

Symptom Attribution and Preferred Sources of Help for Psychiatric Symptoms of University Students in Singapore

Boon-Ooi Lee

Nanyang Technological University

Past research has shown that Asians underutilize mental health services. One way to increase the use of such services is to understand their causal beliefs and help-seeking behaviors. The aim of this study was to examine how causal attributions of three types of psychiatric symptoms (depressive, anxious, and schizophrenic) were associated with preferred sources of help among a group of university students in Singapore. Cross-sectional data were collected through a survey questionnaire with symptom vignettes and examined by path analyses. Main results showed that endorsements of causal attributions varied by symptoms; for example, depressive and anxious symptoms were more likely than schizophrenic symptoms to be attributed to psychosocial causation. Based on separate path analyses for every symptom type, both psychosocial and biomedical causations were correlated with each other, which in turn were associated with various sources of help. Psychosocial causation was associated with the source of friend/classmate whereas biomedical causation was associated with the sources of medical

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doctor, mental health professional, and alternative medical practitioner. Seeking helps from these professional sources were also correlated with each other. These findings suggest that causal attributions, particularly biomedical dimensions of psychiatric symptoms, should be highlighted when implementing relevant mental health services for university students; and they may be receptive to a holistic treatment team consisting of friends, medical doctors, mental health professionals, and alternative medical practitioners.

Past research has shown that Asians, even though suffering from a wide range of psychiatric disorders, are less likely than Westerners (predominantly White North Americans) to utilize mental health services (Huang & Spurgeon, 2006; Leong & Lau, 2001; Suan & Tyler, 1990; Sue, 1994). Several explanations have been offered, for example, stigmatization of mental disorders, somatization, shame and “face saving,” linguistic barriers, inadequate number of culturally competent mental health professionals, inaccessibility of services, value conflicts with service providers, being not familiar with the Western mode of mental health services, and negative attitudes toward seeking psychological help (S. Chen, Sullivan, Lu, & Shibusawa, 2003; Herrick & Brown, 1998; Leong & Lau, 2001; Spencer & Chen, 2004; Sue & Sue, 2002; Tata & Leong, 1994; Uba, 1994; Yeh, 2002; Ying & Miller, 1992). Whether Asian Singaporeans also underutilize mental health services remains unknown although some local studies have indicated that about 25% of patients in primary health care (Fones & Kua, 1996) and 17% of a community sample (Fones, Kua, Ng, & Ko, 1998) have psychiatric disorders but do not seek professional psychological help.¹ However, not using mental health services does not mean the absence of help seeking. Asians may prefer to seek help from informal social support networks or alternative and complementary healing systems for

their emotional distress (Chong, Mythily, Lum, Chan, & McGorry, 2005; B. O. Lee, 2002; Leong & Lau, 2001; Lin & Cheung, 1999; Sue & Sue, 2002; Yeh & Wang, 2000). Even when mental health services are used, they are often used concurrently or sequentially alongside other resources. Thus, it is useful to understand Asians' utilization of mental health services in relations to their use of other resources within a sociocultural context (Kirmayer, 2004; Kleinman, 1980). We can then identify what factors determine what sources of help. One of the factors that has been found to influence preferred sources of help is causal attributions of psychiatric symptoms and emotional distress. Symptom attribution refers to people's perception about the causes of their or others' somatic, behavioral, affective, or cognitive symptoms such as pain, fatigue, fear, or concentration difficulty. It is related to the concepts of explanatory models in medical anthropology, and illness representations in health psychology (Kleinman, 1980; Kleinman & Seeman, 2000; B. O. Lee, 2006; Lobban, Barrowclough, & Jones, 2003; Petrie & Weinman, 1997; Skelton & Croyle, 1991). Depending on what causes are ascribed to the symptoms experienced, people may ignore the symptoms, choose self-care, or consult professional and lay people (Leventhal, Brissette, & Leventhal, 2003). An understanding of the relations of symptom attributions to preferred sources of help may help implement outreach programs and public education to enhance the use of mental health services among Asians.

The present study sought to investigate causal attributions of and preferred sources of help for depressive, anxious, and schizophrenic symptoms among a group of Singaporean university students who had no prior experience with counseling. Students represent one of the social groups underutilizing mental health services. Although there is a prevalence of psychiatric distress among university students (Chandler & Gallagher, 1996; Lucas & Berkel, 2005), not all of them seek professional psychological help (Chang, 2007; Oliver, Reed, Katz, &

Haugh, 1999; Yeh & Wang, 2000). To date, no studies have been conducted on the use of mental health services among university students in Singapore. With the expansion of tertiary education (Ministry of Education, n.d.), and the highly stressful and competitive educational environment in Singapore, there is a pressing need to understand the help-seeking behaviors of university students so as to implement relevant mental health services to meet their needs.

Depressive and anxious symptoms were chosen for this study because mood and anxiety disorders are the most common psychiatric disorders found in Singapore (Fones et al., 1998; H. C. Lee, 2004) whereas schizophrenic symptoms, which are less common, were included for comparison purpose.

The following literature review is organized into two sections: (1) causal attributions for the three types of psychiatric symptoms; and (2) their relations to preferred sources of help.

Literature Review

Causal Attributions of Psychiatric Symptoms

The most common psychiatric symptoms that past research has studied are depressive or schizophrenic symptoms rather than anxious symptoms. Using mainly vignettes and preset causal statements to measure attribution, studies have found that people tend to attribute depressive or schizophrenic symptoms to both psychosocial and biomedical factors (Angermeyer & Matschinger, 1999; Çırakoğlu, Kökdemir, & Demirutku, 2003; Edman & Johnson, 1999; Edman & Koon, 2000; Furnham & Chan, 2004; Furnham & Murao, 2000; Jorm et al., 1997; Karanci, 1995; Kuyken, Brewin, Power, & Furnham, 1992; Lauber, Falcato, Nordt, & Rössler, 2003; Link, Phelan, Bresnahan, Stueve, & Pescosolido, 1999; Matschinger & Angermeyer, 1996;

Sinclair, 2001; Srinivasan & Thara, 2001). Common psychosocial factors endorsed include life stressors, family problems, personality, and unemployment whereas common biomedical factors endorsed include genetic factors, hormonal imbalance, substance abuse, and brain disorders. Compared with psychosocial and biomedical causations, religious and supernatural causations are least likely to be endorsed, even by people from traditional cultures (Edman & Koon, 2000; Srinivasan & Thara, 2001).

