INFLUENCE OF A COMMON RELIGIOUS FAITH ON SOMATIZATION AND SYMPTOM INTERPRETATION IN A CROSS-CULTURAL ROMAN CATHOLIC SAMPLE

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Abstract

While the literature reliably reports that people of Chinese descent are more likely to somatize than European Americans, research on cross-cultural somatization has not considered the influence of a common religious faith on symptom interpretation and expression. In addition, most researchers have collected frequency data and have not addressed the interpretive aspect of symptoms. This preliminary investigation compared the interpretive aspect of psychosomatic symptoms in 52 Chinese Americans and 62 European Americans, all practicing Roman Catholics. No differences in frequency or interpretation of somatic symptoms emerged between the two groups, while age negatively correlated with the number of psychological meanings given to psychophysiological symptoms in both groups. These findings suggest our two ethnic samples are more similar than might be expected in their interpretation of symptoms, possibly due to their common religious faith. These findings also support the conclusion that somatization does not preclude awareness of psychological states. This preliminary study utilizes a new method for exploring symptom interpretation across cultures; further research is required.

Somatization and Symptom Interpretation in a Cross-Cultural Catholic Sample: A Comparison of Chinese Americans and European Americans

Although somatization is observed in Western cultures and among Asian Americans (Chun, Enemoto, & Sue, 1996), people of Chinese descent are reportedly more likely than European Americans to somatize psychological symptoms such as symptoms of depression (e.g. Cheung, Lau & Wlademann, 1981; Chung & Singer, 1995; Kleinman, 1982; Kleinman & Kleinman, 1985; Kuo & Kavanaugh, 1994; Parker, Cheah & Roy, 2001; Zhang, 1995, Sue & Morishima, 1982; Sue & Sue, 1973; Tabora & Flaskerud, 1994; Tseng, 1975; Ying, 1990; Zheng et al, 1997). In the present study, somatization is defined as the physiological or somatic expression of psychological distress. Chinese and Chinese Americans overall have appeared more likely than Westerners to present physiological symptoms such as headache, stomach trouble or "neurasthenia" (a cluster of general exhaustion, irritability and unspecified somatic complaints), *and* to attribute physiological meanings to psychosomatic symptoms. Evidence of Chinese somatization comes from linguistic studies which show that few Chinese idioms for dysphoric mood or depression exist, while somatic idioms which denote certain emotions are rich (Lin, Carter, & Kleinman, 1985).

However, some studies of Asian American samples which included people of Chinese descent did not find an increased likelihood of somatization in normal and clinical populations (Chun, Enemoto & Sue, 1996; Kagawa-Singer, Wellisch & Durvasala, 1997; Zhang and Snowdon, 1999). Chun, Enemoto, and Sue (1996) critique methodological and conceptual flaws in many cross-cultural studies of somatization. One methodological flaw is the grouping of all Asian Americans together as a homogenous category despite the difference in cultural and linguistic heritage: Southeast Asian descent, Filipino, Indian, Pakistani, Sri Lankan, Japanese,

Chinese, and so on. Because the process of somatic expression and interpretation is closely linked to linguistic and idiomatic expression, we have tried to focus only on people of Chinese descent in our review and investigation.

Takeuchi et al. (2002) have theorized that acculturation might influence prevalence of somatization in Asian Americans, further contributing to their heterogeneity. Through acculturation, a person from a non-culture-defining background acquires the dominant culture's language and customs, including religion. The goal of the present preliminary study is to examine whether religion – particularly, espousing Roman Catholicism – may be associated with reduced differences between Chinese Americans and European Americans in somatization behavior by comparing interpretive aspects of symptoms.

