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ORIGINAL PAPER

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Lay theories of schizophrenia

A cross-cultural comparison of British and Hong Kong Chinese attitudes, attributions and beliefs

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Abstract *Background* This study set out to compare British and Chinese young people's beliefs about the manifestations, causes and cures of schizophrenia. *Method* A total of 339 participants completed a 60-item questionnaire to compare lay theories of schizophrenia between British (in England) and Chinese (in Hong Kong) participants. The participants completed the three-part questionnaire in their mother tongue looking at beliefs about schizophrenia in general, causal explanation for the aetiology of schizophrenia and optimal cures for the condition. It was hypothesized that the Chinese would possess more negative attitudes and beliefs about schizophrenia than the British. It was also predicted that the Chinese would tend to use primarily a sociological model to explain the aetiology of schizophrenia. *Results* These two hypotheses were confirmed after factor-analysing the internal structure of the three sections of the questionnaire. However, the Chinese, compared to the British, did not use more superstitious beliefs to explain the behaviour of people with schizophrenia. *Conclusion* Concern with mental health literacy has led to more studies on lay theories about major mental illnesses (specifically schizophrenia) because these theories reflect societal attitudes to patients and behaviour toward them. This study suggests that even well-educated young people remain ignorant about one of the most challenging mental illnesses. Implications for help-seeking behaviour and the course of the illness in individuals are considered.

Key words lay theories – schizophrenia – cross-cultural – China – Britain

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Introduction

Studies on the attitudes and beliefs of the general public towards the mental patients consistently reveal both ignorance and hostility to nearly all types of patients. Nunnally (1961) carried out a famous, extensively quoted, 6-year, American-based, longitudinal study to investigate the extent to which the public knew about mental illness and its treatment. He found that most people regarded mental patients as dangerous and generally had a negative attitude towards them mainly due to a lack of information and understanding of specific mental illnesses. Other more recent studies in different countries have confirmed this result (Albrecht et al. 1982; Angermeyer and Matschinger 1996).

Recently, Link et al. (1999) suggested that if mental disorders were continuously linked with fear of violence, mental patients would suffer from serious social rejection and also be personally more reluctant to seek help because of stigmatization. Although, nowadays, people seem to have more knowledge about mental illness and the degree of stigmatization towards the patient is gradually decreasing, recent studies suggest that the public still has a negative attitude towards the mentally ill (Angermeyer and Matschinger 1997; Jorm et al. 1997a, b, c). Indeed, Jorm (2000) has coined the term *mental health literacy* to describe the extent of public knowledge and beliefs about mental disorders (including schizophrenia). His work has stimulated many others to examine knowledge about particular mental illnesses (Goldrey et al. 2001) and with particular groups (Chen et al. 2000).

Jorm et al. (1997d) compared mental health professionals' and lay people's beliefs about depression and schizophrenia. Professionals believed anti-psychotic drugs and psychiatric ward admission to be much more helpful for people with schizophrenia than did the public, who thought reading self-help books may be helpful. In another study, Jorm et al. (1999) found mental health professionals rated the long-term outcome of schizo-

phrenic patients to be more negative, and discrimination more likely, than did the lay public. It seems that, overall, the (Australian) public do not associate people with schizophrenia with violent behaviour, while mental health professionals do. Further, the lay people seem to stress social over biological explanations for the aetiology of schizophrenia.

Early study showed that attitudes and beliefs about mental illness are clearly linked to various demographic variables (Clark and Binks 1966): age and education (Brockman and D'Arcy 1978); ethnic background (Hall and Tucker 1985); gender (Farina 1981); family history of mental disorder or previous psychiatric training (Arn et al. 1971); and the degree of contact that person had with mental health facilities and professionals beforehand (Stones 1996).

This study is concerned specifically with lay beliefs about schizophrenia. In one of the early studies in this area, Siegler and Osmond (1966) attempted to categorize the academic theories "explaining" schizophrenia into five models, namely, the medical, moral-behavioural, psychoanalytic, social and the conspiratorial model. Although the five models vary in aetiology, behaviour, treatment, function of the hospital, rights and duties of the patients and of society, the dimensions are, to some extent, inter-related, inter-dependent, and not mutually exclusive. This study inspired various others in the area (Furnham and Bower 1992; Furnham and Murao 1999).

Attitudes and beliefs of the relatives of people with schizophrenia have been shown to be important. In Magliano et al.'s (2001) study on the beliefs of the key relatives of people with schizophrenia, it was found that the majority of relatives (70%) believed that the disorder was caused exclusively by psychosocial factors, with only 24% thinking that the disorder was caused by both psychosocial factors *and* biological factors, and 6% believing that it was caused solely by biological factors. Furthermore, these relatives recognized that patients generally suffered from social discrimination and should have their voting rights, but less agreement was found on the right to marry and have children.

National culture is another important factor affecting how people perceive mental illness (Kleinman 1980; Lee 1997; Ying 1990). In the 1980s and 1990s, a number of researchers noted that culture affects how people respond to an illness as well as how they perceive the illness and what they think would constitute the illness (Chang 1985, 1988; Fernando 1988; Furnham and Kuyken 1991; Furnham and Malik 1994; Helman 1990; Leff 1988; Prince 1990). For instance, how people perceive biological and psychological changes within the body is determined by the expectations, taboos and knowledge of the illness in that culture (Rack 1982; Donovan 1986).

