DOI: http://dx.doi.org/10.11144/Javeriana.upsy16-1.mhls

Mental Health Literacy toward Schizophrenia in College Students from El Salvador and the United States of America*

Conocimiento sobre Esquizofrenia en Estudiantes Universitarios de El Salvador y los Estados Unidos de América

Received: 14 June 2013 | Accepted: 23 January 2017

Esmeralda Valdivieso Mora[a]
Universidad Centroamericana José Simeón Cañas, El Salvador
ORCID: http://orcid.org/0000-0002-4180-0528

ABSTRACT

The present study tested the hypothesis that El Salvador (E.S.) college students will show less knowledge, recognition, and help-seeking attitudes, and more social distance and negative attributions toward schizophrenia than will U.S. students. It is also of interest in this study to investigate if E.S. college students would have lower mental health literacy and thus, more social distance attitudes toward schizophrenia, than would U.S. students. Discriminant function analysis (DFA) was used. The predicted variable was country of membership: El Salvador and the U.S. The predictors were recognition, knowledge, social distance, help-seeking attitudes, and negative attribution toward schizophrenic patients. The participants (N = 340) were students from a university in E.S. and in California. Through a survey, participants were asked to diagnose a person described in a case vignette. Knowledge of schizophrenia and social distance attitudes were measured. Principal component analyses using oblimin rotation were conducted to build composite factors from the observed variables. The discriminant function accurately predicted 74.4% of the participants' country of membership, $\chi^2(1) = 75.23$, $p < 0.001$. At the individual level, 69.9% of individuals from the U.S. and 77.5% of individuals from E.S. were correctly classified. Furthermore, results indicated that U.S. students recognized schizophrenia at a higher rate, compared to E.S. students. In the E.S. group, social distance attitudes differed with level of MHL. These findings are troublesome in that social distance attitudes inhibit help-seeking behavior. Education programs aimed at promoting mental health awareness among the E.S. population are indicated.

Keywords
mental health literacy; stigma; schizophrenia.

RESUMEN

El presente estudio investigó la diferencia en conocimiento sobre esquizofrenia, su identificación, actitudes de búsqueda de ayuda, distanciamiento social y atribuciones negativas entre estudiantes universitarios salvadoreños y estadounidenses. También fue de interés en este estudio explorar si los estudiantes universitarios salvadoreños con menor nivel de conocimiento buscarían mayor distanciamiento social

[a] Autor de correspondencia. Correo electrónico: evaldivieso@uca.edu.sv

Para citar este artículo: Valdivieso Mora, E. (2017). Mental Health Literacy toward Schizophrenia in College Students from El Salvador and the United States of America, *Universitas Psychologica, 16*(1), 1-10. http://dx.doi.org/10.11144/Javeriana.upsy16-1.mhls

hacia una persona con esquizofrenia, que los estudiantes estadounidenses. Se utilizó análisis de función discriminante (DFA). La variable predicha fue país de pertenencia: El Salvador y Estados Unidos. Los predictores fueron el reconocimiento, el conocimiento, la distancia social, la actitud hacia búsqueda de ayuda y la atribución negativa a las personas con esquizofrenia. Los participantes (N = 340) fueron estudiantes de una universidad en E.S. y en California. A través de una encuesta, se pidió a los participantes que diagnosticaran a una persona, a través de una historia de caso. Se midió el conocimiento sobre la esquizofrenia y las actitudes de distanciamiento social. Se utilizó análisis de componentes principales (PCA) con rotación oblimin para construir factores compuestos de las variables observadas. La función discriminante predijo con precisión el 74.4% del país de pertenencia de los participantes, $\chi^2(1) = 75.23$, $p < 0.001$. A nivel individual, el 69.9% de los individuos de los Estados Unidos y el 77.5% de los individuos de E.S. fueron clasificados correctamente. Los resultados indicaron que los estudiantes estadounidenses reconocían la esquizofrenia a una tasa más alta, en comparación con los estudiantes salvadoreños. En el grupo de E.S., las actitudes de distancia social diferían con el nivel de conocimiento sobre esquizofrenia. Estos hallazgos son problemáticos porque las actitudes de distancia social (estigma) obstaculizan la búsqueda de ayuda. Se recomiendan programas educativos dirigidos a promover la concientización sobre salud mental entre la población salvadoreña.

Palabras clave
salud mental; estigma; esquizofrenia.