Although lay people attribute depressive and schizophrenic symptoms to both psychosocial and biomedical causations, their endorsements are relatively higher on psychosocial causation. Since they may hold different views for different psychiatric symptoms, it is also relevant to examine how their perceived causes vary by different types of psychiatric symptoms. Only a few researchers have studied more than one type of symptoms within a single study. They found that schizophrenic symptoms were more likely to be associated with biomedical causation than were depressive symptoms (Angermeyer & Matschinger, 1999; Jorm et al., 1997; Schnittker, Freese, & Powell, 2000). Obviously, this single piece of information is not sufficient enough to help understand how causal attributions are varied by psychiatric symptoms. Thus, the present study can contribute to this line of research by comparing causal attributions for depressive, anxious, and schizophrenic symptoms.

Symptom Attribution and Preferred Sources of Help

The relationship between symptom attribution and preferred sources of help is complex. Some studies have found a match between causations and sources. For example, endorsements of psychosocial causation for psychiatric symptoms are associated with higher willingness in using mental health services among Taiwanese (L. L. Chen, 1987) and mainland Chinese (Boey, 1999) university students;

and beliefs in biomedical causation are associated with consultations of Western trained medical professionals among Indian patients with schizophrenic symptoms (Banerjee & Roy, 1998).

However, such a direct match has not been found in most studies over the past twenty years. In Hong Kong (Cheung, Lee, & Chan, 1983), even though a majority of the Chinese students attribute a somatic complaint like sleeping difficulty to psychological causes (e.g., worries and anxiety), if they view it to be serious and persistent, they would still consult a medical doctor rather than a mental health professional (also see Lin & Cheung, 1999). In another study that also involves Hong Kong students (Cheung, 1984), medical doctors are preferred sources of help for somatic complaints (e.g., having cold sweats and trouble sleeping) whereas friends for psychosocial complaints (e.g., feeling low spirits and worried). Mental health professionals are rarely cited as a resource for any of these problems.

A more recent study with American university students has indicated that endorsement of biomedical causation of depression is linked to preferences for psychological treatments (Goldstein & Rosselli, 2003). In another study with immigrated Chinese American women (Ying, 1990), respondents who perceive depressive symptoms described in a vignette from a psychosocial perspective tend to recommend self-help and seeking help from informal social support network such as friends and family rather than from mental health professionals or Western trained medical doctors. By contrast, those who perceive the depressive symptoms from a somatic perspective tend to recommend seeking help from Western trained medical doctors rather than from mental health professionals, formal social support network, or self-help. Similar findings have been obtained by studies with other ethnic groups such as Mexican Americans (Urdaneta, Saldana, & Winkler, 1995) and Indians (Kulhara, Avasthi, & Sharma, 2000).

Taken together, the linkage between causal attribution and preferred sources of help is not straightforward, probably due to the focus of different psychiatric symptoms, and the use of different methodologies (interview vs. survey), research participants (adolescents vs. adults; psychiatric vs. non-psychiatric participants), and other variables across studies. Problems and life issues used for eliciting perceived causes are varied as well, ranging from academic problems to psychiatric problems.

The above studies are limited by overlooking the role that alternative medical beliefs play in causal attribution and help-seeking behavior (see Kleinman, 1980). B. O. Lee and Bishop (2001) demonstrated that traditional Chinese medical concepts constitute part of the causal and treatment beliefs about psychological problems among both clinical and community samples in Singapore. In fact, traditional Chinese medicine is the most established form of complementary and alternative medicine (CAM) in Singapore and used by Chinese and non-Chinese patients (G. B. W. Lee, Charn, Chew, & Ng, 2004; Lim, Sadarangani, Chan, & Heng, 2005; Ministry of Health, 2001; Quah, 1989; Tay, 2007). Thus, this study investigated people's perception toward causal beliefs derived from traditional Chinese medicine, and toward alternative medical practitioners as a potential source of help.

The Present Study

The above review suggests that the relationship between symptom attribution and preferred sources of help is complex and inconsistent, which may be in part due to the differential focuses. Most of the studies have focused on only one particular type of symptoms or disorders (e.g., depression or schizophrenia) and thus their findings are not generalizable to other symptoms. For those studies that have examined more than one symptom type, none of them consider the relationships between symptom attribution and sources of help across symptoms. It is important to study more than one symptom type within a single study so

as to determine how symptom attribution and preferred sources of help differ across symptoms. This was the main reason for conducting the present study. It aimed to find out: (1) causal attributions of depressive, anxious, and schizophrenic symptoms; and (2) the relationship between causal attributions and preferred sources of help across such symptoms. It was predicted that depressive and anxious symptoms would be more likely than schizophrenic symptoms to be attributed to psychosocial causation (Hypothesis 1) whereas schizophrenic symptoms would be more likely than depressive or anxious symptoms to be attributed to biomedical causation (Hypothesis 2).

Turning to how symptom attribution is related to preferred sources of help. Based on the review, it was predicted that the endorsement of psychosocial causation would be more positively correlated with seeking help from informal social support network consisting of family, friends/classmates, religious personnel, and mediums/shamans (Hypothesis 3) whereas the endorsement of biomedical causation would be more positively correlated with seeking help from professionals consisting of medical doctors, mental health professionals (psychologists, psychiatrists, and counselors), and practitioners of alternative medicine (e.g., traditional Chinese medicine, and aromatherapy) (Hypothesis 4).

The effect of gender will also be considered before testing the hypotheses since females have been found to be more receptive than males to seeking mental health services (Gim, Atkinson, & Whiteley, 1990; Leong & Zachar, 1999; Sheikh & Furnham, 2000; Yeh & Wang, 2000).

Method

Participants

A total of 235 university students (mean age = 24.70; *SD* = 3.77)

taking an educational psychology elective at a university in Singapore took part in this study. They majored in a wide range of subjects: 41% majored in humanistic and social sciences, 32% in business and management, and 27% in science and engineering. Although all of them took that psychology module as an elective, they came from different academic disciplines. Therefore, their responses may be more representative than those of psychology majors who are the typical research participants in most social science research.

The majority of the participants were female (72%). Most of the participants were also Chinese (82%), followed by Malay/Indian (18%). Some 32% of them were Buddhist/Taoist, 29% Christian, 20% non-religionist, and 18% Muslim/Hindu.

