

Prevalence of depression among women attending a primary urban care clinic in Malaysia

Sherina Mohd Sidik¹, MMed, PhD, Bruce Arroll², MBChM, PhD, Felicity Goodyear-Smith², MBChB, MGP, Rozali Ahmad³, MBBS, MPH

INTRODUCTION Depression affects more women than men in Malaysia. The objective of this paper was to determine the prevalence of depression and its associated factors among women attending a government primary care clinic.

METHODS A cross-sectional study was conducted in a government-funded primary care clinic in Malaysia. Consecutive adult female patients attending the clinic during the data collection period were invited to participate. The participants completed self-administered questionnaires (including the validated Patient Health Questionnaire [PHQ-9], which was translated into the Malay language).

RESULTS A total of 895 female patients participated in the study (response rate 87.5%). The prevalence of depression (PHQ-9 scores ≥ 10) was 12.1%. Based on multiple logistic regression analysis, certain stressful life events were found to be associated with depression ($p < 0.05$). These factors, arranged from highest to lowest risk, were financial problems (odds ratio [OR] 3.7, 95% confidence interval [CI] 2.2–6.2), unhappiness in the parent-child relationship (OR 3.0, 95% CI 1.2–7.5), history of serious illness (OR 2.4, 95% CI 1.1–5.2), unhappiness in family relationships (OR 2.3, 95% CI 1.1–4.7) and unhappiness at work (OR 2.2, 95% CI 1.1–4.3) ($p < 0.05$).

CONCLUSION The prevalence of depression among participants in this study was clinically significant and corresponded with the findings of other international studies. Factors associated with depression need to be highlighted and addressed accordingly. Clinicians in Malaysia should be aware of this prevalence when making diagnoses in primary care.

Keywords: depression, Malaysia, prevalence, primary care, women
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INTRODUCTION

Depression is the most common mental health problem worldwide, and in most populations, it has been found to be significantly higher among women compared to men. Until recently, most studies on depression have been conducted in developed countries. Studies are now being conducted in developing countries, especially by the World Health Organization (WHO). A large WHO study conducted in 14 countries among 25,916 patients attending primary care clinics has found a constantly higher prevalence of depression among women compared to men, with a ratio of 2:1.⁽¹⁾ A recent study in Auckland, New Zealand found an overall prevalence of depression of 12.9% (Patient Health Questionnaire [PHQ-9] scores ≥ 10), with a higher prevalence in women (14.7%, 200/1,364) compared to men (10.3%, 93/903).⁽²⁾

Based on the findings of the Malaysian National Health and Morbidity Surveys (NHMS), there is a need to conduct comprehensive studies on the mental health of Malaysian women. The prevalence of poor mental health status among women increased from 11.2% in the NHMS II (conducted in 1987–1996, Institute of Public Health 1999) to 12.1% in the NHMS III (1997–2006).^(3,4) In the Malaysian Burden of Disease Injury Survey conducted in 2004, major depression was the third

and tenth leading cause of disease burden in women and men, respectively.⁽⁵⁾

The 9th Malaysian Plan (2006–2010) took into account the findings of these surveys and ranked mental illness sixth among eight of Malaysia's leading causes of burden of disease. Mental illness was also listed as one of the top health research priority areas for Malaysia.⁽⁶⁾ The high-risk groups identified were women, children and the elderly. Measures are being taken to determine the risk factors for the higher prevalence of mental health problems in these groups. The primary care setting has been identified as the best location for early detection and intervention.