Mental health literacy (MHL) is defined as "knowledge and beliefs about mental disorders which aid their recognition, management, and prevention" (Jorm et al., 1997, p. 182). MHL and stigma toward mental disorders are closely related. Stigma is considered a main promoter of social rejection (Acuña & Bolis, 2005; Perlick et al., 2001). MHL plays an important role in social rejection, since it is thought to reduce it, and thus, to promote help-seeking behaviors (Jorm et al., 2006). Studies of MHL of schizophrenia are of significant interest given that this disorder is one of the most stigmatized of all major mental illnesses (Angermeyer & Mastchinger, 2003; Lauber, Nordt, Falcato, & Rössler, 2004).

Studies of MHL and social rejection suggest that inaccurate recognition and false beliefs about schizophrenia raise social distance toward those suffering from this disorder (Link, Phelan, Bresnahan, Stueve, & Pescosolido, 1999; Papadopoulos, Leavey, & Vincent, 2002; Taskin et al., 2003). According to Penn et al. (1994), individuals better informed about schizophrenia are likely to be less prejudiced towards those afflicted. This relationship may be influenced by culture (Kurihara, Kato, Sakamoto, Reverger, & Kitamura, 2000), level of general literacy, and socio-structural factors (e.g., poverty, budget allocation for mental health) of a country (Mubbashar & Farooq, 2002; Suhail, 2005). Cross-cultural studies have shown that developing countries have less overall knowledge of schizophrenia, and a greater belief that its etiology is based on sociological rather than biological factors (Furnham & Chan, 2004; Papadopoulos et al., 2002). Also, individuals from developing countries are less likely to seek professional help for mental illness than are individuals from more developed countries (Shah, Draycott, Wolpert, Christie, & Stein, 2004). Generally, recognition of schizophrenia in a case vignette is high across countries, ranging from 70 to 90 percent (Angermeyer & Matschinger, 2003; Lauber, Nordt, Falcato, & Rössler, 2003; Link et al., 1999). Toledo Piza and Blay (2004) concluded that in Latin America, schizophrenia is the most identifiable mental illness, just as it is in developed countries (e.g., Brazil: D'Amorim, 1981; Dominica: Kohn, Sharma, Camilleri, & Levav, 2000; Mexico: Parra, 1987; Nicaragua: Penayo, Jacobsson, Caldera, & Bermann, 1988). In fact, they found that studies carried out in Latin America indicate a general positive attitude toward mental illnesses (e.g., Mexico: Garcia-Silberman, 1998; Argentina: Stefani, 1984). However, Toledo Piza and Blay (2004) suggested that these studies may have methodological shortcomings, and their conclusions may be somewhat suspicious. Acuña and Bolis (2005) noted that knowledge, social rejection, stigma, and access to health services are problems to which little attention is given to in Latin America. No cross-cultural study between a Central American country and a developed country comparing the different aspects of MHL and stigma toward

schizophrenia, or any other mental illness, has been carried out.

The present study attempts to determine which components of MHL contribute to the differences between E.S. and the U.S. It is hypothesized that E.S. college students will show less knowledge, recognition, and help-seeking attitudes, and more social distance and negative attributions toward schizophrenia than will U.S. students.

Method

Experimental design

Discriminant function analysis (DFA) was used. The predicted variable was country of membership: El Salvador and the U.S. The predictors were recognition, knowledge, social distance, help-seeking attitudes, and negative attribution toward schizophrenic patients.

Participants

Three hundred forty subjects participated in the study, 136 college students from a university in southern California, and 204 students from a university in San Salvador, El Salvador. The mean age of the participants was 22.02 years, and 54.7% were women. Demographics are shown in Table 1.

TABLE 1

Sociodemographic characteristics of participants by country (in percentages)

Sociodemographic	Total	E.S.	U.S.
Sex			
Men	45.3	48	42.6
Women	54.7	52	57.4
Occupation status			
Not employed	50	66.7	33.3
Employed	50	33.3	66.7
Religious affiliation			
None	21.2	8.8	33.6
Catholic	48.1	70.1	26.1
Protestant	21.9	17.6	26.1
Other	8.8	3.5	14.2
Diagnosed with mental illness			
Yes	4.7	2.0	7.4
No	95.3	98.0	92.6
Family member with diagnosis			
Yes	27.3	17.6	37
No	72.7	82.4	63

Source: own work.