Culture and Somatization: The Conceptual Basis

Culture is expected to play a significant role in symptom expression and interpretation because it provides the conceptual basis and idiomatic expressions for definition of self, including how one describes and experiences the relationship between mind and body. Culture also helps shape one's framework for attributing causes of sickness and health and ascribing said causes to the psychological or physical realm (e.g. Cheung, 1995; Hofstede, 1980; Markus & Kitayama, 1991, 1994; Tseng & McDermott, 1981; Uba, 1994; Williams, Spencer & Jackson, 1998; Wu, 1982). Culture shapes cognition and processes of perception, labeling, and valuing affective states or sensations (Kleinman, 1980). Through socialization, culture sets subjective standards for pain tolerance and reporting affect and symptoms (Dohrenwend & Crandell, 1970; Kleinman, 1986). Just as culture influences one's general reaction to the environment (Watanabe, 1973), culture determines what is regarded as a symptom and how one reacts to it.

Broadly, cross-cultural psychologists propose that the dominant American worldview stresses individualism, independence, uniqueness, autonomy, human control over the environment, and mind-body dualism. The Chinese worldview is said to emphasize collectivism, interdependence, conformity, cohesion among people, harmony between people and the environment, and a holistic view of mind and body (So & Ocampo, 2004). The tendency of people of Chinese descent (Chinese Americans and Chinese immigrants) to espouse mind-body holism has been offered as an explanation for their apparent greater likelihood of expressing psychological symptoms somatically (Tseng, 1975). In contrast, mind-body dualism might explain Westerner's reported lower likelihood of somatization.

Various Chinese cultural characteristics are thought to form the basis of somatization. Tseng (1975) identified four important factors: (1) orientation to traditional Chinese medicine, which views pathology as disharmony (lack of balance) between organs of the body; (2) social recognition and reinforcement of somatic illness (rather than emotional illness); (3) emotional restraint; and (4) prevalence of hypochondriacal qualities. Other cultural aspects – stigma of mental illness, family and individual shame and guilt, family denial of psychological processes – may impact on somatization as well as likelihood of seeking mental health treatment (Lin & Lin, 1981). In contrast, Okazaki (2000) identified a paradox in the research on mental health across Asian Americans: while they are assumed to inhibit psychological symptoms due to social sanction, they in fact report as much or more distress than their European American counterparts in many prevalence studies. The literature on somatization among Asian Americans, including Chinese Americans, presents a conflicting picture.

Religion and Somatization

Very little research is available on the relationship between religious background or practice and likelihood of somatization. The work of some authors may be interpreted to suggest that intense or Christian religiosity is associated with greater somatization (Metrikin, Galanter, Dermatis & Bunt, 2003; Ruiz, 1998). Certainly "intense" religiosity may be associated with psychotic or personality disorders. However, much of the research is descriptive (case studies) or involves clinical samples with medical pain, psychiatric symptoms or somatization disorders (e.g., Rotheram-Borus, 2000; Schwartz et al., 2001).

One study by Draguns, Leaman and Rosenfeld (1971) looked at the question of religion and symptom expression more directly. These researchers compared symptom expression in Christian and Buddhist psychiatric patients of Japanese descent, and found somatization more prevalent among Buddhists than Christians. This finding provides support for the idea that espousing mind-body holism might influence the tendency to somatize psychological distress, because Buddhism – a traditional Asian religion which arose in Northern India around 500 B.C. and gradually spread throughout Southeast Asia, Tibet, Nepal, China and Japan – holds as a fundamental tenet the principle of mind-body holism. Although somatization is often regarded as related to psychological phenomena, it has been defined in the literature in different ways (Cheung & Lau, 1982): however, all definitions are common in presupposing the dichotomy of psychology (mind) and physiology (matter), or their mutual exclusiveness. In the literature on Aisan Americans, "somatization" has often signaled a psychodynamic phenomenon, but many authors (e.g., Yamamoto et al., 1985) do not attribute a psychodynamic meaning to the term. Instead, their definitions involve awareness of one's emotions and/or physiological condition, such as body awareness (e.g. Kleinman, 1977), a state congruent with Buddhist practice.

