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Teachers' knowledge, beliefs and attitudes concerning schizophrenia

A cross-cultural approach in Japan and Taiwan

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Abstract *Background* Mental health literacy of the general public is essential for the effective promotion of society's mental health. However, there has been no investigation of the general public's mental health literacy with Japanese and Taiwanese socio-cultural backgrounds. *Methods* A total of 129 Japanese and 150 Taiwanese elementary school teachers were surveyed about knowledge, beliefs and attitudes concerning schizophrenia by means of a questionnaire with a vignette describing a case of the disease. Identification of the case, cause of the disease, coping behavior for the case, and perception of stigmatizing and supporting attitudes by parents and neighbors of the case were investigated. *Results* As a common finding with the studies in Western countries, only small percentages of the Japanese and Taiwanese respondents were able to make a correct identification. A further common finding was the emphasis on psy-

chosocial factors as a cause of schizophrenia, as was the rejection of psychotropic medication, although future study is required to determine to what extent the respondents know about therapeutic procedures utilized by psychiatrists. Significantly stronger stigma perception was shown in the Japanese respondents than in the Taiwanese, which may be attributable to the high institutionalization rate in Japan. *Conclusions* Japanese and Taiwanese teachers' knowledge, beliefs and attitudes regarding schizophrenia were similar to those found in the general public in Western societies. Although the present study is limited in sampling and the components of the mental health literacy investigated, several working hypotheses have been extracted from it to be tested in future investigations on the Japanese and Taiwanese and other Asian general public's mental health literacy.

Key words mental health literacy – stigma – schizophrenia – Japan – Taiwan – cross-cultural study

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Introduction

Mental health problems have been widely recognized as a serious burden for every country with different social developments and cultural settings (Desjarlais et al. 1995). The high prevalence of mental health problems in any given population is something many are aware of. Often individuals who encounter problems of mental health try to manage the first stage of the problems by themselves (Regier et al. 1988). Therefore, the general public's knowledge and beliefs and consequent attitudes regarding mental health problems have a major influence on the mental health state of the society.

Jorm (2000) defined mental health literacy as "knowledge and beliefs about mental disorders which aid their recognition, management or prevention". Several investigators have reported on studies about mental health literacy of the general public in Western countries (Jorm 2000). Findings of these studies report the difficulty the general public experience in making the correct identifi-

cation of major mental disorders such as depression and schizophrenia (Jorm et al. 1997a). General public based studies have also revealed that people do not always share the same opinion of the mental health professionals about coping behaviors in the case of mental disorders (Jorm et al. 1997b). In addition, there seems to be an organization of lay beliefs concerning the causes and risk factors of mental disorders (Matschinger and Angermeyer 1996; Link et al. 1999; Jorm et al. 1997c) and about the effects of different treatments for problems relating to mental health (Priest et al. 1996; Jorm et al. 1997b). It has also been suggested that factors related to social environment and personality are quite often seen as causes of mental disorders (Link et al. 1999; Matschinger and Angermeyer 1996; Jorm et al. 1997c). Treatment modalities such as psychological therapy or behavioral changes to lifestyle are preferred by the general public for a wide range of mental disorders including schizophrenia and dementia (Angermeyer and Matschinger 1996a; Jorm et al. 1997b; Priest et al. 1996). On the other hand, psychotropic medication is often rejected by the general public (Angermeyer and Matschinger 1996a; Jorm et al. 1997b; Priest et al. 1996). The stigmatizing attitudes towards mental disorders and the associated sufferings are universal and hinder efforts to seek assistance (Regier et al. 1988; Priest et al. 1996; Raguram et al. 1996). Link and colleagues have studied stigma and its consequences for persons with mental disorders (Link 1999, 2001a, 2001b; Phelan 1998) and the families of those with mental disorders (Penn 1999; Struening 2001). Together, such evidence suggests it is essential for the effective promotion of society's mental health to take into consideration the mental health literacy of the general public, which is not always in line with the Biomedical opinions and widely influenced by socio-cultural backgrounds of the society (Jorm 2000).

