



**Prevalence and Correlates of Depression among
Australian Women: A Systematic Literature Review
January 1999- January 2010**

Dr Deborah Loxton

Ms Jennifer M Byrne

Ms Jane L Rich

Professor Julie E Byles

This report was produced by Dr Deborah Loxton, Ms Jennifer Byrne, Ms Jane Rich, and Professor Julie Byles, of the Priority Research Centre for Gender, Health, and Ageing (PRCGHA) at the University of Newcastle.

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Deborah Loxton

Deputy Director, Australian Longitudinal Study of Women's Health

Jennifer M Byrne

Research and Literature Review Specialist

Jane L Rich

Research Assistant

Julie E Byles

Director, Priority Research Centre for Gender, Health and Ageing

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The Priority Research Centre for Gender, Health and Ageing

The University of Newcastle

Australia

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Abbreviations

ABS	Australian Bureau of Statistics
ACF	Aged care facilities
ACT	Australian Capital Territory
AIHW	Australian Institute of Health and Welfare
ALSA	Australian Longitudinal Study on Ageing
ALSWH	Australian Longitudinal Study of Women's Health
AQoL	Assessment of Quality of Life
ARIA	Accessibility / Remoteness Index of Australia
ATOS	Australian Treatment Outcome Study
ATR	Australian National Health and Medical Research Council Twin Register
AUDIT	Alcohol Use Disorders Identification Test
BAI	Beck Anxiety Inventory
BDI	Beck Depression Inventory, version 2
BMI	Body Mass Index
CALD	Culturally and Linguistically Diverse
CAMCOG	The Cambridge Cognitive Examination for Mental Disorders of the Elderly
CES-D	Centre for Epidemiological Studies Depression Scale
CES-D-10	Centre for Epidemiologic Studies Short Depression Scale
CI	Confidence Interval
CIDI	Composite International Diagnostic Interview
CIDI-A	Composite International Diagnostic Interview - automated presentation
CIS-R	Clinical Interview Schedule
CSDD	Cornell Scale for Depression in Dementia
DASS-42	Depression Anxiety Stress Scale 42
DSI-SS	Depressive Symptom Inventory Suicidality Subscale
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders Fourth Edition
DSSI	The Delusion Symptoms States Inventory
DSSI/SAD	Delusion Symptoms States Inventory: State of Anxiety and Depression
EPDS	Edinburgh Postnatal Depression Scale
GADS	Goldberg Anxiety and Depression Scales
GDS	Goldberg Depression Scale
GDS-15	The Geriatric Depression Scale
GHQ-28	General Health Questionnaire
GP	General Practitioner
HADS	Hospital Anxiety and Depression Scale
HSCL-37	Hopkins Symptom Checklist
ICD – 10	International Statistical Classification of Diseases and Health Related Problems, version 10
IDACC	Identifying Depression as a Comorbid Condition
K-10	Kessler Psychological Distress Scale
LIDO	Longitudinal Investigation of Depression Outcomes
MD	Major Depression
MDD	Major Depressive Disorder
MHI-5	The 5-item Mental Health Subscale
MMPI	The Minnesota Multiphasic Personality Inventory
MTI	Mount Isa
MUSP	Mater University Study of Pregnancy

NESB	Non-English speaking background
NSW	New South Wales
OCD	Obsessive Compulsive Disorder
OR	Odds Ratio
PA	Physical activity
PATH	Personality and Total Health Patient Edition
PD-Q4+	Personality Diagnostic Questionnaire
PDS	Pubertal Development Scale
PHQ-9	Patient Health Questionnaire
PND	Postnatal Depression
PRCGHA	Priority Research Centre for Gender, Health, and Ageing
PRIME-MD	Primary Care Evaluation of Mental Disorders
PTDS	Post Traumatic Stress Disorder
PUFA	Polyunsaturated fatty acid
PVPS	Phan Vietnamese Psychiatric Scale
RADS	Reynolds Adolescent Depression scale
SAD	Seasonal Affective Disorder Scale
SCID-I/P	Structured Clinical Interview for DSM-IV -
SF-12	Short Form Health Survey
SF-36	Medical Outcome Short Form Health Survey
SMFQ	Short Mood and Feelings Questionnaire
SMHWB	National Survey of Mental Health and Well-being
SPHERE	Somatic and Psychological Health Report
SSRI	Selective Serotonin Reuptake Inhibitor
TAIHS	Townsville Aboriginal and Islander Health Service
Triple A	Australian Active Ageing Survey
UK	United Kingdom
USDI	University Depression Inventory
WA	Western Australia

Executive Summary

beyondblue, the National Depression Initiative, commissioned the Priority Research Centre for Gender, Health, and Ageing (PRCGHA) at the University of Newcastle, to undertake a review of Australian literature that pertained to women and depression. Specifically, the systematic literature review aimed to gauge the prevalence and correlates of depression, including postnatal depression, among women living in Australia. In addition to examining research pertaining to prevalence and correlates of depression in general, the review focuses on age span, women from Indigenous and culturally and linguistically diverse backgrounds, geographic location and rurality.

Method

The research team developed inclusion and exclusion criteria in order to determine the articles that would be reviewed. Key word searching of six databases and hand searching for pertinent author names yielded 1271 articles. After applying exclusion criteria, 528 articles were excluded as being irrelevant based on their abstract content (Phase 1, see Table 2-2 for details) and a further 417 articles were excluded based on their total content (Phase 2, see Table 2-3). This left a total of 111 articles that were reviewed for this report.

The 111 articles that comprise this review were read and according to the aims of the project, were placed into seven categories: prevalence and correlates of depression; prevalence and correlates of depression at different ages and life stages including depression among young women; postnatal depression; depression among middle-aged women; older women; depression among Indigenous and culturally and linguistically diverse women; and rurality and depression. Sections 3 to 9 reflect these categories. As would be expected, some articles covered more than one topic area, so some articles are covered in more than one section.

Main findings

In this review, the point prevalence rates of depression among women ranged from 4.3% to 43.9%. This large range of estimates may be due to variations in the methods used to determine the presence of depression or degree of depressogenic symptomatology, as well as differences in the populations and samples included in the different studies. Higher rates were reported for studies involving younger women, or specific population groups. Studies reporting higher rates also tended to report the prevalence of depressive symptomatology rather than a clinical diagnosis of depression.

Prevalence of depression tended to decrease with age, with older women being less likely to be identified as depressed in most prevalence studies in this review. However, it is unclear whether these age differences occur because of a reduced susceptibility to depression in older age, or whether the differences are due to cohort effects. The triggers or risk factors for depression do appear to vary across the life course, and the postnatal period and the period around menopause are times of particular risk of depression among women.

Among all age groups, traumatic and stressful life events were consistently associated with depression. Violence and abuse, either as a child or as an adult, were particular risk factors. Women were also more at-risk of depression if they experienced separation or divorce, or if they were sole mothers. By contrast, moving into a relationship was protective against depression. Other factors associated with depression included financial stress and socioeconomic

disadvantage, reflected in association between depression and educational qualifications and unemployment.

Depression has also been associated with a number of health risk behaviours including use of alcohol, tobacco and illicit drugs, and is more common among women who are overweight or obese. Physical activity has been found to be protective of depression in some studies. Depression is often comorbid with other mental health and physical conditions such as arthritis, angina and heart disease, and incontinence. The condition is also likely to be recurrent, with previous depression or anxiety being a strong predictor of prevalent depression.

Some correlates of depression were specific to particular age groups. For young women, depression was associated with the later stages of puberty, interpersonal conflict, scholastic failure, skin problems, illicit drug use, transitioning into motherhood and being single. Postnatal depression was correlated with many of the same factors as non-postnatal depression; additional factors included a family history of mental health problems, infant temperament, aspects of the mother's psychology and interactions with the mother's partner. In middle-age, surgical menopause was associated with depression. Also noteworthy was the finding that women aged 45-49 years were the most likely of all age groups to be hospitalised for depression. For older women, dental health issues, dependence on others, falls, injuries, and pain were associated with depression.

Depression is more common among women who were born in countries other than Australia, although few studies that assessed prevalence of depression among women from different cultural backgrounds were available. Depression is also likely to be higher among Indigenous women; however, the prevalence in this population is unknown.

Recommendations

Despite the breadth of information available, there were noticeable gaps in the literature. A high number of articles were discounted as being eligible for inclusion as analyses did not distinguish between males and females. The lack of gendered analyses means that important risk factors and correlates particular to males and females cannot be established. **It is therefore recommended that future research considers depression as a gendered experience and as such, warrants analyses that distinguish between males and females.**

Some studies reported on affective disorders, but did not specifically report on depression, while others treated anxiety and depression as a single construct. While it is recognised that differentiation of psychological disorders is difficult, it is also important to disentangle comorbid conditions and determine the relative onset of different disorders. **It is recommended that, where possible, depression be distinguished from other affective and psychological disorders.**

There is a lack of clarity about whether the reduced likelihood of depression in older age is due to cohort or age effects. In addition, associations between age, stage of life, life events, demographics, health behaviour, chronic illness, and life transitions (eg into and out of relationships) and depression, suggest that there are complex pathways that precede depression and a variety of consequences that occur subsequent to depression, some of which may lead to exacerbation of existing conditions. A comprehensive examination of pathways into and consequences of depression could shed light on causal factors in depression in addition to revealing mechanisms that assist with recovery from depression. **Further longitudinal research can help to clarify the nature of these age related differences. It is recommended that an audit**

of available longitudinal data be undertaken with a view to developing a plan for analysing these data where possible.

Hospital separation results indicated the highest rate of hospitalisation for depression occurred for middle-aged women, while the highest rates of depression in population surveys consistently occurred for young women suggesting there is much more to be learned about the progression and severity of depression over time. Linking survey based data with administrative datasets such as hospital separations data offer a potential option for investigating these matters further. **It is therefore recommended that the feasibility of linking population survey data with administrative datasets to examine the progression of depression over time be investigated.**

Although there was reasonable coverage in the literature of depression among young and older women, there was a surprising lack of literature that had examined depression in middle-age. In addition to menopause, a number of significant life events occur during middle age, including life transitions out of relationships (separation, divorce), children leaving home, and the onset of chronic health problems. **Therefore, it is recommended this gap in the literature be filled by focussing on depression in middle-age as a priority area for further research.**

This review found that research concerned with depression among Indigenous and culturally and linguistically diverse women was scarce and where it was available, often involved small sample sizes. No articles were found at all that had examined depression among lesbian, transgender or intersex women. **It is therefore recommended that appropriate research plans to fill these gaps in current knowledge be undertaken.** This is likely to involve varying levels of consultation with the groups concerned in order to establish appropriate research methods and protocols.

A dearth of research concerned with rurality was also noted. In part this occurred because area of residence was not the focus of population based studies, even though the datasets often include area as a variable. **It is recommended that existing data be examined to determine the differences, if any, in depression between urban and rural areas.**

A number of areas were noted throughout this review as being in need of further research. Many of these relate to the need for understanding factors that underlie certain findings. For example, while we know that body image and weight problems might be associated with depression, a more complete understanding of the factors that lead to body image and weight problems could be of great benefit in designing intervention strategies. **Investigations into the following areas would benefit from targeted and in-depth research:**

Body image, weight issues and depression among women aged 12 to 60 years.

Skin problems and depression among young women.

Age at first pregnancy and depression.

Pregnancy losses and depression.

Demographic profiles of women most susceptible to postnatal depression.

The impact of abuse on older women.

Depression among older women living in residential aged care facilities.

The final recommendation of this review takes account of the limitations inherent in a review of this type. The results and recommendations of the review are naturally limited by the scope of the investigation's aims and the criteria used to include some articles while omitting others. Similarly, research that is undertaken is limited by the research that precedes it and the ideas and

theories of the researchers involved. However, it is highly likely that women who have experienced depression have valuable information about their experiences of depression that could be used to inform further research in this area. **Therefore, it is recommended that an exploratory study be undertaken with women who have experienced or who are experiencing depression, in order to identify areas of future research.**

1. Introduction

beyondblue, the National Depression Initiative, commissioned the Priority Research Centre for Gender, Health, and Ageing (PRCGHA) at the University of Newcastle, to undertake a review of Australian literature that pertained to women and depression. Specifically, the systematic literature review aimed to gauge the prevalence and correlates of depression, including postnatal depression, among women living in Australia. In addition to examining research pertaining to prevalence and correlates of depression in general, the review focuses on age span, women from Indigenous and culturally and linguistically diverse backgrounds, geographic location and rurality.

1.1 Policy context

beyondblue, the National Depression Initiative, is an independent, not-for-profit organisation working to address issues associated with depression, anxiety, and related substance misuse disorders in Australia. beyondblue is a bipartisan initiative of the Australian, state and territory governments with a key goal of raising community awareness about depression and reducing stigma associated with the illness. beyondblue works in partnership with health services, schools, workplaces, universities, media and community organisations, as well as people living with depression, to bring together their expertise around depression.

beyondblue has five main priorities which are to:

1. increase community awareness of depression, anxiety and related substance misuse disorders and address associated stigma
2. provide people living with depression and their carers with information on the illness and effective treatment options and promoting their needs and experiences with policy makers and healthcare service providers
3. develop depression prevention and early intervention programs
4. improve training and support for GPs and other healthcare professionals on depression
5. initiate and support depression-related research.

The present research project will contribute towards achieving these priorities by providing an evidence base and information resource that can inform awareness campaigns, intervention strategies and policy development. The review will also point to those areas that are under-researched, which will assist with the development of targeted research strategies.

1.2 Measurement of depression

The gold standards of diagnosing depression are The American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association 1994; American Psychiatric Association 2000)* and the World Health Organisation's *International Statistical Classification of Diseases and Health Related Problems (World Health Organization 1979; World Health Organization 1994)*. Symptoms of depression include loss of pleasure and depressed mood, cognitive difficulties, suicidal ideation, sleep disturbance, appetite or weight disturbance, fatigue, feelings of guilt/worthlessness and psychomotor retardation (American Psychiatric Association 2000).

Common research methods for measuring depression include the use of scales and checklists that are administered using self-report and interview techniques. Scales and checklists usually list various symptoms of depression and ask the respondent to indicate how often they have felt a particular way within a specified time period. The more symptoms that are experienced and the more frequently symptoms occur, the higher the depression score will be. Generally speaking, the higher the score, the greater the degree of depressogenic symptomatology.

While an in-depth comparison of depression measures is beyond the scope of this review, it is important to note that different measurement techniques will result in different prevalence estimates. For example, the mode of administration (eg self-report versus interview) and the type of instrument used will tend to lead to similar but not identical findings. Even where the same measurement instruments and methods are used, the way the data are scored may differ. For example, many depression scales have cut-point scores that indicate the probable presence of depression. However, different studies may use different cut points, which will naturally lead to different prevalence rates - even if the samples used reflect the same or similar populations.

In this review, the instruments used to measure the degree of depressogenic symptomatology and the probable presence of depression have been included in the Table summaries included with each chapter.

1.3 Report structure

The current section of this report has provided background information about this review. **Section 2** describes the methodology and process employed to identify relevant literature and describes the criteria that were used to identify the articles included in this review.

The results of the review are reported in **Sections 3 to 9**. Each of these sections describes the major findings and a summary table of all of the articles that are pertinent to that section, including the citation, sample characteristics, and the main findings for each study (prevalence and correlates)¹.

Section 3 reports on the prevalence and correlates of depression among Australian women and highlights the main findings. The following four sections examine depression associated with different ages and life stages. **Section 4** reports specifically on depression among adolescent and young women except for postnatal depression, which is the focus of **Section 5**. Depression experienced in middle-age is the subject of **Section 6**, while **Section 7** reports on depression in later life and the factors that affect depression rates among older Australian women.

The final two results sections focus on literature that has examined depression in the context of cultural and geographic differences. Research that pertains to depression among women from diverse cultural backgrounds is included in **Section 8**, including findings concerning Indigenous women and women from linguistically diverse backgrounds. **Section 9** reports on urban and rural differences in the prevalence of depression.

Section 10 then provides a summary of the findings, conclusions regarding gaps in current knowledge that have not been addressed by recent research and recommendations for further research.

¹ All significant associations reported in the summary tables are significant at $p < 0.05$.

2. Method

This section of the report describes the methods that were used to locate potentially relevant research articles and the process that was employed to identify those articles that would be included in the review.

2.1 Search parameters

Journals, Reference Databases, websites and key authors were selected by the project team in collaboration with the University of Newcastle Faculty of Health Librarian and a Mental Health Researcher. Six health related databases were selected for searching: Medline, PsychInfo, SCOPUS, Cinhal, Informit (Health and Indigenous databases) and Cochrane Systematic Reviews. Simple searches were undertaken initially with all databases, to obtain relevant keywords and mesh subject heading words if relevant.

The identification of word terms including wildcards (denoted as *), and keywords (located in the title, original title, abstract, name of substance word, subject-heading word) for the search strategy is described below.

Depression: Search terms included 'depressi*' or 'dysthym*' or 'major depression' or 'postnatal depression' or 'postpartum depression' or 'affective disorder*' or 'mood disorder*'. These and all following terms were used separately to ensure relevance and were then used in combination with the word 'or'.

Australia: Search terms were linked with AND 'Australia*' as the aim of the project was to focus on Australian data.

Prevalence and Correlates: Search terms employed included: 'prevalence' or 'incidence' or 'relat*' or 'correlat*' or 'associat*' or 'risk factor*' or 'comorbidit*'.

Women: Search terms employed included: 'Wom*n*' or 'female*' or 'girl*' AND 'adolescen*' or 'aged' or 'older' or 'elder*' or 'adult*' or 'middle aged' or 'age span'.

Indigenous people's and cultural and linguistically diverse groups: Search terms employed included: 'oceanic ancestry groups' or 'ethnic group*' (Medline only)², or 'Indigenous' or 'minority group*' or (Aboriginal and Torres Strait Islander), or 'multicultural' or 'migrant*' or 'non-English speaking' or '(racial and ethnic group*)', (PsychInfo only) or 'cross cultural' or 'immigrant*' or 'aborigin*' or '(culturally or linguistically diverse)³. Multicultural and Indigenous terms were combined with depression, Australia and gender terms in separate searches, and were then added to the main search.

Additional searches: An additional search was performed with terms 'therap*', or 'treatment' or 'complementary' or 'evidence' or 'evidence based' or 'self-help' or '(St Johns Wort)' or 'antidepress*' or 'psychotherap*' or 'guideline*' or 'recommendation*' or '(complementary or

² 'Oceanic ancestry groups' was excluded from PsychInfo as it was not a recognised subject heading word and a key word search resulted in zero citations.

³ 'ATSI' or 'CALD' abbreviations were not used for the larger databases as they resulted in unrelated groups with the same acronym.

alternative medicine*)' which was joined with AND to the main search terms previously described to ensure relevancy. Seven key researcher names were also used as search terms.

After ascertaining the relevance of the terms (above) three searches of the databases Medline, PsychInfo, SCOPUS, Cinhal, Informit (Health and Indigenous databases) and Cochrane Systematic Reviews were conducted using key terms as follows:⁴

1. 'depress*' and '(wom*n* or female* or girl*)' and 'Australia*' and '(prevalence or correlat*)'.
2. 'depress*' and '(wom*n* or female* or girl*)' and 'Australia*' and 'aborig*' or 'Indigenous' and 'therap*'.
3. 'wom*n*' or 'female*' or 'girl*' AND 'Therap*' OR 'diagnosis' OR 'treatment' OR 'psychotherap*' AND 'depress*' AND 'Australia*'.