Measures

Participants completed a self-administered questionnaire measuring causal attributions of psychiatric symptoms, preferred sources of help for such symptoms, and the demographic background.

Causal Attributions of Psychiatric Symptoms

Participants were asked to interpret three vignettes describing depressive, anxious, and schizophrenic symptoms, respectively (see Appendix). They were then asked for their preferred sources of help for each type of symptoms based on a list of choices (e.g., family, friends, and mental health professionals) that will be described in details later.

The vignettes were adapted from DSM-IV (American Psychiatric Association, 1994), and the Anxiety and Depression sub-scales of the Symptom Questionnaire (Kellner, 1987). Diagnostic labels (e.g., anxiety disorders) were not given so as to minimize the effect of stigmatization on their responses.

For each symptom vignette, participants were asked to imagine having the symptoms described and then to indicate the extent to which they would agree with 22 causal statements of these symptoms using a 6-point scale ranging from 1 (“disagree strongly”) to 6 (“agree strongly”). These statements were derived from B. O. Lee and Bishop (2001) and a pilot study that involved 42 university students. Similar to the participants of the main study, they were also students enrolling in the same psychology elective at the same local university. However, they were not involved in the main survey. These pilot participants were given a questionnaire containing the three symptom vignettes. For each vignette, they were prompted by an open-ended question: “Suppose you have these symptoms, what would be their possible causes?” Two graduate students independently classified the responses into causal statements. For example, “problems with family members and friends” and “conflicts in boy-girl relationship” were categorized under the causal statement “Having problems with other people (e.g., family members, friends, colleagues).” Disagreements over the classification were resolved by discussion. Most of the causes were similar across the vignettes although varied in frequency. For example, “organic causes” were cited more for schizophrenic symptoms than for depressive or anxious symptoms whereas “relationship conflicts” were cited more for depressive symptoms than for anxious or schizophrenic symptoms. A total of 18 causal statements were generated from this pilot study, with additional 4 statements concerning the Chinese medical causal explanations adapted from B. O. Lee and Bishop (2001).

Preferred Sources of Help

In the main survey questionnaire, after responding to the causal statements, participants were asked to indicate how likely they would seek help for each type of symptoms from a list of sources using a 5-point scale ranging from 1 (“least likely”) to 5 (“most likely”). This

list, adapted from Cheung (1984) and Suan and Tyler (1990), presented seven sources: (1) family; (2) friend/classmate; (3) religious personnel; (4) medical doctor (e.g., family physician); (5) mental health professional (psychologist, psychiatrist, counselor); (6) practitioner of alternative medicine (e.g., traditional Chinese medicine, aromatherapy); and (7) medium/shaman.

Demographic Information

Finally, the survey questionnaire asked for the participants' background information: gender, age, ethnicity, religion, and major subject. It also asked them to indicate "Yes" or "No" as to whether they had ever consulted mental health professionals (e.g., psychiatrists, psychologists, counselors) for their personal problems.

Data Collection and Statistical Analysis

A total of 345 questionnaires were distributed to university students during their psychology tutorials and 246 (71%) were returned within two weeks. Since past research has found a link between previous counseling experience and help-seeking behavior (Halgin, Weaver, Edell, & Spencer, 1987; Solberg, Ritsma, Davis, Tata, & Jolly, 1994), 11 participants (4.5%) who had consulted mental health professionals (e.g., psychiatrists, psychologists, counselors) as indicated on their questionnaires were excluded from the study. This resulted in the final sample of 235.

Statistical Analysis

At the first stage, all data were explored through descriptive statistics using SPSS (version 14) for accuracy of data entry, missing values, and normality. As the amount of missing values in all variables was less than 5% (see Tabachnick & Fidell, 2001), the missing values

were replaced with the means. Assessing the normality, all variables had skewness and kurtosis within acceptable values.

Next, main statistical analyses were performed, including factor analysis, repeated-measures within-subjects MANOVA, and path analysis. Firstly, separate principal axis factoring were performed for the three symptom vignettes to explore the underlying structure of the 22 causal statements and to obtain a more manageable number of data set for further analysis. For each type of symptoms, items belonging to the same extracted factors (causation scales) were then tabulated for their internal consistency.

Secondly, to examine how symptom attributions were varied by types of symptoms (Hypotheses 1 and 2), repeated-measures within-subjects MANOVA was performed with the three symptom types (i.e., depressive, anxious, and schizophrenic) as independent variables, and the mean scores of causal attribution as dependent variables. When multivariate tests (Wilks' Lambda) indicated a significant effect, where *p*-value was set at .025 (.05 was divided by two hypotheses), *post hoc* comparison using the Bonferroni correction was then conducted.

Finally, path analysis was performed using EQS 6.1 (Byrne, 1994) to test how symptom attributions were related to preferred sources of help (Hypotheses 3 and 4). Independent variables (i.e., predictors) were symptom attributions, and dependent variables were the sources of help. Separate path analyses were performed for each type of psychiatric symptoms. Several fit indices were applied for model testing (Byrne, 1994; Tabachnick & Fidell, 2001), including chi-square, the comparative fit index (CFI), the incremental fit index (IFI), and the standardized root mean squared residual (SRMR). When the value of chi-square is small and close to 0, it indicates a good fit. But because chi-square tends to be larger in larger samples, models holding

approximately in the population would be wrongly rejected in larger samples (Jöreskog & Sörbom, 1993). Thus, additional fit indices are required. The CFI and IFI are tabulated for assessing the adequacy of a target model in relation to a baseline model (or a null model) that specifies no relationships among the variables composing the model. Values of CFI and IFI range from 0 to 1, with values exceeding .90 indicating a good fit to the data. The SRMR is the average difference between the sample variances and covariances, and the estimated population variances and covariances. Its values range from 0 to 1, with values of .08 or less indicating a better fit to the data.

Results

Symptom Attribution

Factor Analysis for Symptom Attribution Across Symptom Types

For each symptom type, factor analysis consistently yielded five factors with eigenvalue of greater than one. The five factors accounted for 66.1% of the total variance for depressive symptoms, 69.45% for anxious symptoms, and 74.25% for schizophrenic symptoms, respectively. These factors were then rotated with varimax rotation. Loadings for the rotated solution for each symptom type are presented in Tables 1–3. As shown, factor loadings are similar with same items across the three symptom types. The first factor consisted of 7 items and was labeled as “psychosocial causation”; the second factor consisted of 4 items and was labeled as “biomedical causation”; the third factor consisted of 4 items and was labeled as “traditional Chinese medical (TCM) causation”; the fourth factor consisted of 3 items and was labeled as “religious causation”; and the fifth factor consisted of 4 items and was labeled as “magical causation.” Tables 1–3 also present the internal consistencies (alpha) of these causal scales across the three symptom types.