Japan and Taiwan have achieved prominent economic development in recent decades to the point where economic indices are nowadays comparable with those of Western countries. In achieving changes, Japan and Taiwan have accepted a wide range of modern industrial social systems, including the Biomedicine-based medical system. At the same time, however, these two countries are situated in the Far East and have histories of development tied to their respective traditional socio-cultural backgrounds, which are different from those of the West. It has been supposed that Japanese and Chinese socio-cultural backgrounds still influence various aspects of beliefs and attitudes of the general public, including mental health literacy. Thus, both the traditional Chinese medicine, which is still widely accepted in the lay public in Taiwan and quite different from Biomedicine (Tseng 1975, 2001), and the human relationship given a special priority in Japanese culture (Doi 1962; Kimura 1972) may well have some significance in the respective general public's mental health literacy. The general public's mental health literacy has been reported to disagree sometimes with Biomedical opinions even in Western countries, where Biomedicine

originated (Jorm 2000). Therefore, it is even more questionable whether the mental health support systems designed on the basis of Biomedicine always work effectively coupled with the general public's mental health literacy influenced by Japanese and Taiwanese socio-cultural backgrounds. To our knowledge, however, there has been no investigation of the general public's mental health literacy with Japanese and Taiwanese socio-cultural backgrounds.

The aim of the present study is to characterize the general public's mental health literacy in Japan and Taiwan and what is reported here is part of a larger survey of Japanese and Taiwanese elementary school teachers. Both Japan and Taiwan were struck by severe earthquakes in 1995 and 1999, respectively, and after these earthquakes several lecture classes, case conferences, etc. were held for teachers concerning children's mental health by administrative bodies, NPOs and the mass media (Uemoto et al. 2000; Shioyama et al. 2000). The survey as a whole was designed to investigate the influence of the overall experience of these large earthquakes and educational campaigns subsequent to the disasters, with regard to the teachers' knowledge, beliefs and attitudes towards children's mental health. The survey was partly based on a questionnaire with a vignette describing a case of schizophrenia, which is one of the severe mental health problems widely known to the general public not having a direct relationship with the disasters. This questionnaire was to provide control information for analyses of data with a focus on disaster-related mental health problems such as Post-Traumatic Stress Disorder (PTSD), etc. The present study is an analysis of data taken from this questionnaire regarding schizophrenia. Minimum influence of the earthquake was shown in the knowledge, beliefs and attitudes regarding schizophrenia and several similarities and differences were found between Japanese and Taiwanese teachers in the present study and the general public in Western countries in previous studies.

Subjects and methods

■ The sample

The survey was carried out as part of a larger survey to investigate the influences which experience of major earthquakes and education campaigns subsequent to the disasters have on elementary school teachers' knowledge, beliefs and attitudes towards children's mental health. These education campaigns involved various kinds of lecture classes, case conferences and so on by different hosts, like administrative bodies, NPOs and the mass media. Some of these education campaigns were carried out only at the sites where the earthquakes had occurred and others in larger areas, provinces or countrywide. Therefore, the teachers at the sites hit by the earthquakes can be expected to have had much more chance to take part in these campaigns. However, in most cases such education was focused on the stress-related mental disorders, such as PTSD, and mental disorders which do not have direct relationship with disasters, such as schizophrenia, were rarely dealt with. The survey was undertaken between June 2001 and April 2002 in Kobe, Awaji and Kitakata in Japan and Puri, Taipei, Taichung and Chaoyi in Taiwan. The areas of Kobe, Awaji

in Japan and Puri, Taichung in Taiwan had suffered large earthquakes, but the other areas had not. Teachers at schools that consented to our proposal of the survey through boards of education were involved. A total of 279 elementary school teachers in Japan ($N = 129$) and Taiwan ($N = 150$) were surveyed. Response rates were 75.2% in Japan and 78.1% in Taiwan.

The ratio of males and the average age of the Japanese respondents were 38.8% and 42.7 years, respectively. As for the Taiwanese respondents, 18.7% was male and the average age was 35.9 years. Since community education boards arrange for there to be a balance of teachers regarding age and sex, we believe there is not a large deviance in our samples for the Japanese and Taiwanese teachers.

All the respondents were informed about the purpose and procedures used in the survey through both oral and written explanations by the research team and they were asked to sign a letter of consent.

■ The questionnaire

The research team consisted of psychiatrists, psychologists and nurses. The research team visited each school taking part in the study and the psychiatrist explained about the study and handed a questionnaire to the teachers involved. After the explanation, the teachers were asked to complete the questionnaire.