All searches were limited to 'human' studies, that were published in English during the timeframe 1999-2010.⁵

2.2 Search results

Citations were downloaded and combined into one reference library that was managed using Endnote X2. After duplicates were removed, the sampling frame included 1271 peer reviewed articles (see Table 2-1).

Table 2-1: Sources and number of citations obtained.

Source	No. of Citations
Medline	823
PsychInfo	111
SCOPUS	529
Cinhal	43
Cochrane	29
Informit	233
Author searches	120
Subtotal	1888
No. Duplicates (removed)	617
Total	1271

Inclusion and exclusion criteria were established in two phases (see Figure 2-1). In Phase 1 the first 30 abstracts were read independently by two of the research team and lists of potential exclusion criteria were developed. There was 90% agreement between the two lists and 100% agreement was reached after discussion with all members of the research team. A random

⁴ Full details of searches conducted are included in the Appendices.

⁵ The final search was undertaken in February 2010, so results include articles published from January 1999 to January 2010.

sample of a further 30 abstracts was then reviewed, resulting in 97% agreement between reviewers, with 100% agreement after discussion. Phase 1 exclusion criteria are listed in Table 2-2. These criteria were applied to all remaining abstracts, which resulted in the exclusion of 743 articles.

Table 2-2: Phase 1 exclusion criteria used to determine relevant research articles

1. Not related to prevalence/correlates of depression
2. Focus is on Bi-polar Mood Disorder
3. Article published prior to 1999
4. No gender specific data included
5. Diagnosis and treatment not related to correlates or prevalence of depression
6. Non-English language
7. Article does not include Australian data
8. Article not peer-reviewed
9. Sample outside the scope of the review (children < 13 years)
10. Duplicates that were not picked up electronically

Phase 2 involved acquiring and reading the remaining 528 full-text articles. The exclusion criteria listed in Table 2-2 were applied and a list of additional exclusion criteria developed (see Table 2-3). Applying Phase 1 and Phase 2 criteria resulted in the exclusion of a further 417 articles resulting in a total of 111 articles that were included in the review (see Figure 2-1).

Table 2-3: Phase 2 exclusion criteria used to determine relevant research articles

1. Full-text article not attainable
2. Small sample size ⁶
3. Research used qualitative methods
4. Biological/genetic focus (not related to prevalence or correlates)
5. Antenatal only
6. Mental health literacy (eg public health campaigns)

⁶ This criterion was not applied to articles that addressed depression among Indigenous and culturally and linguistically diverse women, due to the lack of literature in this area.

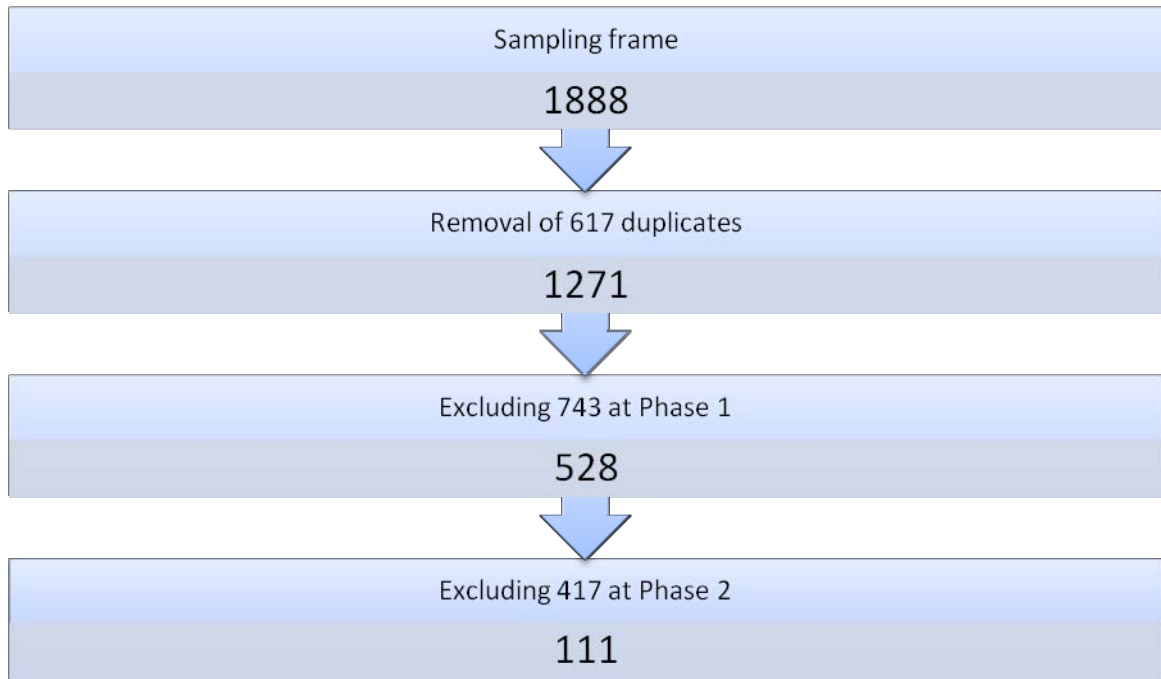


Figure 2-1: Number of relevant articles after application of Phase 1 and 2 exclusion criteria.

2.3 Procedure

The 111 articles that comprise this review were read and according to the aims of the project, were placed into seven categories: prevalence and correlates of depression; prevalence and correlates of depression at different ages and life stages including depression among young women; postnatal depression; depression among middle-aged women; older women; depression among Indigenous and culturally and linguistically diverse women; and rurality and depression. The following seven sections (Sections 3-9) reflect these categories. As would be expected, some articles covered more than one topic area, so some articles will be covered in more than one section.

An overview of the main findings is included in each section, followed by a table that includes information about all the articles pertinent to that section, including the full citation, sample composition, and main findings for prevalence and correlates. The included Endnote library (provided electronically to beyondblue) includes abstracts and links to the full text papers for each of the 111 included articles and all additional documents cited in this report.

3. Prevalence and correlates of depression

The lifetime prevalence rate of depression for females in Australia is 14.5% while the overall population prevalence rate is 11.6% (Australian Bureau of Statistics and Australian Institute of Health and Welfare 2008). Generally speaking, women are more likely than men to experience depression (Donald, Dower et al. 2001; Goldney, Fisher et al. 2004; Goldney, Fisher et al. 2007; Trollor, Anderson et al. 2007), although some research found no differences in the prevalence of depression between males and females (Kilkinen, Kao-Philpot et al. 2007). As was previously mentioned, variations in the methods used to determine the presence of depression or degree of depressogenic symptomatology contribute to both differences between studies and variations in prevalence estimates. In this review, point prevalence rates were found to range from 4.3% (Batterham, Christensen et al. 2009) to 43.9% (Donald, Dower et al. 2001). Table 3-1 includes details of studies that reported prevalence estimates for the population, as well as prevalence rates found among different target groups of the general population.

In addition to gender, age also had an impact on prevalence rates. Overall, older women appear to be less likely to experience depression. For example, data from the PATH Through Life Project Community Survey indicated that 6% of 20-24 year olds compared with 4.4% in the 40-44 year age group and 1.9% in the 60-64 year age group had depression (Batterham, Christensen et al. 2009). There is some evidence that depression symptoms decrease over time (Gillespie, Zhu et al. 2003); however, it is currently unclear whether the reduced likelihood of depression in older age is due to cohort or age effects – further longitudinal research may help to clarify the nature of these age related differences.

Different life stages were also found to involve event or age-specific correlates of and risk factors for the onset of depression. For instance, depression was associated with skin problems (Magin, Sibbritt et al. 2009) and poor body image (Australian Institute of Health and Welfare 2003) among younger women, surgical menopause among middle aged women (Dennerstein, Guthrie et al. 2004) and dental problems (Quine and Morrell 2009) among older women. Age and life-stage related correlates of depression are the focus of Sections 4 to 7.

Among all age groups, traumatic and stressful life events were consistently associated with depression. In particular, experiences of violence and abuse both as an adult and in childhood were related to depression (Henderson, Andrews et al. 2000; Butterworth 2004; Hegarty, Gunn et al. 2004; Martin, Bergen et al. 2004; Loxton, Schofield et al. 2006; Trollor, Anderson et al. 2007; McCutcheon, Heath et al. 2009). While moving into intimate relationships appears to be protective of depression (Lee and Gramotnev 2007), separation and divorce (Lee and Gramotnev 2007) and sole motherhood (Loxton, Mooney et al. 2006) are all associated with depression. At least some of the impact of sole motherhood appears to occur through financial stress (Loxton, Mooney et al. 2006) which itself has been significantly associated with depression (France, Lee et al. 2004; Butterworth, Rodgers et al. 2009), along with unemployment (Deemal 2001). Other demographic factors associated with depression include qualifications (Brown, Ford et al. 2005) and place of birth (Pascoe, Edelman et al. 2000; Deemal 2001; Logiudice, Hassett et al. 2001; Osborne, Elsworth et al. 2003; Brown, Ford et al. 2005). Sections 8 and 9 examine the depression literature pertinent to cultural diversity and geographic area of residence respectively.

In addition to demographic factors, a number of health behaviours have been linked with depression. Tobacco use has been strongly and consistently associated with depression (Jorm, Rodgers et al. 1999; Lee 1999) and is perhaps one of the most well-known health behaviour correlates of depression. Alcohol use (France, Lee et al. 2004; Alati, Lawlor et al. 2005) and illicit drug use (France, Lee et al. 2004) have also been significantly correlated with depression. Physical

activity has been found to be protective of depression in some studies (Cassidy, Kotynia-English et al. 2004; France, Lee et al. 2004) but others have indicated that this effect is apparent for healthy weight and overweight women only and not for those who are obese (Ball, Burton et al. 2009). Nevertheless, even after adjusting for physical activity levels, overweight and obesity have been strongly associated with depression (Williams, Pasco et al. 2009).

Previous depression (Batterham, Christensen et al. 2009) and other mental health problems, such as anxiety (Henderson, Andrews et al. 2000; Koloski, Smith et al. 2008) are predictive of later depression. Chronic physical health problems have also been related to depression (Herrman, Patrick et al. 2002; Wilhelm, Mitchell et al. 2003). For example, arthritis (Zyrianova, Kelly et al. 2006), angina (Jacka, Pasco et al. 2007), being a cardiac in-patient (Cheok, Schrader et al. 2003) and incontinence (Brown and Lumley 2000) have been found to significantly correlate with depression. However, research in this area would benefit from comprehensive and longitudinal investigations into those conditions that are comorbid with depression.

As indicated above, it is currently unclear whether depression precedes or is a consequence of chronic illness. Furthermore, the associations between age, stage of life, life events, demographics, health behaviour, chronic illness and depression suggest that there are complex pathways that precede depression and a variety of consequences that occur subsequent to depression, some of which may lead to exacerbation of existing conditions. A comprehensive examination of pathways into and consequences of depression could shed light on causal factors in depression in addition to revealing mechanisms that assist with recovery from depression. Table 3-1 shows further details of the literature that was pertinent to the prevalence and correlates of depression among Australian women.

Table 3-1: Prevalence and correlates of depression among Australian women

Reference	Sample Characteristics	Prevalence	Significant Correlations
Australian Bureau of Statistics and Australian Institute of Health and Welfare (2008). The Health and Welfare of Australia's Aboriginal and Torres Strait Islanders. Canberra.	This report presents the latest data on the health and welfare of Australia's Indigenous peoples, as well as information about their socioeconomic circumstances. The estimated resident Indigenous population was 517,200, representing 2.5% of the total Australian population.	For Indigenous females, the leading specific health problems were anxiety and depression, accounting for 10% of the health burden.	
Al Mamun, A., S. Cramb, et al. (2007). "Adolescents' perceived weight associated with depression in young adulthood: A longitudinal study." <i>Obesity</i> 15(12): 3097-3105.	1802 participants (at age 21 years) from the Mater-University of Queensland Study of Pregnancy and Its Outcomes.		Findings suggest that perceptions of being overweight during adolescence are a significant risk factor for depression in young women.
Alati, R., S. Kinner, et al. (2004). "Gender differences in the relationships between alcohol, tobacco, and mental health in patients attending an emergency department." <i>Alcohol & Alcoholism</i> 39(5): 463-9.	A cross sectional survey of patients aged 16–84 presenting for treatment over a 14 day period to a Gold Coast Hospital Emergency Department.		Using the Hospital Anxiety and Depression Scale (HADS) to measure state anxiety and depression revealed a linear relationship between alcohol consumption and anxiety/depression.
Alati, R., D. A. Lawlor, et al. (2007). "Is there a fetal origin of depression? Evidence from the Mater University Study of Pregnancy and its outcomes." <i>American Journal of Epidemiology</i> 165(5): 575-82.	Mothers were recruited to the Mater University Study of Pregnancy (MUSP) at the Mater Misericordiae Hospital in Brisbane at their first antenatal visit and followed up at 3-5 days, 6 months, and 5, 14 and 21 years after the birth of their child. Babies numbered 7,223 with 48% females.		The centre for Epidemiologic Studies Depression (CES-D) Scale was used with 3,843 participants (53%) of the original sample. At 21 year follow-up, Multivariate analyses showed a strong graded inverse association with birth weight and depression for females, even when all other potential confounding factors were adjusted (OR 0.82, CI 0.73- 0.92).

Reference	Sample Characteristics	Prevalence	Significant Correlations
Alati, R., D. A. Lawlor, et al. (2005). "Is there really a 'J-shaped' curve in the association between alcohol consumption and symptoms of depression and anxiety? Findings from the Mater-University Study of Pregnancy and its outcomes." <i>Addiction</i> 100(5): 643-651.	Prospective cohort study of women (n = 4527) who received antenatal care at Mater Misericordiae Hospital in Brisbane between 1981 and 1984 and who have provided follow-up data over a 14-year period.	Depression measured by the DSSI indicated that 9.4% of total sample had depression.	Significant relationships were found between alcohol intake and depression.
Australian Institute of Health and Welfare (2003). <i>Australia's young people: their health and wellbeing 2003</i> . Australia: 428p.	There were 3.5 million young people aged 12-24 years in Australia, constituting approximately 18% of the total population as of June 2001.		Reports a relationship between weight, body image, and depression among young women.
Australian Institute of Health and Welfare (2006). <i>Chronic diseases and associated risk factors in Australia</i> , 2006. Australia: 96p.	This report presents updated statistics on chronic diseases and their associated risk factors in Australia and differences in chronic diseases and their risk factors across geographical areas, socioeconomic status and Indigenous status.		Reports relationship between depression and CVD and also physical activity, obesity and smoking.
Australian Institute of Health and Welfare (2008). <i>Indicators for chronic diseases and their determinants</i> , 2008. Australia: 119p.	The report uses findings from other Australian Institute of Health and Welfare (AIHW) reports and data sources to look at favourable and unfavourable trends in chronic disease over time.	The report states that there are no recent national estimates about the prevalence of people with diagnosed depressive disorders in the general population.	Stressful factors in a person's environment such as poverty, unemployment, child abuse and exposure to adverse life events (for example, relationship break-ups, trauma and family illness) can be contributing factors. Certain risk behaviours such as illicit drug use, alcohol misuse and dependence, and eating disorders and excess weight often occur in combination with depression. Depression is often present in people who have been diagnosed with chronic diseases such as cardiovascular disease, diabetes, cancer and rheumatoid arthritis.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Baines, S., J. Powers, et al. (2007). "How does the health and well-being of young Australian vegetarian and semi-vegetarian women compare with non-vegetarians?" Public Health Nutrition 10(5): 436-42.	Cross-sectional data analysis of the Australian Longitudinal Study on Women's Health (ALSWH) data in 2000, 9113 women aged (22-27 years) participated.		Semi-vegetarian and vegetarian women had poorer mental health, with 21-22% reporting depression compared with 15% of non-vegetarians (p<0.0001).
Ball, K., N. W. Burton, et al. (2009). "A prospective study of overweight, physical activity, and depressive symptoms in young women." Obesity 17(1): 66-71.	6,677 young adult women (22–27 years in 2000) participating in the ALSWH.	More than a quarter of the sample had depressive symptoms in 2003, compared with 29% in 2000.	The presence of depressive symptoms in 2000 was predictive of depressive symptoms in 2003. Mean CESD-10 scores in the healthy weight and overweight BMI categories decreased with increasing physical activity. For the obese and underweight BMI categories, there was no consistent downward trend in CESD-10 scores with higher levels of physical activity. Mean depression scores were higher for women in the obese BMI category than the healthy weight category, regardless of physical activity level.
Batterham, P. J., H. Christensen, et al. (2009). "Modifiable risk factors predicting major depressive disorder at four year follow-up: a decision tree approach." BMC Psychiatry 9: 75.	2105 20-24 year olds, 2323 40-44 year olds, and 2177 60-64 year olds participated in this study.	Of the 3237 females participating 95.7% had no major depressive disorder, while 4.3% reported depression.	
Bilszta, J. L., Y. Z. Gu, et al. (2008). "A geographic comparison of the prevalence and risk factors for postnatal depression in an Australian population." Australian & New Zealand Journal of Public Health 32(5): 424-30.	Urban (n = 908) and rural (n = 1058) women attending perinatal health services in Victoria (mean age 31 years).	No significant difference in prevalence of postnatal depression was found between the urban and rural communities.	

Reference	Sample Characteristics	Prevalence	Significant Correlations
Bond, L., J. W. Toumbourou, et al. (2005). "Individual, Family, School, and Community Risk and Protective Factors for Depressive Symptoms in Adolescents: A Comparison of Risk Profiles for Substance Use and Depressive Symptoms." <i>Prevention Science</i> 6(2): 73-88.	8984 students (females n = 4653) were recruited from three high school Years in Victoria. Participants mean ages were 12 (year 7), 14 (year 9) and 16 (Year 11) years.	The prevalence rate of depression was significantly higher among female (22%) compared with male students.	
Bottomley, K. L., S. J. Lancaster, et al. (2008). "The association between depressive symptoms and smoking in pregnant adolescents." <i>Psychology Health & Medicine</i> 13(5): 574-82.	81 pregnant adolescents aged 13 – 20 years.		30% of the pregnant adolescents were at risk for depression at the first data collection (trimester 1 or 2) and 31% were at risk of depression at the second data collection (trimester 3). Smokers were more likely to be at risk of depression than non-smokers.
Boyce, P. M., S. J. Johnstone, et al. (2000). "Functioning and well-being at 24 weeks postpartum of women with postnatal depression." <i>Archives of Women's Mental Health</i> 3(3): 91-97.	The study used a prospective cohort design. 424 postpartum women (mean age 28 years), recruited from Nepean, Cowra, Dudley and Orange Hospitals (New South Wales, Australia) completed questionnaires assessing functioning and well-being (SF-36), and postnatal depression (EPDS).		Compared with women who did not have postnatal depression, women with postnatal depression were more likely to experience role Limitations due to physical and emotional problems, lower levels of social functioning, more bodily pain, and lower mental health and vitality(as measured by the SF-36).
Boyd, C. P., M. Kostanski, et al. (2000). "Prevalence of anxiety and depression in Australian adolescents: comparisons with worldwide data." <i>Journal of Genetic Psychology</i> 161(4): 479-92.	The combined sample comprised 1299 (675 female) adolescents ages 11 – 18 years randomly selected from metropolitan and country schools in Melbourne.	More girls than boys reported (18.8% vs. 9.3%).	

