

Article

Attitude toward depression, its complications, prevention and barriers to seeking help among ethnic groups in Penang, Malaysia

Tahir M Khan BPharm MSc Clinical

Postgraduate Fellow, School of Pharmaceutical Sciences, University Sains Malaysia, Pulau Penang and Lecturer, School of Pharmacy, Island College of Technology, Balik Pulau, Pulau Penang, Malaysia

Syed A Sulaiman BPharm Pharm D

Associate Professor, Dean, School of Pharmaceutical Sciences, University Sains Malaysia, Pulau Penang, Malaysia

Mohamed A Hassali BPharm MSc Clinical PhD

Senior Lecturer, Discipline of Social and Administrative Pharmacy, School of Pharmaceutical Sciences, University Sains Malaysia, Pulau Penang, Malaysia

Humera Tahir BSc MSc

Postgraduate Fellow, School of Psychology, University of Punjab, Lahore, Pakistan

ABSTRACT

This study aims to explore attitudes towards, complications of and preventive measures for depression and the barriers that result in delays in seeking help among the various ethnic groups in Penang, Malaysia. In June 2007 a questionnaire-based survey was undertaken in Penang. Face-to-face interviews were conducted, and 1855 respondents were approached to participate in the study by adopting a cluster random sampling method. A 25-item questionnaire was used to explore public attitudes towards, complications of and preventive measures for depression and delays in seeking help. A total of 1149 (61.94%) showed willingness to participate in the survey. Ethnically, 490 (42.6%) of the respondents who participated in the survey were Malay, while 413 (35.9%) were Chinese, 149 (13%) Indian and 97 (8.4%) from other ethnic minorities. The mean age of the respondents was 30 years (SD ± 11.5). In evaluating public attitudes, the majority ($n = 910$, 79.2%) agreed with the statement that family and friends can enhance the depression recovery process by providing more care and attention to the patient and this was found to be statistically

significant ($P \leq 0.001$). More than one-third of the respondents ($n = 437$, 38.0%) perceived depression as a normal medical condition and believed that it subsides automatically. The majority ($n = 830$, 72.2%) stated that depression results in social problems, while some felt that it can lead to raised blood pressure ($n = 518$, 45.1%). In terms of prevention, most of the respondents indicated that one can prevent depression by maintaining a good social life. In evaluating the barriers to seeking professional help, the majority ($n = 582$, 50.7%) stated that they did not believe they were at risk, with the next largest group identifying a lack of awareness regarding the signs and symptoms. However, a positive attitude was observed towards the complications and prevention of depression. Initiatives to increase mental health literacy will prove fruitful in neutralising the negative public perceptions towards the treatment of depression and barriers to seeking professional help.

Keywords: attitudes, barriers, complications, depression, prevention, treatment

Introduction

Mental disorders are a recurrent issue in the discussion of health significance in developed and developing countries. According to World Health Organization (WHO) statistics from 2001, mental disorders affect at least 25% of adults once during their lives.¹ Of all the mental disorders depression is the most prevalent; it was ranked as the fourth leading cause of global disease burden in 1990 and is expected to be second to ischaemic heart disease by the year 2020.^{2,3} One of the perceived causes of its high incidence is the low level of mental health literacy. Mental health refers to the symptoms and causes of mental disorders and ways to seek the appropriate professional help, while evaluation of an individual's knowledge of these is referred to as mental health literacy.⁴ However, public attitudes towards the complications of mental disorders, preventive measures for depression and the barriers that result in delays in seeking help are neglected research issues that should be made the subject of further scientific investigation.⁵⁻⁷ It has been observed that the majority of people have negative attitudes and beliefs towards depression.^{8,9} While the stigma towards schizophrenia may be greater, stigma is also associated with depression.⁵⁻⁷ Elevation of public knowledge through mental health campaigns has brought some augmentation in public knowledge and changed the way the public thinks about mental disorders.¹⁰ However, there still remains a need to change public beliefs regarding depression. In the context of mental health, most of the research to date has centred on the evaluation of public knowledge about depression and its causes.⁹ In Malaysia, as well as internationally, no evidence is so far available on public attitudes towards depression, its complications, preventive measures for depression and the barriers that result in delays in seeking help. A previous finding has provided evidence of supernatural beliefs among Malaysians in relation to psychiatric problems and showed that the majority were willing to seek help from religious and traditional healers.¹¹ However, other studies have focused on the evaluation of public knowledge of the symptoms of, therapy for and beliefs about the causes of depression.¹²

The main aim of this study is to rectify the lack of research and to advance knowledge in the area by exploring attitudes towards, complications of and preventive measures for depression and the barriers that result in delays in seeking help among various ethnic groups in Penang, Malaysia.