In contrast, mind-body dualism as a philosophical construct is prevalent in Western Judeo-Christian culture, and is often traced to early Catholic church doctrine (Augustine, Aquinas), finally being articulated in the writings of 17th century philosopher Rene Descartes. Because mind-body dualism is closely linked to Roman Catholic theology, it is interesting to speculate whether endorsing Roman Catholicism influences adoption of the philosophy of mind-body dualism – and in turn, likelihood of somatization - regardless of culture of origin. Theoretically, one might expect those who espouse mind-body holism to more likely somatize and those who espouse mind-body dualism to experience psychological and somatic symptoms quite distinctly. Religion has been proposed as a factor in acculturation among Asians (e.g. Lembra, 1970). If Chinese Americans who endorse Roman Catholicism express symptoms in a similar way to other Roman Catholics, religion could be a potential effect modifier for somatization, possibly offering one explanation for discrepancies in the literature on Chinese American somatization.

Somatization Research: Interpretive Aspects of Symptoms

One shortcoming of the body of research on somatization is that it has investigated in depth the quantitative aspect of symptom expression (e.g. frequency of symptoms) but has not measured qualitative (or semantic) aspects of these symptoms. Though previous research has yielded useful findings in describing quantitative differences in symptom expression across cultures, it has failed to take into consideration the meaning/interpretive aspect of symptoms among people from different cultures.

People of Chinese descent have a lower likelihood of utilizing mental health services and receiving treatment (Loo, Tong, & True, 1989; Snowden & Cheung, 1990; Zhang, Snowden & Sue, 1998). However, some evidence exists that people of Chinese descent (particularly the

elderly) may be at greater risk for psychological disorders like depression than European Americans (Ying, 1988), possibly partly due to acculturative stress (Gelfand & Yee, 1991).

The present study attempts to address this gap by comparing Chinese- and European-Americans not only on frequency of symptoms but also on the meaning/interpretive aspect of their symptoms. Using this methodology, we address the following question: will a group of Chinese Americans, all Roman Catholic, interpret and express psychological symptoms more similarly to European American Catholics than might be expected from the literature on Asian somatization?

Methods

Participants

Fifty-two Chinese Americans (female = 28, male = 24, mean age = 34.31, *SD* = 7.19, range = 18-41) and 62 European Americans (female = 32, male = 30, mean age = 42.75, *SD* = 12.93, range = 18-71) from Catholic congregations in Northeastern and Mid-Atlantic U.S. metropolitan areas (Baltimore, Maryland; greater Boston; suburban New Jersey, near New York City; and the metropolitan Washington DC area) voluntarily filled out the survey measures (*N* = 114), which were distributed during religious or social gatherings or by word of mouth among parishioners. We simultaneously recruited the Chinese American and European American samples, matching their demographic profiles as much as possible.

Procedures

Participants were recruited at church functions outside religious services. We made phone contacts or office visits with parish priests or key parish leaders to ask for referrals. After their referrals, we directly contacted potential participants individually or in small groups to

provide general information and answer questions about the study and its confidentiality measures. We explained that participation was completely voluntary.

Those who agreed were given a packet of self-administered questionnaires, along with an introductory letter, instructions, and a consent form. A self-addressed stamped envelope was also offered. A total of 166 questionnaires were distributed; 121 were returned. The response rate was approximately 73%. Among these, the following were excluded from our data analysis: four non-Catholics, two Hispanics, and one under 18 years of age.

Measures

Survey instruments included a demographic questionnaire, Langner's 22-item Screening Score of Psychiatric Symptoms Indicating Impairment (Langner, 1962), psychological and physiological meaning scales, and exploratory questions about the mind-body relationship. Chinese Americans were also given the original 21-item Suinn-Lew Asian Self-Identity Acculturation Rating Scale, or SL-ASIA (Suinn et al., 1987), which shows high reliability (Cronbach's $\alpha = .91$) and validity (Suinn et al., 1992), to test for homogeneity of acculturation.