Reference	Sample Characteristics	Prevalence	Significant Correlations
Brown, S., F. Bruinsma, et al. (2004). "Early discharge: no evidence of adverse outcomes in three consecutive population-based Australian surveys of recent mothers, conducted in 1989, 1994 and 2000." Paediatric and Perinatal Epidemiology 18(3): 202-13.	2952 women aged 15 years and over completed mailed questionnaires from maternity hospitals and home birth practitioners in Victoria. (Age range for the whole sample not specified.)		Unadjusted OR showed that women who left hospital within 48 hours were significantly more likely to be depressed at follow-up at 5–6 months postpartum than women who stayed in hospital ≥ 5 days (18.2% compared to 12.9%). However, after adjusting for obstetric and social factors, no association between length of stay and depression scores at 5–7 months postpartum was found.
Brown, S. and J. Lumley (2000). "Physical health problems after childbirth and maternal depression at six to seven months postpartum." BJOG: An International Journal of Obstetrics & Gynaecology 107(10): 1194-201.	1366 women mailed questionnaire from maternity hospitals and home birth practitioners in Victoria and 225 responded. 204 of these participated in telephone follow-up between 7-9 months postpartum.		Poorer levels of emotional wellbeing were associated with tiredness, urinary incontinence and more minor illnesses than usual.
Brown, W. J., J. H. Ford, et al. (2005). "Prospective study of physical activity and depressive symptoms in middle-aged women." American Journal of Preventive Medicine 29(4): 265-272.	Reports on an analysis of ALSWH data collected from 9207 middle-aged women (aged 45-50 in 1996) in 1996, 1998 and 2001.		A clear and significant inverse association between physical activity and depressive symptoms was found.
Buist, A., M. Austin, et al. (2008). "Postnatal mental health of women giving birth in Australia 2002- 2004: findings from the beyondblue National Postnatal Depression Program." Australian and New Zealand Journal of Psychiatry 42(1): 66-73.	12361 postnatal women recruited from 43 health services (public and private hospitals) across Australia. Mean age was 30.3 years, with 78.8% of women born in Australia.	7.5% of the sample scored > 12 on the EPDS (indicative of being at risk for postnatal depression). The highest percentage of women scoring EPDS >12 were in Queensland and South Australia (both 10.2%) while Western Australia had the lowest percentage of women in the at risk category (5.6%).	Women recruited from private health services in Western Australia were less likely than women recruited from the public health service to have high risk for postnatal depression.
Butterworth, P. (2004). "Lone mothers' experience of physical and sexual violence: Association with psychiatric disorders." British Journal of Psychiatry 184(JAN.): 21-27.	The representative sample included 2232 women with children (622 lone mothers, 1610 partnered mothers aged over 18 years).	Approx 18% of lone mothers experienced depressive disorders compared with 8% partnered mothers.	Lone mothers were more likely to have psychiatric disorders (OR= 2.4 - 3.4) and to have experienced physical and sexual violence (OR= 3.1- 4.1) than partnered mothers.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Butterworth, P., S. C. Gill, et al. (2006). "Retirement and mental health: Analysis of the Australian national survey of mental health and well-being." <i>Social Science & Medicine</i> 62(5): 1179-1191.	Data were from the 1997 National Survey of Mental Health and Well-being, a cross-sectional survey of 10,641 Australian adults. The prevalence of depression was analysed in a sub-sample of men (N = 1928) and women (N = 2261) aged 45-74 years.	For women, those aged 65–69 and 70–74 had significantly lower rates of depression than those aged 45–49.	For women, physical health, and receiving a government pension or allowance as the main source of income were shown to significantly contribute to poorer mental health.
Butterworth, P., B. Rodgers, et al. (2009). "Financial hardship, socio-economic position and depression: results from the PATH Through Life Survey." <i>Social Science & Medicine</i> 69(2): 229-37.	Two waves of data from The Path Through Life Study were used. Three cohorts of women (N = 6715) aged 24-28 years, 44-48 years and 64-68 years.	In the younger group, prevalence in wave 1 for depression was 12.2%, for the mid group 9.2%, and the older group 3.3%. At wave two prevalence rates for younger group 12.2%, mid group 9.0% and older group 2.6%.	
Buys, L., K. A. Roberto, et al. (2008). "Prevalence and predictors of depressive symptoms among rural older Australians and Americans." <i>The Australian Journal of Rural Health</i> 16(1): 33-39.	Rural participants (N = 216; female n = 107) aged 65+ years completed a postal survey as part of the Australian Active Ageing Survey (Triple A).		Pain significantly predicted depressive symptoms among women.
Cassidy, K., R. Kotynia-English, et al. (2004). "Association between lifestyle factors and mental health measures among community-dwelling older women." <i>Australian & New Zealand Journal of Psychiatry</i> 38(11-12): 940-7.	Cross-sectional survey of 270 women aged 70 or over living in the community.		Physically active women were half as likely to be depressed (BDI score \geq 10) when compared to inactive counterparts. Depression was also associated with having ever smoked regularly.
Cheek, F., G. Schrader, et al. (2003). "Identification, course, and treatment of depression after admission for a cardiac condition: rationale and patient characteristics for the Identifying Depression As a Comorbid Condition (IDACC) project." <i>American Heart Journal</i> 146(6): 978-84.	1455 cardiac patients (aged 18-84 years) from South Australian hospitals.	54% of female participants were classified as depressed.	

Reference	Sample Characteristics	Prevalence	Significant Correlations
Darby, A., P. Hay, et al. (2007). "Disordered eating behaviours and cognitions in young women with obesity: relationship with psychological status." <i>International Journal of Obesity</i> 31(5): 876-82.	4891 women aged 18-24 years from the community.		BMI did not correlate with depression.
Deemal, A. (2001). "'What choice do we have, there's no place for us to go': Young Women's Emotional and Mental Health Study." <i>Aboriginal and Islander Health Worker Journal</i> 25(5): 28-31.	A sample of 52 Indigenous women completed surveys and participated in focus groups. (Mean age = 22.94.)	The prevalence of reported depression was found to be 53.8%.	Depression was associated with unemployment, smoking, physical abuse, low coping skills, no place to relax or unwind, anxiety and distress, caring for other people's children and having partners who smoked cigarettes.
Dennerstein, L., J. R. Guthrie, et al. (2004). "A population-based study of depressed mood in middle-aged, Australian-born women." <i>Menopause</i> 11(5): 563-8.	Melbourne Women's Midlife Health Project data from 314 women aged 45-55 years.	Seventy-five women (24%) had a score of 10 or greater on the CES-D and were classified as being depressed.	Women who had experienced a surgical menopause had significantly higher CES-D scores (higher depressogenic symptomatology) than those women who experienced natural menopause.
Dingle, K., R. Alati, et al. (2008). "Pregnancy loss and psychiatric disorders in young women: an Australian birth cohort study." <i>British Journal of Psychiatry</i> 193(6): 455-60.	A sample of 1223 women of a cohort born between 1981-1984 were assessed at 21 years for psychiatric and substance abuse disorders and lifetime pregnancy history.		Abortion and miscarriage were associated with experiencing affective disorders including major depression, dysthymia and bipolar disorder.
Donald, M. and J. Dower (2002). "Risk and protective factors for depressive symptomatology among a community sample of adolescents and young adults." <i>Australian & New Zealand Journal of Public Health</i> 26(6): 87-96.	3082 adolescents and young adults (females n = 1710) aged 15-24 years from Queensland.		Depression was significantly associated with parental problems, sexual abuse, sexual identity conflict, financial difficulty, relationship break-up, being bullied, scholastic failure, introversion, a higher level of neuroticism and aggressive behaviour.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Donald, M., J. Dower, et al. (2001). "Prevalence of adverse life events, depression and suicidal thoughts and behaviour among a community sample of young people aged 15-24 years." Australian and New Zealand Journal of Public Health 25(5): 426-432.	Cross-sectional household survey of 3092 participants aged 15-24 years of age.	Females reported significantly higher rates of depression than males (OR= 1.72, 95% CI 1.47 - 2.01).	Females were significantly more likely than males to report having experienced suicidal thoughts and to have attempted suicide.
Duke, J. M., D. W. Sibbritt, et al. (2007). "Is there an association between the use of oral contraception and depressive symptoms in young Australian women?" Contraception 75(1): 27-31.	Data from the ALSWH was analysed. Responses from Survey 2 (N = 8636) when women were aged between 22-27 years and survey 3 (2003; N =7489) when women were aged 25-30 years were included in the analysis.	2488 (28.8%) of the women responding to survey 2 and 1943 (25.9%) of survey 3 respondents reported depressive symptoms.	Oral contraception was used by 61.9% of women in survey 2 with 56.1% in survey 3. In Survey 3 almost one quarter (23.3%) of oral contraceptive users reported depressive symptoms, while 30.3% of non-users reported depressive symptoms. The odds of a non-user experiencing depressive symptoms was 1.43 (95%CI = 1.28-1.58) times that of an oral contraceptive user.
Durkin, S., J. Milgrom, et al. (2004). "Metropolitan regional differences in primary health care of postnatal depression." Australian Journal of Advanced Nursing, The 21(3): 20-7.	213 women (mean age 31 years) recruited from antenatal clinics at four major public hospitals in Melbourne covering two regions, one eastern (more affluent according to ABS) and western (less affluent according to ABS).		Mothers from a less affluent area reported fewer postnatal depressive symptoms than mothers from a more affluent area.
Fisher, J., C. Feekery, et al. (2002). "Nature, severity and correlates of psychological distress in women admitted to a private mother-baby unit." Journal of Paediatrics and Child Health 38(2): 140-5.	A cross-sectional self-report survey of consecutive patients admitted to Masada Private Hospital Mother-Baby Unit Melbourne (N = 109, mean age 33.3 years). Mean age of infants was 22 weeks.	48% of participants scored in the clinical range of depressive symptoms.	Probable depression was associated with having a partner who was perceived as critical and controlling, a lack of assertiveness and oversensitivity to the opinions of others, as well as having an unsettled baby.

Reference	Sample Characteristics	Prevalence	Significant Correlations
France, C., C. Lee, et al. (2004). "Correlates of depressive symptoms in a representative sample of young Australian women." <i>Australian Psychologist</i> 39(3): 228-237.	A representative sample of 9333 Australian women aged 22-27 years who participate in the ALSWH.	Approximately 30% of these young women indicated that they were experiencing depressive symptoms.	After adjusting for age and rurality of residence, depressive symptoms were related to: low income, low educational level, unemployment; not being in a relationship.; frequent visits to doctors and medical specialists; a higher number of physical symptoms and diagnosed conditions; illicit drug use, smoking tobacco and using alcohol; and lower exercise status.
Gillespie, N. A., G. Zhu, et al. (2003). "Direction of causation modeling between cross-sectional measures of parenting and psychological distress in female twins." <i>Behavior Genetics</i> 33(4): 383-96.	Two cohorts of women (N = 8077, aged 18 – 45 years) from the Australian National Health and Medical Research Council Twin Register.		Age correlated with negatively with depression (-0.20). Suggesting that symptoms of depression decrease over time.
Goldney, R. D., L. J. Fisher, et al. (2004). "Double depression in an Australian population." <i>Social Psychiatry & Psychiatric Epidemiology</i> 39(11): 921-6.	Random and representative sample of 3010 South Australians aged 15 years and over (1998 survey).	More females (8.4%) the males (5.4%) had depression.	
Goldney, R. D., L. J. Fisher, et al. (2007). "Have education and publicity about depression made a difference? Comparison of prevalence, service use, and excess costs in South Australia: 1998 and 2004." <i>Australian & New Zealand Journal of Psychiatry</i> 41(1): 38-53.	Random and representative sample of 3015 South Australians aged 15 years and over (2004 survey).	There was no significant change in the prevalence of depression from 1998 to 2004.	

Reference	Sample Characteristics	Prevalence	Significant Correlations
Goldney, R. D., D. Wilson, et al. (2000). "Suicidal ideation in a random community sample: attributable risk due to depression and psychosocial and traumatic events." <i>Australian & New Zealand Journal of Psychiatry</i> 34(1): 98-106.	Random and representative sample of 2501 South Australians (aged 15 – over 55 years).	5.3% of women had suicide ideation.	Depression was strongly associated with suicidal ideation.
Hammond, A. J., S. Yu, et al. (2008). "Factors associated with persistent risk of depression in older people following discharge from an acute cardiac unit." <i>International Psychogeriatrics</i> 20(4): 738-51.	191 patients examined at baseline and 1 month post-discharge. Mean age 75 with 50% of sample being female.		Being female was not significantly associated with risk of depression (CI 95% = 0.6-2.5).
Harwood, K., N. McLean, et al. (2007). "First-time mothers' expectations of parenthood: What happens when optimistic expectations are not matched by later experiences?" <i>Developmental Psychology</i> 43(1): 1-12.	71 first time mothers (mean age 27.7 years).		Depression was more likely for women whose expectations of parenthood before birth were not met by their experiences measured at four months post partum.
Hawthorne, G., F. Cheok, et al. (2003). "The excess cost of depression in South Australia: a population-based study." <i>Australian & New Zealand Journal of Psychiatry</i> 37(3): 362-73.	1998 Health Omnibus Data. 3010 interviews conducted with people aged over 15.	For females the 12 month prevalence of major depression was 8% and 11% for 'other' depression.	