The questionnaire was composed of two parts; firstly, socio-demographic features and, secondly, a battery of questions based on a vignette describing a case of schizophrenia which met the practical diagnostic criteria. Identification, cause, coping behavior and stigmatizing and supporting attitudes regarding the vignette were surveyed. The actual questionnaire of the second part is shown as the appendix.

We designed the questionnaire for Japanese and Taiwanese conditions based on previous studies conducted in Western societies. Thus, questionnaires on Q1 recognition and Q2 identification (Jorm 1997a), Q3 belief of cause (Jorm 1997c), Q4 attitudes toward coping behaviors (Jorm 1997b) regarding a schizophrenia vignette used in a survey of the Australian general public were taken as models with several modifications to adapt to the theme of children's mental health. Similar studies of the German general public (Angermeyer and Matschinger 1996; Matschinger and Angermeyer 1996) were also used as reference. Sentences regarding stigmatizing and supporting attitudes (Q5) were composed according to 'stigma-related queries' in an investigation of stigma in South India (Raguram 1996).

Questions were firstly written in Japanese and then back translated between Japanese and Chinese by bilingual translators. The terms used in the vignette and the questionnaire are generally taken from DSM-IV (American Psychiatric Association 2000), except in the case where another word or phrase is considered to be more popular among the general public.

■ Statistical analysis

The number of respondents who answered positively for each item was recorded. As for the coping behaviors, the number of respondents who chose "harmful" for each item was also recorded. A principal component analysis was carried out with SPSS (SPSS Inc.) on the ratings of stigmatizing and supporting attitudes to derive appropriate scales. Chi-square tests were carried out with Excel add-in statistics software, Statcel (OMS, Saitama), for every item between groups with and without recent major earthquake experience within each country, and then between the Japanese and Taiwanese respondents to elucidate socio-cultural differences.

Results

■ Influence of earthquake experience

Statistical tests revealed that the influences of earthquake experience and education campaigns subsequent to the disaster have only a limited contribution to the

differences in the preferences of identifications, causes, coping behaviors and perception of stigmatizing and supporting attitudes found between the Japanese and Taiwanese respondents. The only exception to this finding was shown in weakness of character as a cause, which was preferred by 28.7% of the Japanese and 62%*** ($p < 0.001$) of the Taiwanese respondents. Among the Japanese respondents, 42% of those without earthquake experience and 20.3%** ($p = 0.008$) of those with earthquake experience preferred weakness of character as a cause, compared to 54.7% and 67.4%, respectively, among the Taiwanese respondents.

As there is minimal interference of the qualitative result concerning differences between Japan and Taiwan, in the following analyses, samples are treated together without taking the experience of earthquakes into consideration.

■ Identification

Most respondents (93.8% of Japanese and 92.7% of Taiwanese) recognized the vignette case as having some kind of mental disorder (data not shown). However, as shown in Table 1, correct identification was made by comparatively small numbers of both the Japanese and Taiwanese respondents (23.3% and 34%, respectively). The correct rate of identification for the Taiwanese respondents was significantly higher than that of the Japanese ($p = 0.049$). Among the disorders listed, the one most commonly preferred by both the Japanese and the Taiwanese respondents (45% and 41.3%, respectively) was neurosis. In addition to this, while comparatively similar numbers of the respondents in both countries selected schizophrenia, autism (19.4% of Japanese and 14% of Taiwanese) and manic-depressive illness (27.9% and 26.7%, respectively), only a few people selected mental retardation (0.8% and 0%, respectively), Attention Deficit Hyperactivity Disorder (ADHD) (0% and 0.7%, respectively) and Learning Disability (LD) (0%

Table 1 Choice of identification of the vignette case by the Japanese and Taiwanese respondents, shown as % of the total number of respondents from each country

Identification	Japan	Taiwan
Mental retardation	0.8	0.0
Schizophrenia	23.3	34.0*
Autism	19.4	14.0
Manic-Depressive Disease	27.9	26.7
Neurosis	45.0	41.3
ADHD	0.0	0.7
LD	0.0	1.4
PTSD	2.3	12.0**
Other	1.5	0.0
Do not know	14.0	3.3

* $p < 0.05$; ** $p < 0.01$

and 1.4 %, respectively) in both. There was a significant difference in the preference for PTSD between Japanese and Taiwanese respondents (2.3 % and 12 %, respectively, $p = 0.0023$).