In the Asian culture, mental illness is usually hidden because if someone in the family has mental illness, it greatly affects the family's reputation (Bal and Cochrane 1993; Furnham and Murao 1999). Rack (1982) noted that superstitious beliefs, such as "possession by evil spirits" or witchcraft, might be used to explain the symptoms of schizophrenia, especially in Asian culture. Furthermore, he suggested that some practitioners might make mistakes when assessing a patient who did not share the same culture. Various studies have shown that cultural conceptions of mental illness have great impact on how mental patients seek help and the way they are treated by health professionals as well as the public (Furnham and Baguma 1991; Sheikh and Furnham 2000).

The aim of this study is to compare the lay theories about schizophrenia between British people (in England) and Chinese people (in Hong Kong). Shek (1988) found that secondary-school students in Hong Kong were less willing than their Western counterparts to have an ex-psychiatric patient as a neighbour. Cheung (1990) reported that the Hong Kong Government made the decision to establish rehabilitation facilities for mental patients in some housing estates. This was strongly rejected by the residents which appears to indicate that the public generally had negative attitudes towards the mental patients. Similarly, Chou and his colleagues interviewed 1000 people in Hong Kong by telephone and found they had a negative attitude towards mental patients and mental health facilities, even though they had fairly good knowledge of mental health issues (Chou et al. 1996). In Britain, Furnham and his co-workers in questionnaire studies concluded that the public placed more importance on the patient's social-environment factors than on physiological factors in explaining the origin of schizophrenia (Furnham and Bower 1992; Furnham and Rees 1988).

It was predicted that in Hong Kong, most people brought up under the traditional Chinese culture would possess a more conservative and negative attitude towards mental illness than people in Britain. In other words, the Chinese would see mental patients as more dangerous, uncontrollable, unpredictable and abnormal than the British see them (H_1). Secondly, it was predicted that, considering the causes of schizophrenia, the Chinese would stress the social-environment factors due to their value of strong social obligations (Furnham and Malik 1994), while the British would stress more biological factors (H_2). Thirdly, regarding the religious beliefs of the two cultures, it was hypothesized that Chinese participants would be more likely than the British to explain the cause of schizophrenia or schizophrenic positive symptoms (e. g. hallucinations, delusions) by using superstitious beliefs (H_3).

Subjects and methods

Participants

A total of 339 participants completed the questionnaire, of which 176 were Chinese living in Hong Kong, and 163 were British living in the South-East of England. Of the Chinese group, 98 (55.7%) were female and 78 (44.3%) were male. Their ages ranged from 17 to 64, with a mean age of 26.9 years and standard deviation being 12.9 years. In all, 76 (43.2%) of them were students, 70 (39.8%) of them were employed and the remaining 30 (17%) were unemployed. There were 24 (13.6%) people who claimed to have friends or relatives who suffered

from mental illnesses, 10 people with depression, 4 with anxiety, 9 with schizophrenia and 4 with other mental illnesses such as substance abuse and eating disorders. It should be pointed out that these numbers are rather low and may represent a taboo of even being associated with mental patients. Regarding the participants themselves, 2 (1.1%) said that they had a medical history of mental illness (both suffered from depression). Only 21 (12%) of the participants claimed to have had formal education about aspects of mental illness, though no specific details were sought.

There were 89 (54.6%) female and 74 (45.4%) male British participants in the study. Their ages ranged from 17 to 72, mean age being 25.45 years with a standard deviation of 11.5 years. There were 101 (62%) students, 51 (31.3%) people employed full-time and 11 (6.7%) unemployed. Quite a number of participants [57 (35%)], claimed that they knew mentally ill people, 43 with depression, 17 with anxiety, 16 with schizophrenia and 9 with other kinds of mental illness. Nine (5.6%) of the participants reported that they had a medical history of mental illness, of which 8 (4.9%) reported depression, 5 anxiety and 1 panic attacks. In all, 34 (21.3%) of the participants stated that they had been formally educated about mental illness.

Questionnaire

The questionnaire used in this study was derived from the questions used in Furnham and Bower's (1992) study which was based on Siegler and Osmond's (1966) and Furnham and Rees' (1988) research. These questions had also been used in a similar study by Furnham and Murao (1999) conducted in Britain and Japan. Previous studies showed that the questionnaire has both face and content validity, as well as being comprehensible and internally reliable. Furthermore, several questions on superstitious beliefs were constructed for this study. Questions cover all areas such as attitudes to treatment, preferred social distance as well as outcome measures.

The questionnaire contained three sections. The first section had 21 questions on people's beliefs about those who suffer from schizophrenia. The second section consisted of 16 questions on causal explanations in the aetiology of schizophrenia. The third section was on how people thought about the role of hospitals and society for treating schizophrenia and was made up of 23 questions. The last part of the questionnaire consisted of demographic features about participants' age, sex, education level, knowledge on mental illness, and participants' and their friends' medical history of mental health.