This paper is part of a larger study that was funded under the 9th Malaysian Plan. It was conducted on women only, as the 9th Malaysian Plan focused solely on groups at high risk of mental health problems, namely women, children and the elderly, based on findings from the NHMS II and III. The objectives of the study were to determine the prevalence of depression and anxiety among women, their associated factors, and the validity of the Malay versions of depression and anxiety questionnaires in a primary care clinic in Malaysia. The questionnaires used were the PHQ-9, the seven-item Generalized Anxiety Disorder questionnaire, the two questions with help question (TQWHQ) and single anxiety question with help question. Validation

¹Department of Psychiatry, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, ²Department of General Practice and Primary Health Care, Faculty of Medicine and Health Sciences, University of Auckland, New Zealand, ³Malaysian Armed Forces, Health Services Division, Ministry of Defence, Kuala Lumpur, Malaysia
Correspondence: Dr Sherina Mohd Sidik, Professor, Department of Psychiatry, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, UPM Serdang, Selangor 43400, Malaysia. sherina@putra.upm.edu.my

results for the TQWHQ and prevalence results for anxiety have been published elsewhere.^(7,8) In this paper, only the prevalence of depression (based on the PHQ-9) and its associated factors among women are discussed.

METHODS

A cross-sectional study design was used. Data was collected over a duration of eight weeks, from December 10, 2008 to January 30, 2009. Some parts in this section can be found in two other publications as they were based on the same study.^(7,8) The current study was conducted in a government primary care clinic of an urban district in the state of Selangor, Malaysia. A location was defined as 'urban' when its population ranged from 10,000 to 74,999 people.⁽⁹⁾ The criteria for choosing a clinic in an urban location was pre-determined based on the results of national surveys that had found that mental health problems were more prevalent in urban compared to rural settings.^(3,4,9) A clinic was selected via simple random sampling from a list of government primary care clinics headed by a Family Medicine Specialist/Family Physician. The clinic, which provided outpatient, maternal and paediatric health care services, was staffed by doctors, medical assistants and nurses. These primary healthcare services are also provided in other primary care clinics in Malaysia.

Consecutive adult female patients aged ≥ 18 years were approached by Research Assistants (RAs) while waiting for consultation with the doctors. Exclusion criteria were non-Malaysian citizens, patients who were acutely ill and required immediate medical attention and those who were unable to communicate (e.g. having speech or hearing difficulties). The RAs explained the purpose of the study to the participants, and written information was also provided. Those who agreed to participate were registered with the study and written consent was obtained. The participants completed the self-administered questionnaires (including the PHQ-9) and returned them to the RAs. Participants who had answered the questionnaires once were not sampled again if they returned to the clinic during the study duration. The participants did not receive any help in completing the questionnaires. Ethical approval was obtained from the Research Ethics Committee of the Faculty of Medicine and Health Sciences, Universiti Putra Malaysia and Ministry of Health, Malaysia.

The PHQ-9 was used in this study to determine the presence or absence of depression among the participants. Permission was obtained to translate the PHQ-9 into the Malay language, following the guidelines for cross-cultural adaptation of self-report measures.⁽¹⁰⁾ The process included two independent forward translations of the original PHQ-9 into Malay, consensus between translators on the forward translation, back-translation by bilingual English teachers and a review of the back-translation by an expert committee. The PHQ-9 was pre-tested in a location not included in the study and validated against the Composite International Diagnostic Interview (CIDI). The Malay version of the PHQ-9

was found to be a valid and reliable case-finding instrument for depression (findings are reported elsewhere). The PHQ-9 scores ranged from 0 to 27, with each of the nine items scored from 0 to 3. In this study, a high score was defined as ≥ 10 on the PHQ-9, and participants with scores ≥ 10 were categorised as having depression.⁽¹¹⁾

The questionnaire also included items on sociodemographics, medical history, stressful life events, obstetric and gynaecologic history and domestic violence. Questions on stressful life events were selected from a list of events found to be associated with depression and anxiety among women by Kendler et al.⁽¹²⁾ These questions included history of assault, serious illness, childhood abuse, serious injury, losing a parent before the age of ten years, losing someone close or dear, serious marital, family, financial, housing and work-related problems, recent job loss, legal problems, and relationships with husband and/or partner, children, family and colleagues. Questions on domestic violence were based on the HARK questionnaire by Sohal et al,⁽¹³⁾ which included any history of emotional, physical or sexual abuse from the participant's current/ex-partners, as well as whether the participant was afraid of her current/ex-partners.