The Langner Scale

The twenty-two items in the Langner Scale were chosen from the Minnesota Multiphasic Personality Inventory (MMPI) and the Army Neuropsychiatric Screening Inventory (NSA) and have been in use for several decades. Langner (1962) reported choosing the items for three reasons: they represent typical complaints, possess high "face validity" (tap interested areas of disorders) and pass standard tests of validity. Items in the scale are close-ended questions which elicit self-reports of psychological, psychophysiological, and physiological complaints. Each of the items depicts psychoneurotic symptoms (Cheung, 1982). The total score is the number of positive answers to the items (number of symptoms reported). In the present study, the Langner

Scale was used not for its original purpose to identify psychiatric cases, but to measure degree of somatization among respondents. Therefore, it was scored according to Crandell and Dohrenwend's (1967) four symptom indices. This method has been used among the predominantly Chinese society of Hong Kong (Lee, 1980).

The Psychological Meaning Scale and Physiological Meaning Scale

These scales for the twenty-two Langner Scale items were developed for this study to examine interpretive meanings of the symptoms. Participants were asked to imagine experiencing each of the 22 Langner items, and to rate on two Likert scales how much they would experience each symptom as a condition of their psychological state of mind and as a physiological state. Cronbach's α coefficients for scoring indices were generally high, for the total sample and by ethnicity.

Crandell and Dohrenwend's Four Symptom Indices

Because Langner's 22 items were not originally designed for studying degree of somatization, we adapted the four symptom indices which Crandell and Dohrenwend (1967) developed. On the basis of ratings by more than 100 psychiatrists and medical internists, Langner's twenty-two items were categorized into four groups and four indices were formulated: 1) the Psychological Symptom Index, composed of 10 items; 2) the Psychophysiological Symptom Index, composed of five items; 3) the Physiological Symptom Index, composed of three items; and 4) the Ambiguous Symptom Index, composed of four items. Cheung (1982) used the indices in an analysis similar to the present study.

Separation Symptom Index and Non-Separation Symptom Index

These two indices were designed for the present study to depict the tendency of presenting separation on non-separation symptoms. The Separation Symptom Index is the

summation of Crandell and Dohrenwend's psychological and physiological symptoms, and are regarded as separation symptoms because they are purely psychological or purely physiological. The Non-Separation Symtpom Index is the summation of psychophysiological and ambiguous symptoms and represent a combination of psychological and physiological ailments.

Results

Demographic Characteristics

A 2 x 2 chi-square (χ^2 = .06, p = .81) showed that the Chinese and European American samples did not differ in terms of gender. A 2 x 6 chi-square (χ^2 = 6.32, p = .28) revealed no differences in annual income between the two groups, with about a quarter of each sample earning below $20,000 annually, about two quarters earning between $20,000 and $49,999, and about a quarter earning $50,000 or above for both groups. In addition, the two samples did not differ in education (2 x 4 chi square, χ^2 = .94, p = .82); most participants had some college or above. However, a t-test showed that the mean ages of the two samples were significantly different (t = 3.82, p < .01), with the Chinese American sample about 8.5 mean years younger than the European American sample. Age was therefore statistically controlled in subsequent analyses.

All of the European Americans had U.S. citizenship, while only 52.08% (n = 25) of the Chinese Americans had U.S. citizenship. The rest were mostly Hong Kong or British citizens, the majority (87.5%, n = 21) of which were permanent U.S. residents. Chinese Americans scored a mean of 2.37 (SD = .45) on the SL-ASIA scale, putting them in the middle range of assimilation to mainstream U.S., or close to the "bicultural" range.

Descriptive Statistics

As shown in Table 1, the total number of symptoms on the Langner Scale averaged 2.58 (*SD* = 2.78) for the entire sample, which is comparable to the 2.60, *SD* = 2.67 average among 1438 non-patients reported by Langner (1962). This suggests the present Catholic sample of Chinese- and European-Americans presents characteristics similar to the general non-patient population. Chinese-Americans generally reported more psychological and psycho-physiological symptoms but fewer physiological and ambiguous symptoms than did European Americans.