Reference	Sample Characteristics	Prevalence	Significant Correlations
Heaven, P. C. and M. Goldstein (2001). "Parental influences and mental health among some Australian youth: Cross-cultural analysis." Australian Journal of Psychology 53(3): 170-175.	202 high school students: 92 Australian Anglos (53 Females, 39 males), 110 of Asian origin (69 females and 41 males) including students of Cambodian, Chinese, or Vietnamese decent and lesser numbers from Philipino, Laotian, Japanese & Taiwanese origin. Age range 13-18 years (median = 16) recruited from three secondary government schools in Western Sydney.		Asian Australians had significantly higher depression scores compared to Anglos, and females had significantly higher levels of depression compared to males. Post hoc analyses showed Anglo females had higher depression and lower self-esteem than Anglo males.
Hegarty, K., J. Gunn, et al. (2004). "Association between depression and abuse by partners of women attending general practice: descriptive, cross sectional survey." BMJ 328(7440): 621-4.	1257 female patients (aged 16-50 years) attending general practitioners.	18% of women reported sufficient depressive symptoms to be considered 'probably' depressed.	Depressed women were significantly more likely to have experienced severe combined abuse than women who were not depressed.
Henderson, S., G. Andrews, et al. (2000). "Australia's mental health: an overview of the general population survey." Australian & New Zealand Journal of Psychiatry 34(2): 197-205.	Household sample of 10 600 persons aged 18 or over were interviewed by the ABS.	The 12 month prevalcen of depression in women was 12%. The prevalence of depressive disorders was lower in persons aged 65 and over.	Of women with a depressive disorder, 57% had at least one other mental health disorder.
Herrman, H., D. L. Patrick, et al. (2002). "Longitudinal investigation of depression outcomes in primary care in six countries: the LIDO study. Functional status, health service use and treatment of people with depressive symptoms." Psychological Medicine 32(5): 889-902.	18489 primary care patients aged 18 to 75 years, across six countries (Israel, Brazil, Australia, Spain, Russian Federation and USA).		Higher depression scores were "consistently associated with poorer health, functional status, quality of life and increased health care use". When age, marital status, education level was controlled for, having a score equal to or over 16 (the cut-point for depression) was significantly greater for women than men in all sites except Melbourne.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Hiscock, H. and M. Wake (2001). "Infant sleep problems and postnatal depression: a community-based study." <i>Pediatrics</i> 107(6): 1317-22.	738 mothers completed a survey.	15% of mothers scored above 12 on the depression scale, indicating probable clinical depression, and 18% scored between 10 and 12, indicating possible clinical depression.	After adjusting for potential confounders, infant sleeping problems remained a significant predictor of a depression score >10, however, those mothers who had good sleep quality were not more likely to suffer depression even when their infants had sleep problems.
Jacka, F. N., J. A. Pasco, et al. (2004). "Dietary omega-3 fatty acids and depression in a community sample." <i>Nutritional Neuroscience</i> 7(2): 101-6.	Age-stratified, population-based sample of women (N = 755, aged 23-97 years).	The 12 month prevalence of depression among these women was 12.85%.	Women who were depressed were younger, more likely to smoke, and weighed more than non-depressed women. No difference in omega-3 PUFA intake was detected between the depressed and non-depressed groups.
Jacka, F. N., J. A. Pasco, et al. (2007). "Self-reported depression and cardiovascular risk factors in a community sample of women." <i>Psychosomatics</i> 48(1): 54-9.	755 women (aged 23-97 years) were randomly sampled from the community.	145 women (19.2% of sample) reported having a 'lifetime history of depression'.	Women with a history of smoking or angina were more likely to report a lifetime history of depression than women who had not smoked or experienced angina.
Jirojwong, S., D. Rossi, et al. (2005). "What were the outcomes of home follow-up visits after postpartum hospital discharge?" <i>Australian Journal of Advanced Nursing</i> 23(1): 22-30.	A cross-sectional study of 143 women (mean age 28 years) recruited from two regional hospitals in Queensland was conducted.		There was a positive correlation between the number of follow-up home visits and depressive symptoms among women who gave birth at one hospital but not the other hospital.
Johnstone, S. J., P. M. Boyce, et al. (2001). "Obstetric risk factors for postnatal depression in urban and rural community samples." <i>Australian & New Zealand Journal of Psychiatry</i> 35(1): 69-74.	A prospective study of 490 women from Wentworth and Central Coast regions (NSW) using NSW Midwives Data Collection data and information obtained from questionnaires completed 1 week and 8 weeks postpartum.		Increased odds of postnatal depression was associated with self-rated nervousness, shyness/self-consciousness, feeling 'obsessional', angry, or a worried. Major health problems and arguments with partner were also significantly associated with postnatal depression. History of depression, anxiety, or previous postnatal depression or having a family member with a psychiatric illness also increased the risk of current postnatal depression.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Jorm, A. F., B. Rodgers, et al. (1999). "Smoking and mental health: results from a community survey." <i>Medical Journal of Australia</i> 170(2): 74-7.	2725 (female N = 1426) persons aged 18-79 sampled from the electoral roll.		As depression, anxiety and neuroticism were highly correlated, the investigators combined depression and anxiety symptoms into a single score and omitted neuroticism. Women with anxiety/depression were 1.4 times as likely to smoke relative to women without these problems.
Kenardy, J., W. J. Brown, et al. (2001). "Dieting and health in young Australian women." <i>European Eating Disorders Review</i> 9(4): 242-254.	14,686 women aged 18-23 years who participate in the ALSWH.		High frequency of dieting and earlier dieting onset were associated with poorer mental health (including depression).
Kerse, N., L. Flicker, et al. (2008). "Falls, depression and antidepressants in later life: a large primary care appraisal." <i>PLoS ONE [Electronic Resource]</i> 3(6): e2423.	Cross-sectional survey of 21 900 community dwelling adults. (Mean age 71.8 years; 58.4% female.)		Over 60% of women older than 80 years with depression and using antidepressants (SSRIs) had fallen or sustained an injury.
Khawaja, N. G. and K. Duncanson (2008). "Using the University Student Depression Inventory to Investigate the Effect of Demographic Variables on Students' Depression." <i>Australian Journal of Guidance and Counselling</i> 18(2): 195-209.	287 University students in Queensland (mean age 26.32 years), 221 (77%) female. Caucasian students numbered 205 (71%), 57 (20%) were Asian students, and 24 (8%) were from other cultures.		Females had a significantly higher mean level of depressive symptoms when compared with males.
Kilkkinen, A., A. Kao-Philpot, et al. (2007). "Prevalence of psychological distress, anxiety and depression in rural communities in Australia." <i>The Australian Journal of Rural Health</i> 15(2): 114-119.	A cross-sectional survey of 1536 people aged 25-74 years, randomly selected from electoral role.		There were no gender differences in the prevalence of either mild or moderate to severe depression.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Kirk, K., I. Hickie, et al. (1999). "Fatigue as related to anxiety and depression in a community-based sample of twins aged over 50." <i>Social Psychiatry and Psychiatric Epidemiology</i> 34(2): 85-90.	Community based sample of 2,703 Australian twins over the age of 50 yrs (females n = 1873).		A factor analysis approach was used to consider the relationship between fatigue, anxiety, and depression. Results suggested that fatigue could be considered a separate syndrome that is correlated with depression (and anxiety) rather than merely as a symptom of depression (or anxiety).
Koloski, N. A., N. Smith, et al. (2008). "Performance of the Goldberg Anxiety and Depression Scale in older women." <i>Age and Ageing</i> 37(4): 464-467.	Data from the older cohort of women of the ALSWH were examined. Participants were aged between 75 - 80 years.		Anxiety and depression were highly correlated..
LaMontagne, A. D., T. Keegel, et al. (2008). "Job strain - Attributable depression in a sample of working Australians: Assessing the contribution to health inequalities." <i>BMC Public Health</i> 8.	Telephone survey of working Victorians aged over 18 years (N = 1101).		Job strain was found to contribute to depression.
Lawrence, D., O. P. Almeida, et al. (2000). "Suicide and attempted suicide among older adults in Western Australia." <i>Psychological Medicine</i> 30(4): 813-821.	Record linkage was used to obtain records of hospital admissions and mental health service contacts for all suicide attempts and deaths in the period 1980-95.		More females aged over 60 years attempted and completed suicide than females aged less than 60 years. Attempted and completed suicides were associated with previous contact with mental health services.
Leach, L. S., H. Christensen, et al. (2008). "Gender differences in depression and anxiety across the adult lifespan: the role of psychosocial mediators." <i>Social Psychiatry & Psychiatric Epidemiology</i> 43(12): 983-98.	Representative community based sample of 7485 participants from Canberra and Queanbeyan in three age groups: 20-24, 40-44 and 60-64 years.	Prevalence of depression in the previous month for women in sample group aged 20-24 was 3.18%, for the 40-44 age group 2.56% and for the 60-64 age group= 1.77%.	Findings suggested that the gender difference in depression between men and women was non-causally mediated by the higher level of physical symptoms, lower level of physical activity, higher degree of some psychological and interpersonal factors reported by women, relative to those reported by men.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Lee, C. (1999). "Health habits and psychological well-being among young, middle-aged and older Australian women." <i>British Journal of Health Psychology</i> 4(Part 4): 301-314.	Questionnaire responses from a representative sample of 612 women in three age groups (18-23, 45-50, 70-75 years).		Women who did not undertake exercise were more likely than other women to experience higher levels of depression. Smoking and unhealthy weight were associated with depression. Of all three age groups, the youngest (18-23 years) were most likely to experience psychological distress.
Lee, C. and H. Gramotnev (2007). "Life transitions and mental health in a national cohort of young Australian women." <i>Developmental Psychology</i> 43(4): 877-888.	Transitions among 7,619 women who participated in the ALSWH Surveys 2 (2000) and 3 (2003).		Transitioning into intimate relationships was associated with improvements to mental health, while reductions in mental health were associated with transitioning to marital separation or divorce. Depressive symptoms increased for women moving out of study or paid work and among those moving into motherhood relative to women who did not experience those transitions.
Lee, K., A. Clough, et al. (2008). "Heavy cannabis use and depressive symptoms in three Aboriginal communities in Arnhem Land, Northern Territory." <i>Medical Journal of Australia</i> 188(10): 605-8.	106 Northern Territory Aboriginal peoples in remote Arnhem Land aged 13-42 years (46% female). Approximately half (50) were randomly selected from patient lists in health clinics and additional numbers were opportunistically recruited by Aboriginal health workers.	31% of females and 18% males scored in the moderate -severe range for depression.	Heavy cannabis users were nearly 3 times more likely to report moderate-severe depression compared to the remainder of the sample.
Logiudice, D., A. Hassett, et al. (2001). "Equity of access to a memory clinic in Melbourne? Non-English speaking background attendees are more severely demented and have increased rates of psychiatric disorders." <i>International Journal of Geriatric Psychiatry</i> 16(3): 327-334.	Retrospective analysis of 556 patients aged over 65 years, from a Melbourne memory clinic where 28% (148) were from non-English speaking backgrounds.		Patients from non-English speaking backgrounds were more likely to present with a psychiatric disorder than other patients. No significant differences between males and females were found.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Loxton, D., R. Mooney, et al. (2006). "The psychological health of sole mothers in Australia." <i>Medical Journal of Australia</i> 184(6): 265-8.	Data were analysed from 9689 women aged 22-27 years and 12 338 women aged 47-52 years who participate in the ALSWH.		Among the younger women, sole mothers were more likely than other women to have experienced suicidal thoughts (odds ratio [OR], 2.18; 95% CI, 1.45–3.27) and self-harm (OR, 3.25; 95% CI, 1.97–5.38). Among the younger and mid-age women, sole mothers were the group most likely to have used medication for depression. Relative to other women, sole mothers were more than twice as likely to have experienced depression, and had significantly poorer psychological health. The poorer economic status associated with sole motherhood accounted for some of the association between sole motherhood and poor psychological wellbeing.
Loxton, D., M. Schofield, et al. (2006). "Psychological health in midlife among women who have ever lived with a violent partner or spouse." <i>Journal of Interpersonal Violence</i> 21(8): 1092-107.	Data from 11310 women aged 47-52 years who participate in the ALSWH was analysed.		The results indicate that a history of domestic violence is associated with decreased psychological wellbeing and increased depression among middleaged Australian women.
Lubman, D. I., N. B. Allen, et al. (2007). "The impact of co-occurring mood and anxiety disorders among substance-abusing youth." <i>Journal of Affective Disorders</i> 103(1-3): 105-12.	100 young (aged 16-22 years; female n = 47) people were recruited from 2 drug treatment centres.	Among females, the lifetime prevalence of Major Depressive Disorder was 53.2% and 31.9% for current Major Depressive Disorder.	Participants with Major Depressive Disorder were more likely than those without to have a higher number of comorbid disorders, report more substance-related problems and have a poorer quality of life.
Magin, P., D. Sibbritt, et al. (2009). "The relationship between psychiatric illnesses and skin disease: A longitudinal analysis of young Australian women." <i>Archives of Dermatology</i> 145(8): 896-902.	ALSWH data from 6630 women (aged 21-26 years in 2000) who completed 3 surveys (conducted in 2000, 2003, and 2006) were analysed.	Depression prevalence in 2000 8.7%, 2003 8.1%, and 2006 7.9%.	Depression symptoms and stress (but not anxiety) were significantly associated with skin problems.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Martin, G., H. A. Bergen, et al. (2004). "Sexual abuse and suicidality: Gender differences in a large community sample of adolescents." <i>Child Abuse & Neglect</i> 28(5): 491-503.	A community sample of 2485 adolescents (Mean age 14 years, female n = 1106) recruited from schools in South Australia.	33.7% Of girls scored more than 16 on the CES-D indicating a high potential for clinical depression.	In girls, sexual abuse was associated with suicidality. Depressive symptomatology, hopelessness, and family functioning appeared to mediate the relationship.
Matthey, S., J. Speyer, et al. (2008). "Changes in unsettled infant sleep and maternal mood following admission to a parent craft residential unit." <i>Early Human Development</i> 84(9): 623-9.	Mothers (N = 116, mean age 31 years) with infants 3 weeks to 3 years old presenting to a five-day program at an Australian residential parent craft service because of unsettled infant sleep were recruited.	55% of mothers reported depressive symptomatology within the clinical range on admission.	
McCutcheon, V., A. Heath, et al. (2009). "Accumulation of trauma over time and risk for depression in a twin sample." <i>Psychological Medicine</i> 39(3): 431-441.	Structured diagnostic interviews with 5266 participants (mean age 29.9 years, 55.7% female) who belong to the Australian Twin Register.	30.8% of females met the lifetime criteria for depression.	Assaultive traumatic childhood events had the strongest association with immediate and long-term risk for depression. Women reported a greater accumulation of assaultive events at earlier ages than men.
McKelvey, R., J. Pfaff, et al. (2001). "The relationship between chief complaints, psychological distress, and suicidal ideation in 15-24-year-old patients presenting to general practitioners." <i>Medical Journal of Australia</i> 175(10): 550-2.	3242 consecutive 15- 24-year-old patients presenting to 247 participating general practitioners during a specified six-week period. Participants were predominantly females (66%).		Females were more likely than males to report levels of depressogenic symptomatology that exceeded cut points for the presence of depression.
McMahon, C., B. Barnett, et al. (2001). "Postnatal depression, anxiety and unsettled infant behaviour." <i>Australian & New Zealand Journal of Psychiatry</i> 35(5): 581-8.	128 mothers admitted to the residential care unit of a parent craft hospital (mean age 31 years) and 58 mothers in a demographically matched group (mean age 32 years).		Mothers admitted to the residential care program were more likely than the matched non-residential care mothers to report postnatal depression.

Reference	Sample Characteristics	Prevalence	Significant Correlations
McMahon, C., T. Trapolini, et al. (2008). "Maternal state of mind regarding attachment predicts persistence of postnatal depression in the preschool years." <i>Journal of Affective Disorders</i> 107(1-3): 199-203.	A prospective study of data from 92 mothers of first-born infants recruited from a parent-craft hospital at four months postpartum and who completed follow-up at 4 years after the birth (mean age 34.9 years).		Severity of depressive symptoms at four months and 'maternal state of mind regarding attachment' (1 year postpartum) were significant predictors of depression at 4 years postpartum. Women with an 'insecure state of mind regarding attachment' at one year postpartum were more likely to report ongoing depression.
Middeldorp, C. M., A. J. Birley, et al. (2005). "Familial clustering of major depression and anxiety disorders in Australian and Dutch twins and siblings." <i>Twin Research and Human Genetics</i> 8(6): 609-615.	Data collected from the Australian (N = 2470 individuals, females n = 1402) and Netherlands (N = 1256 individuals, females n = 686) Twin Registers.		In both countries, depressive disorders were more common among women than men.
Migliorini, C., B. Tonge, et al. (2008). "Spinal cord injury and mental health." <i>Australian and New Zealand Journal of Psychiatry</i> 42(4): 309-314.	443 community dwelling adults (28% female, mean age 52 years) with a spinal cord injury were recruited from a spinal cord injury registry.	The prevalence of depression for the total sample was 37% (including males).	Relative to a normative sample, females with spinal cord injuries were slightly more likely than males to experience depression.
Migliorini, C. E., P. W. New, et al. (2009). "Comparison of depression, anxiety and stress in persons with traumatic and non-traumatic post-acute spinal cord injury." <i>Spinal Cord</i> 47(11): 783-788.	443 community dwelling adults (28% female, mean age 52 years) with a spinal cord injury were recruited from a spinal cord injury registry.		Among all participants (including males) there was a 3% decrease in the likelihood of depression with every year post injury. Lower socio-economic status was also associated with depression.
Mills, K. L., M. Teesson, et al. (2004). "Young people with heroin dependence: findings from the Australian Treatment Outcome Study (ATOS)." <i>Journal of Substance Abuse Treatment</i> 27(1): 67-73.	A cohort of 210 young Australians (44% female) aged between 18 and 24 years, who were participants in the Australian Treatment Outcome Study.		Compared with males, females were twice as likely to have current depression and/or a history of suicide attempts.

Reference	Sample Characteristics	Prevalence	Significant Correlations
O'Connor, D. W., R. Rosewarne, et al. (2001). "Depression in primary care. 1: elderly patients' disclosure of depressive symptoms to their doctors." <i>International Psychogeriatrics</i> 13(3): 359-65.	1021 patients (59% female) aged 70+ years recruited through 30 general practices in Melbourne.		26% of females disclosed their depressive symptoms to their GP compared to 17% of males.
Osborne, R. H., G. R. Elsworth, et al. (2003). "Age-specific norms and determinants of anxiety and depression in 731 women with breast cancer recruited through a population-based cancer registry." <i>European Journal of Cancer</i> 39(6): 755-62.	Population-based hospital sample of 731 women with breast cancer (aged 23-60 years).	The prevalence of 'probable' psychological morbidity due to depression was 3%.	There was no clear pattern of risk factors for depression in this sample.
O'Sullivan, C. and C. O'Sullivan (2004). "The psychosocial determinants of depression: a lifespan perspective." <i>Journal of Nervous & Mental Disease</i> 192(9): 585-94.	A cross-sectional study of 608 primary care patients from a rural Irish community (68% female respondents) and a suburban community in Australia (69% female respondents, aged over 18 years).	For females in Australia: currently depressed = 35%; previously depressed 16%.	
Pascoe, S., S. Edelman, et al. (2000). "Prevalence of psychological distress and use of support services by cancer patients at Sydney hospitals." <i>Australian and New Zealand Journal of Psychiatry</i> 34(5): 785-791.	Sample were 504 oncology cancer outpatients (median age 62 years, range 20 to 93 years, 55% female) from four Sydney hospitals.	Prevalence of depression was 7.1%. There was not a significant difference between men and women or for age.	Factors which predicted clinically significant depression were restricted activity, advanced disease, and coming from a non-English speaking background.
Patton, G. C., C. Coffey, et al. (2001). "Parental 'affectionless control' in adolescent depressive disorder." <i>Social Psychiatry & Psychiatric Epidemiology</i> 36(10): 475-80.	A six-wave, 3-year study of adolescent health in 2032 Australian secondary school students provided an opportunity to undertake a two-phase study of early onset depression.		Parental care was associated with increased risk of depression.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Patton, G. C., C. Olsson, et al. (2008). "Predicting female depression across puberty: a two-nation longitudinal study." <i>Journal of the American Academy of Child & Adolescent Psychiatry</i> 47(12): 1424-32.	Three wave longitudinal cross-cultural study comparing USA to Victorian students (aged 10 - 15 years).		For females, being in the later stages of puberty, family conflict and bullying were associated with the presence of depression and depressive symptoms.
Phillips, J., L. Sharpe, et al. (2007). "Rates of depressive and anxiety disorders in a residential mother-infant unit for unsettled infants." <i>Australian and New Zealand Journal of Psychiatry</i> 41(10): 836-42.	160 women (mean age 31.4 years) with infants aged 2 weeks to 12 months were recruited from a residential family care facility.	25.1% of the sample met criteria for a current diagnosis of depression, 31.7% had met criteria for depression since becoming pregnant.	Anxiety was found to be comorbid with depression.
Pirkis, J., J. Pfaff, et al. (2009). "The community prevalence of depression in older Australians." <i>Journal of Affective Disorders</i> 115(1-2): 54-61.	20226 patients (female n = 12880) aged over 60 years were recruited by their general practitioners.	For females, the age-adjusted prevalence of clinically significant depression was 7.9%.	
Quine, S. and S. Morrell (2009). "Hopelessness, depression and oral health concerns reported by community dwelling older Australians." <i>Community Dental Health</i> 26(3): 177-82.	8881 community based participants (56.8% female) aged 65+ years, randomly sampled from the population.	34.4% of female respondents reported 'feeling depressed' in the previous 4 weeks.	Concerns about the appearance of teeth, mouth, gum, dentures was positively correlated with depressive symptoms.
Rey, J. M., M. G. Sawyer, et al. (2001). "Depression among Australian adolescents." <i>Medical Journal of Australia</i> 175(1): 19-23.	1,490 adolescents (female n = 687) aged 13-17 years and their main caregiver participated in this study (National Survey of Mental Health and Wellbeing).	For all adolescents (including males) the prevalence of depression was 5.2%.	
Schweitzer, R., F. Melville, et al. (2006). "Trauma, post-migration living difficulties, and social support as predictors of psychological adjustment in resettled Sudanese refugees." <i>Australian & New Zealand Journal of Psychiatry</i> 40(2): 179-87.	63 (21 female) Sudanese people over 18 years in Southeast Queensland were recruited via snowball sampling technique.	16% of participants were identified as having a major depressive disorder.	Women experienced more depressive symptomatology than men.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Small, R., J. Lumley, et al. (2003). "Cross-cultural experiences of maternal depression: associations and contributing factors for Vietnamese, Turkish and Filipino immigrant women in Victoria, Australia." <i>Ethnicity & Health</i> 8(3): 189-206.	In Victoria, 318 women (aged 14 - 41 years) from culturally and linguistically diverse backgrounds were recruited from postnatal wards (104 Vietnamese, 107 Filipina and 107 Turkish women).	9.7% of the Vietnamese women, 28.8% of the Turkish women, and 7.6% of the Filipina women met criteria for depression.	Significant associations with depression included parity, being less than 25, and having spent less time in Australia, migrated to get married, lower English proficiency, limited social support, and having physical health problems and body pain.
Snowdon, J., R. Fleming, et al. (2008). "Recognising depression in residential facilities: an Australian challenge." <i>International Journal of Geriatric Psychiatry</i> 23(3): 295-300.	Sample included 1,758 residents (females n = 1242) mean age 81.1 years, recruited from aged care facilities.		For all participants (including males) depression was associated with grief over 'lost abilities including the ability to undertake preferred activities.
Tang, G. W., S. Dennis, et al. (2009). "Anxiety and depression in Chinese patients attending an Australian GP clinic." <i>Australian Family Physician</i> 38(7): 552-5.	A cross sectional survey was undertaken with 161 Chinese patients (70% female, mean age 47.6 years) attending a general practice in south-western Sydney (NSW) during July 2005.	15.9% of females reported ever having depression.	Females were more likely than males to report ever having had depression.
Thorpe, K. (2007). "Child health nurses supporting parents." <i>Australian Nursing Journal</i> 14(8): 32-7, 39.	400 women in third trimester & 12 weeks postpartum. 55% of sample first time mothers.		Depression was associated with infant temperament, social support and confidence (statistics not reported).
Trollor, J. N., T. M. Anderson, et al. (2007). "Prevalence of mental disorders in the elderly: The Australian National Mental Health and Well-being Survey." <i>The American Journal of Geriatric Psychiatry</i> 15(6): 455-466.	1792 (female n = 1061) respondents to the National Mental Health and Well-being Survey, aged over 65.		Females were more likely than males to have experienced an affective disorder, however after controlling for the effects of socio-demographics, cognitive disorders and psychiatric disorders, the association between gender and affective disorders became non-significant.
Tye, C. and P. Mullen (2006). "Mental disorders in female prisoners." <i>Australian and New Zealand Journal of Psychiatry</i> 40(3): 266-71.	103 women (mean age 29.6 years) from Victorian prisons were interviewed	44% of sample met the criteria for major depression.	Female prisoners had significantly higher rates of depression compared with women in the community.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Wilhelm, K., P. Mitchell, et al. (2003). "Prevalence and correlates of DSM-IV major depression in an Australian national survey." <i>Journal of Affective Disorders</i> 75(2): 155-162.	Data from the National Survey of Mental Health and Well-being, 10 641 participants (aged between 18-75 years).	For females, the total prevalence rate of depression in the previous 12 months was 3.9%. The highest prevalence rate of 5.2% was found in middle-aged females.	Physical illness and smoking were associated with depression.
Williams, L. J., J. A. Pasco, et al. (2009). "Lifetime psychiatric disorders and body composition: a population-based study." <i>Journal of Affective Disorders</i> 118(1-3): 173-9.	979 randomly selected women aged 20-93 years participated in this study.	(28.6% of the sample were identified as having a lifetime history of depression.	A lifetime history of depression was associated with being overweight or obese.

