.m. and before going to sleep at night. It appears that the varied back-translations of evening reflected confusion this concept posed in meaning and relevance to the Mexican culture.

In item 12b, Awoke refreshed, the term "descansada" was used as the cultural parallel to "refreshed"; however, the

back-translation for "descansada" was "nested." The specific sensation of being energized as connoted in "refreshed" was therefore not captured in the meaning of "descansada." The researcher learned that the Spanish term "refrescante" is used to convey a refreshing experience such as a cooling drink or a refreshing sea breeze. However, the meaning of "refrescante" does not extend into the mental, affective realm and therefore does not connote a refreshing experience as in the context of sleep. Thus, "refrescante," a false cognate, could not serve as a cultural equivalent of "refreshed."

Another item which posed difficulty in translation was slept lightly (item 7a). As indicated in the forward translation, subjects suggested "ligeramente" and "liviano" as cultural equivalents to "lightly." However, the back-translation of the former revealed the subject did not understand the concept "ligeramente." When back-translating "Tuve un sueño liviano," subjects immediately identified with the term "liviano" and clarified its relevance in the following comments: "I could wake up for anything" and "my sleep was not heavy." However, one subject stated that an alternative meaning of sueño is dream, but explained that in the context of "Tuve un sueño liviano," sueño would be interpreted to mean sleep.

The relevance of slept deeply (item 7b) was also clarified in this step. Slept deeply was forward translated as "Dormí profundamente" and back-translated as "I had a deep sleep." Subjects' understanding of sleeping deeply was indicated in comments such as "sleeping soundly" and "you don't wake up if someone calls you because you don't hear." One subject also suggested "tuve un sueño pesado" as an alternate forward translation of slept deeply. However, the back-translation revealed variable interpretations in meaning. Whereas "tuve un sueño pesado" could mean that one slept soundly, it also referred to having a bad dream or nightmare.

In item 13b, dozed off and on was represented by three different forward translations. In each case the Spanish verb "dormitar" was used to communicate the concept of dozing. In addition, two of the three back-translators stated knowledge of dormitar as evidenced by the back-translations. The third subject, however, was able to provide the back-translation "...I dozed off every once in a while" without understanding the meaning of the forward translation, "...me dormite...", a form of dormitar. Even though the majority of these subjects used a form of dormitar as a direct equivalent to dozing, all of them verbally indicated dormitar was not commonly used in communication and could be potentially misunderstood.

Analysis of translations and back-translations

In this step, the Spanish version of the VSH Sleep Scale was developed, using the original VSH sleep tool and Table 3. One subject participated in this step. Table 4 contains item selections and changes instituted by the subject. In the following discussion, forward translations remaining intact, eliminated and modified are addressed. In addition, rationale for selected items is given.

Table 4. Spanish Version of VSH Sleep Scale Developed From Translation Protocol Phase One, Step Three: Analysis of Translations and Back-Translations (n=1)
(changes underlined)

Item No.

- 1a. No desperté en toda la noche.
- b. Estuve despierta diez horas anoche.

- 2a. No dormí en toda la noche.
- b. Sin contar el tiempo que estuve despierta anoche, dormí diez horas.

- 3a. Ayer, no dormí en el día.
- b. Ayer, dormí diez horas durante el día.

Table 4--continued

- 4a. No dormí ayer en la mañana.
- b. Ayer en la mañana, dormí a ratos.
- 5a. No dormí ayer entre las doce y las ocho de la tarde.
- b. Ayer, entre las doce y las ocho de la tarde, dormí a ratos.
- 6a. Me dormí inmediatamente anoche.
- b. No me pude dormir en toda la noche.
- 7a. Tuve un sueño liviano anoche. Dormí ligeramente.
- b. Dormí profundamente anoche.
- 8a. Dormí anoche. No se me interrumpió el sueño.
- b. Tuve mucha dificultad en dormir anoche porque se me interrumpió el sueño.
- 9a. No desperté para nada anoche.
- b. Toda la noche estuve despertando a ratos.
- 10a. No tuve dificultad en dormirme anoche.
- b. Tuve mucho trabajo para dormirme anoche.

Table 4--continued

11a. No me moví en toda la noche.

b. Me dí vueltas en la cama toda la noche.

12a. Desperté bastante cansada esta mañana.

b. Desperté bien descansada esta mañana.

13a. Después de despertar en la mañana, me quedé despierta.

b. Después de despertar en la mañana, dormí a ratos antes de levantarme.

14a. Tuve mala noche. Dormí mal anoche.

b. Dormí bien anoche.

15a. Dormí suficiente anoche.

b. No dormí suficiente anoche.

1. Forward translations remaining intact. Some forward translations (FT) selected from Table 3 were kept intact without further modification. These FT include items 1a, 2a, 3a, 4a, 4b, 9b, 11a, and 11b (Table 4). The subject selected the above because context and redundancy were incorporated within the FT and as indicated by the back-translations, clarity in meaning surpassed other available forward translations.

2. Forward translations eliminated. Other FT were eliminated based on meaning discrepancies between the source (English) VSH Sleep Scale and back-translated English version. For example, in Table 3, "Tuve un sueño pesado" (item 7b) was eliminated due to the interpretation of this FT as a bad dream or nightmare. In addition, "No me quedé dormida" (item 6b) and "Tuve dificultad en quedarme dormida" (item 8b) were discarded due to the varied interpretations of the term quedar. Subjects back-translated "quedé dormida" and "quedarme dormida" as "staying asleep" or "falling asleep." Particularly in item 6b, this variation could result in response discrepancies, for in the source VSH sleep tool, item 6b read Did not fall asleep and signified that one did not sleep at all.

In the case of item 13b (Table 3), forms of "dormitar" were eliminated due to subject reports of decreased familiarity and use of this term informally. "Dormí" was therefore incorporated into the item (Table 4). The subject participating in this step indicated that within the context of the item, "dormí a ratos" implied a light sleep such as in dozing off and on.

3. Forward translations modified. In the following items, modifications were made to clarify item content. Additional information was incorporated into items to increase clarity and certainty about meaning. Specifically,

context, redundancy, and modifiers were added to individual items. These additions are underlined in Table 4.

Context and Redundancy

Context and redundancy were added as follows:

1. anoche (last night): items 1b, 2b, 7a, 7b, 8a, 8b, 9a, 10a, 10b, 15a, and 15b.
2. ayer (yesterday): item 3b.
3. de la tarde (in the afternoon): items 5a and 5b.
4. en toda la noche (all night): item 6b.
5. esta mañana/en la mañana (this morning): items 12a, 12b, and 13a.
6. antes de levantarme (before I got up), item 13b.

In addition, "dormí ligeramente" (I slept lightly) was incorporated into item 7a and "dormí mal anoche" (I slept bad last night) into item 14a. Even though in the preceding step one subject did not understand the former, other subjects immediately identified with "dormí ligeramente." The subject participating in this step perceived that redundancy in item 7a would contribute to accurate interpretation. Back-translation of item 7a supported use of redundancy (Appendix L).