Data was entered into the Statistical Package for the Social Sciences version 19.0 software (IBM Corporation, Armonk, NY, USA). The chi-square test of independence was used to determine the factors associated with depression. The factors were further analysed using multivariate logistic regression analysis. Multiple logistic regression was used to determine the predictor variable that had the strongest association with depression based on the odds ratio (OR) and 95% confidence interval (CI) results. For all analyses, the level of significance was set at $p < 0.05$.

RESULTS

A total of 1,023 female patients were approached to take part in this study. Out of these, 895 agreed to participate, giving a response rate of 87.5%. 50 questionnaires were excluded; 30 patients had known psychiatric disorders and 20 patients were on psychotropic medication (e.g. antidepressants, antipsychotics, antiepileptics). They were excluded from data analysis, as the validation of the questionnaires conducted in the second part of this study was aimed at detecting new cases of depression and anxiety. The remaining 845 complete questionnaires were used for data analysis. The mean age of the participants was 30.9 ± 10.4 (range 18–81) years.

Based on the PHQ-9 score of ≥ 10 , 102 (12.1%) participants were classified as having depression. Sociodemographics (age, race, religion, marital status, number of children, literacy, educational status and occupational status), medical, obstetric and gynaecologic history, as well as domestic violence were not found to be associated with depression among the participants. Among the different ethnic groups, Indians were found to have the highest prevalence of depression (14.7%), followed by Malays (12.3%), other ethnic groups (9.5%) and Chinese

Table I. Sociodemographics, medical, obstetric and gynaecologic history associated with depression among participants (n = 845).

Demographic	No. of patients (%)		Total	p-value
	PHQ-9 \geq 10 [†]	PHQ-9 < 10		
Race				
Malay	63 (12.3)	450 (87.7)	513	0.37
Indian	26 (14.7)	151 (85.3)	177	
Chinese	11 (8.2)	123 (91.8)	134	
Other races*	2 (9.5)	19 (90.5)	21	
Marital status				
Unmarried	44 (13.8)	276 (86.2)	320	0.24
Married	58 (11.0)	467 (89.0)	525	
Educational status				
Educated	100 (12.0)	732 (88.0)	832	0.71
Uneducated	2 (15.4)	11 (84.6)	13	
Education level (n = 832)				
Primary	5 (10.6)	42 (89.4)	47	0.91
Secondary	47 (11.5)	362 (88.5)	409	
Tertiary	48 (12.8)	328 (87.2)	376	
Occupational status				
Employed	60 (12.3)	427 (87.7)	487	0.80
Unemployed	42 (11.7)	316 (88.3)	358	
Chronic disease				
Yes	25 (12.1)	182 (87.9)	207	0.99
No	77 (12.1)	561 (87.9)	638	
Pre-menstrual symptoms				
Yes	58 (14.5)	342 (85.5)	400	0.04
No	44 (9.9)	401 (90.1)	445	
Menopause				
Yes	7 (10.1)	62 (89.9)	69	0.61
No	95 (12.2)	681 (87.8)	776	

[†]Patients with PHQ-9 scores \geq 10 are considered to be having depression.

*Orang Asli (aboriginal cultures of Peninsular Malaysia), Iban, Bidayu, Murut, Penan, Melanau, Kelabit (of Sarawak) and Kadazan Rungus and others (of Sabah)
PHQ: Patient Health Questionnaire

(8.2%). However, there was no significant association between ethnicity and depression among the participants. The stratified results based on the PHQ-9 scores for depression are shown in Table I (sociodemographics, medical, obstetric and gynaecologic history), Table II (stressful life events) and Table III (domestic violence).

Based on multivariate analysis, five items were found to have the strongest predicting outcome for depression in this study. These factors, arranged from highest to lowest risk, were financial problems (OR 3.7, 95% CI 2.2–6.2), unhappiness in the parent-child relationship (OR 3.0, 95% CI 1.2–7.5), history of serious illness (OR 2.4, 95% CI 1.1–5.2), unhappiness in family relationships (OR 2.3, 95% CI 1.1–4.7) and unhappiness at work (OR 2.2, 95% CI 1.1–4.3) ($p < 0.05$). The factors associated with depression are listed in Table IV.