Insert Table 1 about here

Overall, Chinese descended and European Americans scored similarly on interpreting psychological and physiological meanings of psychological and physiological symptoms (see Table 2):

Insert Table 2 about here

Pearson's *r* correlation coefficients indicated that the Langner Scale and the four Symptom Indices (Psychological Symptom Index, Physiological Symptom Index, Psycho-physiological Symptom Index, and Ambiguous Symptom Index) all significantly correlated with each other for both Chinese descended and European Americans, except that for Chinese descended Americans, Physiological Symptom Index scores did not correlate with other symptom indices (Langner score, $p = .27$; Psychological Symptom Index, $p = .14$; Psycho-physiological Symptom Index, $p = .03$; Ambiguous Symptom Index, $p = .25$; $p > .05$ for all

analyses). This suggests that the number of physiological symptoms reported is a good predictor of other symptom clusters for European Americans but not for Chinese Americans. Significant correlations were also obtained among the psychological meaning scales and among the physiological meaning scales for both samples (r ranged from .46 to .96, $p < .01$ for all analyses). However, one cross-cultural difference did emerge: correlations between Langner Scale scores, the Meaning Scales, and the Body-Mind Relationship Indices were significant for European Americans, but not for Chinese Americans. It would appear that the number of symptoms in these scales adequately predicts total number of physiological meanings attributed to the symptoms for European Americans but not Chinese Americans.

Results of Hypothesis Testing

A 2 x 2 between-subjects multiple analysis of variance (MANCOVA) with ethnicity as the independent variable and number of physiological and psychological symptoms as dependent variables (with age as a covariate) revealed no effects of age or ethnicity on the dependent measures (age, $F = 2.42$; ethnicity, $F = .54$; Psychological Symptom Index, $F = .06$; Physiological Symptom Index, $F = .78$; $p > .05$ for all analyses).

Furthermore, a 2 x 2 between subjects MANCOVA with age as a covariate showed no effect of ethnicity ($F = 2.10$) on three dependent measures: psychological meanings given to physiological symptoms ($F = .15$), psycho-physiological symptoms ($F = 1.42$), and ambiguous symptoms ($F = 1.15$), $p > .05$ for all analyses. However, a significant multivariate effect for age was obtained ($F = 5.71$, $p = .001$), along with a significant univariate F on psychological meanings given to psycho-physiological symptoms ($F = 9.22$, $p = .003$), indicating that age had a significant effect on the number of psychological meanings given to psycho-physiological symptoms. A Pearson's correlation suggested that age negatively correlates with this measure:

the older a respondent is, the less likely he or she is to attribute psychological meanings to psycho-physiological symptoms (r = -.25, p < .01).

A 2 x 2 between-subjects MANCOVA with number of separation symptoms and non-separation symptoms as dependent variables and ethnicity as the independent variable (with age as a covariate) revealed no significant multivariate effects (age, F = 2.47; ethnicity, F = .29, Separation Index, F = .002; Non-Separation Index, F = .28; all analyses p > .05).

Interpretive Aspect of Symptoms

Differences between partial correlations were computed for Chinese and European Americans' scores on psychological and physiological meanings attributed to symptoms after controlling for age, using the test described by McNemar (1969). All partial correlations obtained were significant and positive, at the 22-symptom aggregate level and by symptom cluster (except for the psychological cluster), for both groups after a Bonferroni correction was applied (r ranged from .47, p < .005 to .93, p < .001). None of the difference values were significant, although a slightly more significant positive correlation was obtained for Chinese Americans between psychological and physiological meanings attributed to physiological and ambiguous symptoms (physiological symptoms, r = .85, p < .001, as compared to r = .79. p < .001 for European Americans; ambiguous symptoms, r = .91, p < .001, as compared to r = .89, p < .001). Meanings Chinese Americans gave to symptoms may be slightly more related to non-separation of body and mind, although European Americans showed the same tendency. Likewise, differences between partial correlations were computed for Chinese and European Americans' frequency of physiological symptoms and number physiological meanings attributed to symptoms. Among European Americans, only the coefficient for psychological symptoms was significant and positive after a Bonferroni correction (r = .38, p = .004); no significant