Modifiers

Modifiers were added to items 12a, 12b, and 8b to indicate quantity or extent. As indicated in Table 4,

"bastante" (very), "bien" (very), and "mucha" (a lot) were incorporated into items 12a, 12b, and 8b respectively.

The researcher learned that in the Mexican culture, a one-word equivalent for "exhausted" (item 12a, Awoke exhausted) was not available. Excessive tiredness was perceived to more accurately reflect exhaustion; therefore, "bastante" was combined with cansada (tired) to depict exhaustion (I awoke very tired). The researcher was also informed that the closest cultural parallel to Awoke refreshed (item 12b) was "desperté bien descansada" (I awoke very rested). A Mexican equivalent extending the meaning of "refreshed" into the mental, affective realm was not available. Components of two FT, "tuve dificultad en dormir" and "...porque se me interrumpió el sueño," were combined to develop item 8b in Table 4. In addition, "mucha" was combined with "dificultad" (a lot of difficulty) to depict a lot of trouble.

Items 5a and 5b

The subject participating in this step confirmed that the Mexican term "tarde" included morning and evening hours. "De la tarde" was, therefore, incorporated into each item. In a personal communication, the researcher learned the afternoon time period needed to be incorporated into items 5a and 5b of the source VSH Sleep Scale (J. A. Verran, personal communication, June 5, 1990), i.e., (item 5a) Did

not sleep yesterday, afternoon and/or evening and (item 5b)
Slept off and on yesterday afternoon and/or evening.

Consequently, changes in target (Spanish) items 5a and 5b were done to reflect changes in the source VSH Sleep Scale (Table 4). Specifically, the time period between 12 noon and 8 p.m. "entre las doce y las ocho" was delineated in each item. The subject involved in this step perceived "entre las doce y las ocho" combined with "de la tarde" as the closest parallel to afternoon and evening hours. Back-translations indicate apparent equivalence in these items (Appendix L) as well as in other items modified in this step.

Bilingual meaning error checks

The Spanish version of the VSH Sleep Scale (Table 4) was presented to three subjects for comparison with the source VSH sleep tool. Revisions in the former are presented in Table 5. In the following discussion, items 8a, 10b, and minor revisions recommended by subjects are addressed.

With the exception of item 8a, subjects rated all items in Table 4 "exactly the same." Therefore, calculating the correlation index and the percentage overlap index as indicated under Methodology was deemed unnecessary. In specific, item 8a was rated "almost the same" by one of three raters. The rationale given was that item 8a could

refer to "if one slept the night before" (Dormí anoche) or to "one's sleep not being interrupted" (No se me interrumpió el sueño). The rater therefore recommended that "Dormí anoche" be deleted from the item and "anoche" be incorporated as in Table 5, item 8a, "Anoche, no se me interrumpió el sueño." Raters two and three concurred with rewording of item 8a. In addition, back-translation of item 8a "Last night my sleep was not interrupted" indicated meaning equivalence between source and target versions.

Item 10b (Table 4) was rated "exactly the same" by three raters. However, rater No. 1 recommended "tuve" be replaced by "Me dio" and "para" be deleted from the item. Raters 2 and 3 concurred with rewording. Therefore item 10b was revised to "Anoche me dio mucho trabajo dormirme" and examined by back-translation (Last night I had a lot of trouble going to sleep).

Other revisions recommended by subjects were inclusion of male/female endings and minor stylistic changes (Table 5). Male/female endings were added to applicable terms such as the following: despierto(a) (I was awake), items 1b, 2b, and 13a; cansado(a) (tired) item 12a; and descansado(a) (rested) item 12b. In addition, stylistic changes enhancing item presentation were incorporated. Examples include beginning items with anoche (1b, 2b, 6a, 7a, 7b, 8a, 9a, 10a, 10b) and reorganizing items as depicted in item 2b.

All three raters concurred with these changes. However, modified items did not require back-translations since changes specific to form, not content, were incorporated.

Table 5. Revisions in Spanish VSH Sleep Scale Resulting From Translation Protocol Phase One, Step Four: Bilingual Meaning Error Checks ($n = 3$)

(changes underlined)

Item No.

- 1a. No desperté en toda la noche.
- b. Anoche estuve despierto(a) diez horas.

- 2a. No dormí en toda la noche.
- b. Anoche dormí diez horas sin contar el tiempo que estuve despierto(a).

- 3a. Ayer, no dormí en el día.
- b. Ayer, dormí diez horas durante el día.

- 4a. Ayer, no dormí en la mañana.
- b. Ayer en la mañana, dormí a ratos.

- 5a. Ayer no dormí entre las doce y las ocho de la tarde.
- b. Ayer dormí a ratos entre las doce y las ocho de la tarde.

Table 5--continued

- 6a. Anoche me dormí inmediatamente.
- b. No me pude dormir en toda la noche.
- 7a. Anoche tuve un sueño liviano. Dormí ligeramente.
- b. Anoche dormí profundamente.
- 8a. Anoche no se me interrumpió el sueño.
- b. Anoche tuve mucha dificultad en dormir porque se me interrumpió el sueño.
- 9a. Anoche no desperté para nada.
- b. Toda la noche estuve despertando a ratos.
- 10a. Anoche no tuve dificultad en dormirme.
- b. Anoche me dió mucho trabajo dormirme.
- 11a. No me moví en toda la noche.
- b. Me di vueltas en la cama toda la noche.
- 12a. Desperté bastante cansado(a) esta mañana.
- b. Desperté bien descansado(a) esta mañana.
- 13a. Después de despertar en la mañana, me quedé despierto(a).

Table 5--continued

b. Después de despertar en la mañana, dormí a ratos antes de levantarme.

14a. Dormí mal anoche. Tuve mala noche.

b. Dormí bien anoche.

15a. Dormí suficiente anoche.

b. No dormí suficiente anoche.

Translation Protocol: Phase Two,

Random Probe Technique

In phase two, items on the Spanish VSH Sleep Scale (Table 5) were pretested using the Random Probe technique. Six subjects were used. Characteristics of the sample are provided in Table 6 to facilitate forthcoming discussion necessitating this information.

Three of six subjects or 50 percent were male. The mean age was 37.8 years with a range of 34. The mean educational level was 10.8 years ranging from 8 to 15 years of schooling. Three subjects were employed full-time, two were employed part-time and one was unemployed. Subjects No. 2 and 4 had resided in Arizona their entire lives. Subjects No. 1, 3, 5, and 6 lived in Mexico prior to emigrating to the United States. These subjects subsequently learned English as a second language. Whereas

Subject No. 2 had been exposed to English and Spanish in his home environment since birth, Subject No. 4 learned English at age 5 when entering primary school.

Table 6--Mexican Hispanic Sample: Characteristics of the Sample (n=6)

Variable	Subject No.					
	1	2	3	4	5	6
Sex	M	M	F	M	F	F
Age in years	21	27	41	39	55	44
No. of Years of Schooling	15	12	8	12	6	12
Birthplace	MX	AZ	MX	AZ	MX	MX
No. of Years Residing in USA	9	27	22	39	33	30
No. Years Used English in Communication	9	27	14	34	22	30

All six subjects used English and Spanish in the home, community, and work settings except for the following: Subject No. 2 used Spanish exclusively at home and Subject No. 3 used English exclusively at work.