Instrument

A survey was designed, using a case vignette of a person with schizophrenia (Jorm et al., 2005) that met the diagnostic criteria of DSM-IV and ICD-10. Participants were asked whether the person was normal or abnormal, and attached a self-generated diagnosis. The items about knowledge of the disorder were derived from Furnham and Chan (2004). The participants were asked about biological and sociological factors in the etiology and treatment of schizophrenia. Misconceptions of the disorder were also included. The social distance attitudes scale measured how much people wished to avoid social interaction with schizophrenic patients (Lauber et al., 2004; Link et al., 1999; van 't Veer, Kraan, Drosseart, & Modde, 2006). A scale, based on Furnham and Chan (2004) and van 't Veer et al. (2006), appraised the negative value the participants attributed to schizophrenia in terms of intelligence, trustworthiness, socioeconomic level, self-control, and aggressiveness. Finally, a help seeking attitude scale was designed ad hoc. All scales used a Likert design in which responses ranged from 1 to 5, denoting the level of agreement with the sentences: "disagree", "somewhat disagree", "neutral", "somewhat

agree", and "agree". A native Spanish speaker from El Salvador translated the questionnaire into Spanish. The translation was checked and validated by a Spanish major professor at the university in southern California.

Procedure

The participants were randomly selected from both university campuses. College students interested in participating in this study were interviewed individually. A consent form was applied. Students were given the first section of the questionnaire. They read the case vignettes, and based on their impression they answered items on the following sections. Sociodemographic information was requested.

Statistical analysis

Principal component analyses (PCA) using oblimin rotation were conducted to build composite factors from the observed variables. The new composite factors represented each of the following scales: social distance, negative attribution, help-seeking attitude, knowledge on sociological and biological factors, and misconceptions of schizophrenia. Bartlett's test of sphericity indicated that the matrices were factorable (all $p < 0.05$). Items that reached statistical and practical (coefficients > 0.30) significance were selected to build the new measures. Follow up PCA were computed only with the selected items to obtain the new factor loadings or coefficients that were used in the composite scales (see Table 2). A DFA was performed using recognition and the six MHL factors to determine how each of these constructs contributed most to country differences.

TABLE 2
Principal Components Analysis with Oblimin Rotation: Items per scale

Scale/items	*KMO*[1]	*Eigenvalue*[2]	*Loading*	*Respecified loading*
Social distance*	0.764	2.29 (38.1)		
(I would not accept if they want to)				
- Be my roommate			0.325	
- Be my coworker			0.658	
- Be my neighbor			0.707	
- Marry someone from my family			0.704	
- Be my friend			0.688	
- Have a rehabilitation center near my house			0.530	
Help-seeking attitude*	0.5	1.57 (78.5)		
(If you had a family member with schizophren.)				
- Would you seek help for the patient			0.886	
- Would take him/her to doctor's appointments			0.886	
Negative attributions*	0.593	1.60 (53.3)		
(Individuals with schizophrenia)				
- Are not intelligent individuals			0.015	-
- Are not trustworthy			0.657	0.633
- Belong to lowest SES			-0.016	-
- Lose control easily			0.730	0.750
- Are violent and aggressive			0.798	0.797

Notes: The respecified loadings correspond to a follow-up PCA.
1 KMO = Kaiser-Meyer-Olkin (proportion of common variance)
2 Kaiser's rule of eigenvalue > 1 was applied.
Percentage of variance in parenthesis.
*Bartletts's test of sphericity $p < 0.001$
**Bartletts's test of sphericity $p = 0.012$
Source: own work

TABLA 2 (cont.)
Principal Components Analysis with Oblimin Rotation: Items per scale

Scale/items	*KMO*[1]	*Eigenvalue*[2]	*Loading*	*Respecified loading*
Sociological factors (knowledge)*	0.6	1.53 (50.9)		
- Family rejection is the cause of schizophrenia			0.649	
- Stressful life events contribute			0.760	
- The best treatment is a less stressful society			0.728	
Biological factors (knowledge)**	0.538	1.21 (40.4)		
- Pharmacological treatment is helpful			-2.54	-
- Electroconvulsive therapy helps			-0.061	-
- S. is caused by blood relative heredity			0.688	0.674
- S. is caused by a brain chemical imbalance			0.562	0.528
- There is a progressive deterioration			0.588	0.691
Misconceptions (knowledge)*	0.716	2.02 (50.4)		
- Schizophrenia is contagious			0.113	-
- It is caused by sexual abuse in childhood			0.651	0.658
- It is caused by lack of will power and faith			0.708	0.712
- It is the result of the 'sick' society we live			0.793	0.793
- Best treat. is only letting them lead their life			0.680	0.670