Methodology

In June 2007 a questionnaire-based survey was undertaken in Penang, Malaysia. Penang is one of the 13 states of Malaysia, and comprises two parts, i.e. Penang Island and Penang mainland, with a population of 1.5 million. The population of Penang comprises Malays (42.5%), Chinese (46.5%), Indians (10.6%) and other minorities (0.4%).¹³

Study tool

The research design encompasses a non-experimental field research survey. Face-to-face interviews were conducted, and 1855 respondents were approached to participate in the study by adopting a cluster random sampling method. A 25-item questionnaire was used to explore public attitudes towards, complications of and preventive measures for depression and delays in seeking help. The content and face validity of the questionnaire was approved by professionals in the discipline of social and administrative pharmacy at the University Sains Malaysia (USM) Department of Psychiatry and by the Department of Biostatistics, Penang General Hospital. A reliability scale was applied to estimate the internal consistency of the knowledge domain: it was estimated on the basis of Cronbach's Alpha ($\alpha = 0.80$). Furthermore, to assure the validity of the contents, factor analysis was carried out. The content validity was estimated by using Bartlett's test of sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy. Bartlett's test of sphericity was significant at 0.0000, while the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.790. According to Scheridan and Lyndall (2001), a measure of more than 0.6 reflects the adequacy of the contents of the questionnaire.¹⁴ Thus the results provided considerable evidence of the reliability and validity of the sampling tool. Keeping in mind the language constraints in Penang, all the interviews were conducted by researchers with excellent proficiency in the Malay, Indian and Chinese languages.

Contents of the questionnaire

The questionnaire comprised two parts; the demographic section and the section linked to the objectives of the study. The demographic variables considered in the study tool were race, age, religion, education, income and gender. The second part of the study, i.e. public attitudes towards complications of depression, was assessed using a six-item scale. Moreover, an option was also given to the

respondents to disclose their beliefs in other complications of depression not covered by these six items.

Public attitudes toward depression were explored by asking the respondents to respond to the four items or statements below:

- Depression is a normal medical condition and it subsides automatically.
- Women and children are at more risk of depression.
- Family and friends can enhance improvement in the depression recovery process by providing more care and attention to the patient.
- People suffering from depression must be treated with antidepressants.

The level of agreement with these items was measured by using a three-item scale, i.e. agree (A), disagree (DA) and don't know.

Similarly, the following three items or statements were used to evaluate public belief that depression could be prevented:

- By maintaining a good social life.
- By maintaining a healthy diet and taking regular physical activity.
- By avoiding alcohol and drugs.

Furthermore, an option was provided to the respondents to share their own views about the prevention of depression.

Public belief regarding the barriers to seeking help for depression was evaluated using the six items or statements below:

- Because the treatment is expensive.
- They don't think they are at risk.
- They are not aware of the signs and symptoms
- They don't want to share their feelings
- They don't want to know that they are depressed.
- It's a stigma for them if they are diagnosed as suffering from depression.

Data collection

Potential respondents from Penang Island and the mainland were approached using a cluster random sampling method. Clustering was done on the basis of the four main racial groupings, i.e. Malay, Chinese, Indian and other ethnic minorities.¹³ Ethical approval from the research ethics committee of the University Sains Malaysia and from the clinical research committee of the Ministry of Health, Malaysia was obtained for this study. Moreover, verbal consent was sought from the respondents after assurance that the information obtained from them would remain confidential.

Data analysis

For the purpose of data analysis, the Statistical Package for Social Sciences (SPSS13.0®) was used. The chi-square test was used to test the difference between proportions. However, to analyse the multiple responses, e.g. agree, disagree and don't know, the Kruskal-Wallis test was applied: a *P*-value of 0.05 or less is considered significant. Some of the questions had multiple items for the respondents to choose from; therefore the sum total of percentages, as shown in the tables, is not always 100%.

Results

A total of 1149 (61.94%) of those approached showed a willingness to participate in the survey. Ethnically, 490 (42.6%) of the respondents who participated in the survey were Malay, while 413 (35.9%) were Chinese, 149 (13%) were Indian and 97 (8.4%) were from other ethnic minorities. The mean age of the respondents was 30 years (SD ± 11.5). Details of the socio-demographic characteristics of the respondents are illustrated in Table 1.