The original English version questionnaire was translated into Chinese so that participants from Hong Kong could use their native language to answer, thus allowing easier understanding of the statements given, and then back-translated (Brislin 1970). Amendments were made on the Chinese version for any discrepancy found between the original English version and the back-translation.

Procedure

All the participants were recruited from researchers' contacts, in both countries, which tended to be younger and better educated. They were contacted face-to-face by the researchers mainly in educational and health settings. They were located primarily at educational and medical institutions, in particular the Chinese University of Hong Kong, the University of Hong Kong, University College London and the London School of Economics. Although both groups were not a representative sample, they were certainly comparable on a number of demographic background factors.

Participants were asked to fill in the questionnaire in their free time. Just over 10% said that they did not want to take part primarily because of pressures on time. Most questionnaires were returned by hand the next day and some were returned by post. The response rates from both groups were high and only 4% failed to return the questionnaire which was only given to people who agreed to do the task after being told what it involved. Where possible, participants were debriefed. It is possible, but unlikely, that the relationship between respondent and researcher influenced the answers.

Results

Demographic variables

To examine differences in various demographic variables between the two groups, chi-square tests were done on categorical variables (i.e. sex) and one-way ANOVAs were done on continuous variables. There were no significant differences found in gender, age, and occupation between participants from the two groups. However, it was found that there was significant difference between the two groups on education level ($F_{(1,332)} = 61.16, p < 0.001$), indicating that British participants generally had a higher education level than the Chinese participants. Therefore, for the following analysis, MANCOVA and ANCOVA were used to co-variate out the effect of education, so that any significant differences found could be attributed to cultural differences.

Conceptions about the term 'schizophrenia'

When asked what the word 'schizophrenia' meant to them, 94 out of 339 participants (28%) stated the term or mentioned 'split personalities'. About 17% of the participants were able to state some of the symptoms of schizophrenia, such as 'hallucination' and 'delusion'. In all, 7% of the participants wrote down the words 'afraid' or 'crazy'; 23 of them were Chinese and 11 of them were British. It was interesting to note that more than half of the participants who mentioned 'afraid' or 'crazy' were Chinese.

Items analysis

Three MANCOVAs were conducted on each of the three sections of the questionnaire. In each section, a series of ANCOVAs were then performed to examine the differences between the two nationality groups on each item. In the first section, negative beliefs, MANCOVA revealed that there was significant difference between the two groups ($F_{(21,273)} = 7.22, p < 0.001$). ANCOVAs showed that 13 out of 21 items showed a significant difference. It was also found that the British generally had higher mean (disagreement) scores than the Chinese on negative items (Q1, 2, 4, 7, 8, 17, 18) and lower mean scores on positive items (Q14, 16), which indicated that the British had generally more positive attitudes and beliefs about people with schizophrenia (Table 1).

Compared to the Chinese, the British participants saw people with schizophrenia as more trustworthy, approachable and predictable. Both participant groups believed people with schizophrenia should be treated sympathetically (Q14) and as responsible adults (Q6) and tended not to believe in metaphysical causes or cures (Q19; Q20). The biggest difference between the two groups was on Question 2 which concerns the wisdom

Table 1 ANCOVA results of general beliefs about schizophrenia

Question	Chinese mean (S. D.)	British mean (S. D.)	ANCOVA (F level)
1. It would be impossible for schizophrenics to be employed as they cannot be trusted	3.84 (1.32)	4.40 (1.18)	9.48**
2. It would not be wise to show any favours to a person who is schizophrenic	3.69 (1.32)	4.92 (1.20)	32.68***
3. Schizophrenic behaviour is nearly always bad and wrong	4.43 (1.25)	4.81 (1.21)	3.15
4. Being schizophrenic is an 'escape' from the pressure of society	3.55 (1.46)	4.61 (1.40)	25.70***
5. The term 'psychopath' is the best way to describe a schizophrenic	4.85 (1.28)	5.25 (1.06)	1.03
6. Schizophrenics have the right to be treated as responsible adults	2.87 (1.31)	2.76 (1.35)	0.12
7. At any time, a schizophrenic may 'lose control'	2.49 (1.21)	3.32 (1.26)	17.29***
8. Many schizophrenics are the vagrants and 'drop-outs' of our society	3.76 (1.40)	4.62 (1.22)	13.44***
9. Schizophrenics have the right to be released when their behaviour is acceptable to society	2.80 (1.26)	3.56 (1.31)	9.96**
10. Once individuals have been diagnosed as schizophrenic, they should spend the rest of their lives in an institution or be 'locked-up'	4.91 (1.13)	2.09 (1.28)	10.80***
11. Schizophrenics have the right to be left alone as long as they do not break the law	2.18 (1.27)	4.79 (1.28)	17.78***
12. It is possible to treat schizophrenics by surgery	4.69 (1.15)	3.04 (1.34)	0.39
13. Many schizophrenics commit outrageous acts in public places (e. g. shouting in the street)	3.27 (1.24)	5.04 (1.27)	1.19
14. Schizophrenics have the right to be treated sympathetically	2.73 (1.16)	2.09 (1.28)	14.07***
15. Society has the right to punish or imprison those, like schizophrenics, whose behaviour breaks moral standards even if they do not break the law	4.61 (1.37)	4.79 (1.28)	0.15
16. Schizophrenia cannot be treated completely	3.55 (1.51)	3.04 (1.34)	8.53**
17. People who suffer from schizophrenia are mostly from the lower socioeconomic class	4.94 (4.30)	5.04 (1.27)	0.07
18. I will choose not to be friends with people suffering from schizophrenia	3.94 (1.29)	4.75 (1.30)	12.84***
19. Schizophrenia may not be an illness because the patient may be controlled by evil spirits	5.11 (1.22)	5.45 (1.11)	6.87*
20. Schizophrenia can be treated by seeking help from God or other spirits	5.44 (1.00)	4.93 (1.45)	6.69*
21. When patients report that they have delusions, what they see or hear are ghosts	5.19 (1.16)	5.41 (1.04)	2.92