In the following discussion, results from the Random Probe technique are presented. In specific, equivalence of meaning between source and target VSH sleep items is analyzed (Appendix D, Table 5). Discussion focuses on items

requiring increased clarification such as item 7a (Anoche tuve un sueño liviano. Dormí ligeramente). The final Mexican Hispanic version of the VSH Sleep Scale appears in Appendix E.

Subject No. 1. Subject No. 1 interpreted item 7a of the target language to mean, "Last night I had a light dream. I slept lightly." Thus "sueño" was equated with dream. Previously, in step three (back-translation) one subject reported an alternative meaning of "sueño" as dream. In addition, "tuve un sueño pesado" was back-translated to "I had a bad dream or nightmare." Due to the varied interpretations in meaning, the researcher chose to eliminate "sueño" from item 7a. "Liviano" and "ligeramente" were retained, for Subject No. 1 reported relevance and equivalent meaning. In addition, Subject No. 1 recommended rewording of item 7a as follows: "Anoche, dormí livianamente o ligeramente." Back-translation (Last night I slept lightly) indicated equivalence of meaning between source and target items.

Subject No. 2. Subject No. 2 was not able to verbalize understanding of the reworded version of item 7a (Anoche dormí livianamente o ligeramente) or item 7b in Table 5 (Anoche dormí profundamente). In specific, the subject did not recognize the terms livianamente or profundamente. The subject interpreted the meaning of ligeramente to be "fácil"

(easy) and considered it inappropriately used within the context of sleep. The researcher conferred with the subject regarding relevance of sleeping lightly within the Mexican Hispanic culture. Even though Subject No. 2 acknowledged relevance of this concept, he was not able to suggest a Mexican equivalent. As in item 7a, the subject acknowledged relevance of sleeping deeply (item 7b), yet was not able to communicate an equivalent in the Mexican culture. Thus although Subject No. 2 used both English and Spanish as a means of communication, some concepts were communicated exclusively in one language as opposed to the other.

Subject No. 2 also recommended replacing "durante el día" with "en el día" (item 3b). He stated "en el día" was more appropriately used in the context of item 3b, Slept 10 hours during the day.

Subject No. 3. Subject No. 3 verbalized understanding of all Spanish target language items in Table 5 supporting equivalent meaning between source and target language versions. Item 7a was interpreted to mean "I slept lightly." The subject perceived "livianamente" and "ligeramente" as both appropriate in the context of sleep. According to the subject, both terms depicted "a light, not heavy sleep." The subject also expanded on other uses of ligeramente, such as in referring to the light, swift, agile gait of a deer or easy, uncomplicated work.

Subject No. 3 also confirmed the need to replace "durante el día" (item 3b) with "en el día." She stated that in the Mexican culture, "en el día" was more commonly used when referring to one's day. Subsequent subjects concurred with this perspective. The researcher interpreted "en el día" as a regional variation and therefore incorporated it into item 3b (see Appendix E).

Subject No. 4. Subject No. 4 understood "livianamente" (item 7a) to mean "lightly" and interpreted "dormi livianamente" to mean a superficial sleep, "you hear anything and wake up." However, the term "ligeramente" was depicted as "fast, quick" and inappropriately used within the context of sleep. In addition, Subject No. 4 was not able to verbalize the meaning of "profundamente" (item 7b). Whereas he acknowledged its relevance to the Mexican culture, he was not able to state a Mexican equivalent. Furthermore, the subject stated that if he needed to communicate the concept of sleeping deeply, he could do so sufficiently in the English language.

Item 10a posed minor difficulty to Subject No. 4. Initially, the item was interpreted as "Last night, I did not have a hard time sleeping." The subject subsequently clarified the item as "Last night I did not have a hard time going to sleep." He perceived "para dormirme" as clearer than "en dormirme" and therefore recommended replacing the

former with the latter; however, he was unable to provide a rationale for this change.

During back-translation in Step Two, "en dormirme" (item 10a) and "para dormirme" (item 10b) were back-translated as "going to sleep" and "falling asleep" (Table 3). In addition, bilingual meaning error checks confirmed "en dormirme" and "para dormirme" as equivalent in meaning to "falling asleep." Subjects involved in these steps did not delineate whether they perceived "para dormirme" as clearer than "en dormirme."

Subject No. 5. Subject No. 5 perceived item 7a similarly to Subject No. 4. She depicted "dormi livianamente" as a superficial sleep, "I slept lightly...not deeply" and interpreted "ligeramente" to mean "fast" and inappropriately used when referring to sleep. However, Subject No. 5 clearly depicted item 7b Slept deeply, describing "dormi livianamente" and "dormi profundamente" as exact opposites in meaning. In addition, the subject interpreted "en dormirme" (item 10a) to mean "going to sleep." "En dormirme" and "para dormirme" were viewed as equally clear.

Subject No. 6. Subject No. 6 perceived item 7a similarly to Subject No. 3. "Dormi livianamente o ligeramente" were viewed as depicting "a light, not heavy sleep" appropriate in the context of sleep. In addition,

"dormí profundamente" (item 7b) was described as "sleeping soundly, very hard, and not waking up for anything." Furthermore, the subject understood "en dormirme" (item 10a) to mean "going to sleep"; however, she stated "para dormirme" more clearly depicted the concept of falling asleep.

All six subjects perceived "dormí a ratos" in item 13b as implying a "light sleep" typical of dozing off and on. Subject No. 5 stated that in isolation, "dormí" (dormir) was not equivalent to "dormite" (dormitar); however, in the context of "dormí a ratos," dozing was implied. In addition, Subject No. 5 confirmed that the term dormitar was not commonly used in communication.

In conclusion, item 7a was reworded to "dormí livianamente o ligeramente." Whereas subjects perceived the term livianamente as consistently depicting a light, superficial sleep, the term ligeramente had various interpretations. In addition, although Subjects No. 2 and 4 used English and Spanish to communicate, some concepts were communicated exclusively in one language as opposed to the other. Specifically, both subjects acknowledged the relevance of sleeping deeply (item 7b), however they were not able to state a Spanish equivalent and did not recognize the term profundamente.

Summary

In this chapter the characteristics of the sample are described and the results corresponding to each step of the translation protocol are delineated. In addition, the final version of the Mexican Hispanic VSH Sleep Scale is presented (Appendix E).

CHAPTER FIVE

CONCLUSIONS AND IMPLICATIONS

The purpose of this research study was to asymmetrically develop the Spanish target language version of the Verran and Snyder-Halpern Sleep Scale. Relevancy of items and equivalence of meaning were established through content equivalence analysis, back-translation, analysis of translations and back-translations, bilingual meaning error checks, and the random probe technique. Specifically, the following research questions were addressed:

1. Are items on the VSH Sleep Scale relevant to the Mexican-Hispanic culture?
2. Do items on the VSH Sleep Scale have cultural equivalents in the Mexican culture?
3. Is equivalence of meaning present in the English and the Mexican-Hispanic versions of the VSH Sleep Scale?