Causes

Japanese and Taiwanese respondents' beliefs about the cause of the vignette case are shown in Table 2. The largest numbers of Japanese and Taiwanese respondents preferred 'stress from personal relations' as a cause of the vignette case (79 % and 78 %, respectively). The Taiwanese respondents preferred 'heredity' (9.3 % Japanese vs. 37.3 % Taiwanese, respectively, $p < 0.001$), 'weakness of character' (28.7 % vs. 62 %, respectively, $p < 0.001$) and 'stress from a disaster' (4.7 % vs. 60.7 %, respectively, $p < 0.001$) significantly more than the Japanese. None of the Japanese and only a few Taiwanese respondents chose 'infection/allergy' (0 % and 6 %, respectively) and 'divine punishment/curse' (0 % and 3.4 %, respectively).

Coping behaviors

The respondents' attitudes toward different coping behaviors for the vignette case are indicated in Table 3. Psychiatrists and counselors were regarded as the most effective treatment providers for the vignette case by both Japanese and Taiwanese respondents (for psychiatrist 90.7 % and 93.3 %, respectively, for counselor 89.2 % and 89.3 %, respectively). This was followed by warm contact and listening attentively (by Japanese 77.5 % and Taiwanese 87.3 %). Significantly more Japanese than Taiwanese respondents regarded pediatricians/physicians as effective (30.2 % and 11.4 %, respectively, $p < 0.001$). The head of educational guidance was expected to work effectively by a similar number of the Japanese and Taiwanese respondents (55 % and 62.7 %, respectively). While the Japanese respondents preferred school nurses, the Taiwanese regarded social workers as being helpful (for school nurses 75.2 % and 46.7 %, respectively, $p < 0.001$; for social workers 38 % and 68 %, respectively, $p < 0.001$). Doctors of Chinese medicine, Qi-gong and exorcism/divination are considered

Table 2 Beliefs of the Japanese and Taiwanese respondents about the cause of the vignette case, shown as % of the total number of respondents from each country. Multiple alternatives can be chosen

Cause	Japan	Taiwan
Infection/allergy	0.0	6.0
Heredity	9.3	37.3*
Weakness of character	28.7	62.0*
Stress from personal relations	79.0	78.0
Stress from a disaster	4.7	60.7*
Divine punishment/curse	0.0	3.4

* $p < 0.001$

Table 3 Attitudes of the Japanese and Taiwanese respondents toward different coping behaviors for the vignette case. The percentages of respondents who evaluated each coping behavior as effective are indicated. For Exorcism/divination and Over-the-counter drugs, the percentages for both 'effective' and 'harmful' are shown

Coping behavior	Japan	Taiwan
Pediatrician/Physician	30.2	11.4***
Psychiatrist	90.7	93.3
Doctor of Chinese medicine	7.0	19.3**
Qi-gong	10.1	20.0*
School nurse	75.2	46.7***
Head of educational guidance	55.0	62.7
Counselor	89.2	89.3
Social worker	38.0	68.0***
Exorcism/divination: effective	0.8	19.4***
Exorcism/divination: harmful	12.4	4.0**
Warm contact and listening attentively	77.5	87.3
Over-the-counter drugs: effective	4.6	3.3
Over-the-counter drugs: harmful	10.8	19.4
Physical activity	21.7	68.0***

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

appropriate by a significantly larger number of Taiwanese than Japanese respondents (for doctors of Chinese medicine 19.3 % and 7 %, respectively, $p = 0.0027$; for Qi-gong 20 % and 10.1 %, respectively, $p = 0.022$; for exorcism/divination 19.4 % and 0.8 %, respectively, $p < 0.001$). Moreover, exorcism/divination is regarded as harmful rather than effective by a significantly larger number of Japanese than Taiwanese respondents (12.4 % and 4 %, $p = 0.0094$, respectively). Numbers of respondents who regarded over-the-counter drugs as harmful (Japanese 10.8 % and Taiwanese 19.4 %) were larger than those of respondents who regarded them as effective (4.6 % and 3.3 %, respectively). A significant difference was shown in the evaluation of physical activity between the Japanese and Taiwanese respondents (21.7 % and 68 %, respectively, $p < 0.001$).