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$
Note: higher scores indicate higher disagreement (1 = strongly agree, 6 = strongly disagree)

of doing favours to people with schizophrenia. The British group strongly disagreed, whereas those in the Chinese group seemed much more equivocal.

In the second section, causal explanation, the result of MANCOVA ($F_{(16,295)} = 11.21, p < 0.001$), showed that Chinese and British had a significantly different view of the cause of schizophrenia. It was found in the ANCOVAs that, for 13 out of 16 items, there were significant differences between the two groups (shown in Table 2); 10 of them were highly significant with $p < 0.001$. For most of these items, except Q23 and Q35, the British scored significantly higher than the Chinese (Q22, 24–31, 36, 37), which indicated that the British disagreed with these causal explanations and they tended not to emphasize any one explanation.

The Chinese group favoured four explanations: stressful life events (Q30), traumatic childhood experiences (Q29), early rejection by parents/friends (Q22), and sexual/physical abuse (Q24). Both groups rejected the idea that schizophrenia is linked to low intelligence (Q28), low birth weight (Q32), and is infectious (Q37). The British group tended to favour biological explanations (Q35).

In the third section, duties of hospitals and society, significant difference between the two groups was illustrated by the result of MANCOVA ($F_{(23,\ 285)} = 9.50$, $p < 0.001$). Furthermore, a series of ANCOVAs found that the mean scores of 16 out of 23 items, as shown in Table 3, were significantly different between the British and the Chinese (Q40–44, 47–50, 52, 53, 55, 57–60). Except for Q41–43 and 53, the British were found to have higher scores than the Chinese. The four exceptional items implied a negative meaning about schizophrenia which indicated that the British were more concerned about the rights and benefits of those suffering from schizophrenia.

The Chinese clearly believe social factors are more important both in the cause (Q4) and cure (Q40, Q47, Q48) of schizophrenia. There were also consistent differences in the beliefs about the appropriate role of mental hospitals. The British seemed much more skeptical about the potential misuse of mental hospitals (Q49, Q53) as well as their efficacy (Q58).

Factor analysis

In order to examine the underlying structure of attitudes, factor analysis was carried out on items in each section. To obtain comparable factor scores, the results of the two groups were combined before carrying out the factor analyses. Further, by combining the result, a bigger sample size could ensure a more stable factor solution. (Details of the loadings available from the first author.)

Table 2 ANCOVA results of the causes of schizophrenia

Question	Chinese mean (S. D.)	British mean (S. D.)	ANCOVA (F level)
22. Strong rejection from family or close friends at an early age causes one to become schizophrenic	2.70 (1.17)	3.61 (1.38)	31.69***
23. Schizophrenia is caused by having blood relatives who are schizophrenic	4.03 (1.42)	3.63 (1.40)	4.89*
24. Sexual and/or physical abuse as children is the cause of schizophrenia	2.81 (1.16)	3.71 (1.36)	36.11***
25. Having parents who are inconsistent in their behaviour to the child leads one to become schizophrenic	3.38 (1.26)	3.92 (1.36)	10.28***
26. Schizophrenia is caused by learning strange and bizarre behaviour from others	4.52 (1.12)	4.91 (1.16)	5.85*
27. The cause of schizophrenia is the 'sick' society in which we live	3.42 (1.26)	4.70 (1.28)	52.18***
28. Schizophrenia is caused by having low intelligence	5.09 (0.96)	5.62 (0.73)	22.06***
29. Traumatic experiences in early childhood can cause schizophrenia	2.70 (1.20)	3.03 (1.41)	7.15**
30. Stressful life events such as losing one's job can lead to schizophrenic behaviour	2.31 (1.08)	3.31 (1.44)	45.76***
31. Schizophrenia is caused by patients' parents having emotional extremes and giving them contradictory messages	3.00 (1.06)	3.71 (1.35)	28.26***
32. Schizophrenia is caused by having a low birth weight	5.22 (0.90)	5.18 (1.03)	0.05
33. A result of brain damage in a serious accident is the cause of schizophrenia	4.07 (1.23)	4.03 (1.26)	0.03
34. Schizophrenia is caused by having a parent or both parents who are schizophrenic	3.75 (1.36)	3.75 (1.37)	0.15
35. Schizophrenia is caused by having an imbalance of chemicals in the body	3.74 (1.28)	2.80 (1.54)	20.29***
36. Having too much social pressure on people to behave properly causes people to be schizophrenic	3.03 (1.16)	3.96 (1.41)	37.54***
37. Schizophrenia is infectious	5.35 (1.04)	5.79 (0.66)	20.97***