Notes: The respecified loadings correspond to a follow-up PCA.
1 KMO = Kaiser-Meyer-Olkin (proportion of common variance)
2 Kaiser's rule of eigenvalue > 1 was applied. Percentage of variance in parenthesis.
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Source: own work

Results

Effect of country on MHL

Recognition. Recognition rates of schizophrenia differed between the U.S. and E.S. college students, χ^2 (1, 340) = 19.98, $p < 0.001$. The U.S. rate (45.6%) was about double the E.S. rate (22.5%).

Social distance. The social distance scores showed that individuals from E.S. were more likely to avoid interacting with schizophrenic patients than were those from the U.S. ($p < 0.001$). The differences in social distance were most pronounced when considering these patients as potential coworkers, in-law family members, neighbors, and roommates ($p < 0.05$). No differences between countries were found when participants considered these patients as friends or when they considered having a rehabilitation center near their houses (see Table 3).

Help seeking attitudes. Salvadorans had lower scores on the composite measure of help-seeking attitudes than did Americans ($p = 0.019$). Although no differences between countries were found when asked if they would seek help for a schizophrenic family member, they differed when asked for a specific action to seek help (see Table 3). Individuals from E.S. were less willing to go with this potential family member to a doctor's appointment than were those from the U.S. ($p = 0.002$).

Negative attributions. Higher mean scores on the negative attribution scale were found among the E.S. students (see Table 3). In particular, Salvadorans attributed more negative values to schizophrenic patients in terms of aggressiveness and untrustworthiness ($p < 0.001$).

Knowledge. The E.S. students placed more importance on sociological causal factors, such as family social rejection and a stressful society than did the U.S. students, who were more likely to cite biological causes such as genetics, chemical imbalance, and to recommend pharmacological treatment (see Table 3). Among the E.S. students, misconceptions of schizophrenia were more frequent, than in the U.S. ($p < 0.001$). Salvadorans agreed more than did Americans that childhood sexual abuse, lack of will power, and a 'sick' society were causes of schizophrenia ($p < 0.05$).

TABLE 3

Mean scores (Standard Deviations) of the items and scales of Social Distance, Help-Seeking attitude, Negative attribution, Knowledge on Sociological factors, Biological factors, and Misconceptions of schizophrenia by country

Scale/items	*KMO* [1]	*Eigenvalue* [2]	*Loading*	*Respecified loading*
Social distance* (I would not accept if they want to)	0.764	2.29 (38.1)		
- Be my roommate			0.325	
- Be my coworker			0.658	
- Be my neighbor			0.707	
- Marry someone from my family			0.704	
- Be my friend			0.688	
- Have a rehabilitation center near my house			0.530	
Help-seeking attitude* (If you had a family member with schizophren.)	0.5	1.57 (78.5)		
- Would you seek help for the patient			0.886	
- Would take him/her to doctor's appointments			0.886	
Negative attributions* (Individuals with schizophrenia)	0.593	1.60 (53.3)		
- Are not intelligent individuals			0.015	-
- Are not trustworthy			0.657	0.633
- Belong to lowest SES			-0.016	-
- Lose control easily			0.730	0.750
- Are violent and aggressive			0.798	0.797

Notes: The respecified loadings correspond to a follow-up PCA.
1 KMO = Kaiser-Meyer-Olkin (proportion of common variance)
2 Kaiser's rule of eigenvalue > 1 was applied.
Percentage of variance in parenthesis.
*Bartletts's test of sphericity p < 0.001
**Bartletts's test of sphericity p = 0.012
Source: own work.

TABLA 3 (cont.)