correlations emerged among Chinese Americans. Among European Americans but not Chinese Americans, as frequency of physiological symptoms increased, numbers of physiological meanings attributed to symptoms also increased. Among Chinese Americans, on the other hand, the non-significant correlations were likely to be negative; their presentation of physiological symptoms does not predict the number of physiological meanings they attribute to symptoms.

The same analysis was performed for frequency of physiological symptoms and number of psychological meanings attributed to symptoms, controlling for age; none of the partial correlations were significant after a Bonferroni correction.

Discussion

The clinical literature has largely suggested that Chinese Americans tend to report fewer psychological symptoms, and more somatic symptoms, than their European American counterparts. However, we found no differences between Roman Catholic Chinese Americans and Roman Catholic European Americans on frequency of, or meanings attributed to, reported psychological and physiological symptoms. Older participants from both groups attributed fewer psychological meanings to psycho-physiological symptoms. Older people of Chinese descent and older European Americans may both be likely to interpret psycho-physiological symptoms as products of the body rather than the mind, perhaps as a result of physical experiences of aging. As expected, our Chinese and European American participants were more alike than different in their interpretation of symptoms, perhaps as a result of their common religious beliefs.

In our study, participants' affiliation with the Roman Catholic Church may have obscured or "written-over" the cross-cultural differences generally reported in the literature. Roman Catholicism per se is a philosophico-religious culture that teaches the distinction between body and mind/soul/spirit. The religious banner of these Roman Catholic participants may have

influenced their culturally-based interpretation of symptoms. This finding can be useful as physicians and mental health professionals expand beyond simplistic ethnically-driven expectations of clients' behavior toward the view that each client is a complex organism influenced by ethnicity, religion, individual life experience, and many other factors. Jones (1997) has said that within-group differences may outnumber between-group difference in cross-cultural comparisons, and it would seem that our findings support this view. In our study, age emerged as the strongest factor explaining both groups' interpretation of symptoms. The older the person, the fewer psychological meanings he or she gave to psycho-physiological symptoms; the younger, the more psychological meanings.

One interesting cross-cultural difference did emerge on the measures: the number of physiological symptoms reported was a good predictor of any other symptom cluster for the European American sample, but not the Chinese American sample. In other words, for European Americans, the more (or less) physiological symptoms presented, the more (or less) symptoms presented in other symptom clusters. For the Chinese American sample, however, the number of physiological symptoms reported did not predict numbers of other symptoms; symptom clusters were distinct and did not present as a "package". This suggests that for Chinese Americans, physiological symptoms of distress were experienced and expressed as such, independent of psychological, psycho-physiological, or ambiguous symptoms. This finding contra-indicates the stronger sense of body-mind unity generally attributed to Asian cultures.

The significant correlations that emerged between psychological and physiological meanings given to physiologically-related symptoms (that is, symptoms in the physiological, psychophysiological, and ambiguous clusters), but not to psychological symptoms, suggests that our Roman Catholic participants as a whole probably do not discretely endorse either holism or

dualism. Our participants seemed to believe that the body is *not* separate from the mind, as shown by the significant correlations between the number of psychological and physiological meanings given to *physiologically-related symptoms*. Yet, they seem to believe that mind *is* separate from body, as we found no correlations between psychological and physiological meanings given to *psychological symptoms*. This paradoxical interpretation suggests that people do not hold clear-cut concepts of mind-body holism/dualism, and do not necessarily have a firm dogmatic belief in either one of the two positions, regardless of their cultural heritage. People seem to believe that body and mind are united in some ways but not in others. Their seemingly contradictory understanding of their cognitions may complicate the issue of symptom interpretation.