Stigma and support

A principal component analysis was carried out on the ratings of the sentences regarding stigmatizing and supporting attitudes. In this analysis, responses were coded as 'not true' (-1), 'possibly yes' (0), 'probably yes' (1), and 'certainly yes' (2), respectively. As shown in Table 4A, the analysis provided two factors, which can be named a stigma factor and a support factor. Accordingly, the sentences were divided into two groups, namely a stigma-related group (nos. 1, 2, 5, 6, 7, 8 and 9) and a support-related group (nos. 3 and 4), and the numbers of the sentences for which each respondent chose 'probably yes' or 'certainly yes' were defined as the stigma and support scores of the respondent, respectively. These scores are indicated as percentages of the full scores. Table 4B

Table 4 Factor loadings for the ratings of the sentences regarding stigmatizing and supporting attitudes of the parents and neighbors of the vignette case (A). Loadings > 0.6 are indicated in bold type. Stigma and support scores of the Japanese and Taiwanese respondents based on the principal component analysis (B). Scores are indicated as percentages of the full scores

A

Sentence	Factor 1 (stigma)	Factor 2 (support)
1	0.68	0.04
2	0.66	0.13
3	-0.44	0.80
4	-0.47	0.80
5	0.69	0.27
6	0.82	0.05
7	0.80	0.03
8	0.83	0.23
9	0.80	0.20

B

Attitudes	Japan	Taiwan
Stigmatizing	36.3	25.4*
Supporting	42.6	44.3

* $p < 0.05$

shows respondents' perception of the stigmatizing and supporting attitudes of parents and neighbors toward the vignette case. The total stigma score of the Japanese respondents was significantly higher than that of the Taiwanese (36.3 % and 25.4 %, respectively, $p = 0.044$). On the other hand, the Japanese and Taiwanese respondents perceived supporting attitudes of neighbors to a comparatively similar extent.

Discussion

The sample

The present study is an analysis of the data gained from the survey of elementary school teachers. Since elementary school teachers usually are among the opinion leaders of the general public, we assume that data presented by the subject population can be regarded as an approximate representation of opinion of the general public concerning schizophrenia. Moreover, elementary school teachers rarely come across their students displaying psychotic symptoms. In this respect, we believe the subject population is closer to the general public than to the Biomedical professionals regarding opinions about schizophrenia. At the same time, by taking the subject population, educational level can be better controlled, thus making the cross-cultural comparison clearer.

Identification

In the present study, only 23.3 % of the Japanese and 34 % of the Taiwanese respondents were able to make a correct identification, although a majority of them thought the vignette case indicated some form of mental disorder. The reason why significantly less Japanese respondents could identify the schizophrenia vignette case correctly than the Taiwanese is not clear. One possible explanation is the differences in responding styles to the questionnaire between Japanese and Taiwanese respondents. Previous studies of cross-cultural psychology have suggested that the Japanese have a tendency to choose obscure/intermediate response to questionnaires in general, compared to the peoples of other countries (Iwata 1997). Indeed, for more Japanese respondents (14 %) preferred 'do not know' than Taiwanese (3.3 %) and the sums of 'schizophrenia' and 'do not know' for both countries are on quite a similar level (37.3 % for both). Interestingly, these correct rates shown in the Japanese and Taiwanese respondents are similar to that reported in a previous cross-sectional survey among the general population of 1,021 Australians. In the Australian study by Jorm and colleagues (1997a), it was reported that only 27 % of the general public was able to correctly make an identification of a vignette describing a case of schizophrenia. It, therefore, seems possible that the capacity to identify schizophrenia correctly is fairly equal in the general public of both Asian and Western countries. Whether such similarity in the rate of correct identification of schizophrenia by the general public is also common between other Asian and Western countries is one of the interesting questions arising from the present study.

Cause

Similarities with studies of Western countries are also shown in the beliefs of the cause of schizophrenia. Thus, in the present study 'stress from personal relations' was the most popular cause of the vignette case in the respondents of both countries. This is in line with the findings from the German (Angermeyer and Matschinger 1996 c) and Australian surveys (Jorm et al. 1997c), where social environmental factors were the most preferred as opposed to the epidemiological evidence as a cause of schizophrenia. Matschinger and Angermeyer (1996) have also suggested that there is a tendency of the general public to accept psychosocial explanations concerning the development of mental disorders, even for schizophrenia. Findings of the present study suggest that the stress on the psychosocial factors as causes of mental health problems seems to be a common tendency among the general public of both Far Eastern and Western countries (Tseng 2001a). It is likely that the comparatively high preferences for 'neurosis' as the identification and 'warm contact and listening attentively' as the coping behavior shown in the present study are also reflections of this tendency.