4. Depression among young women

Australia's young people belong to a diverse and multifaceted society (Australian Institute of Health and Welfare 2003). This section is concerned with the prevalence and correlates of depression among young women defined as being aged between 12 and 30 years, excluding postnatal depression, which is the focus of Section 5. Table 4.1 includes the articles that met the inclusion criteria (see Table 2-2 & Table 2-3) and that were pertinent to young women.

As young women reach the later stages of puberty their risk of experiencing depressive symptoms increases (Patton, Olsson et al. 2008). Other research indicates a higher prevalence of depression among young women, compared with those in middle- or older age (Lee 1999; Butterworth, Rodgers et al. 2009). Among high school aged adolescents, young women were found to be at higher risk of depression than young men (Boyd, Kostanski et al. 2000; Bond, Toumbourou et al. 2005), and women in their twenties were also more likely to experience depressive symptoms than men in their twenties (Donald, Dower et al. 2001; Khawaja and Duncanson 2008). Young Asian Australian (Heaven and Goldstein 2001) and Indigenous Australian (Deemal 2001) female populations have been found to have a higher prevalence of depression than that found for the general population (discussed further in Section 8).

Two representative studies examined a range of correlates of depression. Among women aged 15 to 24 years, depression was significantly associated with parental problems, sexual abuse, sexual identity conflict, financial difficulty, relationship break-downs, bullying, scholastic failure, and introversion (Donald and Dower 2002). Among women aged 22 to 27 years, lower socio-economic level, being single, having high health services use, illicit drug use, smoking and alcohol use were associated with higher levels of depressive symptomatology (France, Lee et al. 2004).

Other studies have focussed on particular life events that are relevant to women in this age group. Relationship issues, such as separation and divorce and the onset of sole motherhood, have been associated with depression (Loxton, Mooney et al. 2006; Lee and Gramotnev 2007). In addition, experiences of abuse were found to be related to both depression and suicidality (Martin, Bergen et al. 2004).

For young women, issues to do with weight and diet have been correlated with depression. Concerns about body image and self-perceptions of being overweight have been associated with depression (Australian Institute of Health and Welfare 2003; Al Mamun, Cramb et al. 2007). Actually being overweight or obese have also been related to depression (Ball, Burton et al. 2009), as has being underweight (Australian Institute of Health and Welfare 2003; Al Mamun, Cramb et al. 2007). While physical activity has been found to be protective of depression (Cassidy, Kotynia-English et al. 2004; France, Lee et al. 2004), this effect may only be apparent for women who are a healthy weight or overweight (Ball, Burton et al. 2009). However, the absence of physical activity is associated with the presence of depression (Lee 1999). While physical activity might help with both depression and with weight reduction, frequent dieting has been associated with depression (Kenardy, Brown et al. 2001) as has restrictive dietary practice, such as adopting a vegetarian diet (Baines, Powers et al. 2007). Although weight and diet issues have been the subject of much research, more detailed investigation into the factors that underlie body image and weight problems would be of benefit to the development of intervention strategies.

Overall, the literature offered reasonable coverage of the prevalence and correlates of depression in this age group. However, some areas that have been linked with depression warrant further investigation, including skin problems (Magin, Sibbritt et al. 2009), young pregnancy (Bottomley, Lancaster et al. 2008), and pregnancy losses (Dingle, Alati et al. 2008). Few studies have examined

women's transitions through life events (Lee and Gramotnev 2007), and more longitudinal studies of this nature could assist in determining those times when women are most vulnerable to depression. In addition, it would be useful to undertake an exploratory study with women in these age groups, to determine those factors that the young women themselves implicate in the development of depression.

Table 4-1 includes further details of the literature that was pertinent to young women and depression.

Table 4-1: Depression among young women

Reference	Sample Characteristics	Prevalence	Significant Correlations
Al Mamun, A., S. Cramb, et al. (2007). "Adolescents' perceived weight associated with depression in young adulthood: A longitudinal study." <i>Obesity</i> 15(12): 3097-3105.	1802 participants (at age 21 years) from the Mater-University of Queensland Study of Pregnancy and Its Outcomes.		Findings suggest that perceptions of being overweight during adolescence are a significant risk factor for depression in young women.
Australian Institute of Health and Welfare (2003). <i>Australia's young people: their health and wellbeing 2003</i> . Australia: 428p.	There were 3.5 million young people aged 12 - 24 years in Australia, constituting approximately 18% of the total population as of June 2001.		Reports a relationship between weight, body image, and depression among young women.
Australian Institute of Health and Welfare (2008). <i>Indicators for chronic diseases and their determinants, 2008</i> . Australia: 119p.	The report uses findings from other Australian Institute of Health and Welfare (AIHW) reports and data sources to look at favourable and unfavourable trends in chronic disease over time.	The report states that there are no recent national estimates about the prevalence of people with diagnosed depressive disorders in the general population.	Stressful factors in a person's environment such as poverty, unemployment, child abuse and exposure to adverse life events (for example, relationship break-ups, trauma and family illness) can be contributing factors. Certain risk behaviours such as illicit drug use, alcohol misuse and dependence, and eating disorders and excess weight often occur in combination with depression. Depression is often present in people who have been diagnosed with chronic diseases such as cardiovascular disease, diabetes, cancer and rheumatoid arthritis.
Baines, S., J. Powers, et al. (2007). "How does the health and well-being of young Australian vegetarian and semi-vegetarian women compare with non-vegetarians?" <i>Public Health Nutrition</i> 10(5): 436-42.	Cross-sectional data analysis of the Australian Longitudinal Study on Women's Health (ALSWH) data in 2000, 9113 women aged (22-27 years) participated.		Semi-vegetarian and vegetarian women had poorer mental health, with 21-22% reporting depression compared with 15% of non-vegetarians ($p < 0.0001$).

Reference	Sample Characteristics	Prevalence	Significant Correlations
Ball, K., N. W. Burton, et al. (2009). "A prospective study of overweight, physical activity, and depressive symptoms in young women." <i>Obesity</i> 17(1): 66-71.	6,677 young adult women (22–27 years in 2000) participating in the ALSWH.	More than a quarter of the sample had depressive symptoms in 2003, compared with 29% in 2000.	The presence of depressive symptoms in 2000 was predictive of depressive symptoms in 2003. Mean CESD-10 scores in the healthy weight and overweight BMI categories decreased with increasing physical activity. For the obese and underweight BMI categories, there was no consistent downward trend in CESD-10 scores with higher levels of physical activity. Mean depression scores were higher for women in the obese BMI category than the healthy weight category, regardless of physical activity level.
Bond, L., J. W. Toumbourou, et al. (2005). "Individual, Family, School, and Community Risk and Protective Factors for Depressive Symptoms in Adolescents: A Comparison of Risk Profiles for Substance Use and Depressive Symptoms." <i>Prevention Science</i> 6(2): 73-88.	8984 students (females n = 4653) were recruited from three high school Years in Victoria. Participants mean ages were 12 (year 7), 14 (year 9) and 16 (Year 11) years.	The prevalence rate of depression was significantly higher among female (22%) compared with male students.	
Bottomley, K. L., S. J. Lancaster, et al. (2008). "The association between depressive symptoms and smoking in pregnant adolescents." <i>Psychology Health & Medicine</i> 13(5): 574-82.	81 pregnant adolescents aged 13 – 20 years.		30% of the pregnant adolescents were at risk for depression at the first data collection (trimester 1 or 2) and 31% were at risk of depression at the second data collection (trimester 3). Smokers were more likely to be at risk of depression than non-smokers.
Boyd, C. P., M. Kostanski, et al. (2000). "Prevalence of anxiety and depression in Australian adolescents: comparisons with worldwide data." <i>Journal of Genetic Psychology</i> 161(4): 479-92.	The combined sample comprised 1299 (675 female) adolescents aged 11 – 18 years randomly selected from metropolitan and country schools in Melbourne.	More girls than boys reported (18.8% vs. 9.3%).	

Reference	Sample Characteristics	Prevalence	Significant Correlations
Bruinsma, F. J., A. J. Venn, et al. (2006). "Concern about tall stature during adolescence and depression in later life." <i>Journal of Affective Disorders</i> 91(2-3): 145-52.	650 women who had been treated for being tall during adolescence (mean age 38.7 years).	The prevalence of major depression in both treated and untreated 'tall girls' was high (12-month prevalence: untreated 10.7%, treated 11.2%; lifetime prevalence: untreated 29.4% treated 26.6%)	
Butler, T., S. Allnutt, Kariminia, Azar, et al. (2007). "Mental health status of Aboriginal and non-Aboriginal Australian prisoners." <i>Australian and New Zealand Journal of Psychiatry</i> 41(5): 429-435.	914 prisoners participating in the NSW Inmate Survey. (211 non-Indigenous women and 59 Indigenous women, mean ages 31.2 and 27 years respectively).	28.8% of Indigenous women and 17.6% of non-Indigenous women were diagnosed with depression.	Indigenous women were more likely to be depressed than non-Indigenous women.
Butterworth, P., B. Rodgers, et al. (2009). "Financial hardship, socio-economic position and depression: results from the PATH Through Life Survey." <i>Social Science & Medicine</i> 69(2): 229-37.	Two waves of data from The Path Through Life Study were used. Three cohorts of women (N = 6715) aged 24-28 years, 44-48 years and 64-68 years.	In the younger group, prevalence in wave 1 for depression was 12.2%, for the mid group 9.2%, and the older group 3.3%. At wave two prevalence rates for younger group 12.2%, mid group 9.0% and older group 2.6%.	
Darby, A., P. Hay, et al. (2007). "Disordered eating behaviours and cognitions in young women with obesity: relationship with psychological status." <i>International Journal of Obesity</i> 31(5): 876-82.	4891 women aged 18-24 years from the community.		BMI did not correlate with depression.
Deemal, A. (2001). ""What choice do we have, there's no place for us to go": Young Women's Emotional and Mental Health Study." <i>Aboriginal and Islander Health Worker Journal</i> 25(5): 28-31.	A sample of 52 Indigenous women completed surveys and participated in focus groups. (Mean age = 22.94.)	The prevalence of reported depression was found to be 53.8%.	Depression was associated with unemployment, smoking, physical abuse, low coping skills, no place to relax or unwind, anxiety and distress, caring for other people's children and having partners who smoked cigarettes.
Dingle, K., R. Alati, et al. (2008). "Pregnancy loss and psychiatric disorders in young women: an Australian birth cohort study." <i>British Journal of Psychiatry</i> 193(6): 455-60.	A sample of 1223 women of a cohort born between 1981-1984 were assessed at 21 years for psychiatric and substance abuse disorders and lifetime pregnancy history.		Abortion and miscarriage were associated with experiencing affective disorders including major depression, dysthymia and bipolar disorder.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Donald, M. and J. Dower (2002). "Risk and protective factors for depressive symptomatology among a community sample of adolescents and young adults." Australian & New Zealand Journal of Public Health 26(6): 87-96.	3082 adolescents and young adults (females n = 1710) aged 15-24 years from Queensland.		Depression was significantly associated with parental problems, sexual abuse, sexual identity conflict, financial difficulty, relationship break-up, being bullied, scholastic failure, introversion, a higher level of neuroticism and aggressive behaviour.
Donald, M., J. Dower, et al. (2001). "Prevalence of adverse life events, depression and suicidal thoughts and behaviour among a community sample of young people aged 15-24 years." Australian and New Zealand Journal of Public Health 25(5): 426-432.	Cross-sectional household survey of 3092 participants aged 15-24 years of age.	Females reported significantly higher rates of depression than males (OR= 1.72, 95% CI 1.47 - 2.01).	Females were significantly more likely than males to report having experienced suicidal thoughts and to have attempted suicide.
Duke, J. M., D. W. Sibbritt, et al. (2007). "Is there an association between the use of oral contraception and depressive symptoms in young Australian women?" Contraception 75(1): 27-31.	Data from the ALSWH was analysed. Responses from Survey 2 (N = 8636) when women were aged between 22-27 years and survey 3 (2003; N =7489) when women were aged 25-30 years were included in the analysis.	2488 (28.8%) of the women responding to survey 2 and 1943 (25.9%) of survey 3 respondents reported depressive symptoms.	Oral contraception was used by 61.9% of women in survey 2 with 56.1% in survey 3. In Survey 3 almost one quarter (23.3%) of oral contraceptive users reported depressive symptoms, while 30.3% of non-users reported depressive symptoms. The odds of a non-user experiencing depressive symptoms was 1.43 (95%CI = 1.28-1.58) times that of an oral contraceptive user.
France, C., C. Lee, et al. (2004). "Correlates of depressive symptoms in a representative sample of young Australian women." Australian Psychologist 39(3): 228-237.	A representative sample of 9333 Australian women aged 22-27 years who participate in the ALSWH.	Approximately 30% of these young women indicated that they were experiencing depressive symptoms.	After adjusting for age and rurality of residence, depressive symptoms were related to: low income, low educational level, unemployment; not being in a relationship.; frequent visits to doctors and medical specialists; a higher number of physical symptoms and diagnosed conditions; illicit drug use, smoking tobacco and using alcohol; and lower exercise status.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Heaven, P. C. and M. Goldstein (2001). "Parental influences and mental health among some Australian youth: Cross-cultural analysis." <i>Australian Journal of Psychology</i> 53(3): 170-175.	202 high school students: 92 Australian Anglos (53 Females, 39 males), 110 of Asian origin (69 females and 41 males) including students of Cambodian, Chinese, or Vietnamese decent and lesser numbers from Philipino, Laotian, Japanese & Taiwanese origin. Age range 13-18 years (median = 16) recruited from three secondary government schools in Western Sydney.		Asian Australians had significantly higher depression scores compared to Anglos, and females had significantly higher levels of depression compared to males. Post hoc analyses showed Anglo females had higher depression and lower self-esteem than Anglo males.
Kenardy, J., W. J. Brown, et al. (2001). "Dieting and health in young Australian women." <i>European Eating Disorders Review</i> 9(4): 242-254.	14,686 women aged 18-23 years who participate in the ALSWH.		High frequency of dieting and earlier dieting onset were associated with poorer mental health (including depression).
Khawaja, N. G. and K. Duncanson (2008). "Using the University Student Depression Inventory to Investigate the Effect of Demographic Variables on Students' Depression." <i>Australian Journal of Guidance and Counselling</i> 18(2): 195-209.	287 University students in Queensland (mean age 26 - 32 years), 221 (77%) female. Caucasian students numbered 205 (71%), 57 (20%) were Asian students, and 24 (8%) were from other cultures.		Females had a significantly higher mean level of depressive symptoms when compared with males.
Lee, C. (1999). "Health habits and psychological well-being among young, middle-aged and older Australian women." <i>British Journal of Health Psychology</i> 4(Part 4): 301-314.	Questionnaire responses from a representative sample of 612 women in three age groups (18-23, 45-50, 70-75 years).		Women who did not undertake exercise were more likely than other women to experience higher levels of depression. Smoking and unhealthy weight were associated with depression. Of all three age groups, the youngest (18-23 years) were most likely to experience psychological distress.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Lee, C. and H. Gramotnev (2007). "Life transitions and mental health in a national cohort of young Australian women." <i>Developmental Psychology</i> 43(4): 877-888.	Transitions among 7,619 women who participated in the ALSWH Surveys 2 (2000) and 3 (2003).		Transitioning into intimate relationships was associated with improvements to mental health, while reductions in mental health were associated with transitioning to marital separation or divorce. Depressive symptoms increased for women moving out of study or paid work and among those moving into motherhood relative to women who did not experience those transitions.
Loxton, D., R. Mooney, et al. (2006). "The psychological health of sole mothers in Australia." <i>Medical Journal of Australia</i> 184(6): 265-8.	Data were analysed from 9689 women aged 22-27 years and 12 338 women aged 47-52 years who participate in the ALSWH.		Among the younger women, sole mothers were more likely than other women to have experienced suicidal thoughts (odds ratio [OR], 2.18; 95% CI, 1.45–3.27) and self-harm (OR, 3.25; 95% CI, 1.97–5.38). Among the younger and middleage women, sole mothers were the group most likely to have used medication for depression. Relative to other women, sole mothers were more than twice as likely to have experienced depression, and had significantly poorer psychological health. The poorer economic status associated with sole motherhood accounted for some of the association between sole motherhood and poor psychological wellbeing.
Lubman, D. I., N. B. Allen, et al. (2007). "The impact of co-occurring mood and anxiety disorders among substance-abusing youth." <i>Journal of Affective Disorders</i> 103(1-3): 105-12.	100 young (aged 16-22 years; female n = 47) people were recruited from 2 drug treatment centres.	Among females, the lifetime prevalence of Major Depressive Disorder was 53.2% and 31.9% for current Major Depressive Disorder.	Participants with Major Depressive Disorder were more likely than those without to have a higher number of comorbid disorders, report more substance-related problems and have a poorer quality of life.
Magin, P., D. Sibbritt, et al. (2009). "The relationship between psychiatric illnesses and skin disease: A longitudinal analysis of young Australian women." <i>Archives of Dermatology</i> 145(8): 896-902.	ALSWH data from 6630 women (aged 21-26 years in 2000) who completed 3 surveys (conducted in 2000, 2003, and 2006) were analysed.	Depression prevalence in 2000 8.7%, 2003 8.1%, and 2006 7.9%.	Depression symptoms and stress (but not anxiety) were significantly associated with skin problems.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Martin, G., H. A. Bergen, et al. (2004). "Sexual abuse and suicidality: Gender differences in a large community sample of adolescents." <i>Child Abuse & Neglect</i> 28(5): 491-503.	A community sample of 2485 adolescents (Mean age 14 years, female n = 1106) recruited from schools in South Australia.	33.7% Of girls scored more than 16 on the CES-D indicating a high potential for clinical depression.	In girls, sexual abuse was associated with suicidality. Depressive symptomatology, hopelessness, and family functioning appeared to mediate the relationship.
McKelvey, R., J. Pfaff, et al. (2001). "The relationship between chief complaints, psychological distress, and suicidal ideation in 15-24-year-old patients presenting to general practitioners." <i>Medical Journal of Australia</i> 175(10): 550-2.	3242 consecutive 15- 24-year-old patients presenting to 247 participating general practitioners during a specified six-week period. Participants were predominantly females (66%).		Females were more likely than males to report levels of depressogenic symptomatology that exceeded cut points for the presence of depression.
Mills, K. L., M. Teesson, et al. (2004). "Young people with heroin dependence: findings from the Australian Treatment Outcome Study (ATOS)." <i>Journal of Substance Abuse Treatment</i> 27(1): 67-73.	A cohort of 210 young Australians (44% female) aged between 18 and 24 years, who were participants in the Australian Treatment Outcome Study.		Compared with males, females were twice as likely to have current depression and/or a history of suicide attempts.
Osborne, R. H., G. R. Elsworth, et al. (2003). "Age-specific norms and determinants of anxiety and depression in 731 women with breast cancer recruited through a population-based cancer registry." <i>European Journal of Cancer</i> 39(6): 755-62.	Population-based hospital sample of 731 women with breast cancer (aged 23-60 years).	The prevalence of 'probable' psychological morbidity due to depression was 3%.	There was no clear pattern of risk factors for depression in this sample.
Patton, G. C., C. Coffey, et al. (2001). "Parental 'affectionless control' in adolescent depressive disorder." <i>Social Psychiatry & Psychiatric Epidemiology</i> 36(10): 475-80.	A six-wave, 3-year study of adolescent health in 2032 Australian secondary school students provided an opportunity to undertake a two-phase study of early onset depression.		Parental care was associated with increased risk of depression.
Patton, G. C., C. Olsson, et al. (2008). "Predicting female depression across puberty: a two-nation longitudinal study." <i>Journal of the American Academy of Child & Adolescent Psychiatry</i> 47(12): 1424-32.	Three wave longitudinal cross-cultural study comparing USA to Victorian students (aged 10 - 15 years).		For females, being in the later stages of puberty, family conflict and bullying were associated with the presence of depression and depressive symptoms.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Rey, J. M., M. G. Sawyer, et al. (2001). "Depression among Australian adolescents." Medical Journal of Australia 175(1): 19-23.	1,490 adolescents (female n = 687) aged 13-17 years and their main caregiver participated in this study (part of the National Survey of Mental Health and Wellbeing).	For all adolescents (including males) the prevalence of depression was 5.2%.	
Wilhelm, K., P. Mitchell, et al. (2003). "Prevalence and correlates of DSM-IV major depression in an Australian national survey." Journal of Affective Disorders 75(2): 155-162.	Data from the National Survey of Mental Health and Well-being, 10 641 participants (aged between 18-75 years).	For females, the total prevalence rate of depression in the previous 12 months was 3.9%. The highest prevalence rate of 5.2% was found in middle-aged females.	Physical illness and smoking were associated with depression.