Overall, the literature suggests a greater frequency of somatization among people of Chinese descent, in comparison to Westerners. However, the literature - and by extension, clinicians and researchers – seems to have operated on the assumption that the meanings attributed to the symptoms are universal. Cheung (1982, 1987) argued that "somatization" does not necessarily imply a lack of awareness of psychological or affective states. Cheung proposes that somatization may be a way of presenting symptoms, psychological or physical, which need not be mutually exclusive: that is, presentation of somatic complaints occurs as a way of verbalizing psychological complaints. Clinicians often do not explore what the symptoms they present mean to clients, and researchers have not investigated the interpretive aspect of symptoms. The construct of somatization - defined as the physiological expression of psychological distress – may be of questionable validity and usefulness in cultures in which the mind and the body are not mutually exclusive.

Methodological issues

Our methodology presents a new way to empirically explore the interpretive aspects of symptoms across cultures. The relatively high reliability coefficients obtained for most indices indicate that questionnaire items are reasonably homogeneous and that the measures are internally consistent. Psychological meaning given to *physiological* symptoms and psychological meaning given to *psycho-physiological* symptoms yielded the lowest Cronbach's α coefficients, which are still acceptable at around .65.

Our Roman Catholic sample appears to resemble the general population with regard to symptom prevalence. The similarities in Langner Scale score means between our present sample and Langner's (1962) sample suggest that our community sample shares similar characteristics with the general, non-clinical population. Moreover, our two ethnic samples are quite comparable in their major demographic characteristics, such as gender composition, income, education, and marital status. It should be noted, however, that the Chinese American sample fell short on generalizability to all Chinese Americans because of their affiliation with Roman Catholicism. We also found that the Chinese American's acculturation level as measured by the SL-ASIA scale did not emerge as a correlate of our dependent variables.

Suggestions for future research

This study attempted to *quantify* the meaning attributed to symptoms. Future investigation on the interpretive aspect of symptom expression can focus on the actual meaning of symptoms. Any investigation of the *qualitative* meanings of symptoms, particularly those of psychosomatic and ambiguous symptoms, can shed some light on how people are aware of their body and psyche, and how they should be diagnosed and treated by physical and mental health professionals.

In future studies, choice of symptoms and of language (English or participants' native language) in which to present them needs to be made carefully. These two choices are intertwined, because some symptoms may be loaded with culture-and language-specific meanings and indeed metaphors of certain psychological states. For instance, as mentioned earlier, in the Chinese language some physiological phenomena are expressed in everyday language as certain emotions. The metaphorical usage of bodily conditions to express mental status may merely be a figurative use of the language, and/or may be a result of the cultural particulars of conceiving human experiences. It is likely that both contribute to the psychological relevance of physiological symptoms. A similar phenomenon occurs in cultures other than the Chinese. Given that there is often distortion in meaning in the process of translation, the choice of language may thus be an important factor for cultural-specific meanings to be retained in a symptom. For instance, "kan-huo," a Chinese term metaphorically meaning frustration and anger, is literally translated as "liver fire". A native Chinese-speaking person may not see the association of the culture-specific meaning with a term in a language other than Chinese. Therefore, the choice of symptoms is also important because some particular symptoms may have culture-specific connotations, and some may not. Because this venture of choosing symptoms and language is probably beyond the scope of the conventional paradigm of psychology, and the methodology in psychology for this kind of research is rare, an inter-disciplinary research approach using the methods and databases of fields such as linguistics, medical and cultural anthropology, and medical pathology may further strengthen the study of the semantics of symptoms in different cultures.