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$
Note: higher scores indicate higher disagreement (1 = strongly agree, 6 = strongly disagree)

Table 3 ANCOVA results of the cures for schizophrenia

Question	Chinese mean (S. D.)	British mean (S. D.)	ANCOVA (F level)
38. Society has the right to protect its people from schizophrenics	2.73 (1.24)	3.04 (1.44)	3.84
39. Mental hospitals are used to keep schizophrenics away from society, and have little interest in cure	4.63 (1.19)	4.45 (1.43)	0.89
40. Producing a more comfortable and less stressful society is the best way to treat schizophrenics	2.22 (1.07)	3.59 (1.42)	69.83***
41. Whatever the aim of a mental hospital, it often ends up becoming a dumping ground for the poor and disadvantaged	4.41 (1.32)	3.15 (1.53)	51.71***
42. Mental hospitals sometimes end up simply providing shelter for the poor and other unfortunates and do little to get these people out of the hospital and back into society	4.09 (1.34)	3.50 (1.42)	9.56**
43. Society has a duty to provide places where schizophrenics can go for help with their problems	1.85 (1.02)	1.59 (0.89)	4.13*
44. The function of the hospital is to rid society of those who threaten it	4.31 (1.38)	5.12 (1.18)	20.74***
45. Society has a duty to respect the liberty of the schizophrenic	2.03 (0.96)	2.20 (1.20)	3.75
46. It is society's duty to provide people and places to treat schizophrenics	1.97 (1.04)	1.69 (0.92)	1.96
47. The duty of society is to change and reduce the stresses and strains on schizophrenics and others	2.22 (0.99)	3.03 (1.47)	31.17***
48. The most effective way of helping schizophrenics is to create a society which is truly fit for them to live in	2.64 (0.99)	3.50 (1.47)	33.52***
49. Mental hospitals are best used to remove schizophrenics from stressful homes to quieter settings	2.49 (1.09)	3.50 (1.24)	49.59***
50. A mental hospital is a kind of concentrated camp, where people are subdued and degraded in order to make them easier to control	4.14 (1.38)	4.51 (1.33)	5.18*
51. It is the right of the schizophrenic to be cared for by society	2.31 (1.09)	2.46 (1.31)	2.71
52. The best way to treat schizophrenics is to respect their right to lead their own lives	2.46 (0.99)	3.17 (1.34)	27.00***
53. Mental hospitals are often used to remove troublemakers from society	4.66 (1.22)	3.88 (1.51)	20.89***
54. The main function of the mental hospital is to provide an atmosphere for care and cure	1.89 (1.01)	1.92 (1.05)	0.24
55. Mental hospitals should be used to teach schizophrenics to act responsibly so they can fit in with society	2.25 (1.03)	2.62 (1.47)	4.28*
56. A one-to-one relationship with a skilled therapist is the best way to treat schizophrenics	2.56 (1.08)	2.58 (1.16)	0.38
57. The best way to treat schizophrenics is to respect their liberty and right to lead their own life	2.52 (1.07)	3.13 (1.34)	21.47***
58. Schizophrenic patients should best be kept in mental hospitals until they completely recover	3.14 (1.31)	3.73 (1.42)	7.71**
59. Psychiatric patients' rehabilitation facilities should be far from their community	3.68 (1.38)	4.54 (1.37)	21.05***
60. I prefer not to live near any psychiatric rehabilitation facilities	3.43 (1.37)	3.88 (1.59)	5.95*

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$
Note: higher scores indicate higher disagreement (1 = strongly agree, 6 = strongly disagree)

Factor analysis yielded six factors with an eigenvalue of > 1.00 for the first section of the questionnaire which account for 57.75 % of the total variance. The first factor, labelled *dangerousness of people with schizophrenia*, accounted for 19.86 % of the variance. Within this factor, all the items had mean scores higher than 4, which indicated that the participants generally agreed that people with schizophrenia were not particularly harmful. The second factor contained items referring to *superstitious beliefs*, and accounted for 9.03 % of the variance. The mean scores of the items within this factor revealed that participants did not possess superstitious beliefs about schizophrenia and did not think that schizophrenia could be cured by using supernatural powers. The third factor, accounting for 6.89 % of the variance, was labelled *abnormality of schizophrenia*. The low mean scores of the items suggested that participants believed that people with schizophrenia might perform outrageous acts in public places and might lose control easily. *Norms*, the fourth factor, which accounted for 6.22 % of the variance, suggested that participants generally agreed that those with schizophrenia were part of the society and sympathized with their misfortune. The fifth factor, the *rights of people with schizophrenia*, showed that participants respected people with schizophrenia and recognized the equality between schizophrenic patients and the others. This factor accounted for 5.81 % of the variance. The sixth factor concerning *social status* of people with schizophrenia accounted for 5.17 % of the variance. The single item on this factor showed that participants believed people from different social class have a greater chance of suffering from schizophrenia. The last factor, accounting for 4.77 % of the variance, was about *morality*; participants recognized that as long as the actions of people with schizophrenia did not affect others, they should not be disturbed.