Table 1. Factor Analysis for Causal Attribution for Depressive Symptoms

	Item	Factor loading				
		1	2	3	4	5
1	A serious illness happened to me or my close relative/friend	.45				
8	Low self-esteem	.55				
11	Having financial problems	.50				
18	A close relative or friend died	.61				
19	Being unable to cope with study- or work-related stress	.80				
20	Lacking meaning and purpose in life	.74				
21	Having problems with other people (e.g., family members, friends, colleagues)	.86				
3	The imbalance of hormones and chemicals in my body		.43			
5	Something going wrong within my body		.48			
17	A disorder of the brain or nervous system		.60			
22	An inherited physical cause		.37			
6	The blocked “qi” (energy)			.66		
9	Excess “heat” in my body			.76		
13	The imbalance of bodily energy			.73		
16	Excess “cold” in my body			.82		
12	Not having faith in God/a higher form of being				.88	
14	Not believing in God/a higher form of being				.93	
15	Not seeking help from God/a higher form of being				.94	
2	Being possessed by ghosts or evil spirits					.82
4	Black magic					.91
7	The loss of soul after a shock					.43
10	Curse					.72
Alpha (α)		.84	.63	.84	.95	.83

Note: Factor 1 = Psychosocial causation; Factor 2 = Biomedical causation;
 Factor 3 = Traditional Chinese medical (TCM) causation;
 Factor 4 = Religious causation; Factor 5 = Magical causation.

Table 2. Factor Analysis for Causal Attribution for Anxious Symptoms

	Item	Factor loading				
		1	2	3	4	5
1	A serious illness happened to me or my close relative/friend	.42				
8	Low self-esteem	.55				
11	Having financial problems	.59				
18	A close relative or friend died	.63				
19	Being unable to cope with study- or work-related stress	.70				
20	Lacking meaning and purpose in life	.79				
21	Having problems with other people (e.g., family members, friends, colleagues)	.84				
3	The imbalance of hormones and chemicals in my body		.54			
5	Something going wrong within my body		.52			
17	A disorder of the brain or nervous system		.67			
22	An inherited physical cause		.34			
6	The blocked “qi” (energy)			.74		
9	Excess “heat” in my body			.89		
13	The imbalance of bodily energy			.75		
16	Excess “cold” in my body			.75		
12	Not having faith in God/a higher form of being				.96	
14	Not believing in God/a higher form of being				.98	
15	Not seeking help from God/a higher form of being				.95	
2	Being possessed by ghosts or evil spirits					.84
4	Black magic					.92
7	The loss of soul after a shock					.42
10	Curse					.77
Alpha (α)		.84	.74	.91	.98	.86

Note: Factor 1 = Psychosocial causation; Factor 2 = Biomedical causation;
 Factor 3 = Traditional Chinese medical (TCM) causation;
 Factor 4 = Religious causation; Factor 5 = Magical causation.

Table 3. Factor Analysis for Causal Attribution for Schizophrenic Symptoms

Item	Factor loading				
	1	2	3	4	5
1 A serious illness happened to me or my close relative/friend	.53				
8 Low self-esteem	.66				
11 Having financial problems	.75				
18 A close relative or friend died	.54				
19 Being unable to cope with study- or work-related stress	.74				
20 Lacking meaning and purpose in life	.82				
21 Having problems with other people (e.g., family members, friends, colleagues)	.91				
3 The imbalance of hormones and chemicals in my body		.44			
5 Something going wrong within my body		.54			
17 A disorder of the brain or nervous system		.77			
22 An inherited physical cause		.35			
6 The blocked "qi" (energy)			-.75		
9 Excess "heat" in my body			-.89		
13 The imbalance of bodily energy			-.60		
16 Excess "cold" in my body			-.81		
12 Not having faith in God/a higher form of being				-.92	
14 Not believing in God/a higher form of being				-.98	
15 Not seeking help from God/a higher form of being				-.96	
2 Being possessed by ghosts or evil spirits					-.91
4 Black magic					-.92
7 The loss of soul after a shock					-.45
10 Curse					-.85
Alpha (α)	.89	.77	.89	.98	.94

Note: Factor 1 = Psychosocial causation; Factor 2 = Biomedical causation;
 Factor 3 = Traditional Chinese medical (TCM) causation;
 Factor 4 = Religious causation; Factor 5 = Magical causation.

As a whole, these results suggest that participants associated psychiatric symptoms with a combination of causal attributions that were conceptually similar to those reported in previous studies, notably psychosocial, biomedical, and religious causations.

Causal Attribution by Psychiatric Symptom

To examine whether causal attributions varied by symptom types, repeated-measures within-subjects MANOVA was preformed with the three symptom types (i.e., depressive, anxious, and schizophrenic) as independent variables, and the mean scores of causal attribution as dependent variables. *Post hoc* comparison using the Bonferroni correction would be conducted should multivariate tests (Wilks' Lambda) indicate a significant effect across symptom types.

Across the three types of psychiatric symptoms, endorsements were generally higher for psychosocial and biomedical causations (see Table 4). Overall, endorsements of all causal attributions differed by types of psychiatric symptoms, indicating that research participants held different views toward different psychiatric symptoms. Looking specifically at psychosocial and biomedical causations, it was found that depressive and anxious symptoms were more likely than schizophrenic symptoms to be attributed to psychosocial causation, Wilks' $\Lambda = .45$, $F(2, 233) = 144.44$, $p < .001$. This result therefore supported Hypothesis 1. Next, depressive symptoms were more likely than anxious and schizophrenic symptoms to be attributed to biomedical causation, but endorsements of biomedical causation were not significantly different between anxious and schizophrenic symptoms, Wilks' $\Lambda = .89$, $F(2, 233) = 144.44$, $p < .001$. Thus, these findings did not support Hypothesis 2 theorizing that schizophrenic symptoms would be more likely than depressive and anxious symptoms to be attributed to biomedical causation.