5. Postnatal depression

Postnatal depression occurs within four to six weeks of the birth of a child and can include all of the symptoms of major depression with the potential additions of disinterest in or fearfulness of the baby (American Psychiatric Association 2000). Around 70% of women experience 'baby blues' - a short period of depressed mood that lasts up to ten days - which is not considered to be postnatal depression or depression (American Psychiatric Association 2000). This section considers the prevalence and correlates of postnatal depression that have been found in the Australian context.

The beyondblue National Postnatal Depression Program (Buist, Austin et al. 2008), conducted a large health service study across Australia and found an overall prevalence rate of 7.5% at six to eight weeks postpartum. Point prevalence rates varied from state to state (from 10.2% in Queensland and South Australia to 5.6% in Western Australia). The prevalence of postnatal depression among certain groups of women was higher than that found for the general population. For example, women from Indigenous and culturally and linguistically diverse backgrounds appear to be more likely to experience postnatal depression (Small, Lumley et al. 2003; Alati, Najman et al. 2004; Campbell, Hayes et al. 2008). In addition, 18% of sole mothers compared with 8% of partnered mothers were found to experience postnatal depression (Butterworth 2004).

From a life course perspective, women who move into motherhood are more prone to any type of depression than women not moving into motherhood (Lee and Gramotnev 2007). With regard to postnatal depression, those women who have previously experienced mental health problems (McMahon, Trapolini et al. 2008) and those with a family history of mental health problems (Johnstone, Boyce et al. 2001) are more likely to experience postnatal depression. Postnatal depression is a risk factor for the development of depression at later life stages (McMahon, Trapolini et al. 2008).

Some research has suggested that having a lower socio-economic status could be related to postnatal depression. For instance, postnatal depression was associated with accessing public as opposed to private hospital services in Western Australia (Buist, Austin et al. 2008) and with living in an affluent as opposed to a less affluent area in Melbourne (Durkin, Milgrom et al. 2004). However, the demographic profile of women susceptible to postnatal depression would benefit from more research.

Clear evidence of a link between infant temperament and postnatal depression was found. Having an 'unsettled' baby or one who did not sleep 'well' were associated with postnatal depression (Hiscock and Wake 2001; Fisher, Feekery et al. 2002; Thorpe 2007), although in one study the impact of having an unsettled baby was ameliorated when the mother was able to have good quality sleep (Hiscock and Wake 2001). Aspects of maternal psychology have also been correlated with postnatal depression including being nervy, angry, shy, introverted, and lacking in assertiveness or confidence (Hiscock and Wake 2001; Johnstone, Boyce et al. 2001; Fisher, Feekery et al. 2002; Thorpe 2007). However, a word of caution is needed here; it is very difficult to establish the causal pathways of postnatal depression when discussing infant and maternal temperaments as these are interactive. In addition, the situation becomes more complex when considering the interactions with the mother's partner, as difficulties in this area have also been linked to postnatal depression (Johnstone, Boyce et al. 2001; Fisher, Feekery et al. 2002).

Postnatal depression is a serious illness that impacts adversely on women's quality of life (Boyce, Johnstone et al. 2000). There is a need for more research in this area, particularly with regard to the risk factors for postnatal depression. Table 5-1 provides further examples of prevalence and correlates of depression in post partum women.

Table 5-1: Postnatal depression

Reference	Sample Characteristics	Prevalence	Significant Correlations
Al Mamun, A., S. Cramb, et al. (2007). "Adolescents' perceived weight associated with depression in young adulthood: A longitudinal study." <i>Obesity</i> 15(12): 3097-3105.	1802 participants (at age 21 years) from the Mater-University of Queensland Study of Pregnancy and Its Outcomes.		Findings suggest that perceptions of being overweight during adolescence are a significant risk factor for depression in young women.
Alati, R., D. A. Lawlor, et al. (2005). "Is there really a 'J-shaped' curve in the association between alcohol consumption and symptoms of depression and anxiety? Findings from the Mater-University Study of Pregnancy and its outcomes." <i>Addiction</i> 100(5): 643-651.	Prospective cohort study of women (n = 4527) who received antenatal care at Mater Misericordiae Hospital in Brisbane between 1981 and 1984 and who have provided follow-up data over a 14-year period.	Depression measured by the DSSI indicated that 9.4% of total sample had depression.	Significant relationships were found between alcohol intake and depression.
Alati, R., J. Najman, et al. (2004). "The mental health of Filipino-born women 5 and 14 years after they have given birth in Australia: a longitudinal study." <i>Health Sociology Review</i> 13(2): 145-56.	Longitudinal research with on migrating Filipino women who arrived in Australia to marry Australian men (n = 46) compared with Australian women (n = 3429). Women were interviewed 5times: first clinic visit; three to five days postpartum; six months postpartum; five years and 14 years after the birth of their child.		Filipina women had smaller social networks compared to Australian women at the time of the birth, and had more symptoms of depression up to 5 years after the birth of the child. However, there were no differences in depressive symptoms between Filipina and Australian born women at 14 years postpartum.
Australian Institute of Health and Welfare (2003). <i>Australia's young people: their health and wellbeing 2003</i> . Australia: 428p.	There were 3.5 million young people aged 12.24 years in Australia, constituting approximately 18% of the total population as of June 2001.		Reports a relationship between weight, body image, and depression among young women.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Australian Institute of Health and Welfare (2008). Indicators for chronic diseases and their determinants, 2008. Australia: 119p.	The report uses findings from other Australian Institute of Health and Welfare (AIHW) reports and data sources to look at favourable and unfavourable trends in chronic disease over time.	The report states that there are no recent national estimates about the prevalence of people with diagnosed depressive disorders in the general population.	Stressful factors in a person's environment such as poverty, unemployment, child abuse and exposure to adverse life events (for example, relationship break-ups, trauma and family illness) can be contributing factors. Certain risk behaviours such as illicit drug use, alcohol misuse and dependence, and eating disorders and excess weight often occur in combination with depression. Depression is often present in people who have been diagnosed with chronic diseases such as cardiovascular disease, diabetes, cancer and rheumatoid arthritis.
Bilszta, J. L., Y. Z. Gu, et al. (2008). "A geographic comparison of the prevalence and risk factors for postnatal depression in an Australian population." Australian & New Zealand Journal of Public Health 32(5): 424-30.	Urban (n = 908) and rural (n = 1058) women attending perinatal health services in Victoria, mean age 31 years.	No significant difference in prevalence of postnatal depression was found between the urban and rural communities.	
Bottomley, K. L., S. J. Lancaster, et al. (2008). "The association between depressive symptoms and smoking in pregnant adolescents." Psychology Health & Medicine 13(5): 574-82.	81 pregnant adolescents aged 13 – 20 years.		30% of the pregnant adolescents were at risk for depression at the first data collection (trimester 1 or 2) and 31% were at risk of depression at the second data collection (trimester 3). Smokers were more likely to be at risk of depression than non-smokers.
Boyce, P. M., S. J. Johnstone, et al. (2000). "Functioning and well-being at 24 weeks postpartum of women with postnatal depression." Archives of Women's Mental Health 3(3): 91-97.	The study used a prospective cohort design. 424 postpartum women (mean age 28 years), recruited from Nepean, Cowra, Dudley and Orange Hospitals (New South Wales, Australia) completed questionnaires assessing functioning and well-being (SF-36), and postnatal depression (EPDS).		Compared with women who did not have postnatal depression, women with postnatal depression were more likely to experience role Limitations due to physical and emotional problems, lower levels of social functioning, more bodily pain, and lower mental health and vitality(as measured by the SF-36).

Reference	Sample Characteristics	Prevalence	Significant Correlations
Brooks, J., E. Nathan, et al. (2009). "Tailoring screening protocols for perinatal depression: Prevalence of high risk across obstetric services in Western Australia." Archives of Women's Mental Health 12(2): 105-112.	4, 838 women (mean age 29 years) recruited from 3 hospitals and a Family Birthing centre were screened during pregnancy and within 12 months postpartum.	Of the 3, 853 women who completed the EPDS postnatally, 6% were considered at high risk of postnatal depression.	
Brown, S., F. Bruinsma, et al. (2004). "Early discharge: no evidence of adverse outcomes in three consecutive population-based Australian surveys of recent mothers, conducted in 1989, 1994 and 2000." Paediatric and Perinatal Epidemiology 18(3): 202-13.	2952 women aged 15 years and over completed mailed questionnaires from maternity hospitals and home birth practitioners in Victoria. (Age range for the whole sample not specified.)		Unadjusted OR showed that women who left hospital within 48 hours were significantly more likely to be depressed at follow-up at 5–6 months postpartum than women who stayed in hospital ≥ 5 days (18.2% compared to 12.9%). However, after adjusting for obstetric and social factors, no association between length of stay and depression scores at 5–7 months postpartum was found.
Brown, S. and J. Lumley (2000). "Physical health problems after childbirth and maternal depression at six to seven months postpartum." BJOG: An International Journal of Obstetrics & Gynaecology 107(10): 1194-201.	1366 women mailed questionnaire from maternity hospitals and home birth practitioners in Victoria and 225 responded. 204 of these participated in telephone follow-up between 7-9 months postpartum.		Poorer levels of emotional wellbeing were associated with tiredness, urinary incontinence and more minor illnesses than usual.
Buist, A., M. Austin, et al. (2008). "Postnatal mental health of women giving birth in Australia 2002- 2004: findings from the beyondblue National Postnatal Depression Program." Australian and New Zealand Journal of Psychiatry 42(1): 66-73.	12361 postnatal women recruited from 43 health services (public and private hospitals) across Australia. Mean age was 30.3 years, with 78.8% of women born in Australia.	7.5% of the sample scored > 12 on the EPDS (indicative of being at risk for postnatal depression). The highest percentage of women scoring EPDS >12 were in Queensland and South Australia (both 10.2%) while Western Australia had the lowest percentage of women in the at risk category (5.6%).	Women recruited from private health services in Western Australia were less likely than women recruited from the public health service to have high risk for postnatal depression.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Butterworth, P. (2004). "Lone mothers' experience of physical and sexual violence: Association with psychiatric disorders." <i>British Journal of Psychiatry</i> 184(JAN.): 21-27.	The representative sample included 2232 women with children (622 lone mothers, 1610 partnered mothers).	Approx 18% of lone mothers experienced depressive disorders compared with 8% partnered mothers.	Lone mothers were more likely to have psychiatric disorders (OR= 2.4 - 3.4) and to have experienced physical and sexual violence (OR= 3.1- 4.1) than partnered mothers.
Campbell, A., B. Hayes, et al. (2008). "Aboriginal and Torres Strait Islander women's experience when interacting with the Edinburgh Postnatal Depression Scale: A brief note." <i>Australian Journal of Rural Health</i> 16(3): 124-131.	210 Indigenous women (antenatally or postnatally) from Townsville 86.2%), Mtl (6.7%), and Yapatjarra (5.2%) 45.7 % aged between 20 and 25 years.	Used translated versions of the EPDS which when compared to the standard version, identified non-significantly higher rates of depression postnatally (28% using the translated versions compared to 24.6% of non-translated EPDS).	
Durkin, S., J. Milgrom, et al. (2004). "Metropolitan regional differences in primary health care of postnatal depression." <i>Australian Journal of Advanced Nursing, The</i> 21(3): 20-7.	213 women (mean age 31 years) recruited from antenatal clinics at four major public hospitals in Melbourne covering two regions, one eastern (more affluent [ABS]) and western (less affluent [ABS]).		Mothers from a less affluent area reported fewer postnatal depressive symptoms than mothers from a more affluent area.
Fisher, J., C. Feekery, et al. (2002). "Nature, severity and correlates of psychological distress in women admitted to a private mother-baby unit." <i>Journal of Paediatrics and Child Health</i> 38(2): 140-5.	A cross-sectional self-report survey of consecutive patients admitted to Masada Private Hospital Mother-Baby Unit Melbourne (N = 109, mean age 33.3). Mean age of infants was 22 weeks.	48% of participants scored in the clinical range of depressive symptoms.	Probable depression was associated with having a partner who was perceived as critical and controlling, a lack of assertiveness and oversensitivity to the opinions of others, as well as having an unsettled baby.
Harwood, K., N. McLean, et al. (2007). "First-time mothers' expectations of parenthood: What happens when optimistic expectations are not matched by later experiences?" <i>Developmental Psychology</i> 43(1): 1-12.	71 first time mothers (mean age 27.7 years).		Depression was more likely for women whose expectations of parenthood before birth were not met by their experiences measured at four months post partum.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Hiscock, H. and M. Wake (2001). "Infant sleep problems and postnatal depression: a community-based study." <i>Pediatrics</i> 107(6): 1317-22.	738 mothers completed a survey.	15% of mothers scored above 12 on the depression scale, indicating probable clinical depression, and 18% scored between 10 and 12, indicating possible clinical depression.	After adjusting for potential confounders, infant sleeping problems remained a significant predictor of a depression score >10, however, those mothers who had good sleep quality were not more likely to suffer depression even when their infants had sleep problems.
Jirojwong, S., D. Rossi, et al. (2005). "What were the outcomes of home follow-up visits after postpartum hospital discharge?" <i>Australian Journal of Advanced Nursing</i> 23(1): 22-30.	A cross-sectional study of 143 women (mean age 28 years) recruited from two regional hospitals in Queensland was conducted.		There was a positive correlation between the number of follow-up home visits and depressive symptoms among women who gave birth at one hospital but not the other hospital.
Johnstone, S. J., P. M. Boyce, et al. (2001). "Obstetric risk factors for postnatal depression in urban and rural community samples." <i>Australian & New Zealand Journal of Psychiatry</i> 35(1): 69-74.	A prospective study of 490 women from Wentworth and Central Coast regions (NSW) using NSW Midwives Data Collection data and information obtained from questionnaires completed 1 week and 8 weeks postpartum.		Increased odds of postnatal depression was associated with self-rated nervousness, shyness/self-consciousness, feeling 'obsessional', angry, or a worried. Major health problems and arguments with partner were also significantly associated with postnatal depression. History of depression, anxiety, or previous postnatal depression or having a family member with a psychiatric illness also increased the risk of current postnatal depression.
Lee, C. and H. Gramotnev (2007). "Life transitions and mental health in a national cohort of young Australian women." <i>Developmental Psychology</i> 43(4): 877-888.	Transitions among 7,619 women who participated in the ALSWH Surveys 2 (2000) and 3 (2003).		Transitioning into intimate relationships was associated with improvements to mental health, while reductions in mental health were associated with transitioning to marital separation or divorce. Depressive symptoms increased for women moving out of study or paid work and among those moving into motherhood relative to women who did not experience those transitions.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Loxton, D., R. Mooney, et al. (2006). "The psychological health of sole mothers in Australia." Medical Journal of Australia 184(6): 265-8.	Data were analysed from 9689 women aged 22-27 years and 12 338 women aged 47-52 years who participate in the ALSWH.		Among the younger women, sole mothers were more likely than other women to have experienced suicidal thoughts (odds ratio [OR], 2.18; 95% CI, 1.45–3.27) and self-harm (OR, 3.25; 95% CI, 1.97–5.38). Among the younger and middleage women, sole mothers were the group most likely to have used medication for depression. Relative to other women, sole mothers were more than twice as likely to have experienced depression, and had significantly poorer psychological health. The poorer economic status associated with sole motherhood accounted for some of the association between sole motherhood and poor psychological wellbeing.
Matthey, S., J. Speyer, et al. (2008). "Changes in unsettled infant sleep and maternal mood following admission to a parent craft residential unit." Early Human Development 84(9): 623-9.	Mothers (N = 116, mean age 31 years) with infants 3 weeks to 3 years old presenting to a five-day program at an Australian residential parent craft service because of unsettled infant sleep were recruited.	55% of mothers reported depressive symptomatology within the clinical range on admission.	
McMahon, C., B. Barnett, et al. (2001). "Postnatal depression, anxiety and unsettled infant behaviour." Australian & New Zealand Journal of Psychiatry 35(5): 581-8.	128 mothers admitted to the residential care unit of a parent craft hospital (mean age 31 years) and 58 mothers in a demographically matched group (mean age 32 years).		Mothers admitted to the residential care program were more likely than the matched non-residential care mothers to report postnatal depression.