This chapter includes interpretation of results related to the research questions, implications for nursing and future research as well as limitations of the study. In addition, recommendations are made for future research.

Interpretation of Results Related
to Research Question

Relevance of Items

Items on the VSH Sleep Scale were found relevant to the Mexican Hispanic culture. In content equivalence analysis, potentially irrelevant items were identified. However, relevance of items was further clarified in subsequent steps of the translation protocol, particularly in step two of the translation protocol, back-translation.

Culture-specific expressions such as "sleeping off and on" or "awakening refreshed" were viewed as questionably relevant. In specific, subjects initially interpreted these expressions literally, perceiving them as awkward or nonsensical within the context of sleep. However, when these expressions were viewed from a functional perspective, as evidenced in Step Two, back-translation, cultural equivalents were found. In general, subjects reported equal familiarity and colloquialness in the target language.

Equivalence of Meaning

Direct cultural equivalents. Cultural equivalents were available for VSH Sleep Scale items. Direct equivalents were available for the majority of items, whereas indirect equivalents, comparable concepts conveying similar information, were available for others. Examples of direct equivalents include items 1a, 1b, 2a, 2b, 3a, 3b, 4a, 6a,

6b, 7a, 7b, 8a, 8b, 9a, 10a, 10b, 11a, 11b, 13a, 14a, 14b, 15a and 15b (Appendix D). Specifically, the meaning of the source item communicated through natural forms of the target language was directly expressed through one-word equivalents in the target language. For example, the Spanish terms "despertar," "dormir" and "mover" signify to awaken, to sleep, and to move, respectively. In addition, "livianamente" (item 7a) means lightly, and "profundamente" (item 7b) signifies deeply. In each case, one-word equivalents in the target language connoted equivalent meaning in the context of sleep.

An exception to the latter was the term, "ligeramente," included in item 7a of the target VSH Sleep Scale. Some participants viewed the term as a one-word equivalent to "lightly," whereas others perceived it as inappropriately used within the context of sleep. Three meanings were attributed to "ligeramente." They are:

1. Easy, not difficult, such as in an uncomplicated task;
2. Fast, quick, and swift, such as portrayed by a deer in motion; and
3. Light, not heavy, as in a light sleep.

Subjects No. 2, 4, and 5 of the pretest phase did not use "ligeramente" to communicate a light sleep, but instead viewed the term as described in definition 2. Unlike

subjects No. 2 and 4, however, subject No. 5 was a Spanish monolingual for 33 years (Table 6) and did not demonstrate use of code-switching (communication characterized by an alternating shift from one language to another).

In contrast to subject No. 5, subject No. 3, a Spanish monolingual for 27 years, viewed "ligeramente" as appropriately defined by the three meanings given above. In addition, the educational level of subjects No. 3 and 5 was comparable, 8 and 6 years of schooling respectively (Table 6). Moreover, no single variable seemed to account for the varied perceptions of the term *ligeramente*.

According to Kay (1989), the Spanish language is not completely shared by all of its speakers. Intralinguistic differences exist in the lexicon of Chicano Spanish; specifically, the same word may have different meanings or lexical differences that reflect a difference in organization of reality. Kay (1989) asserts that the basis for these lexical differences needs to be researched. Because of the varied interpretations in meaning, the term "ligeramente" was eliminated from item 7a of the target VSH Sleep Scale. "Livianamente" was retained in item 7a, for throughout the translation protocol, participants consistently interpreted "dormí livianamente" to mean a light, superficial sleep.

Indirect cultural equivalents. Obtaining the closest cultural parallel for an indirect equivalent involved replacing the source item with a target language translation having a comparable communication function. The meaning of the source item was implied by comparable concepts in the target language. Examples of indirect equivalents include items containing the following expressions: "off and on" (4b, 5b, 9b), "afternoon and evening" (5a, 5b), "exhausted" (12a), "refreshed" (12b), and "dozed" (13b). With the exception of "dozed," one-word equivalents were not available for the above. For example, "a ratos" (from time to time), "bastante cansado(a)" (very tired), and "bien descansado" (very rested) evoked similar responses to "off and on," "exhausted," and "refreshed," respectively. In addition, "entre las doce y las ocho" (between 12 noon and 8 p.m.) functionally replaced "afternoon and evening."

According to Kay (1979), the content of the lexicon is related to experience, word choice being dependent on setting. A term which is no longer functional may be replaced by another term reinforced daily in the home and media. Therefore, even though "dormitar" served as a direct equivalent to "doze," the former was not used as evidenced by subjects' decreased familiarity and colloquialness with the term. Instead, subjects identified with "dormi a ratos"

(I slept from time to time) as the closest cultural parallel to "doze."

Use of cognates. Kay (1989) also states, "The translation that is centered on the dominant language [asymmetrical translation] will often attempt to employ cognates. But cognates can be dangerously misleading" (p. 64). A true cognate such as "hospital," which has equal meaning in English and Spanish, may serve as a direct cultural equivalent. However, a false cognate may not provide comparability in meaning. In the context of item 12b, "refrescar" cannot be used as a cultural equivalent to "refreshed," for the Spanish term "refrescar" is nonequivalent in meaning to the English term "refreshing," for the former does not connote meaning in the mental, affective realm (M. Sandefur, personal communication, May 1, 1990). Delineating the characteristics and properties encompassing a concept is therefore very important in cross-cultural research, for culture-specific differences need to be identified (Munet-Vilaró, 1988). However, identifying these differences may be delayed if the researcher encounters subjects which use the style of communication referred to as code switching.

English-Spanish code switching. Spanish-English code switching is a scholarly term for Spanglish and is characteristic of peoples of Mexican descent residing in the

Southwest United States and El Paso. It refers to an alternating shift from one language to another, occurring in the middle or at the end of a sentence (Hidalgo, 1989). Kay (1979) cites the following example from a third-generation American:

Las anginas get to the point that se hinchan y uno no puede swallow, mientras que no están infected. ('The tonsils get to the point that they swell, and one cannot swallow even though they are not infected.') (p. 75)

Kay (1979) suggests code switching occurs because one word is known in English and another in Spanish. This has implications for use of bilinguals in translation studies. In specific, bilinguals who engage in code switching may not contribute to richness of data when responding to a translation, for these bilinguals do not have the necessary understanding of certain Spanish terms to analyze the relevance or meaning of these terms within the Mexican culture (E. Torres de Ardon, personal communication, July 10, 1990).