Table 4. Causal Attribution by Psychiatric Symptom

	Symptom #						MANOVA	
	Depressive		Anxious		Schizophrenic			
	M	SD	M	SD	M	SD		
Psychosocial causation	4.56 _a	.89	4.21 _b	.95	3.18 _c	1.26	.45	144.44*
Biomedical causation	3.67 _a	1.01	3.39 _b	1.05	3.41 _b	1.26	.89	144.44*
Traditional Chinese medical causation	2.88 _a	1.00	2.38 _b	1.09	2.27 _b	1.08	.67	56.99*
Religious causation	3.02 _a	1.62	2.81 _b	1.60	2.94 _{a,b}	1.75	.94	7.31*
Magical causation	2.22 _a	1.08	2.06 _b	1.04	3.01 _c	1.70	.69	52.32*

Notes: • # Response range for symptom attribution = 1 (disagree strongly) to 6 (agree strongly).

- Means in the same row sharing a common subscript do not significantly differ from each other.
- * $p < .001$

Relations of Symptom Attribution to Preferred Sources of Help

Before examining the relations of symptom attribution to preferred sources of help, separate independent-samples *t*-test for each symptom type was conducted to see the effect of gender on preferred sources of help. All results were insignificant. Hence, gender was not considered in the subsequent path analyses.

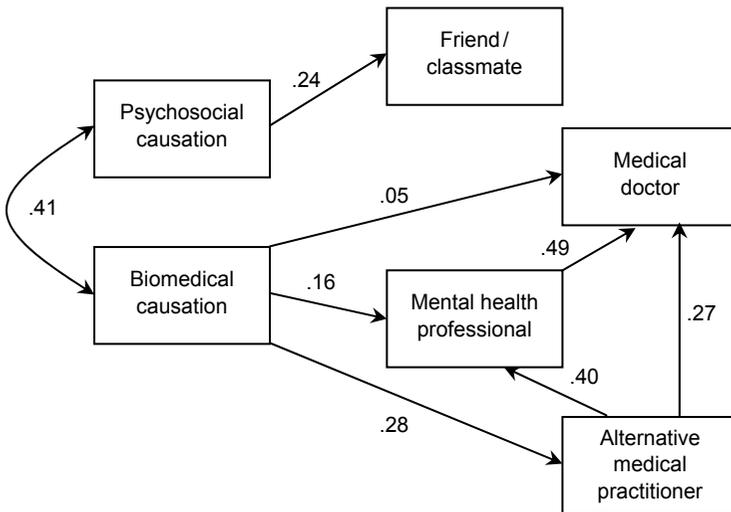
Next, separate path analyses (Byrne, 1994) were performed for each symptom type. As psychosocial and biomedical causations were the two most endorsed causal attributions (see Table 4), and for the purpose of testing Hypotheses 3 and 4, they were entered as independent variables (predictors) while all the seven sources of help were as dependent variables.

Depressive Symptoms

Although the independent model (i.e., null hypothesis) was rejected, χ^2 (28, $N = 235$) = 361.82, $p < .001$, the test of the hypothesis model showed that χ^2 (15, $N = 235$) = 240.55, $p < .001$, CFI = .73, IFI = .75, and SRMR = .17. Therefore, *post hoc* model modifications had to be performed so as to develop a better fitting. Based on the Lagrange multiplier test and the Wald test, three paths were deleted from psychosocial causation to family, religious personnel, and medium/shaman, respectively. Three paths were added from mental health professional to medical doctor, from practitioner of alternative medicine to mental health professional, and from practitioner of alternative medicine to medical doctor. The final model fitted the data well. Figure 1 presents the final model tested with standardized coefficients (β). As shown, psychosocial and biomedical causations were positively correlated with each other ($r = .41$, $p < .05$). Turning to the relationships between causations and preferred sources of help, psychosocial causation was positively associated with seeking help from

friend ($\beta = .24, p < .05$). Biomedical causation was positively associated with seeking help from medical doctor ($\beta = .05, p < .05$), mental health professional ($\beta = .16, p < .05$), and alternative medical practitioner ($\beta = .28, p < .05$), respectively. These three sources of help were also positively associated with each other. The source of medical doctor was associated with mental health professional ($\beta = .49, p < .05$) and alternative medical practitioner ($\beta = .27, p < .05$), respectively. The source of alternative medical practitioner was in turn positively associated with mental health professional ($\beta = .40, p < .05$).

Figure 1. Model Displaying the Relations of Symptom Attribution to Preferred Sources of Help for Depressive Symptoms



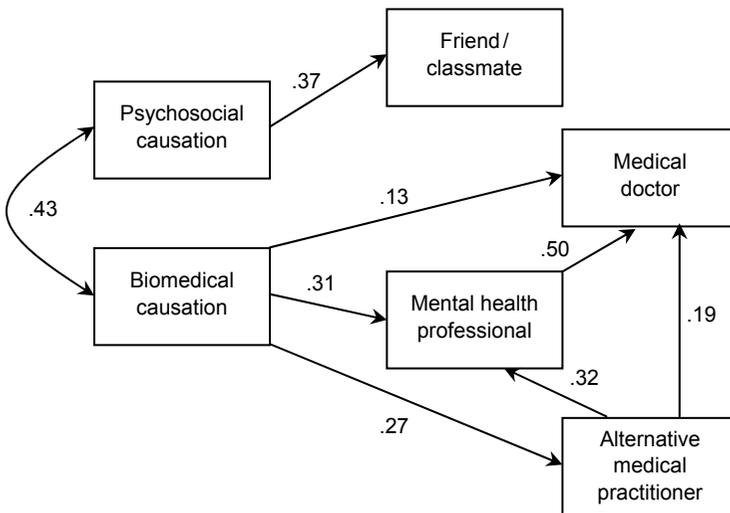
Note: $\chi^2 (7, N = 235) = 20.32, p < .001, CFI = .95, IFI = .95, \text{ and } SRMR = .07$. All paths are significant at $p < .05$.