This study found no cultural differences in symptom interpretation among Roman Catholic Chinese and European Americans, but found that age is significant in determining some

of the ways people interpret symptoms. Future investigators also may want to look at gender, occupation, educational and other demographic differences in meaning attributed to the symptoms. Another sensible step is to look further into what distinguishes those who change from a holistic tradition to a more analytic view of their experience, and those who do not make such a change. Within-group differences predict that some will deviate from the norms of their ethnic group: there may be Chinese Americans who are very individualistic and White Americans who are very group-oriented. Given the cultural context of the individual, what developmental and personal qualities account for individual differences in the points of reference which participants used to define their symptoms? What are the environmental characteristics that affect the way in which they define, experience, and express symptoms?

This preliminary research has succeeded in adding to the small but growing empirical database for understanding Chinese and American's interpretation of symptoms. However, this research is only a start in investigating the semantic aspects of the various types of clinical complaints and in the study of how people are aware of their bodies and their psyches. We strongly recommend subsequent studies to include non-Roman Catholic samples with which we can compare our current sample to better isolate the influence religious affiliations may have on mind-body beliefs and symptom interpretation.

Table 1: Mean Scores on the 22 Item Langner Scale and Symptom Indices by Ethnicity

Measures	*n*	*Mean*	*S.D.*
Langner Scale			
White	62	2.37	2.95
Chinese	52	2.83	2.57
Entire Sample	114	2.58	2.78
Psychological Symptom Index			
White	62	1.73	1.85
Chinese	52	2.21	1.81
Entire Sample	114	1.95	1.85
Physiological Symptom Index			
White	62	.21	.45
Chinese	52	.13	.34
Entire Sample	114	.18	.40
Psycho-physiological Symptom Index			
White	62	.32	.76
Chinese	52	.38	.69
Entire Sample	114	.35	.73
Ambiguous Symptom Index			
White	62	.11	.45
Chinese	52	.10	.30
Entire Sample	114	.11	.38

Table 2: Mean Scores and Reliabilities for Psychological Meaning and Physiological Meaning Scales by Ethnicity

Measure of Meaning	*n*	*Mean*	*S.D.*	*Reliability*
Psychological Meaning Given to All 22 Items of the Langner Scale				
White	61	51.26	20.59	.96
Chinese	51	47.75	18.00	.96
Entire Sample	112	49.66	19.45	.96
Physiological Meaning Given to All 22 Items of the Langner Scale				
White	60	55.27	22.16	.96
Chinese	48	53.98	20.22	.96
Entire Sample	108	54.69	21.23	.96
Psychological Meaning Given to Psychological Symptoms				
White	61	28.51	11.93	.96
Chinese	51	25.33	10.19	.95
Entire Sample	112	27.06	11.23	.95
Physiological Meaning Given to Psychological Symptoms				
White	60	21.07	7.94	.92
Chinese	48	22.10	8.43	.92
Entire Sample	108	21.35	8.14	.92
Psychological Meaning Given to Physiological Symptoms				
White	61	5.07	2.19	.57
Chinese	51	5.45	2.48	.71

Entire Sample	112	5.24	2.32	.64
Physiological Meaning Given to Physiological Symptoms				
White	60	8.88	4.61	.96
Chinese	48	8.29	3.94	.90
Entire Sample	108	8.62	4.32	.93
Psychological Meaning Given to Psycho-physiological Symptoms				
White	61	9.79	4.40	.66
Chinese	51	9.75	3.51	.62
Entire Sample	112	9.77	4.00	.63
Physiological Meaning Given to Psycho-physiological Symptoms				
White	60	13.98	6.36	.91
Chinese	48	13.12	5.54	.91
Entire Sample	108	13.60	6.00	.91
Psychological Meaning Given to Ambiguous Symptoms				
White	61	7.90	3.90	.83
Chinese	51	7.22	3.47	.80
Entire Sample	112	7.59	3.71	.82
Physiological Meaning Given to Ambiguous Symptoms				
White	60	11.33	5.56	.95
Chinese	48	10.46	5.41	.95
Entire Sample	108	10.94	5.49	.95

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