Three factors with eigenvalue > 1.00 emerged for the causal explanations of the questionnaire by using factor analysis. Together they accounted for 50.76 % of the total variance (details from the first author). The first factor, *sociological* factor, was about the social stress experienced by people with schizophrenia and accounted for 27.75 % of the variance. Among the eight items in this factor, the highest mean score was only 4.03 and the lowest was 2.79. This revealed that participants generally held a neutral position regarding social factors as the cause of schizophrenia. It appeared that participants thought that previous experiences (Q29, 30) contributed more to the cause than relationship problems (Q22, 25) or societal pressure (Q27, 36). The second factor, *biological* explanation, accounted for 13.48 % of the variance. Similar to the first factor, participants held a moderate view in using biological explanation for the cause of schizophrenia. On the other hand, the last factor, *cognitive*, consisted of items with high mean scores which revealed that participants disagreed with the notion that cognitive factors contributed to the cause of schizophrenia. This factor accounted for 9.54 % of the variance. Item 37, 'schizophrenia is infectious', had the highest mean score (indicating disagreement) among the 60 items in the questionnaire.

Six factors emerged with eigenvalue > 1.00 in the third section. They accounted for 60.97 % of the total variance (details from the first author). The first factor, accounting for 19.04 % of variance, was about the *functions of mental hospitals*. The high mean scores of items within this factor suggested that participants disagreed with the idea of using hospitals to remove people with schizophrenia from society. The second factor, *care for people with schizophrenia,* accounted for 13.91 % of the variance. The mean scores of the items under this factor were around 3, which indicated that participants had a moderate view on producing a less stressful environment for people with schizophrenia. *Society's duty*, the third factor, accounted for 10.22 % of the variance. The low mean scores illustrated that participants agreed that society was responsible for treating those with schizophrenia. This factor contained item 43 which had the lowest mean score (indicating highest agreement) in the questionnaire. The fourth factor, *respect to people with schizophrenia*, accounted for 7.75 % of the variance. The low mean scores on the two items in this factor showed that participants thought that it is important to respect the rights of people with schizophrenia. The fifth factor, concerning the *acceptability of people with schizophrenia by the public*, showed mixed results. Participants showed that they did not think rehabilitation facilities should be far away from the community (Q59). However, they remained neutral when asked if they preferred to live nearby these facilities or not (Q60) and thought that they should be protected from people with schizophrenia by the society (Q38). This factor accounted for 5.28 % of the variance. The last factor, *treatment for people with schizophrenia*, accounted for 4.77 % of the variance. The low mean scores revealed that participants agreed that people with schizophrenia should be treated by mental hospitals and therapists in order for them to fit in the society.

Comparison on factor scores

A MANCOVA was performed on the factor scores to investigate the overall significant difference between the two groups ($F_{(16, 258)} = 12.64$, $p < 0.001$), followed by a series of ANCOVAs. Table 4 shows the results of ANCOVA and the mean scores of the two cultural groups on each factor under different sections of the questionnaire. They revealed that there were four significant differences found between the two groups out of the seven factors in section one of the questionnaire. British participants were more likely than Chinese participants to disagree that people with schizophrenia are dangerous and act abnormally. Also, British participants tended to recognize people with schizophrenia as part of the society more than the Chinese. With respect to the rights of people with schizophrenia, British participants tended to agree more often than the Chinese that people with schizophrenia have the right to be treated as ordinary,

Table 4 Results of ANCOVA and mean scores of two cultural groups on each factor

Factors	Chinese (N = 176)	British (N = 163)	ANCOVA ($F_{(1, 273)}$ =)
A. Negative beliefs			
1. Dangerous	4.46	4.89	18.49***
2. Superstitious	5.07	5.18	0.96
3. Abnormal	3.32	3.95	29.61***
4. Norm	3.68	4.00	8.48**
5. Rights	3.37	3.65	6.94**
6. Social status	5.01	4.95	0.01
7. Moral	2.49	2.69	2.27
B. Causal explanations			
1. Sociological	2.91	3.80	60.22***
2. Biological	3.87	3.63	3.94*
3. Cognitive	5.03	5.41	20.71***
C. Functions of hospitals and society			
1. Functions of hospitals	4.36	3.84	16.37***
2. Care	2.44	3.58	84.46***
3. Society's duty	2.07	2.29	4.69*
4. Respect	2.49	3.32	36.44***
5. Acceptability	2.95	3.46	26.53***
6. Treatment	2.23	2.37	1.50

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$
Note: higher scores indicate higher disagreement (1 = strongly agree, 6 = strongly disagree)

average citizens. Three other factors failed to show any significant difference.

In section two, the causal explanations of schizophrenia, all three factors revealed significant difference between the two cultural groups. Chinese participants tended to agree that social stress plays a role on the cause of schizophrenia, while British participants tended to disagree. Although two groups did not believe cognitive deficit is characteristic of people with schizophrenia, the British tended to have a higher level of rejection of this causal explanation. Both groups showed a moderate view on biological explanations, with the Chinese having a higher tendency for disagreeing with this explanation.