In the present study, subjects No. 2 and 4 of the pretest phase exhibited use of code switching when responding to item 7b of the target VSH Sleep Scale, "dormí profundamente" (Table 5). Although both participants acknowledged relevance of the concept, sleeping deeply, in

the Mexican culture, they were not able to communicate a Spanish equivalent. Unlike other participants involved in pretesting, subjects No. 2 and 4 had lived in the United States all their lives and had spoken English and Spanish for most of the duration (Table 6). This may suggest subjects No. 2 and 4 were more Anglicized than other subjects involved in pretesting. In any case, feedback from subjects No. 2 and 4 did not further elucidate the relevance or meaning of item 7b, "dormi profundamente."

Recommendations for Future Research

Recommendations for future nursing research include the following: field pretesting of the target VSH Sleep Scale (random probe technique) with monolingual Mexican subjects, administering the target VSH Sleep Scale to monolingual Mexican subjects, and increasing subject participation through personal, informal meetings.

Field pretesting of the target VSH Sleep Scale. As indicated in the literature, bilinguals constitute an atypical group (Candell & Hulin, 1986; Segalowitz, 1980). Therefore, clarifying items on the target VSH Sleep Scale and determining applicability to Mexican monolinguals is best accomplished with monolingual respondents. Bilingualism may have a cognitive impact; consequently, bilinguals may be cognitively more flexible than monolinguals because of the practice of switching back and

forth between languages. However, drawing from two classification systems may be a liability if a translation bias is attenuated. In addition, Spanish-English code switching may result in the inability to respond to a Spanish translation, thus delaying the acquisition of necessary data. In specific, the researcher recommends clarifying use of "en dormirme" versus "para dormirme" (item 10a of Spanish VSH Sleep Scale), with target language monolinguals. Furthermore, it is suggested that monolingual responses to items containing indirect cultural equivalents (items 4b, 5a, 5b, 9b, 12a, 12b, 13b) be carefully scrutinized for clarity and meaning. Field pretesting with monolingual Mexican Hispanics is therefore recommended.

Administering the target VSH Sleep Scale. A limitation in this study is decreased generalizability to the Mexican-Hispanic population due to use of the following: convenience, sampling, bilinguals, and a small number of respondents. Becerra and Shaw (1984) identify sampling as a survey issue of particular importance to the Hispanic researcher. To increase generalizability, they recommend combining probability and nonprobability techniques. Specifically, nonprobability designs are merged with random sampling techniques. For example, a list of subjects is composed from which a random sample is selected to generate the sample. This set of respondents then identifies others

who meet the criteria for inclusion in the sample. A random sample is then drawn from this set of prospective subjects.

Use of this sampling technique is recommended to develop a sample of Mexican monolinguals for field pretesting or administration of the target VSH Sleep Scale. Administering the target VSH Sleep Scale to Mexican monolinguals would allow item comparisons to be computed between English and Spanish monolingual responses on each version of the VSH Sleep Scale, for comparison data on English monolinguals is currently available (J.A. Verran, personal communication June 6, 1990). Translation adequacy of the target VSH Sleep Scale could then be examined by comparing the results obtained from the administration of the VSH Sleep Scale to subjects to those derived from the methodology specified in the present study. Specifically, response differences determined statistically could be compared to those derived through observation.

The Spanish VSH Sleep Scale may require modification for use in another setting, for the target version is time- and context-bound. Level of acculturation and generational differences among respondents may influence perception of terms; therefore, transferability of the Spanish target language VSH Sleep Scale to another geographical area needs to be determined before use in that setting. It is recommended that a committee meeting composed of native

speakers carefully scrutinize the Spanish translation for applicability and incorporate regional variations from the specific setting.

Increasing subject participation. The following recommendations may increase subject participation in a research study involving Hispanics:

1. Seek an Hispanic contact in the desired setting who can recommend potential subjects.
2. Personally contact each subject to secure informed consent and arrange for a personal meeting to obtain data.
3. Allot ample time for the respondent to complete subject materials.
4. Ask each respondent to recommend another Hispanic who might be willing to participate in the study.

According to Munet-Vilaro (1988), personally contacting the Hispanic subject increases the likelihood of consent to participate in the study. In addition, in a personal interview, a better response is elicited than in mailed paper-and-pencil questionnaires. In the present study, the researcher increased technical equivalence by conducting personal meetings with each subject, and by allotting sufficient time for subjects to become acclimated to subject materials and to complete necessary materials. Even though subjects had the option to complete subject materials

independently, the majority chose to complete subject materials in a personal meeting with the researcher.

Nursing Implications

Presently, a lack of quantitative measures appropriate for use in cross-cultural nursing research exists. Hence, translating the VSH Sleep Scale into Spanish contributes to the body of nursing instruments and to quantitative measures that can be used cross-culturally. However, transferability of the Spanish VSH Sleep Scale to another geographical setting needs to be assessed before use in that setting, for level of acculturation, generational differences, and differences among Hispanic subgroups may influence the meaning and perception of terms. Adapting the Spanish VSH Sleep Scale for use in diverse settings presupposes that lexical differences in the meaning of terms within and across settings are adequately delineated.

Moreover, in exploring the basis for these differences, cross-cultural nurse researchers are called forth to elucidate meaning within culture. Hence, adapting and modifying nursing instruments for cross-cultural use has wide implications for nursing research.

Summary

In this chapter, interpretation of findings related to research questions was discussed. In addition, limitations of the study and recommendations for nursing research were

addressed. The chapter concludes with implications for nursing.

APPENDIX A
HUMAN SUBJECTS APPROVAL



THE UNIVERSITY OF ARIZONA
TUCSON, ARIZONA 85721

COLLEGE OF NURSING

MEMORANDUM

TO: Berta Leis, B.S.N., R.N.

FROM: Carolyn Murdaugh, Ph.D., R.N. *Carolyn Murdaugh*
Director of Clinical Research

DATE: January 17, 1990

SUBJECT: Human Subjects Review: "Translation of the Verran and Snyder-Halpern Sleep Scale
into Mexican Spanish"

Your project has been reviewed and approved as exempt from University review by the College of Nursing Ethical Review Subcommittee of the Research Committee and the Director of Research. A consent form with subject signature is not required for projects exempt from full University review. Please use only a disclaimer format for subjects to read before giving their oral consent to the research. The Human Subjects Project Approval Form is filed in the office of the Director of Research if you need access to it.

We wish you a valuable and stimulating experience with your research.

CM:ch

APPENDIX B
ENGLISH STUDY DISCLAIMER

DISCLAIMER

**"Translation of the Verran and Snyder-Halpern (VSH)
Sleep Scale into Spanish"**

The purpose of this study is to translate the VSH Sleep Scale into Spanish and to determine if the translation is accurate.

Because you can read and write Spanish, you are being asked to voluntarily take part in one of five steps in the translation process. In step 1 you would indicate in writing if items on the VSH sleep tool are relevant to the Mexican Hispanic culture. In step 2, you would translate the VSH sleep tool from English to Spanish or from Spanish to English. In step 3, you would be asked to review translations of the VSH sleep tool from English to Spanish and from Spanish to English and then produce one Spanish version of the VSH sleep tool. In step 4, you would compare the English version of the VSH Sleep Scale to the Spanish version and indicate errors in meaning between the two versions. In step 5, you would be asked to answer 15 questions about the Spanish version of the VSH Sleep Scale. By responding to questions on the demographic data sheet, you will be giving your consent to participate in the study.