Anxious Symptoms

Looking at anxious symptoms, although the independent model (i.e., null hypothesis) was rejected, $\chi^2 (28, N = 235) = 264.12, p < .001$, the test of the hypothesis model showed that $\chi^2 (15, N = 235) = 140.55$,

$p < .001$, CFI = .83, IFI = .86, and SRMR = .12. Therefore, *post hoc* model modifications had to be performed so as to develop a better fitting. Based on the Lagrange multiplier test and the Wald test, three paths were deleted from psychosocial causation to family, religious personnel, and medium/shaman, respectively. Three paths were added from mental health professional to medical doctor, from practitioner of alternative medicine to mental health professional, and from practitioner of alternative medicine to medical doctor. The final model fitted the data well. Figure 2 presents the final model tested with standardized coefficients (β). As shown, psychosocial and biomedical causations were positively correlated with each other ($r = .43$, $p < .05$). Turning to the relationships between causations and preferred sources of help, psychosocial causation was positively associated with seeking help from friend ($\beta = .37$, $p < .05$). Biomedical causation was positively associated

Figure 2. Model Displaying the Relations of Symptom Attribution to Preferred Sources of Help for Anxious Symptoms



Note: $\chi^2 (7, N = 235) = 3.46$, $p < .001$, CFI = .98, IFI = .97, and SRMR = .03. All paths are significant at $p < .05$.

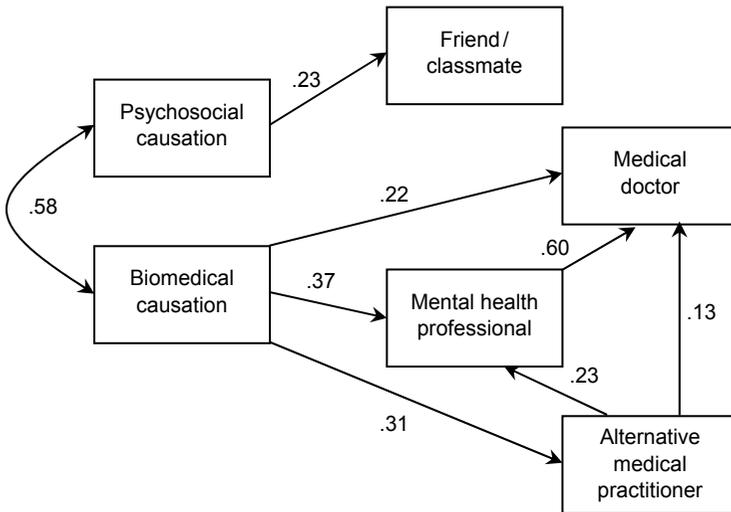
with seeking help from medical doctor ($\beta = .13, p < .05$), mental health professional ($\beta = .31, p < .05$), and alternative medical practitioner ($\beta = .27, p < .05$), respectively. These three sources of help were also positively associated with each other. The source of medical doctor was associated with mental health professional ($\beta = .50, p < .05$) and alternative medical practitioner ($\beta = .19, p < .05$), respectively. The source of alternative medical practitioner was in turn positively associated with mental health professional ($\beta = .32, p < .05$).

Schizophrenic Symptoms

For schizophrenic symptoms, although the independent model (i.e., null hypothesis) was rejected, $\chi^2 (28, N = 235) = 353.18, p < .001$, the test of the hypothesis model showed that $\chi^2 (15, N = 235) = 124.50, p < .001$, CFI = .83, IFI = .85, and SRMR = .10. Therefore, *post hoc* model modifications had to be performed so as to develop a better fitting. Based on the Lagrange multiplier test and the Wald test, three paths were deleted from psychosocial causation to family, religious personnel, and medium/shaman, respectively. Three paths were added from mental health professional to medical doctor, from practitioner of alternative medicine to mental health professional, and from practitioner of alternative medicine to medical doctor. The final model fitted the data well. Figure 3 presents the final model tested with standardized coefficients (β). As shown, psychosocial and biomedical causations were positively correlated with each other ($r = .58, p < .05$). Turning to the relationships between causations and preferred sources of help, psychosocial causation was positively associated with seeking help from friend ($\beta = .23, p < .05$). Biomedical causation was positively associated with seeking help from medical doctor ($\beta = .22, p < .05$), mental health professional ($\beta = .37, p < .05$), and alternative medical practitioner ($\beta = .31, p < .05$), respectively. These three sources of help were also positively correlated with each other. The source of medical doctor was

associated with mental health professional ($\beta = .60, p < .05$) and alternative medical practitioner ($\beta = .13, p < .05$), respectively. The source of alternative medical practitioner was in turn positively associated with mental health professional ($\beta = .23, p < .05$).

Figure 3. Model Displaying the Relations of Symptom Attribution to Preferred Sources of Help for Schizophrenic Symptoms



Note: $\chi^2 (7, N = 235) = 17.10, p < .001, CFI = .98, IFI = .98, \text{ and } SRMR = .06.$
 All paths are significant at $p < .05.$

Discussion

The purpose of this study was to understand causal attributions of depressive, anxious, and schizophrenic symptoms; and the relationship between causal attributions and preferred sources of help for such psychiatric symptoms. The main findings indicate that although causal attributions vary by symptom types, the relationships between psychosocial and biomedical causations, and the preferred sources of help are consistent across symptom types.

Endorsement of Causal Attribution

Through factor analysis, five causal attributions were identified for each symptom type, namely psychosocial, biomedical, traditional Chinese medical (TCM), religious, and magical causations. Conceptually similar causations classified as psychosocial, biomedical, and supernatural causations have also been reported by previous studies (e.g., Angermeyer & Matschinger, 1999; Çırakoğlu et al., 2003; Edman & Koon, 2000), suggesting that people across cultures may hold similar structures of causal beliefs.

Causal Attribution by Symptoms

The endorsement patterns of causal attribution vary by types of psychiatric symptoms. As predicted, depressive and anxious symptoms are more likely than schizophrenic symptoms to be attributed to psychosocial causation. Since depressive and anxious symptoms are more commonly experienced in life, and university students tend to experience mood swings and anxiety due to their study stress (Chandler & Gallagher, 1996; Lucas & Berkel, 2005), they may draw on their personal and other people's life experiences, or any external contextual information (see Baumann, Cameron, Zimmerman, & Leventhal, 1989) to interpret their depressive and anxious symptoms.