ANCOVAs showed that five out of six factors revealed significant differences between the two cultural groups on functions of hospitals and society. British participants tended to believe more than the Chinese that hospitals are used simply to remove people with schizophrenia from the society. Also, the British were less likely than the Chinese to think it is society's duty to produce a less stressful environment for people with schizophrenia and to take care of them. British participants did not show as much respect as the Chinese about the rights of people with schizophrenia, although both groups tended to agree people should respect their rights. British participants showed that they were more willing than the Chinese to have closer contact with a person with schizophrenia, such as living nearby rehabilitation facilities. The remaining factor on treatment failed to show any significant difference.

Demographic variables

When looking at the gender difference on factor scores, ANOVAs revealed that, for the Chinese, only factors B2, biological explanation, and C5, acceptance, were found to have a significant difference ($F_{(1, 162)} = 4.58$, $p < 0.05$) and ($F_{(1, 162)} = 4.42$, $p < 0.05$), respectively). It was found that males disagreed more with biological explanation (mean = 4.07) than female (mean = 3.75). For the British, only factor A4, norm, was found to have a significant difference between male and female ($F_{(1, 115)} = 5.12$, $p < 0.05$) and suggested that female (mean = 4.21) participants recognized schizophrenic people as part of the society more than males (mean = 3.84) did. However, the ANCOVA showed that there was no significant interaction found on any factor between gender and culture.

The number of participants who admitted to having knowledge about schizophrenia was far less than those without any knowledge. The ANOVA investigating the overall effect of knowledge about schizophrenia on factor scores was carried out instead of separating into two cultural groups. Moreover, participants indicating that they knew 'very well' and 'quite well' about schizophrenia were grouped together and those who indicated that they knew 'not very well' and 'not at all' were put into another group. Knowledge was found to have an effect on five of the factors (see Table 5). Results showed that participants having more knowledge about schizophrenia tended to have a more positive attitude towards people with schizophrenia than the participants without much knowledge about schizophrenia (factor A1, A3 and C5). Furthermore, with better knowledge of schizophrenia, participants stressed less on both sociological and cognitive factors (factors B1 and B3).

Again, only a few participants indicated that they had friends with mental illness. Table 6 shows the results of ANOVAs of friends' mental health status on factor scores. Results illustrated that having previous contact with mentally ill patients would lead participants to have a more positive attitude towards people who suffer from schizophrenia as shown by factors A1, A3 and C5. Participants having friends with mental illness tended

Table 5 Results of ANOVAs and scores on knowledge about schizophrenia

Factors	Mean		ANOVAs
	Very well/ Quite well (N = 37)	Not very well/ Not at all (N = 244)	($F_{(1, 219)}$ =)
A1 Dangerous	5.19	4.55	21.44***
A3 Abnormal	3.88	3.54	4.13*
B1 Sociological	3.67	3.23	6.63*
B3 Cognitive	5.54	5.13	13.62***
C5 Acceptability	3.60	3.10	14.20***

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$
Note: higher scores indicate higher disagreement (1 = strongly agree, 6 = strongly disagree)

Table 6 Results of ANOVAs and mean scores on with/without friends having mental illness

Factors	Mean		ANOVAs
	Friends with mental illness (N = 60)	Friends without mental illness (N = 219)	($F_{(1, 277)}$ =)
A1 Dangerous	4.97	4.53	14.78***
A3 Abnormal	3.90	3.48	10.09**
B1 Sociological	3.63	3.20	9.48**
B2 Biological	3.45	3.85	9.11**
B3 Cognitive	5.36	5.13	6.14*
C5 Acceptability	3.42	3.07	8.83**

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$
Note: higher scores indicate higher disagreement (1 = strongly agree, 6 = strongly disagree)

not to stress on both sociological and cognitive explanations, but on biological explanation.

Discussion

This study was designed to examine the cultural difference between Chinese and British people on the lay theories of schizophrenia, specifically on their beliefs, explanation models and their view on the functions of hospitals and society. Overall findings suggested that Chinese people were more likely than the British to think that people with schizophrenia are dangerous, uncontrollable and act abnormally (therefore, confirming H_1). It was also confirmed that the Chinese believed more in the social-environment model and the British believed more in the biological models for explaining the cause of schizophrenia (H_2). However, the Chinese were not found to possess more superstitious beliefs than the British, which was no doubt because these were predominantly well-educated young people in their twenties (therefore, not confirming H_3).

Although both the British and Chinese tended to disagree that people with schizophrenia are dangerous, it was confirmed that the Chinese held a more negative attitude towards people with schizophrenia. This is probably because the Chinese believed that people with schizophrenia could lose control at any time and perform 'outrageous acts' in public places. This possibly reflects the reason why Chinese people rejected the idea of building community-based rehabilitation facilities near their homes and thought that people with schizophrenia should be kept in mental hospitals. They seem essentially isolationist, reflecting ideas prevalent in Britain some 50 years ago. Most people seem to think that they or their children would be threatened by the patients. Also, if there is a member from the household who has schizophrenia, the family often try to hide it from friends and relatives because they feel ashamed about having such a family member. The negative image of people with schizophrenia is most likely to be endorsed by the Chinese media which sensationalizes the rare cases of mental patients attacking innocent members of the public. People, therefore, opposed the establishment of psychiatric rehabilitation facilities nearby their homes and thought that people with schizophrenia should best be kept securely in mental hospitals (preferably far away). In addition, Hong Kong has a higher population density than England which may of necessity lead to more contact with the mentally ill. The mental health system is based on the British model, but it seems there are fewer facilities in Hong Kong than in Britain, although reliable statistics are hard to obtain on patients, hospital beds, etc. because these are rapidly changing.