Public attitudes toward depression

In evaluating public attitudes, the majority ($n = 910$, 79.2%) agreed with the statement that 'Family and friends can enhance the depression recovery process by providing more care and attention to the patient' and this result was found to be statistically significant ($P \leq 0.001$). More than one-third of the respondents ($n = 437$, 38.0%) believed that 'Depression is a normal medical condition and it subsides automatically'. Detailed responses with appropriate statistics are presented in Table 2.

Public beliefs regarding the complications of depression

Evaluating public beliefs regarding the complications of depression proved to be a difficult task. Six items were provided with 'yes/no' options. In addition, respondents were invited to share their beliefs about the complications of depression. The top ranked complication identified was social problems. The majority ($n = 830$, 72.2%) stated that depression results in social problems, while some felt that it can result in raised blood pressure 518 (45.1%). The detailed results are shown in Table 3, while the personal perceptions of the respondents regarding

Table 1 Demographics of respondents

Characteristics	<i>n</i>	%
Total	1149	
Male	445	38.7
Female	704	61.3
Age		
18–24	585	50.9
25–30	164	14.3
31–35	77	6.7
36–40	98	8.5
41–50	129	11.2
Over 50	96	8.4
Mean	30 ± 11.15 (18 – 63)	
Religion		
Islam	595	51.8
Hindu	72	6.3
Christian	88	7.7
Buddhist	373	32.5
Others	21	1.8
Marital status		
Single	781	68.0
Married	304	26.5
Widow/widower	55	4.8
Divorced	9	0.8
Educational level		
Primary	43	3.8
Secondary	243	21.1
University/tertiary education	863	75.1
Income level in Ringgit (RM)		
<1000	506	44.0
1000–2000	222	19.3
2001–3500	211	18.4
>3500	4	0.3
Dependent on parents	206	17.9

the complications of depression are described in Table 4.

Public beliefs toward prevention of depression

Three options were given to the respondents to explore their beliefs about the prevention of depression. Most of the respondents felt that one can prevent depression by maintaining a good social life. Detailed responses are illustrated in Table 5.

Public beliefs regarding the barriers to seeking help for depression

Exploration of public beliefs in terms of seeking help for depression revealed three main barriers. Slightly more than half of the respondents ($n = 582$, 50.7%) believed that the most important hindrance in the help-seeking process is that depressed people do not think that they are at risk of depression. Other barriers highlighted are that 'They are not aware of the signs and symptoms' followed by 'They don't want to share their problems'. Their detailed responses are shown in Table 6.

Discussion

Mental health had long been a neglected issue in Malaysia. However, in 2007, in a letter of intent, the Ministry of Health (MOH) of Malaysia stressed the need to explore the level of mental health literacy, and public attitudes towards, complications of and preventive measures for depression and the barriers that result in delays in seeking help.¹⁵ In other words, this 2007 letter of intent by the MOH was the main motivation for this study.

A total of 1855 respondents were approached, of whom 61.94% showed a willingness to participate in this study. Demographic facts revealed that youths aged 18–30 years were more willing to participate. The majority of them were those with a university or other tertiary qualification. A possible reason for this may be the fact that students are often the victim of some type of depressive disorder during their academic life.¹⁶ The findings of Sherina *et al* (2003) and Zaid *et al* (2007) provide evidence of a high prevalence of depression among students.^{17,18}

Attitudes toward depression

Attitudes toward depression were assessed on the basis of four items. The majority ($n = 870$, 75.7%) disagreed with the statement that only women and children suffer from depression, although there is evidence that correlates prevalence of depression with gender.¹⁹ However, this also reflects a positive insight on the part of the respondents that anyone can suffer from depression, regardless of age and gender.