You may ask questions at any time and will receive answers to your questions. There are no known risks and you may withdraw from the study at any time. Your name will not be used in relation to this study and your responses will be confidential.

If you have any questions or concerns you would like to share, please feel free to contact the investigator at the following number.

THANK YOU.

Berta Leis, R.N., BSN
(602) 881-0911

APPENDIX C
SPANISH STUDY DISCLAIMER

DISCLAIMER

**"Inglés a Español del Verran y Snyder-Halpern
(VSH) Medida del Sueño"**

Le agradezco mucho su participación voluntaria al tomar parte en uno de los cinco diferentes componentes de La Medida del Sueño por VSH.

Primero: Reporte si cada pregunta es o no es importante a su cultura.

Segundo: Traduzcála del inglés al español o del español al inglés.

Tercero: Evalúe las traducciones y produzca una versión en español.

Cuarto: Compare la versión en inglés a la versión en español por diferente significado.

Quinto: Contesté quince preguntas de la versión en español.

Contestando las preguntas dara su consentimiento para participar en el estudio y me pregunta en cualquier momento si tiene dudas.

Sus repuestas son confidenciales y sin nombre. Gracias.

Berta Leis, R.N., BSN
(602) 881-0911

APPENDIX D
VERRAN AND SNYDER-HALPERN SLEEP SCALE

VERRAN AND SNYDER-HALPERN SLEEP SCALE

Directions:

Answer each question by placing a vertical mark across the answer line at a point which BEST REFLECTS YOUR OPINION.

Example: Happy _____ Sad

Answer all of the following questions about your last night's sleep. Consider the night's sleep to begin from the time you first tried to go to sleep to the time you were finally "up" in the morning.

Scale # _____ (34)

- | | | | |
|-------------------------------------------|-------|----------------------------------------------|-----------|
| 1. Did not awaken | _____ | Was awake ten hours | (35-37) |
| 2. Had no sleep | _____ | Excluding time awake, had ten hours of sleep | (38-40) |
| 3. Did not sleep during the day yesterday | _____ | Slept ten hours during the day | (41-43) |
| 4. Did not sleep yesterday morning | _____ | Slept off and on yesterday morning | (44 - 46) |
| 5. Did not sleep yesterday evening | _____ | Slept off and on yesterday evening | (47 - 49) |
| 6. Fell asleep immediately | _____ | Did not fall asleep | (50 - 52) |
| 7. Slept lightly | _____ | Slept deeply | (53-55) |
| 8. Had no trouble with disrupted sleep | _____ | Had a lot of trouble with disrupted sleep | (56 - 58) |
| 9. Didn't wake at all | _____ | Was awake off and on all night | (59 - 61) |
| 10. Had no trouble falling asleep | _____ | Had a lot of trouble falling sleep | (62 - 64) |
| 11. Didn't move | _____ | Tossed all night | (65 - 67) |
| 12. Awoke exhausted | _____ | Awoke refreshed | (68 - 70) |
| 13. After morning awakening, stayed awake | _____ | After morning awakening, dozed off and on | (71 - 73) |
| 14. Had a bad night's sleep | _____ | Had a good night's sleep | (74 - 76) |
| 15. Had enough sleep | _____ | Did not have enough sleep | (77 - 79) |

9/84 (Revised 2/85) (Revised 6/86)

APPENDIX E
MEXICAN-HISPANIC VERRAN AND
SNYDER-HALPERN SLEEP SCALE

MEDIDA DEL SUEÑO DE VERRAN Y SNYDER-HALPERN

Direcciones: Responda cada pregunta con una línea vertical que atraviese la línea de respuesta en el lugar que demuestre mejor su opinión.

Ejemplo: Feliz ----- Triste

Responda todas las preguntas siguientes a cerca de como durmio anoche. Considere el sueño de la noche desde que se acostó hasta que se levantó finalmente por la mañana.

1. No desperté en toda la noche -----(+10 cm)----- Anoche estuve despierto(a) diez horas
2. No dormí en toda la noche ----- Anoche dormí diez horas sin contar el tiempo que estuve despierto(a)
3. Ayer, no dormí en el día ----- Ayer, dormí diez horas en el día
4. Ayer, no dormí en la mañana ----- Ayer en la mañana, dormí a ratos
5. Ayer no dormí entre las doce y las ocho de la tarde ----- Ayer dormí a ratos entre las doce y las ocho de la tarde
6. Me dormí inmediatamente anoche ----- No me pude dormir en toda la noche
7. Anoche dormí livianamente ----- Anoche dormí profundamente
8. Anoche no se me interrumpió el sueño ----- Anoche tuve mucha dificultad en dormir porque se me interrumpió el sueño
9. Anoche no desperté para nada ----- Toda la noche estuve despertando a ratos

MEDIDA DEL SUENO DE VERRAN Y SNYDER-HALPERN--continued

- | | |
|------------------------------------------------------------------------|-------------------------------------------------------------------------|
| 10. Anoche no tuve dificultad en -----
dormirme | Anoche me dió mucho trabajo dormirme |
| 11. No me moví en toda la noche ----- | Me dí vueltas en la cama toda la noche |
| 12. Desperté bastante cansado(a) -----
esta mañana | Desperté bien descansado(a) esta
mañana |
| 13. Despues de despertar en la -----
mañana, me quedé' despierto(a) | Despues de despertar en la mañana,
dormí a ratos antes de levantarme |
| 14. Dormí mal anoche. Tuve mala -----
noche | Dormí bien anoche |
| 15. Dormí suficiente anoche ----- | No dormí suficiente anoche |

APPENDIX F
PERMISSION TO USE VERRAN AND SNYDER-HALPERN
SLEEP SCALE

VISUAL ANALOG SLEEP (VAS) SCALES

Joyce A. Verran PhD, RN
Rita Snyder-Halpern PhD, RN

Request Form

I request permission to copy the Visual Analog Sleep (VAS) scales by Verran and Snyder-Halpern for use in my research entitled:

Translation of the Verran and Snyder-Halpern Sleep Scale into Spanish

In exchange for this permission, I agree to submit to Dr. Verran or Dr. Snyder-Halpern, a copy of each data collection tool (i.e. subject information questionnaire, subject information questionnaire, chart forms, and the VAS Scales) for each subject tested. These data will be used to establish a normative data base for clinical populations. No other use will be made of submitted data. Credit will be given to me in reports of normative statistics that made use of data I submitted for pooled analyses.

Berta Leis
(Signature)

January 12, 1990
(Date)

Position and full address of
principal investigator.

Doctoral student

University of Arizona

College of Nursing

Tucson, Az. 85721

Permission is hereby granted to copy the VAS Scales for use in the research listed above.