Reference	Sample Characteristics	Prevalence	Significant Correlations
McMahon, C., T. Trapolini, et al. (2008). "Maternal state of mind regarding attachment predicts persistence of postnatal depression in the preschool years." <i>Journal of Affective Disorders</i> 107(1-3): 199-203.	A prospective study of data from 92 mothers of first-born infants recruited from a parent-craft hospital at four months postpartum and who completed follow-up at 4 years after the birth (mean age 34.9 years).		Severity of depressive symptoms at four months and 'maternal state of mind regarding attachment' (1 year postpartum) were significant predictors of depression at 4 years postpartum. Women with an 'insecure state of mind regarding attachment' at one year postpartum were more likely to report ongoing depression.
Phillips, J., L. Sharpe, et al. (2007). "Rates of depressive and anxiety disorders in a residential mother-infant unit for unsettled infants." <i>Australian and New Zealand Journal of Psychiatry</i> 41(10): 836-42.	160 women (mean age 31.4 years) with infants aged 2 weeks to 12 months were recruited from a residential family care facility.	25.1% of the sample met criteria for a current diagnosis of depression, 31.7% had met criteria for depression since becoming pregnant.	Anxiety was found to be comorbid with depression.
Small, R., J. Lumley, et al. (2003). "Cross-cultural experiences of maternal depression: associations and contributing factors for Vietnamese, Turkish and Filipino immigrant women in Victoria, Australia." <i>Ethnicity & Health</i> 8(3): 189-206.	In Victoria, 318 women (aged 14 - 41 years) from culturally and linguistically diverse backgrounds were recruited from postnatal wards (104 Vietnamese, 107 Filipina and 107 Turkish women).	9.7% of the Vietnamese women, 28.8% of the Turkish women, and 7.6% of the Filipina women met criteria for depression.	Significant associations with depression included parity, being less than 25, and having spent less time in Australia, migrated to get married, lower English proficiency, limited social support, and having physical health problems and body pain.
Thorpe, K. (2007). "Child health nurses supporting parents." <i>Australian Nursing Journal</i> 14(8): 32-7, 39.	400 women in third trimester & 12 weeks postpartum. 55% of sample first time mothers.		Depression was associated with infant temperament, social support and confidence (statistics not reported).

6. Depression among middle-aged women

Middle-age has been defined as between 45 and 64 years of age (Australian Institute of Health and Welfare 2006). The literature included in this review provided some information specific to middle-aged women and depression although there was variation in age categories across studies. In addition, it is noteworthy that of the three age groups reviewed, middle-age received the least attention from the literature. Table 6-1 includes information about the articles included in this section of the review.

The prevalence of depression in this age group varied across studies, probably due to variations in age groupings and other sample differences. Rates range from 9.2% (Butterworth, Rodgers et al. 2009) to 24% (Dennerstein, Guthrie et al. 2004). As was noted previously, women in middle-age appear to be less prone to depressive symptoms than younger women, and more prone to depressive symptoms than older women (Lee 1999; Butterworth, Gill et al. 2006; Butterworth, Rodgers et al. 2009). However, an examination of hospital records indicated that women aged 45 to 49 years were the most likely of all age groups to be admitted to hospital for a depressive disorder (Draper and Low 2009). These findings suggest that more research into the severity of depressive symptoms at different ages is warranted.

Depression in middle age was characterised by similar correlates to those that occurred among younger women. For example, sole motherhood (Loxton, Mooney et al. 2006), lower socioeconomic status (Butterworth, Gill et al. 2006), a history of intimate partner abuse (Loxton, Schofield et al. 2006) or abuse in childhood (McCutcheon, Heath et al. 2009) were associated with depression among middle-aged women. Physical activity was also important, with a representative sample showing a clear dose-response relationship between increasing physical activity and psychological health (Brown, Ford et al. 2005). Overall, however, there were fewer investigations concerned with weight and exercise for women in this age group than there were for younger women.

One significant event that occurs in middle-age is menopause, and this may have an impact on the well-being and experiences of depression for women during this life stage. Dennerstein, Guthrie et al (2009) investigated the relationship between depression, menopausal transition, natural menopause, surgical menopause and the use of hormone replacement therapies during this time (Dennerstein, Guthrie et al. 2004). Increased odds of experiencing depression for women who have had a surgical menopause relative to a natural menopausal transition were found, while the use of hormone therapies made no difference in level of depressive symptoms. Other events that occur during middle-age that warrant further inquiry include life transitions out of relationships (separation, divorce), children leaving home, and the onset of health problems.

Table 6-1 further examines sample characteristics, prevalence, and correlates of studies relation to middle-aged women and depression in Australia.

Table 6-1: Depression among middle-aged women

Reference	Sample Characteristics	Prevalence	Significant Correlations
Australian Institute of Health and Welfare (2006). Chronic diseases and associated risk factors in Australia , 2006. Australia: 96p.	This report presents updated statistics on chronic diseases and their associated risk factors in Australia.		This report focuses on patterns of disease across the age groups, the prevalence of risk factors and their trends, the impact of chronic diseases on health services in Australia, and differences in chronic diseases and their risk factors across geographical areas, socioeconomic status and Indigenous status.
Australian Institute of Health and Welfare (2008). Indicators for chronic diseases and their determinants, 2008. Australia: 119p.	The report uses findings from other Australian Institute of Health and Welfare (AIHW) reports and data sources to look at favourable and unfavourable trends in chronic disease over time.	The report states that there are no recent national estimates about the prevalence of people with diagnosed depressive disorders in the general population.	Stressful factors in a person’s environment such as poverty, unemployment, child abuse and exposure to adverse life events (for example, relationship break-ups, trauma and family illness) can be contributing factors. Certain risk behaviours such as illicit drug use, alcohol misuse and dependence, and eating disorders and excess weight often occur in combination with depression. Depression is often present in people who have been diagnosed with chronic diseases such as cardiovascular disease, diabetes, cancer and rheumatoid arthritis.
Brown, W. J., J. H. Ford, et al. (2005). "Prospective study of physical activity and depressive symptoms in middle-aged women." American Journal of Preventive Medicine 29(4): 265-272.	Reports on an analysis of ALSWH data collected from 9207 middle-aged women (aged 45-50 in 1996) in 1996, 1998 and 2001.		A clear and significant inverse association between physical activity and depressive symptoms was found.
Butterworth, P., S. C. Gill, et al. (2006). "Retirement and mental health: Analysis of the Australian national survey of mental health and well-being." Social Science & Medicine 62(5): 1179-1191.	Data were from the 1997 National Survey of Mental Health and Well-being, a cross-sectional survey of 10,641 Australian adults. The prevalence of depression was analysed in a sub-sample of men (N = 1928) and women (N = 2261) aged 45-74 years.	For women, those aged 65–69 and 70–74 had significantly lower rates of depression than those aged 45–49.	For women, physical health, and receiving a government pension or allowance as the main source of income were shown to significantly contribute to poorer mental health.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Butterworth, P., B. Rodgers, et al. (2009). "Financial hardship, socio-economic position and depression: results from the PATH Through Life Survey." <i>Social Science & Medicine</i> 69(2): 229-37.	Two waves of data from The Path Through Life Study were used. Three cohorts of women (N = 6715) aged 24-28 years, 44-48 years and 64-68 years.	In the younger group, prevalence in wave 1 for depression was 12.2%, for the mid group 9.2%, and the older group 3.3%. At wave two prevalence rates for younger group 12.2%, mid group 9.0% and older group 2.6%.	
Dennerstein, L., J. R. Guthrie, et al. (2004). "A population-based study of depressed mood in middle-aged, Australian-born women." <i>Menopause</i> 11(5): 563-8.	Melbourne Women's Midlife Health Project data from 314 women aged 45-55 years.	Seventy-five women (24%) had a score of 10 or greater on the CES-D and were classified as being depressed.	Women who had experienced a surgical menopause had significantly higher CES-D scores (higher depressogenic symptomatology) than those women who experienced natural menopause.
Draper, B. and L.-F. Low (2009). "Patterns of hospitalisation for depressive and anxiety disorders across the lifespan in Australia." <i>Journal of Affective Disorders</i> 113(1-2): 195-200.	Specialists psychiatric hospital separation data compiled by the AIHW in Australia's National Hospital Morbidity Database 1998 - 2005.		Women who were aged 45-49 years were the most likely of all women to be hospitalised with a depressive disorder.
Kirk, K., I. Hickie, et al. (1999). "Fatigue as related to anxiety and depression in a community-based sample of twins aged over 50." <i>Social Psychiatry and Psychiatric Epidemiology</i> 34(2): 85-90.	Community based sample of 2,703 Australian twins over the age of 50 yrs (females n = 1873).		A factor analysis approach was used to consider the relationship between fatigue, anxiety, and depression. Results suggested that fatigue could be considered a separate syndrome that is correlated with depression (and anxiety) rather than merely as a symptom of depression (or anxiety).
Lawrence, D., O. P. Almeida, et al. (2000). "Suicide and attempted suicide among older adults in Western Australia." <i>Psychological Medicine</i> 30(4): 813-821.	Record linkage was used to obtain records of hospital admissions and mental health service contacts for all suicide attempts and deaths in the period 1980-95.		More females aged over 60 years attempted and completed suicide than females aged less than 60 years. Attempted and completed suicides were associated with previous contact with mental health services.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Loxton, D., R. Mooney, et al. (2006). "The psychological health of sole mothers in Australia." <i>Medical Journal of Australia</i> 184(6): 265-8.	Data were analysed from 9689 women aged 22-27 years and 12 338 women aged 47-52 years who participate in the ALSWH.		Among the younger and middle-aged women, sole mothers were the group most likely to have used medication for depression. Relative to other women, sole mothers were more than twice as likely to have experienced depression, and had significantly poorer psychological health. The poorer economic status associated with sole motherhood accounted for some of the association between sole motherhood and poor psychological wellbeing.
Loxton, D., M. Schofield, et al. (2006). "Psychological health in midlife among women who have ever lived with a violent partner or spouse." <i>Journal of Interpersonal Violence</i> 21(8): 1092-107.	Data from 11310 women aged 47-52 years who participate in the ALSWH was analysed.		The results indicate that a history of domestic violence is associated with decreased psychological wellbeing and increased depression among middle-aged Australian women.
McCutcheon, V., A. Heath, et al. (2009). "Accumulation of trauma over time and risk for depression in a twin sample." <i>Psychological Medicine</i> 39(3): 431-441.	Structured diagnostic interviews with 5266 participants (mean age 29.9 years, 55.7% female) who belong to the Australian Twin Register.	30.8% of females met the lifetime criteria for depression.	Assaultive traumatic childhood events had the strongest association with immediate and long-term risk for depression. Women reported a greater accumulation of assaultive events at earlier ages than men.

7. Depression among older women

For the purposes of this section, articles were included where the study sampled women aged over 60 years. Depression among older women can have a substantial impact, considering that social and family networks might be limited and the coping mechanisms of older women may not be as robust as they once might have been (Pirkis, Pfaff et al. 2009). Older adults with depression may also be reluctant to seek help with their illness. This may be for a variety of reasons including a lack of understanding of what depression is; stigma and shame that can be associated with 'mental illness' and possibly generational stoicism (Pirkis, Pfaff et al. 2009). It is important to note that these feelings may also prevent women from revealing symptoms of depression in a research context.

Of the three age groups discussed in this review, older women have been found to be the least likely to have depression. Prevalence estimates of depression among older women vary due to differing sample compositions but have been reported to be as low as 1.77% (Leach, Christensen et al. 2008) and as high as 3.9% (Wilhelm, Mitchell et al. 2003) of representative samples. Of women aged over 60 years, those aged 70-79 were most at risk of being hospitalised for depression- in fact women in this age group are more likely to be hospitalised for depression than women aged in their early twenties (Draper and Low 2009). These findings underscore the point made in the previous section- research examining severity of depression at different ages is warranted.

Cultural diversity and depression is covered in more detail in Section 8; however, it is worth noting that older women residing in Australia but born elsewhere were found to have a higher prevalence of depression in older age than Australian born women (Logiudice, Hassett et al. 2001).

As with other age groups, smoking and lower levels of physical activity were associated with depression (Lee 1999; Cassidy, Kotynia-English et al. 2004; Butterworth, Gill et al. 2006), as was being in receipt of a government pension (Butterworth, Gill et al. 2006), suggesting a link between economic status and depression among older women.

Physical ill health problems (Rylands and Rickwood 2001) and anxiety (Koloski, Smith et al. 2008) were found to be comorbid with depression among older women, findings that are in keeping with research conducted with women from other age groups. However, depression was also correlated with some factors that have not been examined in younger women. For example, dental health problems (Quine and Morrell 2009), dependence on others (Rylands and Rickwood 2001) and falls and injuries (Kerse, Flicker et al. 2008) and pain (Buys, Roberto et al. 2008) have been associated with depression among older women.

The findings above and those included in Table 7-1 point to a number of gaps in current research. Although past abuse has been examined among young and middle-aged women, there is a lack of current Australian research that addresses abuse experiences and depression among older women. Although there appears to be a reduction in the prevalence of depression in older age, the high rate of depression found in some clinical (Pfaff, Almeida et al. 2005) and aged care settings (Rylands and Rickwood 2001) warrants further investigation. Similarly, the peak of hospital admissions for depression at 70-79 years and the progress of depressive symptomatology over time is deserving of more investigations.

Table 7-1: Depression among older women

Reference	Sample Characteristics	Prevalence	Significant Correlations
Australian Institute of Health and Welfare (2006). Chronic diseases and associated risk factors in Australia , 2006. Australia: 96p.	This report presents updated statistics on chronic diseases and their associated risk factors in Australia.		This report focuses on patterns of disease across the age groups, the prevalence of risk factors and their trends, the impact of chronic diseases on health services in Australia, and differences in chronic diseases and their risk factors across geographical areas, socioeconomic status and Indigenous status.
Butterworth, P., S. C. Gill, et al. (2006). "Retirement and mental health: Analysis of the Australian national survey of mental health and well-being." <i>Social Science & Medicine</i> 62(5): 1179-1191.	Data were from the 1997 National Survey of Mental Health and Well-being, a cross-sectional survey of 10,641 Australian adults. The prevalence of depression was analysed in a sub-sample of men (N = 1928) and women (N = 2261) aged 45-74 years.	For women, those aged 65–69 and 70–74 had significantly lower rates of depression than those aged 45–49.	For women, physical health, and receiving a government pension or allowance as the main source of income were shown to significantly contribute to poorer mental health.
Butterworth, P., B. Rodgers, et al. (2009). "Financial hardship, socio-economic position and depression: results from the PATH Through Life Survey." <i>Social Science & Medicine</i> 69(2): 229-37.	Two waves of data from The Path Through Life Study were used. Three cohorts of women (N = 6715) aged 24-28 years, 44-48 years and 64-68 years.	In the younger group, prevalence in wave 1 for depression was 12.2%, for the mid group 9.2%, and the older group 3.3%. At wave two prevalence rates for younger group 12.2%, mid group 9.0% and older group 2.6%.	
Buys, L., K. A. Roberto, et al. (2008). "Prevalence and predictors of depressive symptoms among rural older Australians and Americans." <i>The Australian Journal of Rural Health</i> 16(1): 33-39.	Rural participants (N = 216; female n = 107) aged 65+ years completed a postal survey as part of the Australian Active Ageing Survey (Triple A).		Pain significantly predicted depressive symptoms among women.
Byers, A. L., C. van Doorn, et al. (2003). "Paternal Attachment as a Risk Factor for Depression in Older Women." <i>Journal of Mental Health and Aging</i> 9(3): 157-169.	Data collected from 487 women aged over 70 years who participate in the Australian Longitudinal Study on Ageing.		A linear trend emerged ($p=0.04$, CI 95% = 1.01, 1.59). Results suggest that with every 10 year increase in the magnitude of the younger age of paternal death there is a 27% increase in the odds of depression.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Cassidy, K., R. Kotynia-English, et al. (2004). "Association between lifestyle factors and mental health measures among community-dwelling older women." <i>Australian & New Zealand Journal of Psychiatry</i> 38(11-12): 940-7.	Cross-sectional survey of 270 women aged 70 or over living in the community.		Physically active women were half as likely to be depressed (BDI score ≥ 10) when compared to inactive counterparts. Depression was also associated with having ever smoked regularly.
Draper, B. and L.-F. Low (2009). "Patterns of hospitalisation for depressive and anxiety disorders across the lifespan in Australia." <i>Journal of Affective Disorders</i> 113(1-2): 195-200.	Specialists psychiatric hospital separation data compiled by the AIHW in Australia's National Hospital Morbidity Database 1998 - 2005.		In older age (over 65 years) women aged 70-79 years were most likely to be hospitalised for depression. Women who were aged 45-49 years were the most likely of all women to be hospitalised with a depressive disorder.
Hammond, A. J., S. Yu, et al. (2008). "Factors associated with persistent risk of depression in older people following discharge from an acute cardiac unit." <i>International Psychogeriatrics</i> 20(4): 738-51.	191 patients examined at baseline and 1 month after discharge from hospital. Mean age 75 with 50% of sample being female.		No significant differences in depression between males and females. Risk factors for depression among older cardiac patients (including males) included recent hospital admission, hospital stay exceeding four days, angina and low levels of social support.
Hawthorne, G., F. Cheok, et al. (2003). "The excess cost of depression in South Australia: a population-based study." <i>Australian & New Zealand Journal of Psychiatry</i> 37(3): 362-73.	1998 Health Omnibus Data. 3010 interviews conducted with people aged over 15.	For females the 12 month prevalence of major depression was 8% and 11% for 'other' depression.	
Henderson, S., G. Andrews, et al. (2000). "Australia's mental health: an overview of the general population survey." <i>Australian & New Zealand Journal of Psychiatry</i> 34(2): 197-205.	Household sample of 10 600 persons aged 18 or over were interviewed by the ABS.	The 12 month prevalence of depression in women was 12%. The prevalence of depressive disorders was lower in persons aged 65 and over.	Of women with a depressive disorder, 57% had at least one other mental health disorder.
Kerse, N., L. Flicker, et al. (2008). "Falls, depression and antidepressants in later life: a large primary care appraisal." <i>PLoS ONE [Electronic Resource]</i> 3(6): e2423.	Cross-sectional survey of 21 900 community dwelling adults. (Mean age 71.8 years; 58.4% female.)		Over 60% of women older than 80 years with depression and using antidepressants (SSRIs) had fallen or sustained an injury.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Kirk, K., I. Hickie, et al. (1999). "Fatigue as related to anxiety and depression in a community-based sample of twins aged over 50." <i>Social Psychiatry and Psychiatric Epidemiology</i> 34(2): 85-90.	Community based sample of 2,703 Australian twins over the age of 50 yrs (females n = 1873).		A factor analysis approach was used to consider the relationship between fatigue, anxiety, and depression. Results suggested that fatigue could be considered a separate syndrome that is correlated with depression (and anxiety) rather than merely as a symptom of depression (or anxiety).
Koloski, N. A., N. Smith, et al. (2008). "Performance of the Goldberg Anxiety and Depression Scale in older women." <i>Age and Ageing</i> 37(4): 464-467.	Data from the older cohort of women of the ALSWH were examined. Participants were aged between 75 - 80 years.		Anxiety and depression were highly correlated.
Lawrence, D., O. P. Almeida, et al. (2000). "Suicide and attempted suicide among older adults in Western Australia." <i>Psychological Medicine</i> 30(4): 813-821.	Record linkage was used to obtain records of hospital admissions and mental health service contacts for all suicide attempts and deaths in the period 1980-95.		More females aged over 60 years attempted and completed suicide than females aged less than 60 years. Attempted and completed suicides were associated with previous contact with mental health services.
Leach, L. S., H. Christensen, et al. (2008). "Gender differences in depression and anxiety across the adult lifespan: the role of psychosocial mediators." <i>Social Psychiatry & Psychiatric Epidemiology</i> 43(12): 983-98.	Representative community based sample of 7485 participants from Canberra and Queanbeyan in three age groups: 20-24, 40-44 and 60-64 years.	Prevalence of depression in the previous month for women in sample group aged 20-24 was 3.18%, for the 40-44 age group 2.56% and for the 60-64 age group= 1.77%.	Findings suggested that the gender difference in depression between men and women was non-causally mediated by the higher level of physical symptoms, lower level of physical activity, higher degree of some psychological and interpersonal factors reported by women, relative to those reported by men.
Lee, C. (1999). "Health habits and psychological well-being among young, middle-aged and older Australian women." <i>British Journal of Health Psychology</i> 4(Part 4): 301-314.	Questionnaire responses from a representative sample of 612 women in three age groups (18-23, 45-50, 70-75 years).		Women who did not undertake exercise were more likely than other women to experience higher levels of depression. Smoking and unhealthy weight were associated with depression. Of all three age groups, the youngest (18-23 years) were most likely to experience psychological distress.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Logiudice, D., A. Hassett, et al. (2001). "Equity of access to a memory clinic in Melbourne? Non-English speaking background attendees are more severely demented and have increased rates of psychiatric disorders." <i>International Journal of Geriatric Psychiatry</i> 16(3): 327-334.	Retrospective analysis of 556 patients aged over 65 years, from a Melbourne memory clinic where 28% (148) were from non-English speaking backgrounds.		Patients from non-English speaking backgrounds were more likely to present with a psychiatric disorder than other patients. No significant differences between males and females were found.
McCutcheon, V., A. Heath, et al. (2009). "Accumulation of trauma over time and risk for depression in a twin sample." <i>Psychological Medicine</i> 39(3): 431-441.	Structured diagnostic interviews with 5266 participants (mean age 29.9 years, 55.7% female) who belong to the Australian Twin Register.	30.8% of females met the lifetime criteria for depression.	Assaultive traumatic childhood events had the strongest association with immediate and long-term risk for depression. Women reported a greater accumulation of assaultive events at earlier ages than men.
O'Connor, D. W., R. Rosewarne, et al. (2001). "Depression in primary care. 1: elderly patients' disclosure of depressive symptoms to their doctors." <i>International Psychogeriatrics</i> 13(3): 359-65.	1021 patients (59% female) aged 70+ years recruited through 30 general practices in Melbourne.		26% of females disclosed their depressive symptoms to their GP compared to 17% of males.
Pfaff, J. J., O. P. Almeida, et al. (2005). "Detecting suicidal ideation in older patients: identifying risk factors within the general practice setting." <i>British Journal of General Practice</i> 55(513): 269-73.	1061 patients (57% female) with mean age 72.2 years (SD = 7.3, range = 60-101 years) attending one of 54 randomly selected WA GPs. 15 consecutive patients from each practice were invited to participate.	23.8% scored 16 or more on the CES-D. There were no age or sex differences.	
Pirkis, J., J. Pfaff, et al. (2009). "The community prevalence of depression in older Australians." <i>Journal of Affective Disorders</i> 115(1-2): 54-61.	20226 patients (female n = 12880) aged over 60 years were recruited by their general practitioners.	For females, the age-adjusted prevalence of clinically significant depression was 7.9%.	
Quine, S. and S. Morrell (2009). "Hopelessness, depression and oral health concerns reported by community dwelling older Australians." <i>Community Dental Health</i> 26(3): 177-82.	8881 community based participants (56.8% female) aged 65+ years, randomly sampled from the population.	34.4% of female respondents reported 'feeling depressed' in the previous 4 weeks.	Concerns about the appearance of teeth, mouth, gum, dentures was positively correlated with depressive symptoms.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Rylands, K. and D. J. Rickwood (2001). "Ego-integrity versus ego-despair: The effect of "accepting the past" on depression in older women." International Journal of Aging & Human Development 53(1): 75-89.	73 female residents of a retirement village in Canberra. Mean age 80.6 years.	Level of depression was found to be relatively high in the sample with 30% meeting criteria for depression.	Having difficulty accepting the past, lower levels of social support and increasing levels of physical dependency were all related to increased depression.
Snowdon, J., R. Fleming, et al. (2008). "Recognising depression in residential facilities: an Australian challenge." International Journal of Geriatric Psychiatry 23(3): 295-300.	Sample included 1,758 residents (females n = 1242) mean age 81.1 years, recruited from aged care facilities.		For all participants (including males) depression was associated with grief over 'lost abilities including the ability to undertake preferred activities.
Trollor, J. N., T. M. Anderson, et al. (2007). "Prevalence of mental disorders in the elderly: The Australian National Mental Health and Well-being Survey." The American Journal of Geriatric Psychiatry 15(6): 455-466.	1792 (female n = 1061) respondents to the National Mental Health and Well-being Survey, aged over 65.		Females were more likely than males to have experienced an affective disorder, however, after controlling for the effects of socio-demographics, cognitive disorders and physical disorders, the association between gender and affective disorders became non-significant.
Wilhelm, K., P. Mitchell, et al. (2003). "Prevalence and correlates of DSM-IV major depression in an Australian national survey." Journal of Affective Disorders 75(2): 155-162.	Data from the National Survey of Mental Health and Well-being, 10 641 participants (aged between 18-75 years).	For females, the total prevalence rate of depression in the previous 12 months was 3.9%. The highest prevalence rate of 5.2% was found in middle-aged females.	Physical illness and smoking were associated with depression.
Williams, L. J., J. A. Pasco, et al. (2009). "Lifetime psychiatric disorders and body composition: a population-based study." Journal of Affective Disorders 118(1-3): 173-9.	979 randomly selected women aged 20-93 years participated in this study.	(28.6% of the sample were identified as having a lifetime history of depression.	A lifetime history of depression was associated with being overweight or obese.