Mean scores (Standard Deviations) of the items and scales of Social Distance, Help-Seeking attitude, Negative attribution, Knowledge on Sociological factors, Biological factors, and Misconceptions of schizophrenia by country

Scale/items	*KMO* [1]	*Eigenvalue* [2]	*Loading*	*Respecified loading*
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- Pharmacological treatment is helpful			-2.54	-
- Electroconvulsive therapy helps			-0.061	-
- S. is caused by blood relative heredity			0.688	0.674
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- Schizophrenia is contagious			0.113	-
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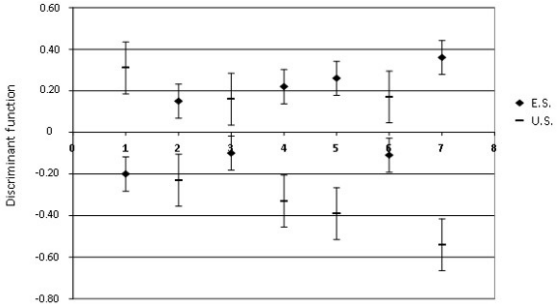
Percentage of variance in parenthesis.
*Bartletts's test of sphericity p < 0.001
**Bartletts's test of sphericity p = 0.012
Source: own work.

Discriminant analysis of countries by MHL

All factors loaded on one discriminant function, indicating that the differences between countries are maximized on a single dimension. The discriminant function was significant, χ^2 (7) = 106.92, $p < 0.001$, and accounted for 100% of the between-group variability. This function maximally discriminated E.S. students (M = 0.50) from the U.S. students (M = -0.75). The loadings or structure coefficients were as follows: misconceptions (= 0.73), sociological factors (= 0.52), negative attributions (= 0.44), recognition (= -0.41), social distance (= 0.31), biological factors (= -0.23), and help-seeking attitudes (= -0.21). These loadings suggest that all variables are statistically significant predictors for distinguishing between individuals from these two countries, although, knowledge on biological factors and help-seeking attitudes did not reach practical significance (factor loadings < 0.30). The function and loadings indicate that individuals from E.S. differ from

those in the U.S. by having more misconceptions, preferring greater social distance, supporting more sociological causal factors, and attributing more negative values to those who suffer from schizophrenia (see Figure 1).

Figure 1.
Country differences as a function of MHL.



Source: own work.

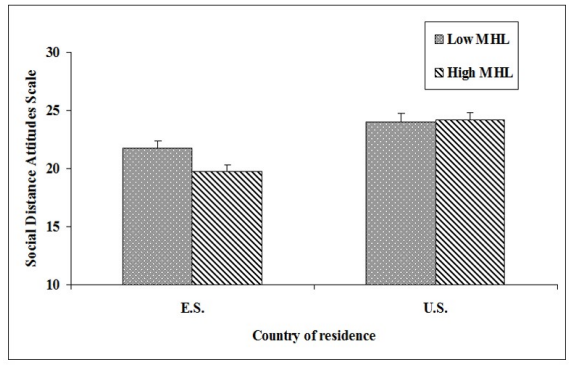
Overall, the discriminant function accurately predicted 74.4% of the participants' country of membership, χ^2 (1) = 75.23, p < 0.001. At the individual level, 69.9% of individuals from the U.S. and 77.5% of individuals from E.S. were correctly classified.

Effect of MHL and country on attitudes toward schizophrenia

A composite score was built taking into account recognition of case vignette and knowledge of the disease. This composite score was named MHL.

Effect of MHL and country on social distance. A two factor ANOVA was carried out to examine the effect of MHL and country on social distance attitudes. No difference was found on these attitudes at each level of MHL on both countries, ($F < 1$). When isolating each sample group by country, differences appeared on the relationship between MHL and social distance. In the E.S. sample, social distance attitudes differed with level of MHL, F (1, 167) = 5.24, $p < 0.023$. Those Salvadorian students with low level of MHL had more social distance attitudes (M = 21.13), compared to those with a high level of MHL (M = 19.75) (see Figure 1). No differential effect of MHL was found in the U.S. sample ($F < 1$).

Figure 2.
Attitudes of social distance toward persons suffering from schizophrenia per country by level of MHL.



* $p < 0.05$.
Source: own work.

Effect of MHL and country on help-seeking behavior. No difference was found between the level of MHL and country on help-seeking behavior attitudes, ($F < 1$). But when splitting the sample by country, differences did appear. In El Salvador, help-seeking behavior attitudes differed with the level of MHL, F (1, 154) = 4.521, $p < 0.035$. Those Salvadorian students with low level of MHL had less help-seeking behavior attitudes (M = 14.38), than those with a high level of MHL (M = 15.0). Again, no differences were found in the U.S. sample ($F < 1$).