Contrary to the study hypothesis and previous findings (Angermeyer & Matschinger, 1999; Jorm et al., 1997), schizophrenic symptoms are not perceived to be more biologically caused than are depressive or anxious symptoms. Instead, depressive symptoms are viewed to be more biologically caused than are the other two types of symptoms. These perceptions may be influenced by the ways in which depressive symptoms are phrased in the vignette (see Appendix). The semantic presentation of depressive symptoms may sound more somatic and medical than those of anxious and schizophrenic symptoms. Another

possible explanation is that when responding to depressive symptoms (or other symptom sets), participants may knowingly or unknowingly connect these symptoms to the label of *depression*, even though the diagnostic label was not provided in the questionnaire. The linkage between symptoms and labels is bi-directional and symmetrical (Leventhal et al., 2003). When experiencing certain symptoms, one may seek an illness label to represent these symptoms; when given an illness label, one may seek symptoms to represent this illness label. Thus, the research participants may respond to the symptom vignettes according to their implicit labels. They may also be more knowledgeable about the biomedical aspects of “depression” than those of “schizophrenia” (since the former is more prevalent than the latter) and thus believe that the former is more biologically caused than is the latter. However, this analysis is highly speculative and needs empirical confirmation.

Relations of Symptom Attribution to Preferred Sources of Help

Unlike the previous studies, the present study used path analysis to examine more than one causal attribution and preferred source of help within a single analysis, and therefore may delineate a more complete picture of the associations among these variables. However, it is important to interpret the paths between variables as correlational rather than linear since the methodology of the present study is cross-sectional rather than longitudinal.

Path analyses show that (1) psychosocial causation is positively correlated with biomedical causation; (2) psychosocial causation is positively associated with the source of friend/classmate; (3) biomedical causation is positively associated with the sources of medical doctor, mental health professional, and alternative medical practitioner, respectively; and (4) medical doctor, mental health professional, and alternative medical practitioner are positively associated with each other.

These results are consistent across the three symptom types although the standardized coefficients are varied.

The positive correlation between psychosocial and biomedical causations suggests that causal attribution is multidimensional, and people tend to interpret their symptoms from a combination of psychosocial and biomedical perspectives (Cameron & Leventhal, 2003; Kleinman, 1980; B. O. Lee & Bishop, 2001; Luk & Bond, 1992). As a result, people are likely to turn to more than one source of help either sequentially or simultaneously (Kirmayer, 2004; Kleinman, 1980; Leventhal et al., 2003; Lin & Cheung, 1999). Thus, it is important to consider both psychosocial and biomedical causations in their relations to choices of help.

Psychosocial Causation and Preferred Sources of Help

In this study, psychosocial causation is positively associated with seeking help from friend/classmate but not with other informal social resources such as family, and religious personnel. The absent link to family as a resource requires special attention since it is often regarded as an important source of support for mental health problems in the collectivistic and family-oriented culture in Asian societies (Leong & Lau, 2001; Narikiyo & Kameoka, 1992; Sue & Sue, 2002). This result also contradicts Ying's (1990) finding that family in addition to friend was identified as a potential source of help when depressive symptoms were attributed to psychosocial factors. The research participants in this study did not choose family as a potential source probably due to the items used for measuring the construct of psychosocial causation (see Tables 1–3). These items, which were generated from a group of university students in a pilot study, reflect the types of life issues that young adults usually face, such as low self-esteem and financial difficulties. Participants may feel more appropriate to share these concerns with friends having similar life experiences rather than with

family members. As found by Yeh and Wang (2000), Asian university students in America prefer to seek supports from their friends rather than from parents and siblings.

Furthermore, use of external resources like friends and classmates may indicate the limited resources that family can provide in a contemporary society. Most of the research participants were in their early twenties and were likely to come from a nuclear family instead of a traditional extended family system that has gradually diminished in the Singapore society. Facing the limited supports that a nuclear family system is able to offer, participants may turn to external resources such as friends. It is also awkward to approach family for help when it is a source of problem itself.

Biomedical Causation and Preferred Sources of Help

Compared to psychosocial causation, biomedical causation is associated with more choices of help including the sources of medical doctor, mental health professional, and alternative medical practitioner. To some extent, these findings are consistent with previous studies in which biomedical causation was associated with seeking help from medical doctors (Banerjee & Roy, 1998; Ying, 1990), or with willingness to seek professional psychological help (Han, Chen, Hwang, & Wei, 2006; Schnittker et al., 2000). However, the findings contradict other studies in which the choice of mental health professional (Boey, 1999; L. L. Chen, 1987; Robbins & Greenley, 1983) or medical doctor (Cheung et al., 1983) was associated with psychosocial causation.

As found in the present study, biomedical causation is associated with medical doctor, mental health professional, and alternative medical practitioner. Although a correspondence between biomedical causation and medical doctor and alternative medical practitioner is not unexpected, the correspondence between biomedical causation and

mental health professional deserves some length of discussion. In fact, as indicated by the standardized coefficients across the three symptom types (see Figures 1–3), biomedical causation is more strongly related to the source of mental health professional than that of medical doctor.

The connection between biomedical causation and the source of mental health professional may suggest the lack of understanding of the differential roles played by medical doctors and mental health professionals, and the medicalization of mental health professionals as a whole. The mental health profession in Singapore is less developed than those in other countries such as the United States, the United Kingdom, and Australia (see L. H. Chong & Ow, 2003; Sim, 1999). The scene has been politically dominated and overshadowed by biological psychiatry, with the non-medical mental health professionals such as psychologists and counselors playing a secondary role due to their lack of legal status. Under the power of organized psychiatry, a medical frame and approach is used to define, understand, and manage mental health issues (see Conrad, 1992). As a result, general public, including the student sample here, may mistakenly treat mental health professionals as medical or para-medical personnel. They may not realize that mental health professionals are a heterogeneous group of professionals who are not necessarily medically trained. Furthermore, at the time when this study was conducted, the research participants did not have any prior experience with counseling. They may not be familiar with the roles, expertise, and theoretical orientations of mental health professionals. Participants who primarily ascribes psychiatric symptoms to biomedical factors may perceive mental health professionals to be capable of managing their “medical symptoms.”

The medicalization of the role of mental health professionals may

also be due to the ambiguity of the term “mental health professional” used in the questionnaire. The participants may associate the word “mental” with “mental illness” and “mental disorders” that sound like medical disease. In fact, the name of the local psychiatric hospital is called “Institute of Mental Health.” In future research, instead of using the term “mental health professional,” it may be more appropriate to use “counselor,” “social worker,” or “psychologist.”