In exploring public attitudes toward the treatment of depression, the majority ($n = 910$, 79.2%) stated that family and friends can enhance the depression recovery process by providing more care and attention to the patient. This attitude may be beneficial

Table 2 Public attitudes towards depression

	Response	Malay (<i>n</i> = 490)	Chinese (<i>n</i> = 413)	Indian (<i>n</i> = 149)	Others (<i>n</i> = 97)	Total (%)	<i>P</i> -value*
Depression is a normal medical condition and it subsides automatically	A	220	138	51	28	437 (38.0)	0.045
	DA	120	103	63	37	323 (28.1)	
	Don't know	150	172	35	32	389 (33.9)	
Women and children are at more risk for depression	A	48	40	18	8	114 (9.9)	<0.001
	DA	358	325	110	77	870 (75.7)	
	Don't know	84	48	21	12	165 (14.4)	
Family and friends can enhance the depression recovery process by providing more care and attention to the patient	A	376	330	121	88	910 (79.2)	0.001
	DA	33	14	1	3	51 (4.4)	
	Don't know	81	69	27	6	183 (15.9)	
People suffering from depression must be treated with antidepressants	A	227	161	57	40	485 (42.2)	0.274
	DA	63	74	30	12	179 (15.6)	
	Don't know	189	189	62	35	475 (41.3)	

* Kruskal–Wallis, *P*-value significant at <0.05

A = agree

DA = disagree

Table 3 Public beliefs about complications of depression

Complications	Malay (<i>n</i> = 490)	Chinese (<i>n</i> = 413)	Indian (<i>n</i> = 149)	Others (<i>n</i> = 97)	Total (%)
Loss of memory	128	113	67	35	349 (30.4)
Sexual disorders	143	111	59	36	343 (29.9)
Heart attack	128	87	63	12	290 (25.3)
Diabetes mellitus	66	64	27	23	180 (15.7)
Social problems	337	336	93	64	830 (72.2)
Blood pressure	260	153	73	32	518 (45.1)

where the depression is caused by social relationship problems. Still, as many as 485 (42.2%) of the respondents believe that people suffering from depression should be treated with antidepressants. These findings provide evidence of a positive attitude towards the use of antidepressants and contradict

the internationally reported finding of a negative attitude toward the use of antidepressants. However, a noticeable number (*n* = 437, 38.0%) agreed with the statement that depression is a normal medical condition that subsides automatically. This fact provides insight for future research to explore

Table 4 Respondents' personal views about complications of depression

Race	Job complication	Family tension	Mania	Eating disorders	Headache	Suicide	Lack of interest in work	Loss of relationship	Heart disease	Crime
Malay	21	25	21	6	1	38	16	23	1	2
Chinese	17	16	11	5	3	39	15	11	1	0
Indian	19	10	12	0	21	2	3	5	1	0
Others	0	1	1	0	0	5	6	14	0	2
Total	57	52	45	11	25	84	40	53	3	4

Table 5 Public opinions about prevention of depression

	Response	Malay (<i>n</i> = 490)	Chinese (<i>n</i> = 413)	Indian (<i>n</i> = 149)	Others (<i>n</i> = 97)	Total (%)	* <i>P</i> -value
By maintaining a good social life	A	451	271	141	86	1049 (91.3)	<0.001
	DA	19	16	6	1	39 (3.4)	
	Don't know	20	26	7	8	61 (5.3)	
By maintaining a healthy diet and taking regular physical activity	A	440	359	134	64	997 (86.8)	<0.001
	DA	12	17	2	5	36 (3.1)	
	Don't know	42	33	13	28	116 (10.1)	
By avoiding the alcohol and drug abuse	A	415	309	85	84	893 (77.7)	<0.001
	DA	40	42	46	7	135 (11.7)	
	Don't know	64	33	18	6	121 (10.5)	

* Kruskal–Wallis, *P*-value significant at <0.05

A = agree

DA = disagree

the reasons or factors that could account for such an attitude.

Complications of depression

Though it is generally difficult to evaluate public beliefs regarding the complications of depression, an effort was made to obtain some preliminary data. Social problems were perceived to be a major complication of depression, followed by raised blood pressure, sexual disorders, loss of memory and heart attacks. In evaluating their personal beliefs, the respondents revealed suicide as one of the major complications, followed by job-related problems,

family tensions, mania, loss of relationships, lack of interest in work and headaches. After ethnical segregation of the responses, it was apparent that Malays tended to identify family and relationship problems; the Chinese, job-related complications, lack of interest in work and mania; and the Indians, headaches as the main complications of depression.