DISCUSSION

The prevalence of depression in this study was 12.1% (based on a PHQ-9 score \geq 10). The results of this study are supported by the WHO study on psychological problems in primary care, which found a 12.5% prevalence of current depression among adult women in primary care clinics.⁽¹⁾ This cross-cultural survey was conducted in 15 centres from 14 countries, and used the CIDI to

diagnose depression. The findings were reported by Maier et al, who took into account that social and cultural factors vary across cultures, and may influence the rate of depression.⁽¹⁾ Similar to this study, Munk-Jorgensen et al's study, done among 2,901 women attending primary care clinics in Denmark, Finland, Norway and Sweden, found that the prevalence of major depression was 12.4%. Their diagnosis was, however, based on the 11-item Depression Screening Questionnaire, which was also self-administered.⁽¹⁴⁾

Based on multivariate logistic regression analysis, our study found that only certain stressful life events were associated with depression. None of the factors from other domains (e.g. sociodemographics, medical, obstetric and gynaecologic history, or domestic violence) were found to be associated with depression. These findings do not correspond to the findings of the Malaysian NHMS, where a higher prevalence of psychiatric morbidity was found among the Indian ethnic group, those who were widowed, divorced, uneducated or unemployed, and low-income earners.^(3,4) However, the NHMS were conducted in community households that included both men and women, and the instrument used for detecting psychiatric morbidity was also different from the PHQ-9 used in this study. It was also surprising that domestic violence, which was found to be a significant

Table II. Stressful life events associated with depression among participants (n = 845).

Event	No. of patients (%)		Total	p-value	OR (95% CI)
	PHQ-9 \geq 10 [†]	PHQ-9 < 10			
Assaulted					
Yes	12 (27.3)	32 (72.7)	44	< 0.01	2.43 (1.44–4.08)
No	90 (11.2)	711 (88.8)	801		
Serious illness					
Yes	15 (34.1)	29 (65.9)	44	< 0.01	3.12 (2.00–5.00)
No	87 (10.9)	714 (89.1)	801		
Childhood abuse (physical or sexual)					
Yes	4 (23.5)	13 (76.5)	17	0.14	2.00 (0.83–4.78)
No	98 (11.8)	730 (88.2)	828		
Serious injury					
Yes	16 (21.1)	60 (78.9)	76	< 0.01	1.89 (1.17–3.04)
No	86 (11.2)	683 (88.8)	769		
Losing a parent before the age of 10 years					
Yes	7 (11.1)	56 (88.9)	63	0.81	0.92 (0.44–1.89)
No	95 (12.1)	687 (87.9)	782		
Losing someone close or dear					
Yes	25 (18.7)	109 (81.3)	134	< 0.01	1.72 (1.14–2.60)
No	77 (10.8)	634 (89.2)	711		
Serious marital problems (n = 525)					
Yes	17 (51.5)	16 (48.5)	33	< 0.01	6.18 (3.97–9.62)
No	41 (8.3)	451 (91.7)	492		
Serious family problems					
Yes	16 (40.0)	24 (60.0)	40	< 0.01	3.74 (2.44–5.75)
No	86 (10.7)	719 (89.3)	805		
Serious financial problems					
Yes	43 (32.6)	89 (67.4)	132	< 0.01	3.94 (2.78–5.57)
No	59 (8.3)	654 (91.7)	713		
Serious housing problems					
Yes	18 (36.7)	31 (63.3)	49	< 0.01	3.48 (2.29–5.30)
No	84 (10.6)	712 (89.4)	796		
Serious difficulties at work (n = 487)					
Yes	8 (34.8)	15 (65.2)	23	< 0.01	3.10 (1.68–5.74)
No	52 (11.2)	412 (88.8)	464		
Recent job loss					
Yes	8 (33.3)	16 (66.7)	24	< 0.01	2.91 (1.60–5.29)
No	94 (11.4)	727 (88.6)	821		
Legal problems					
Yes	3 (50.0)	3 (50.0)	6	< 0.05	4.24 (1.86–9.63)
No	99 (11.8)	740 (88.2)	839		
Relationship with husband/partner (n = 612)					
Unhappy	22 (32.4)	46 (67.6)	68	< 0.01	4.53 (2.42–8.42)
Happy	52 (9.6)	492 (90.4)	544		
Relationship with children (n = 260)					
Unhappy	10 (34.5)	19 (65.5)	29	< 0.01	6.23 (2.30–16.82)
Happy	18 (7.8)	213 (92.2)	231		
Relationship with family					
Unhappy	20 (37.0)	34 (63.0)	54	< 0.01	5.09 (2.68–9.61)
Happy	82 (10.4)	709 (89.6)	791		
Relationship at work (n = 487)					
Unhappy	21 (30.0)	49 (70.0)	70	< 0.01	4.15 (2.16–7.96)
Happy	39 (9.4)	378 (90.6)	417		