Significant differences were shown between the Japanese and Taiwanese respondents with regard to 'heredity', 'stress from a disaster', and 'weakness of character'. Again these differences may reflect Japanese respondents' tendency to choose intermediate response in general, as mentioned above in the discussion concerning identification. At the same time, Japanese respondents' tendency to express themselves in a comparatively restrained manner suggests their salient preference for stress from personal relations, which is in good accordance with Japanese culture that is known to attach importance to human relationship. In addition to this, since significantly less Japanese respondents with earthquake experience preferred weakness of character than those without, there is also a possibility that the earthquake experiences and mental health education after the earthquake influenced the choice of this cause. The way in which the experience of the earthquake and education campaigns after the earthquake influence the elementary school teachers' opinions will be further investigated in the report of the rest of the survey, which focuses on mental health literacy regarding stress-related mental health problems such as PTSD.

■ Coping behavior

The respondents of both countries showed the largest preference for using psychiatrists and counselors as a coping behavior for the vignette case. This is in line with previous Australian (Jorm et al. 1997a) and German (Angermeyer et al. 1999) findings. Rejection of 'over-the-counter drugs' found in the present study may be another similarity with the previous studies in the West, where the general public's rejection of *psychotropic medication* has been reported (Angermeyer et al. 1993; Angermeyer and Matschinger 1996a; Jorm et al. 1997d). However, as mentioned above, in the present study the Japanese and Taiwanese respondents regarded psychiatrists, who usually employ psychotropic medication as a main method for the treatment of schizophrenia, as the most effective. To explain this paradoxical result, two logical possibilities about preference for the *psychotropic medication* of Japanese and Taiwanese respondents should be considered. One is that psychiatrists and medications prescribed by psychiatrists are trusted by the general public while the *over-the-counter* drugs are not. Another explanation is that the rejection of psychotropic medication exists in the Japanese and Taiwanese societies as well as in the Australian and German societies. Also, the general public lacks knowledge about the therapeutic procedures that are usually utilized by psychiatrists. In this case, the similar level of preference for counselors found in the present study suggests that the general public expects counseling and psychotherapy by psychiatrists, but not medication. Such preference for psychotherapeutic procedures coupled with the rejection of the psychotropic medications of the general public has been reported in studies in Western countries

(Angermeyer and Matschinger 1996a; Jorm et al. 1997d). Also, the preference for the psychosocial explanations suggested above in the discussion regarding the cause supports this possibility. Further investigation is necessary to make it clear how precisely the general public knows about therapeutic procedures utilized by psychiatrists and whether the general public rejects psychotropic medications prescribed by psychiatrists. A remarkable difference between the Japanese and Taiwanese respondents was shown in the preference for 'physical activity'. Influence of the traditional Chinese medicine, which stresses psychosomatic interaction (Tseng 1975, 2001), is one possible explanation for Taiwanese respondents' salient preference of physical activity. There were also differences in the attitudes toward 'doctor of Chinese medicine', 'Qi-gong' and 'exorcism/divination'. Although these results perhaps also reflect influences of the traditional Chinese culture, at the same time they suggest that the influences are limited regarding these visually traditional styled items even in Taiwan. Differences were also shown in the preferences for 'school nurse' and 'social workers' between the Japanese and Taiwanese respondents. This may simply reflect the difference in social systems between the countries.

■ Stigma and support

The Japanese respondents perceived significantly stronger stigmatizing attitudes by the parents and neighbors of the vignette case than the Taiwanese. For supporting attitudes, a similar perception was shown in the respondents of both countries. The stronger stigma perception shown in the Japanese respondents may have a correlation with the Japanese who have the highest institutionalization rate of schizophrenic patients in the world (Shinfuku 1998) and the consequent limited experience of the general public through contact with the patients in the community. Knowing a mentally ill person has been found to be associated with tolerance towards such patients in previous studies (Taylor and Dear 1981; Brockington et al. 1993). Penn and colleagues (1999) have also reported that persons who have experience of previous contact with individuals with a mental illness rated an individual with schizophrenia shown in a vignette as less dangerous than did persons without previous contact. Our speculation is also supported by an additional finding from the present study that the perception of stigmatizing attitudes has a correlation with the labeling 'schizophrenia', which is the most frequent disorder of the institutionalized patients in Japan. Thus, among the Japanese respondents, the stigma score of the respondents who made a correct identification was 56.7, which is significantly higher than that (29.3) of the respondents who chose another identification. Link and colleagues (1999) reported schizophrenic symptoms are strongly connected with public fears about potential violence. At the same time, they also suggest the