Prevention of depression

Attitudes towards the prevention of depression can influence actual beliefs regarding depression. Overall, positive attitudes were observed towards the prevention of depression. A sizeable majority (*n* =

Table 6 Public beliefs about barriers to help seeking for depression

	Malay (<i>n</i> =490)	Chinese (<i>n</i> =413)	Indian (<i>n</i> =149)	Others (<i>n</i> =97)	Total (%)	* <i>P</i> -value
Because the treatment is expensive	88	83	14	22	207 (18.0)	0.017*
They don't think they are at risk	243	223	64	52	582 (50.7)	0.115
They are not aware of the signs and symptoms	226	228	69	52	575 (50.0)	0.033*
They don't want to share their problems	233	194	63	54	544 (47.3)	0.235
They don't want to know that they are depressed	176	164	63	38	441 (38.4)	0.466
It's a stigma for them if they are diagnosed with depression	72	69	16	23	180 (15.7)	0.042*

* Chi-square, *P*-value significant at <0.05

1049, 91.3%) agreed that a change in lifestyle, such as maintaining a good social life, is one of the preventive measures. In addition, other preventive strategies involve maintaining a healthy diet and regular physical activity. About 893 (77.7%) of the respondents agreed with the statement that one can prevent depression by avoiding alcohol and drugs. We can assume that this reflects the respondents' knowledge of the side-effects of alcohol and drug abuse.

Barriers to seeking help

The perception of a personal health risk is primarily influenced by general health values, which include interest and concern about health, specific beliefs about vulnerability to a particular illness and beliefs about the consequences of the illness, such as whether or not they are serious.²⁰ Recognised barriers to seeking help include social, professional and personal factors. Multiple responses were obtained in response to a question about why people are not willing to seek help or to be tested for depression. Slightly more than half of the respondents (*n* = 582, 50.7%) did not think that they were at risk of depression, while 575 (50%) stated that they were not aware of the signs and symptoms. In response to a question about treatment, 207 (18%) of the respondents mentioned that treatment of depression is expensive, and that this hinders patient access to proper mental health care. The response to this statement can be evaluated both negatively and

positively. From a positive perspective, it can be interpreted to mean that mental health services provided by the private health sector are expensive. The negative interpretation may indicate the lack of awareness among the respondents that mental health care in the public hospitals of Malaysia is free for all Malaysians.

Other statements in this regard reflect the stigma-related attitudes among the respondents towards seeking professional help. Slightly less than half (*n* = 544, 47.3%) agreed with the statement that depressed people do not want to share their problems, with a lower percentage agreeing that people do not want to know that they are depressed. Significant barriers to seeking help were; a lack of awareness of the signs and symptoms, costly treatment and the stigma associated with a diagnosis of depression. These findings are consistent with the findings of Outram *et al* (2004).²¹ In fact, Outram *et al* claimed that a desire for privacy and confidentiality, fear of being judged by professionals, believing no one can help, pride and a desire to cope alone are the main barriers to seeking professional help.²¹

Searle (1999) stated that the perceived stigma associated with mental illness and individuals' views about the illness itself play a vital role in compliance with treatment for depression.⁷ Though the stigma of psychiatric illness influences its presentation, recognition and treatment adherence, public health campaigns can be beneficial in the eradication of misconceptions among the public with regard to mental disorders.^{22,23}

Conclusion

Overall, positive attitudes were observed towards the complications and prevention of depression. However, there is a need to increase mental health literacy. Such initiatives will be effective in neutralising negative public perceptions regarding evidence-based medical treatment options and removing barriers to seeking professional help.

Limitations

It should be noted that the majority of the respondents in this study were young people and, more specifically, young females. This was not intentional: young female respondents were more willing to participate in the study by comparison with others. This limitation highlights the need for further studies that focus on the middle-aged and the elderly to gauge whether their attitudes toward depression, prevention of depression and barriers to seeking help are significantly different.

Recommendations

In Malaysia there is scarcity of research in the field of mental health. It is hoped that these preliminary findings will prompt the Public Health Department to conduct more specific and methodologically sound studies to explore the ramifications of mental health illiteracy in this country, so as to create a more proactive and viable mental health delivery system.