Due to the fact that Hong Kong was a British colony until 1997, most of the Hong Kong people, especially the younger generation with better education, are highly influenced by the multi-cultural environment. In this study, the participants mainly came from the younger age group with the mean age around 27 years. Their beliefs, when compared to the Chinese from mainland China who have been brought up according to the more traditional Chinese culture values and norms, may not be as traditionally Chinese. This may be one of the reasons why no difference was found between the Chinese and British participants on superstitious beliefs in this study. It is possible that if the study is done with people aged over 50 years, a difference could be found between the two groups. Another explanation for not finding a significant difference could be because the younger generation tend to use scientific explanations for the cause of schizophrenia rather than supernatural powers. Participants from both samples were predominantly in their twenties. Moreover, people's religion, which was not assessed in this study, may also have an effect on whether they believe someone can be controlled by evil spirits or not. Future research should explore the relationship between religious beliefs and attitudes towards mental illness in general. Nonetheless, as suggested by Pearson and Yiu (1993), it is not difficult to find a family taking the patient to ask for intercession from the Buddhist or Taoist priests at temples in Hong Kong.

As expected, in explaining the cause of schizophrenia, Chinese participants were found to believe more in the sociological explanatory model. This is possibly because of the high social bonding within the Chinese culture. In the Chinese culture, an individual's interests are not as important as society's interests and, thus, social relationships and social matters mean a lot to Chinese people rather than their personal affairs. On the other hand, the biological model was less stressed by the Chinese. Therefore, the Chinese believe that schizophrenia is caused more by external (societal) problems rather than internal (psychological or biological) problems. The British had a more moderate view on both the sociological and biological model. They were more likely than the Chinese to believe that schizophrenia is an inherited illness, and seem to accept wider explanations

for the cause of schizophrenia and consider it as a complex multi-causally determined illness.

Regarding the function of hospitals, the British appeared to believe that hospitals are used to keep schizophrenia patients away from society and do little to help the patients. Recently, a new Mental Health Act was drafted in the United Kingdom and two of the proposals concerned forcing the mentally ill people living in the community to take their medication, and the detention of dangerous people with severe personality disorders, even if they have not committed a crime. This issue was much debated (Iqbal 2000; Szmukler and Holloway 2000). Moreover, psychiatrists threatened the government that if they were asked to follow the Bill, they would retire earlier. This seems to reflect the fact that the British generally believe that mental patients have the right to lead their own lives and to determine what kind of treatment they should receive, which is in line with the findings of this study. The British respondents in this study seem to imply that they believe that hospitalization is often a negative experience for people with schizophrenia and that hospitals are often used to rid society of certain "undesirables", which should not be the case.

The results from this study were consistent with previous findings showing that people with knowledge about schizophrenia and having friends with mental illnesses had a more positive attitude towards people with schizophrenia than those individuals who did not have much knowledge about schizophrenia. Of course, it is not clear whether contact leads to positive attitudes or vice versa. Nevertheless, it is uncertain whether knowledge of mental illness alone can guarantee shortening the 'social distance' between the mentally ill and the public, but more exposure to the mental patients may lead to their condition being better understood. In addition, education through the media, such as producing education programmes about mental illness, may be useful, as media has great impact on people.

The questionnaire used in this study certainly warrants revision as some questions are ambiguous. Two examples illustrate the point. Item 39 reads "Mental hospitals are used to keep schizophrenics away from society and have little interest in cure". This could be interpreted that hospitals and staff should and are interested in cure but (unfortunately) are used in this manner. As the wording stands, respondents could respond because they see that as an unfortunate fact or disagree because they believe this should not be the case. A second similar example is found in item 44 which reads "The function of the hospital is to rid society of those who threaten it". It is possible to read that question as follows: Staff and management of mental hospitals do not see their function to rid society of those who threaten it, but social pressures, political policies and fiscal stringencies have led many hospitals to perform that function. Phrased this way, it may be much easier to agree or disagree with the item. Suffice it to say, future work in the area using these sorts of questionnaires would do well to disambiguate them as much as possible before proceeding with data collection.

The issue of cross-cultural differences in self-disclosure of mental problems is important in that the degree of self-disclosure affects how practitioners access the patients and what kind of intervention is given. Different explanatory models of illness may indicate different help-seeking behaviour of the patients themselves (Ying 1990). Thus, patients' subjective theories of illness may be more important indicators of psychotherapy or pharmacology motivation. It is also important to note that there is a tendency for clinicians to over- or under-diagnose schizophrenia in some ethnic groups. This is mainly because cultural differences have been noted in the presentation, course, and outcome of schizophrenia. As a result, cross-cultural research on schizophrenia and other kinds of mental illness is worthwhile for bridging the gap between practitioners and patients.

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