Effect of social distance and country on help-seeking behavior. No effect was found of level of social distance attitudes and country on help-seeking behavior ($F < 1$). In the isolated E.S. sample, social distance attitudes influenced help-seeking behavior attitudes, F (1, 193) = 12.62, $p < 0.001$. Salvadorians with a low level of social distance were those who have a higher score of help-seeking behavior (M = 15.07), compared to those with a high level (M = 14.17). No effect was found in the U.S. sample ($p > 0.05$).

Discussion

As predicted, recognition, knowledge, social distance, help-seeking attitudes, and negative attributions toward individuals with

schizophrenia contributed to between-country differences. Salvadorans were less knowledgeable of biological bases, and had more misconceptions about and stigmas toward schizophrenics. This finding is not consistent with Toledo Piza and Blay (2004) who reported an overall positive attitude toward and identification of mental illnesses in Latin America. The recognition rate of schizophrenia found in E.S. (22.5%) was far lower than those in Mexico (90%; Parra, 1987), Brazil (84%; D'Amorim, 1981), and Dominica (73%; Kohn et al., 2000). Also, Salvadorans had a relatively negative perception of schizophrenia. The difference in findings between E.S. and these Latin American countries may be due to the low overall literacy in E.S. and its struggling economy (e.g., Mubbashar & Farooq, 2002). The E.S. adult literacy rate is 10.6% lower than in Mexico (E.S.: 81.1%; Mexico: 92.6%), and the percentage of the population living below the poverty line (on less than $1 per day) is 21.2% higher in E.S. than in Mexico (E.S.: 31.1%; Mexico: 9.9%) (World Health Organization [WHO], 2006). This sociocultural and economical disadvantage in E.S. may underlie the clear distinction found between the U.S. and the E.S. in MHL and stigma. Public health policies and governmental financial resources are also considered important influences on a population's MHL (Suhail, 2005). According to the Mental Health Report (World Health Organization [WHO], 2003), only 38% of developing countries in the world spend more than 1% of the total health budget on mental health, compared to 84% of developed countries. The WHO Statistical Information System (2006) indicates that some underdeveloped countries, including El Salvador, do not have any specified budget for mental health. Such policies severely limit the health services that can be offered. For example, in El Salvador there are 0.5 psychiatrists per 100.000 habitants and in the U.S., 13.7 (WHO, 2006).

Misconceptions about schizophrenia played an important role in country differentiation. The results indicate that low MHL is associated with the belief that one should be able to solve emotional problems alone or that such problems will disappear without treatment ('Let them lead their own life'). Wells, Robins, Bushnell, & Jarosz (1994) found that such attitudes precluded schizophrenics from seeking help since they felt strong enough to cope with the problem without professional help. Salvadorans' belief that 'lack of will power' and 'a sick society' are causes of schizophrenia may also inhibit them from seeking help for themselves or for a family member.

The results on social distance are consistent with Thompson et al. (2002), and van t' Veer et al. (2006); as the relationship moved to a more 'intimate' level, social distance increased (neighbor<coworker<roommate<marriage).

The differences between countries on MHL and stigma depict a relatively negative profile for E.S. in terms of mental health. Low recognition, lack of knowledge of schizophrenia, and misperceptions of aggressiveness may underlie the participants' reluctance to engage in social interaction with these patients. This social distance in turn may discourage patients themselves from seeking professional help (e.g., Acuña & Bolis, 2005).

Mental health educational programs would be of significant value in E.S. efforts to make the E.S. government aware of the magnitude of the problem, and to encourage spending on mental health education is clearly indicated. According to Paykel, Hart and Priest (1998), public campaigns aimed at increasing MHL can have a positive effect on attitudes toward mental disorders and help-seeking behaviors.

The current study does have some limitations given that only college students participated. Firstly, the level of education of the participants; the MHL scores obtained presently may overestimate the levels of MHL for the general population, since the net secondary school enrollment rate in E.S. is about 48% (United Nations Children's Fund [UNICEF], 2005). Secondly, MHL of schizophrenia may be lower in older age groups than in college students. According to Farrer Leach, Griffiths, Christensen, & Jorm (2008), individuals who are 70 years and older had lower recognition rates of schizophrenia than younger adults. Higher levels of social distance and negative attributions, and lower levels of recognition, knowledge and

help-seeking attitudes probably exist to a greater extent, in the general population.

Acknowledgments

This research was conducted while the author was a grantee of the IIE-Fulbright program in the U.S. Special; thanks to Dr. Richard Graf for his expertise and Dr. Claire Murphy for her helpful comments on the study design. Both are professors from San Diego State University.

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Notes

* Research article.