Not only is biomedical causation associated with the source of mental health professional, it is also associated with alternative medical practitioner. As indicated by the standardized coefficients (see Figures 1–3), although the choice of alternative medical practitioner is positively associated with that of medical doctor, the biomedical causation is more strongly related to alternative medical practitioner than to medical doctor. In Singapore, CAM is commonly used alongside conventional medicine (G. B. W. Lee et al., 2004; Lim et al., 2005) with traditional Chinese medicine as the most established form of alternative medicine (Ministry of Health, 2001; Quah, 1989). Living in such a pluralistic medical system, people are likely to hold a health belief model integrating beliefs from biomedicine and alternative medicine, and have access to both types of practitioners. Although the prevalence rate of CAM use for psychiatric symptoms has not been studied in Singapore, it has been well documented in overseas studies (Kessler et al., 2001; Mamtani & Cimino, 2002; Roy-Byrne et al., 2005; Sparber & Wootton, 2002). Thus, the potential roles of alternative medicine for managing psychiatric symptoms should not be overlooked.

Path analysis also indicates positive associations among the sources of medical doctor, mental health professional, and alternative medical practitioner. This finding may imply that participants are open to more than one type of professional for managing psychiatric symptoms.

Implications for Mental Health Services for University Students

As mentioned at the beginning of this article, one of the reasons for Asians to underutilize mental health services is their preferences for informal social support. However, as the present study suggests, whether using informal or professional care is related to how one perceives the causes of psychiatric symptoms. Thus, instead of asking whether Asians underutilize mental health services, it is more practical to ask what causal attribution is related to utilizing what types of resources for what types of psychiatric symptoms. Thus, causal attributions should be considered as one important element in both public education and clinical setting, since causal attributions are modifiable through education and counseling.

Public education and outreach programs should be organized to enhance the visibility of mental health services in university so as to increase the utilization of such services. Students should be introduced to different types of mental health professionals (e.g., psychiatrists, psychologists, social workers, and counselors) as well as their roles and functions. This information will help them understand the available resources in the market.

In the outreach programs, causes for various psychiatric symptoms should also be covered. Biomedical causation may be appropriately emphasized since it is associated with utilization of mental health professionals. In a study with university students in Taiwan, Han et al. (2006) found that an increase in the students' knowledge on the biological attribution of depression through education enhanced their willingness to seek professional help. These researchers theorized that the biological education might have legitimized depression as a *disease entity* in societies that emphasized emotional constraints. Therefore, a medicalization of emotional distress may be culturally sensitive to Asian

conceptualizations of mental disorders, and has implications for their utilization of mental health services (see Kleinman, 1980).

When counseling with university students in Singapore, it is important for professionals not to work with individual clients alone but to bring in their friends as co-helpers. Besides friends, a one-stop center bringing together medical doctors, mental health professionals, and alternative medical practitioners may be set up in university since students are receptive to receiving help from a combination of such therapists. It will be a challenge for a non-medically trained mental health professional to work in this setting and with clients holding a biomedical attribution. The professional has to work along with the clients' biomedical beliefs so as to tactfully broaden their beliefs, and eventually help them see the relevance of psychosocial elements to their psychiatric symptoms and the usefulness of psychosocial interventions.

Limitations of the Study

It is important to acknowledge several limitations of this study. Firstly, generalization of the findings to all university students may be limited because the research participants were students enrolling in a psychology module. Their responses to the questionnaire may be influenced by their knowledge of psychology and human emotions even though they did not have any counseling experiences prior to participating in this survey. Nonetheless, these findings are useful for generating and testing research hypotheses with more representative samples. Secondly, the present study is neither experimental nor longitudinal, especially in terms of the pathways of utilizing different sources of help; as such it is difficult to draw firm conclusion about the relationship between causal attribution and preferred sources of help. While causal attribution may influence the choices of help, the reverse may be equally possible. Causal beliefs may be formed after receiving help because helpers such as family members, clergy, or professionals

are likely to influence the helpseekers' causal beliefs. The third limitation concerns with the survey instrument used for this study. Although it is culturally more appropriate for local use, it requires further validation particularly in terms of its test-retest reliability.

Note

1. Singapore is predominantly an Asian urban society that consists of mainly ethnic Chinese (75%), followed by Malays (14%), and Indians (9%) (Department of Statistics, 2006).

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Appendix: Vignettes of Three Psychiatric Symptoms

Vignette 1: Depressive Symptoms

Feeling sad, empty, useless and unworthy, desperate, terrible, suicidal, hopeless; feeling like crying; significant weight loss when not dieting; decrease in appetite; sleeping difficulty or excessive sleeping, concentration difficulty; feeling fatigued or loss of energy, thinking of death or dying; not being able to enjoy yourself; reduced interest in the pursuit of everyday activities.

Vignette 2: Anxious Symptoms

Feeling nervous, distressed, tense, frightened, restless, worried, panic, irritable; sleep disturbances; being highly strung; feeling that something bad will happen; feeling fearful in certain situations or of certain people and objects; muscle tension; sweating; dry mouth; breathlessness, rapid pulse.

Vignette 3: Schizophrenic Symptoms

You are hearing voices that other people do not hear, or seeing things that other people do not see; believing that the government has planted a radio transmitter in your brain; having difficulty in organizing your thoughts.

新加坡大學生對精神病的症狀歸因及求助取向

過往的研究顯示，亞洲人未有充分使用精神健康服務。要增加這類服務的使用情況，方法之一便是了解他們對精神病的成因信念及求助行為。本研究旨在探討新加坡大學生對抑鬱、焦慮、精神分裂這三類精神病症狀的歸因與求助取向的關係。研究以問卷調查方法搜集資料，並以路徑分析方法來檢驗。問卷附有描述三類症狀的短文。研究結果顯示，歸因隨不同症狀而別。例如，抑鬱及焦慮症狀比精神分裂症狀較多歸因於社會心理因素。對不同症狀類型的獨立路徑分析結果表明，社會心理因素與生物醫學因素互有關連，而它們又與不同的求助取向相關。社會心理因素與求助於朋友／同學相關，而生物醫學因素與求助於醫生、精神健康專業人士及另類療法治療師相關。求助於各類專業人士亦彼此相關。研究結果指出，為大學生提供相關的精神健康服務時，應注意精神病的各種症狀歸因，尤其是生物醫學歸因方面。而且，大學生或許較易接受整全的治療，治療隊伍應包括朋友、醫生、精神健康專業人士及另類療法治療師。