Joyce A. Verran
Joyce A. Verran PhD, RN

OR

Rita Snyder-Halpern PhD, RN

January 12, 1990
(Date)

(Date)

Please send two signed copies of this form to:

Joyce A. Verran PhD, RN
College of Nursing
The University of Arizona
Tucson, Arizona 85721
(602) 626-6205

OR

Rita Snyder-Halpern PhD, RN
Phillip Y. Mann School of Nursing
University of San Diego
San Diego, California
(619) 260-4694

APPENDIX G
DEFINITIONS OF SCALES AND CHARACTERISTICS

VERRAN AND SNYDER-HALPERN SLEEP SCALE
DEFINITIONS OF SCALES AND CHARACTERISTICS

Disturbance Scale: Perception of the degree the bulk sleep period was disturbed due to fragmentation and sleep latency as measured by seven sleep characteristics.

Fragmentation Characteristics

Mid-Sleep Awakening	MSA	Perception of the number of awakenings during the sleep period.
Wake After Sleep Onset	WASO	Perception of the amount of time spent awake during the Total Sleep Period (TSP).
Movement During Sleep	MDS	Perception of the amount of movement during sleep.
Soundness of Sleep	SS	Perception of sleep depth.
Quality of Disturbance	QD	Perception of the degree of difficulty with sleep disturbance.

Latency Characteristics

Sleep Latency	SL	Perception of the amount of time from settling down to sleep until falling asleep.
Quality of Latency	QL	Perception of the degree of difficulty in going to sleep.

Effectiveness Scale: Perception of the degree the bulk sleep period was considered to be effective in terms of sleep quality and sleep length as measured by five characteristics.

Quality Characteristics

Rest Upon Awakening	RUA	Perception of how rested the person is upon awakening.
Subjective Quality of Sleep	SQS	Perception of sleep adequacy in terms of overall quality.
Sleep Sufficiency Evaluation	SSE	Perception of adequacy of amount of sleep.

Length Characteristics

Total Sleep Time	TST	Perception of the total time spent in actual sleep during the night.
Total Sleep Period	TSP	Perception of the total time spent in actual sleep during the night.

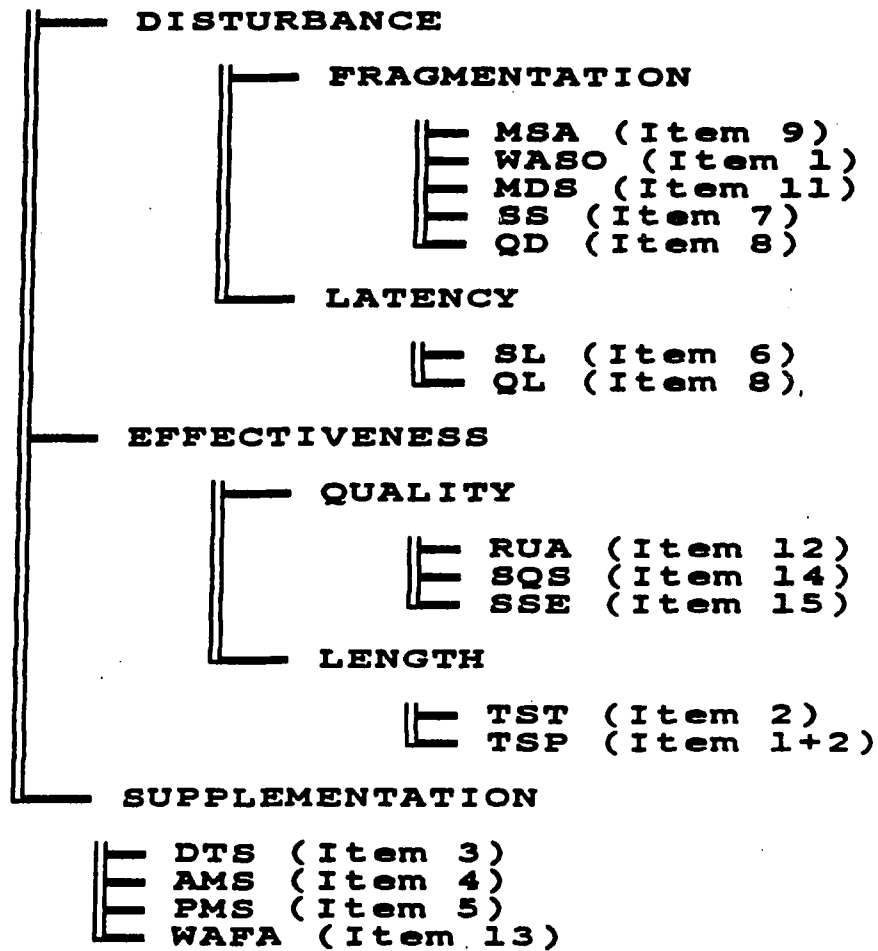
Supplementation Scale: Perception of the degree to which the bulk sleep period was augmented with additional sleep time as measured by four characteristics.

Daytime Sleep	DTS	Perception of time asleep other than primary sleep period.
Morning Sleep	AMS	Perception of amount of supplemental sleep during the morning hours.
Afternoon, Evening Sleep	PMS	Perception of amount of supplemental during afternoon and evening hours.
Wake After Final Arousal	WAFSA	Perception of the time spent in bed from initial morning arousal to final awakening.

APPENDIX H
SUBJECTIVE SLEEP TAXONOMY

SUBJECTIVE SLEEP TAXONOMY USED WITH VAS SCALES

SUBJECTIVE SLEEP



APPENDIX I
DEMOGRAPHIC DATA SHEET

DEMOGRAPHIC DATA SHEET

Subject Number: _____

1. What is your sex?

 Female Male

2. What is your age? _____

3. How far did you get in school? Grade: _____

4. What do you do for a living? _____

5. Are you employed:

 Full time Part time Unemployed

APPENDIX J
TRANSLATION PROTOCOL PHASE ONE AND TWO
ENGLISH STANDARDIZED INSTRUCTIONS

Instructions for Step One

The purpose of this step is to see if each item on the sleep tool is relevant to the Mexican Spanish culture. In order for an item to be considered relevant, it must naturally occur in the Mexican Spanish culture. Please rate each item on the sleep tool as "relevant," "questionably relevant," or "irrelevant." If you rate an item "questionably relevant" or "irrelevant," please write down your reason next to the item. The researcher will be interested in why you think an item is "questionably relevant" or "irrelevant," and would like you to share your reasons with her.

Step 2A: Instructions for Translation

From English to Spanish

Please read the English sentences on the sleep tool and then translate the English sentences to Spanish. You do not need to translate every English word into a Spanish word. Just get the ideas and meanings of the English into the Spanish language. If you come across an English word or phrase which does not have an equivalent phrase in Spanish, then find a comparable idea in Spanish which is similar to that English word/phrase.

Try to use the natural grammatical forms of the Spanish language and words most monolingual native speakers would understand. It is important to produce a translation which sounds natural in the Spanish language.

Step 2B: Instructions for Translation

From Spanish to English

You are being asked to produce an English version of the sleep tool, which is equivalent to the Spanish version. Please read the Spanish sentences on the sleep tool and then translate the Spanish sentences to English. You do not need to translate every Spanish word into an English word. Just get the ideas and meanings of the Spanish into the English language.