linkage of such public fear to a desire for limited social interaction with the schizophrenic patients. Therefore, it is unclear whether the strong stigma is caused by the high institutionalization rate or the reverse. Relationship between the institutionalization rate and the stigmatizing attitudes is worth further investigation.

Conclusion

Japanese and Taiwanese elementary school teachers' knowledge, beliefs and attitudes towards schizophrenia were investigated with a vignette describing a case of the disease and were shown to be similar in many aspects to those found in Australian and German studies of the general public. Influences of the traditional Japanese and Chinese culture were also shown in some respects. Although the present study is limited in sampling and the components of the mental health literacy investigated, these findings contribute to direct future studies in addition to influences of earthquake experiences on the general public's mental health literacy. The similarity in the correct rate of identification of schizophrenia by the general public of Asian and Western societies should be confirmed and queried. Further investigation is necessary to determine the general public's knowledge and attitude regarding therapeutic procedures utilized by psychiatrists. Correlation between the high institutionalization rate and the stigmatizing attitudes in the Japanese general public requires further investigation.

Appendix

A 15-year-old boy is often absent from school and has not attended school for a number of weeks. He always locks himself in his bedroom and refuses to see friends who come to visit him. He has become slovenly in looking after himself and scarcely ever talks with his family. He seems to sleep little, and is heard walking about his bedroom. Sometimes he mutters to himself and bursts into laughter. He looks as if he were talking with someone else though there is nobody there. He insists that the neighbors are spying on him and always keeps the curtains closed.

- Q1. Do you think this is a mental disease? Yes/No
- Q2. If you think it is a mental disease, choose identification of the vignette case: mental retardation, schizophrenia, autism, manic-depressive illness, neurosis, ADHD, LD, PTSD, other (), don't know.
- Q3. What do you think is the cause?
infection/allergy	yes/no/don't know
heredity	yes/no/don't know
weakness of character	yes/no/don't know
stress from personal relations	yes/no/don't know
stress from a disaster	yes/no/don't know
divine punishment/curse	yes/no/don't know
- Q4. How do you rate the effectiveness of each coping behavior for the vignette case?
pediatrician/physician	effective/no effect/harmful/don't know
psychiatrist	effective/no effect/harmful/don't know

doctor of traditional Chinese medicine
effective/no effect/harmful/don't know

Qi-gong
effective/no effect/harmful/don't know

school nurse
effective/no effect/harmful/don't know

head of educational guidance
effective/no effect/harmful/don't know

counselor
effective/no effect/harmful/don't know

social worker
effective/no effect/harmful/don't know

exorcism/divination
effective/no effect/harmful/don't know

warm contact and listening attentively
effective/no effect/harmful/don't know

over-the-counter drugs
effective/no effect/harmful/don't know

exercises
effective/no effect/harmful/don't know

other

Q5. How do you rate the possibility of each attitude to the vignette case by the parents and their neighbors?

- Parents hide the child.
not true/possibly yes/probably yes/certainly yes
- Parents think less of the child.
not true/possibly yes/probably yes/certainly yes
- Neighbors help the child.
not true/possibly yes/probably yes/certainly yes
- Neighbors help the family.
not true/possibly yes/probably yes/certainly yes
- Letting the neighbors know the disease has an adverse effect on the child.
not true/possibly yes/probably yes/certainly yes
- Neighbors refusing to have a relationship with the child.
not true/possibly yes/probably yes/certainly yes
- Neighbors refusing to have a relationship with the family.
not true/possibly yes/probably yes/certainly yes
- Parents thinking the disease disturbs the marriage of family member.
not true/possibly yes/probably yes/certainly yes
- Neighbors refusing marriage with family member.
not true/possibly yes/probably yes/certainly yes

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