[†]Patients with PHQ-9 scores \geq 10 are considered to be having depression.
OR: odds ratio; CI: confidence interval; PHQ: Patient Health Questionnaire

predictor for depression in several international studies,⁽¹⁵⁻¹⁷⁾ was not associated with depression in this study. This could have been due to the small number of patients who reported domestic violence in this study.

The association between stressful life events and depression has been well documented in a series of publications by Kendler et al.⁽¹⁸⁻²³⁾ In a longitudinal study among Caucasian female twins born between 1934 and 1974 in Virginia, USA, Kendler et al

Table III. Domestic violence, based on the HARK questionnaires,⁽¹³⁾ associated with depression among married participants (n = 525).

Domestic violence	No. of patients (%)		Total	p-value	OR (95% CI)
	PHQ-9 \geq 10 [†]	PHQ-9 < 10			
Humiliated/emotionally abused					
Yes	11 (45.8)	13 (54.2)	24	< 0.01	4.89 (2.93–8.16)
No	47 (9.4)	454 (90.6)	501		
Afraid					
Yes	11 (45.8)	13 (54.2)	24	< 0.01	4.89 (2.93–8.16)
No	47 (9.4)	454 (90.6)	501		
Raped or forced to have any kind of sexual activity					
Yes	4 (40.0)	6 (60.0)	10	< 0.05	3.82 (1.71–8.49)
No	54 (10.5)	461 (89.5)	515		
Kicked, hit, slapped or physically hurt					
Yes	4 (25.0)	12 (75.0)	16	0.07	2.36 (0.97–5.71)
No	54 (10.6)	455 (89.4)	509		

Calculations were based on a sample size of 525 married participants. Chi-square analysis was used.

[†]Patients with PHQ-9 scores \geq 10 are considered to be having depression.

Table IV. Factors significantly associated with depression based on multivariate logistic regression analysis (n = 845).

Risk factor	B	Wald	p-value	OR	95% CI
Financial problems	1.30	24.54	< 0.01	3.67	2.20–6.15
Unhappy relationship with children	1.09	5.35	< 0.05	2.98	1.18–7.53
History of serious illness	0.88	5.11	< 0.05	2.42	1.13–5.21
Unhappy relationship with family	0.83	5.01	< 0.05	2.29	1.11–4.72
Unhappy with work	0.80	5.46	< 0.05	2.22	1.14–4.32
Constant	-2.78	299.80	< 0.01	0.06	0.95–7.02

OR: odds ratio; CI: confidence interval

Note: 'B' denotes the change in the outcome resulting from a unit change in the predictor variable.

found that stressful life events were associated with current depression, with the association usually strongest in the month of occurrence.^(12,21) Another study investigating the impact of stressful life events on depression found that the association with depression was mainly from severe life events and not from mild or moderate events, and this association was only significant among women.⁽²⁴⁾ Similar to the findings of the current study, other studies have found financial problems,^(21,25) unhappy relationships with children, family and at work,^(21,25,26) and a history of serious illness^(21,25) to be associated with depression.