Please translate only what is there. If the Spanish version is unclear, please do not guess what it should say. If the Spanish version is poorly written, do not assume you know what it should say and how it should be written. You may even know how to write a better Spanish version, but please do not correct or improve on the Spanish version when you translate it to English. Just translate what is there.

The English version should be equivalent to the Spanish version, not an improved version.

Instructions for Step Three

You are being asked to produce a Spanish version of the sleep tool. This Spanish version should be equivalent in meaning to the English VSH Sleep Scale. The natural grammatical forms of the Spanish language should be used as well as words most native Mexicans would understand. Another bilingual subject has already translated the sleep tool from English to Spanish and a different bilingual subject translated the Spanish version back to English. Please compare the back-translated English version to the original English VSH Sleep Scale and note errors that might lead to differences in meaning. Then please correct the errors in meaning by making corresponding changes on the Spanish version.

Only the Spanish version is open to changes. The original VSH Sleep Scale must remain unchanged. In total, you will have three Spanish versions, three English back translations, and the original English VSH Sleep Scale to refer to in developing the Spanish version of the sleep tool.

Instructions for Step Four

Please examine the English and Spanish versions of the sleep tool and pay attention to errors that might lead to differences in meaning. An error is anything you feel might affect the meaning between the English and Spanish version of each item. Please rate each item 3, 2, or 1 points; 3 will equal "exactly the same," 2 will equal "almost the same," and 1 will equal "different." The researcher would like to discuss errors in meaning with you. If you rate an item "different" or "almost the same," please write down your reasons and suggested changes next to the item. Your input will help clear up errors in meaning between the English and Spanish versions of the sleep tool.

Instructions for Step Five

Please read each item on the sleep tool and think about what it means. You will then be asked, "What do you think this item means?" You may also be asked to rephrase the item using your own words. If you are not sure what the item means, please tell the researcher. Your honest impression will be very helpful.

APPENDIX K
TRANSLATION PROTOCOL PHASE ONE AND TWO
SPANISH STANDARDIZED INSTRUCTIONS

Instrucciones para el componente numero uno

El propósito es juzgar si cada pregunta es o no es importante a la cultura Mexicana-Española. Para que una pregunta se considere importante, debe ocurrir naturalmente en dicha cultura. Por favor clasifique cada pregunta a tres niveles: "importante," "dudoso," y "sin importancia" y dé sus razones para la selección. Gracias.

Paso 2A: Direcciones para Traducir
del Inglés al Español

Por favor léa las frases en inglés de la medida del sueño y traduzcálas al español. No tiene que traducir cada palabra, la idea general es suficiente. Si alguna palabra ó frase en inglés no tiene equivalente en español, reemplacela por una idea en español similar á la palabra ó frase en inglés.

Trate de usar el lenguaje más común para que personas que hablan solo español puedan entenderla. Es importante hacer una traducción lo más natural en español.

Paso 2B: Direcciones para Traducir
del Español al Inglés

Le pedimos que haga una versión en inglés de Le Medida del Sueño equivalente á la versión en español. No tiene que traducir cada palabra. La idea general es suficiente.

Por favor traduzca solamente la idea. Si la versión en español no es clara, no trate de adivinar lo que quiere decir. Si la versión en español está pobremente escrita no crea que sabe lo debería decir ó como debería ser escrita. Tal vez pueda escribir una versión española mejor, pero por favor no corrija ni mejore la versión en español cuando traduzca del inglés. Traduzca la idea solamente. La versión en inglés debe ser una copia similar, pero no mejor.

Instrucciones para el Paso Tres

Haga una versión en español de La Medida del Sueño. El significado de la versión en español debe ser equivalente a la versión en inglés de la VSH Medida del Sueño. Debe usarse frases naturales de la lengua española así como palabras que la mayoría de nativos mejicanos pueda entender. Otra persona que sabe las dos lenguajes ha traducido va la medida del sueño del inglés al español y todavía otra persona ha vuelto a traducir la versión en español al inglés. Por favor compare la última traducción en inglés con la versión original en inglés de VSH Medida del Sueño y note los errores que puedan conducir a un significado diferente. Por favor entonces corrija los errores del significado haciendo los cambios necesarios de la versión español.

Solamente puede hacer cambios en la versión en español. La VSH Medida del Sueño original debe permanecer lo mismo. En total, tendrá tres versiones en español, tres traducciones de nuevo al inglés y la versión en inglés original de VSH Medida del Sueño como referencia para desarrollar la versión en español de la medida del sueño.

Instrucciones para el Paso Cuatro

Por favor examine las versiones en inglés y en español de la medida del sueño y ponga atención a los errores que puedan conducir a un significado diferente. Un error es todo aquello que cree que pueda cambiar el significado de cada pregunta de las versiones en inglés y en español. Por favor clasifique cada pregunta con uno, dos, ó tres puntos: tres será igual a "exactamente lo mismo," dos será igual a "casi lo mismo," y uno será igual a "diferente." A la investigadora le gustaría discutir los errores del significado con usted. Si clasifique una pregunta "diferente" o "casi lo mismo" por favor diga la razón y sugiera los cambios necesarios al lado de la pregunta. Su opinión ayudará a corregir los errores del significado de La Medida del Sueño de las versiones en inglés y en español. Su opinión honesta sera muy útil.

Direcciones para el Paso Cinco

Por favor léa cada pregunta de la medida del sueño y piense lo que significa. Entonces le preguntarán "¿Qué cree lo que quiere decir ásta pregunta?" También se le pedirá que haga una frase nueva usando sus propias palabras. Si no está segura de lo que quiere decir la pregunta, por favor digaselo á la investigadora. Su opinión honesta será muy útil.

APPENDIX L
BACK-TRANSLATIONS OF TARGET LANGUAGE
ITEMS MODIFIED IN PHASE ONE, STEP THREE:
ANALYSIS OF TRANSLATIONS AND
BACK-TRANSLATIONS

Back-Translations of Target Language Items Modified
in Analysis of Translations and Back-Translations (n=1)

Item No.

- 5a. FT No dormí ayer entre las doce y las ocho de la tarde.
BT I did not sleep yesterday between noon and eight p.m.
- 5b. FT Ayer entre las doce y las ocho de la tarde, dormí a ratos.
BT Yesterday, I slept now and then between twelve noon and eight p.m.
- 7a. FT Tuve un sueño liviano anoche. Dormí ligeramente.
BT Last night I slept lightly.
- 8b. FT Tuve mucha dificultad en dormir anoche porque se me interrumpió el sueño.
BT Last night, I had lots of difficulty in sleeping because my sleep was interrupted.
- 12a. FT Desperté bastante cansada esta mañana.
BT I awoke very tired this morning.
- 12b. FT Desperté bien descansada esta mañana.
BT I awoke very rested this morning.
- 13b. FT Después de despertar en la mañana, dormí a ratos antes de levantarme.
BT After I woke up this morning, I slept from time to time before I got up.

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