REFERENCES

- 1 World Health Organization. *World Health Report 2001. Mental health: new understanding, new hope*. Geneva: WHO, 2001.
- 2 Murray CJ and Lopez AD. Global mortality, disability, and the contribution of risk factors: Global Burden of Disease Study. *The Lancet* 1997;349: 1436–42.
- 3 Murray CJ and Lopez AD. Alternative projections of mortality and disability by cause 1990–2020: Global Burden of Disease Study. *The Lancet* 1997;349: 1498–504.
- 4 Jorm AF, Korten AE, Jacomb PA, Christensen H, Rodgers B and Pollitt P. 'Mental health literacy': a survey of the public's ability to recognise mental disorders and their beliefs about the effectiveness of treatment. *Medical Journal of Australia* 1997;166: 182–6.
- 5 Ozmen E, Ogel K, Aker T, Sag˘duyu A, Tamar D and Boratav C. Public attitudes to depression in urban Turkey: the influence of perceptions and causal attributions on social distance towards individuals suffering from depression. *Social Psychiatry and Psychiatric Epidemiology* 2004;39:1010–16.
- 6 Priest GP, Vize C, Roberts A, Roberts M and Tylee A. Lay people's attitudes to treatment of depression: results of opinion poll for Defeat Depression Campaign just before its launch. *British Medical Journal* 1996;313:858–9.
- 7 Searle GF. Stigma and depression: a double whammy. *International Journal of Clinical Practice* 1999;53:473–5.
- 8 Crisp AH. The stigmatisation of sufferers with mental disorders. *British Journal of General Practice* 1997; 49:3–4.
- 9 Jorm AF, Jacomb PA and Christensen H. Attitudes towards people with a mental disorder: a survey of the Australian public and health professionals. *Australian and New Zealand Journal of Psychiatry* 1999;33:77–83.
- 10 Byrne P. Psychiatric stigma. *British Journal of Psychiatry* 2001;178:281–4.
- 11 Razali SM, Khan UA and Hasanah CI. Belief in supernatural causes of mental illness among Malay patients: impact on treatment. *Acta Psychiatrica Scandinavica* 1996;94:229–33.
- 12 Khan TM, Sulaiman SA and Hassali MA. The causes of depression? A survey among Malaysians about perception for causes of depression. *Asian Journal of Pharmaceutical and Clinical Research* 2008;2:6–9.
- 13 Socio-Economic and Environmental Research Institute (SERI). *Penang Statistics, 2007*. Quarter 2, page 3. www2.seri.com.my/Penang%20Statistics/2007/Q2-April-June-2007-1.pdf (accessed 20 March 2008).
- 14 Scheridan JC and Lyndall GS. *SPSS Analysis Without Anguish: version 10.0 for windows*. Singapore: John Wiley and Sons (Australia) Ltd, 2001.
- 15 National Institutes of Health. *A Study on the Risk Factors, Prevalence, Morbidity and Burden of Mental Illnesses at Various Levels (community, primary care etc.) in Malaysia*. 2007. www.nih.gov.my/LOI/MI/LOI2_2.php?id=MI (accessed 20 February 2007).
- 16 Peterlini M, Tib rio IF, Saadeh A, Pereira JC and Martins MA. Anxiety and depression in the first year of medical residency training. *Medical Education* 2002;36:66–72.
- 17 Sherina MS, Lekhraj R and Nadarajan K. Prevalence of emotional disorders among medical students in a Malaysian university. *Asia Pacific Family Medicine* 2003;2:213–17.
- 18 Zaid ZA, Chan SC and Ho JJ. Emotional disorders among medical students in a Malaysian private medical school. *Singapore Medical Journal* 2007;48: 895–9.
- 19 Khan TM, Sulaiman SA and Hassali MA. Incidence of depression and its demographic correlates: outcome of a descriptive study at the Psychiatry OPD Penang, Malaysia. *Health Med Journal* 2009;3:204–11.
- 20 Millstein SG and Halpern-Felsher BL. Judgements about risk and perceived invulnerability in adolescents

- and young adults. *Journal of Research on Adolescence* 2002;12:399–422.
- 21 Outram S, Murphy B and Cockburn J. Factors associated with accessing professional help for psychological distress in midlife Australian women. *Journal of Mental Health* 2004;13:185–95.
- 22 Sirey JA, Bruce ML, Alexopoulos GS, Perlick DA, Friedman SJ and Meyers BS. Perceived stigma and patient-rated severity of illness as predictors of antidepressant drug adherence. *Psychiatry Services (Washington DC)* 2001;52:1615–20.
- 23 Paykel ES, Hart DH and Priest RG. Changes in public attitudes to depression during the Defeat Depression Campaign. *British Journal of Psychiatry* 1998;173:519–22.

CONFLICTS OF INTEREST

None.

ADDRESS FOR CORRESPONDENCE

Tahir Mehmood Khan, Lecturer, Department of Pharmacy, Island College of Technology, Balik Pulau 11000, Penang, Malaysia. Email: tahir.pks@gmail.com

Accepted January 2010