The main strength of this study is the use of the validated Malay PHQ-9 to detect depression. The validation of the PHQ-9 as a screening tool for depression has been presented in another paper.⁽²⁷⁾ The use of the validated Malay version of the PHQ-9 provided accurate results, as it was conducted in the national language and took into account the cultural sensitivities of the Malaysian population. The weakness of this study (necessitated by time and resource constraints) is that it was conducted only among women in one government-funded primary care clinic in an urban community setting. The participants were mostly of lower- to middle-income socioeconomic status, and therefore cannot represent the Malaysian female population as a whole.

In conclusion, the prevalence of depression among women in this study is clinically significant, and has been found to be associated with certain stressful life events. The findings of this study can be used as a baseline for larger and more in-depth

studies among women in primary care, as well as in future national surveys. Stressful life events should be highlighted and addressed as potential risk factors for depression among women. So far, these events have not been identified as risk factors for depression in Malaysia. Appropriate measures to help patients manage stressful life events should be developed and implemented in national health programmes. Primary care clinicians in Malaysia should be aware of the prevalence of depression among high-risk women and should take this into account when making diagnoses.

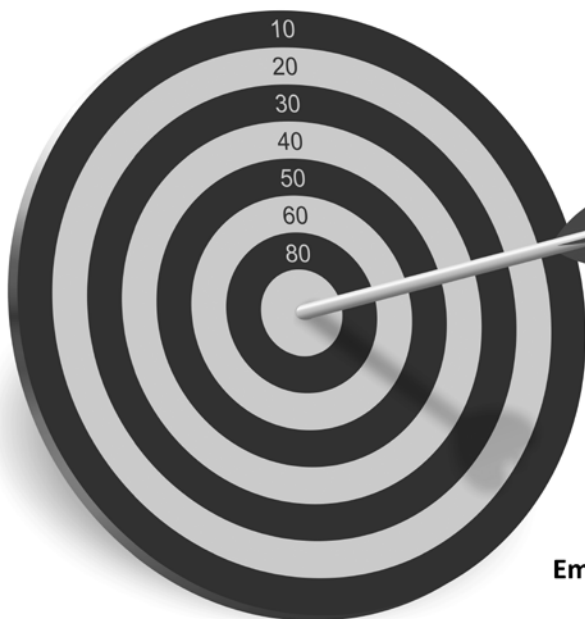
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REFERENCES

1. Maier W, Gänssicke M, Gater R, et al. Gender differences in the prevalence of depression: a survey in primary care. *J Affective Disord* 1999; 53:241-52.
2. Arroll B, Goodyear-Smith F, Kerse N et al. The prevalence of depression among Maori patients in Auckland general practice. *J Prim Health Care* 2009; 1:26-9
3. Institute of Public Health. The Second National Health and Morbidity Survey 1996 (NHMS II). Kuala Lumpur: Ministry of Health Malaysia, 1999.
4. Institute of Public Health. The Third National Health and Morbidity

- Survey (NHMS III) 2006. Vol 1. Kuala Lumpur: Ministry of Health Malaysia, 2008.
5. Institute of Public Health. Malaysian burden of disease and injury study. Health prioritization: burden of disease approach. Kuala Lumpur: Ministry of Health Malaysia, 2004.
 6. Economy Planning Unit. Ninth Malaysia Plan 2006-2010. Putrajaya: National Malaysia Printing Press (Percetakan Nasional Malaysia Berhad), 2006.
 7. Mohd-Sidik S, Arroll B, Goodyear-Smith F, Zain AM. Screening for depression with a brief questionnaire in a primary care setting: validation of the two questions with help question (Malay version). *Int J Psychiatry Med* 2011; 41:143-54.
 8. Sidik SM, Arroll B, Goodyear-Smith F. The prevalence of anxiety among women attending a primary care clinic in Malaysia. *Br J Gen Pract* 2011; 61:e326-32.
 9. Statistics Department of Malaysia. Population and housing census of Malaysia, 2000. Kuala Lumpur: National Malaysia Printing Press (Percetakan Nasional Malaysia Berhad), 2001.
 10. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine (Phila Pa 1976)* 2000; 25:3186-91.
 11. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med* 2001; 16:606-13.
 12. Kendler KS, Thornton LM, Gardner CO. Stressful life events and previous episodes in the etiology of major depression in women: an evaluation of the "kindling" hypothesis. *Am J Psychiatry* 2000; 157:1243-51.
 13. Sohal H, Eldridge S, Feder G. The sensitivity and specificity of four questions (HARK) to identify intimate partner violence: a diagnostic accuracy study in general practice. *BMC Fam Pract* 2007; 8:49.
 14. Munk-Jørgensen P, Allgulander C, Dahl AA, et al. Prevalence of generalized anxiety disorder in general practice in Denmark, Finland, Norway, and Sweden. *Psychiatr Serv* 2006; 57:1738-44.
 15. Pico-Alfonso MA, Garcia-Linares MI, Celda-Navarro N, et al. The impact of physical, psychological, and sexual intimate male partner violence on women's mental health: depressive symptoms, posttraumatic stress disorder, state anxiety, and suicide. *J Womens Health (Larchmt)* 2006; 15:599-611.
 16. Scheffer Lindgren M, Renck B. 'It is still so deep-seated, the fear': psychological stress reactions as consequences of intimate partner violence. *J Psychiatr Ment Health Nurs* 2008; 15:219-28.
 17. Nixon RD, Resick PA, Nishith P. An exploration of comorbid depression among female victims of intimate partner violence with posttraumatic stress disorder. *J Affect Disord* 2004; 82:315-20.
 18. Kendler KS, Neale MC, Kessler RC, Heath AC, Eaves LJ. A population-based twin study of major depression in women. The impact of varying definitions of illness. *Arch Gen Psychiatry* 1992; 49:257-66.
 19. Kendler KS, Kessler RC, Neale MC, Heath AC, Eaves LJ. The prediction of major depression in women: toward an integrated etiologic model. *Am J Psychiatry* 1993; 150:1139-48.
 20. Kendler KS, Kessler RC, Walters EE, et al. Stressful life events, genetic liability, and onset of an episode of major depression in women. *Am J Psychiatry* 1995; 152:833-42.
 21. Kendler KS, Karkowski LM, Prescott CA. Stressful life events and major depression: risk period, long-term contextual threat, and diagnostic specificity. *J Nerv Ment Dis* 1998; 186:661-9.
 22. Kendler KS, Prescott CA. A population-based twin study of lifetime major depression in men and women. *Arch Gen Psychiatry* 1999; 56:39-44.
 23. Foley DL, Neale MC, Kendler KS. A longitudinal study of stressful life events assessed at interview with an epidemiological sample of adult twins: the basis of individual variation in event exposure. *Psychol Med* 1996; 26:1239-52.
 24. You S, Conner KR. Stressful life events and depressive symptoms: influences of gender, event severity, and depression history. *J Nerv Ment Dis* 2009; 197:829-33.
 25. Honkalampi K, Hintikka J, Haatainen K, et al. Adverse childhood experiences, stressful life events or demographic factors: which are important in women's depression? A 2-year follow-up population study. *Aust N Z J Psychiatry* 2005; 39:627-32.
 26. Romosan F, Ienciu M, Stoica J, Dehelean L. Stressful life events and anxiety disorders. *Timisoara Med J* 2004; 54:36-8.
 27. Sherina MS, Arroll B, Goodyear-Smith F. Criterion validity of the PHQ-9 (Malay version) in a primary care clinic in Malaysia. *Med J Malaysia* 2012. In press.



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