8. Depression and cultural diversity

8.1 Indigenous Australian women

Indigenous peoples make up 2.5% of Australia's population and the estimated resident Torres Strait Islander population in 2006 was 10% of the total Indigenous population (Australian Bureau of Statistics and Australian Institute of Health and Welfare 2008). There have been very few studies of depression conducted with Indigenous peoples, only four were found to meet the inclusion criteria for this review (Deemal 2001; Butler, Allnutt et al. 2007; Campbell, Hayes et al. 2008; Lee, Clough et al. 2008); and these had utilised small sample sizes.

The prevalence of depression among Indigenous peoples is unknown. However, there is some indication that the rate is higher for Indigenous women than for other Australian women. For example, Indigenous Australians were hospitalised for care involving mental and behavioural disorders at 1.9 times the rate of other Australians (Australian Bureau of Statistics and Australian Institute of Health and Welfare 2008). In addition, anxiety and depression were the leading specific health problems of Indigenous women as reported by the Australian Institute of Health and Welfare (Australian Institute of Health and Welfare 2008). Several small studies have found very high rates of depression among Indigenous women. For example, 29% of Indigenous female prisoners compared with 18% of non-Indigenous prisoners were found to have depression (Butler, Allnutt et al. 2007). A study of 52 Indigenous women found the prevalence of depression in this group to be 53% (Deemal 2001). Two small studies noted several correlates of depression, and these are included in Table 8-1. However, these sample sizes of these studies precluded statistical analyses, and the results are not generalisable.

One factor related to identifying the presence of depression among Indigenous peoples concerns the use of translated instruments. Campbell et al 2008 used translated (Townsville Aboriginal and Islander Health Service (TAIHS) and Mount Isa (MTI) versions of the Edinburgh Postnatal Depression Scale (EPDS) which when compared to the standard version, identified higher rates of depression in their sample of 210 Indigenous women who had given birth (Campbell, Hayes et al. 2008). While indicating greater sensitivity, this difference was not significant. Further, the researchers noted that the number of women who participated was low.

This above study highlights several needs, including those for: culturally appropriate measures of depression and postnatal depression; culturally appropriate methods for determining the presence of depression; and research that addresses the need for knowledge in this area while maintaining cultural sensitivity and awareness.

8.2 *Culturally and linguistically diverse women*

Studies that met the inclusion criteria and that examined depression among women from cultural and linguistic backgrounds that were not Australian are included in Table 8-1. The research included was limited, and many of the findings have been referred to in the preceding sections. However, the main points will be reiterated here.

Generally speaking, the reviewed research indicated that having a background other than Australian and living in Australia was associated with depression among Asian Australian high school students (Heaven and Goldstein 2001), Filipina (Alati, Najman et al. 2004), Vietnamese and Turkish (Small, Lumley et al. 2003) new mothers, oncology outpatients (Pascoe, Edelman et al. 2000) and older people seeking help at a memory clinic (Logiudice, Hassett et al. 2001). For new mothers, absence of social support was also related to depression (Small, Lumley et al. 2003; Alati, Najman et al. 2004).

Due to the limited number of articles found for culturally and linguistically diverse groups, no conclusions regarding prevalence or correlates of depression can be drawn, particularly as sample sizes were generally small. Obviously, there is a need for research in this area and as with research with Indigenous peoples, research with people from culturally and linguistically diverse backgrounds needs to be conducted in a manner that is sensitive to cultural issues.

Table 8-1: Depression and cultural diversity

Reference	Sample Characteristics	Prevalence	Significant Correlations
<p>Australian Bureau of Statistics and Australian Institute of Health and Welfare (2008). The Health and Welfare of Australia's Aboriginal and Torres Strait Islanders. Canberra.</p>	<p>This report presents the latest data on the health and welfare of Australia's Indigenous peoples, as well as information about their socioeconomic circumstances. The estimated resident Indigenous population was 517,200, representing 2.5% of the total Australian population.</p>	<p>For Indigenous females, the leading specific health problems were anxiety and depression, accounting for 10% of the health burden.</p>	
<p>Alati, R., J. Najman, et al. (2004). "The mental health of Filipino-born women 5 and 14 years after they have given birth in Australia: a longitudinal study." Health Sociology Review 13(2): 145-56.</p>	<p>Longitudinal research with on migrating Filipino women who arrived in Australia to marry Australian men (n = 46) compared with Australian women (n = 3429). Women were interviewed 5times: first clinic visit; three to five days postpartum; six months postpartum; five years and 14 years after the birth of their child.</p>		<p>Filipina women had smaller social networks compared to Australian women at the time of the birth, and had more symptoms of depression up to 5 years after the birth of the child. However, there were no differences in depressive symptoms between Filipina and Australian born women at 14 years postpartum.</p>
<p>Australian Institute of Health and Welfare (2003). Australia's young people: their health and wellbeing 2003. Australia: 428p.</p>	<p>There were 3.5 million young people aged 12.24 years in Australia, constituting approximately 18% of the total population as of June 2001. This report documents the changes in health and wellbeing of young people during their transition from childhood to young adulthood. An overview of the health and welfare of young Indigenous people is presented.</p>		
<p>Australian Institute of Health and Welfare (2006). Chronic diseases and associated risk factors in Australia , 2006. Australia: 96p.</p>	<p>This report presents updated statistics on chronic diseases and their associated risk factors in Australia.</p>		<p>This report focuses on patterns of disease across the age groups, the prevalence of risk factors and their trends, the impact of chronic diseases on health services in Australia, and differences in chronic diseases and their risk factors across geographical areas, socioeconomic status and Indigenous status.</p>

Reference	Sample Characteristics	Prevalence	Significant Correlations
Australian Institute of Health and Welfare (2008). Indicators for chronic diseases and their determinants, 2008. Australia: 119p.	The report uses findings from other Australian Institute of Health and Welfare (AIHW) reports and data sources to look at favourable and unfavourable trends in chronic disease over time.	The report states that there are no recent national estimates about the prevalence of people with diagnosed depressive disorders in the general population.	Stressful factors in a person's environment such as poverty, unemployment, child abuse and exposure to adverse life events (for example, relationship break-ups, trauma and family illness) can be contributing factors. Certain risk behaviours such as illicit drug use, alcohol misuse and dependence, and eating disorders and excess weight often occur in combination with depression. Depression is often present in people who have been diagnosed with chronic diseases such as cardiovascular disease, diabetes, cancer and rheumatoid arthritis.
Butler, T., S. Allnut, Kariminia, Azar, et al. (2007). "Mental health status of Aboriginal and non-Aboriginal Australian prisoners." Australian and New Zealand Journal of Psychiatry 41(5): 429-435.	914 prisoners participating in the NSW Inmate Survey. (211 non-Indigenous women and 59 Indigenous women, mean ages 31.2 and 27 years respectively).	28.8% of Indigenous women and 17.6% of non-Indigenous women were diagnosed with depression.	Indigenous women were more likely to be depressed than non-Indigenous women.
Campbell, A., B. Hayes, et al. (2008). "Aboriginal and Torres Strait Islander women's experience when interacting with the Edinburgh Postnatal Depression Scale: A brief note." Australian Journal of Rural Health 16(3): 124-131.	210 Indigenous women (antenatally or postnatally) recruited from Townsville, Mt Isa, and Yapatjarra. Aged between 20 and 25 years.	Used translated versions of the EPDS which when compared to the standard version, identified higher prevalence of being at risk for postnatal depression (28% using the translated versions compared to 24.6% using the original EPDS). While indicating greater sensitivity, this difference was not significant ($SD = 3.4, z = 0.20$).	
Deemal, A. (2001). "'What choice do we have, there's no place for us to go': Young Women's Emotional and Mental Health Study." Aboriginal and Islander Health Worker Journal 25(5): 28-31.	A sample of 52 Indigenous women completed surveys and participated in focus groups. (Mean age = 22.94.)	The prevalence of reported depression was found to be 53.8%.	Depression was associated with unemployment, smoking, physical abuse, low coping skills, no place to relax or unwind, anxiety and distress, caring for other people's children and having partners who smoked cigarettes.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Gholizadeh, L., Y. Salamonson, et al. (2009). "Awareness and causal attributions of risk factors for heart disease among immigrant women living in Australia." <i>Journal of Women's Health</i> 18(9): 1385-1393.	Women born in Turkey (n = 17), Iran (n = 18), Other Arabic countries (n = 20) in metropolitan Sydney using snowballing technique who had not experienced an acute cardiovascular event. Bilingual helpers facilitated recruitment.	24% of the sample had mild to moderate depression and 27% reported severe to very severe depression	Psychological distress was associated with lower levels of education, a lack of physical exercise but not with length of time living in Australia.
Heaven, P. C. and M. Goldstein (2001). "Parental influences and mental health among some Australian youth: Cross-cultural analysis." <i>Australian Journal of Psychology</i> 53(3): 170-175.	202 high school students: 92 Australian Anglos (53 Females, 39 males), 110 of Asian origin (69 females and 41 males) including students of Cambodian, Chinese, or Vietnamese decent and lesser numbers from Philipino, Laotian, Japanese & Taiwanese origin. Age range 13-18 years (median = 16) recruited from three secondary government schools in Western Sydney.		Asian Australians had significantly higher depression scores compared to Anglos, and females had significantly higher levels of depression compared to males. Post hoc analyses showed Anglo females had higher depression and lower self-esteem than Anglo males.
Khawaja, N. G. and K. Duncanson (2008). "Using the University Student Depression Inventory to Investigate the Effect of Demographic Variables on Students' Depression." <i>Australian Journal of Guidance and Counselling</i> 18(2): 195-209.	287 University students in Queensland (mean age 26.32 years), 221 (77%) female. Caucasian students numbered 205 (71%), 57 (20%) were Asian students, and 24 (8%) were from other cultures.		Females had a significantly higher mean level of depressive symptoms when compared with males.
Lee, K., A. Clough, et al. (2008). "Heavy cannabis use and depressive symptoms in three Aboriginal communities in Arnhem Land, Northern Territory." <i>Medical Journal of Australia</i> 188(10): 605-8.	106 Northern Territory Aboriginal peoples in remote Arnhem Land aged 13-42 years (46% female). Approximately half (50) were randomly selected from patient lists in health clinics and additional numbers were opportunistically recruited by Aboriginal health workers.	31% of females and 18% males scored in the moderate -severe range for depression.	Heavy cannabis users were nearly 3 times more likely to report moderate-severe depression compared to the remainder of the sample.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Logiudice, D., A. Hassett, et al. (2001). "Equity of access to a memory clinic in Melbourne? Non-English speaking background attendees are more severely demented and have increased rates of psychiatric disorders." <i>International Journal of Geriatric Psychiatry</i> 16(3): 327-334.	Retrospective analysis of 556 patients aged over 65 years, from a Melbourne memory clinic where 28% (148) were from non-English speaking backgrounds.		Patients from non-English speaking backgrounds were more likely to present with a psychiatric disorder than other patients. No significant differences between males and females were found.
Pascoe, S., S. Edelman, et al. (2000). "Prevalence of psychological distress and use of support services by cancer patients at Sydney hospitals." <i>Australian and New Zealand Journal of Psychiatry</i> 34(5): 785-791.	Sample were 504 oncology cancer outpatients (median age 62 years, range 20 to 93 years, 55% female) from four Sydney hospitals.	Prevalence of depression was 7.1%. There was not a significant difference between men and women or for age.	Factors which predicted clinically significant depression were restricted activity, advanced disease, and coming from a non-English speaking background.
Schweitzer, R., F. Melville, et al. (2006). "Trauma, post-migration living difficulties, and social support as predictors of psychological adjustment in resettled Sudanese refugees." <i>Australian & New Zealand Journal of Psychiatry</i> 40(2): 179-87.	63 (21 female) Sudanese people over 18 years in Southeast Queensland were recruited via snowball sampling technique.	16% of participants were identified as having a major depressive disorder.	
Small, R., J. Lumley, et al. (2003). "Cross-cultural experiences of maternal depression: associations and contributing factors for Vietnamese, Turkish and Filipino immigrant women in Victoria, Australia." <i>Ethnicity & Health</i> 8(3): 189-206.	In Victoria, 318 women (aged 14 - 41 years) from culturally and linguistically diverse backgrounds were recruited from postnatal wards (104 Vietnamese, 107 Filipina and 107 Turkish women).	9.7% of the Vietnamese women, 28.8% of the Turkish women, and 7.6% of the Filipina women met criteria for depression.	Significant associations with depression included parity, being less than 25, and having spent less time in Australia, migrated to get married, lower English proficiency, limited social support, and having physical health problems and body pain.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Steel, Z., D. Silove, et al. (2005). "Mental disorders, disability, and health service use amongst Vietnamese refugees and the host Australian population." <i>Acta Psychiatrica Scandinavia</i> 111(4): 300-9.	Sample included 1161 Vietnamese over 18 years in NSW who were interviewed in their home and 7961 Australian born participants who were randomly selected.	Major depression prevalence in Vietnamese females was 2.2%; Australian born females was 8.6%.	
Tang, G. W., S. Dennis, et al. (2009). "Anxiety and depression in Chinese patients attending an Australian GP clinic." <i>Australian Family Physician</i> 38(7): 552-5.	A cross sectional survey was undertaken with 161 Chinese patients (70% female, mean age 47.6 years) attending a general practice in south-western Sydney (NSW) during July 2005.	15.9% of females reported ever having depression.	Females were more likely than males to report ever having had depression.

9. Rurality and depression

Rurality as a variable in mental health outcomes is a contentious issue, with different studies presenting different prevalence rates and correlates. A consensus about the association between rural/urban living and the prevalence of depression has not been found in this literature review. It is often assumed that urban living is a risk factor for the incidence of depression and that rural areas are often seen as environments of social stability, integration, and supportive networks. However some view rurality as a risk factor, with typical predictors of depression such as isolation and poverty being exacerbated in rural environments (Buys, Roberto et al. 2008).

Some studies have supported the relationship between rural environments and higher prevalence rates of depression (Australian Institute of Health and Welfare 2006; Kilkkinen, Kao-Philpot et al. 2007) while others conclude that there is in fact no difference between rates of depression for women living in either urban or rural settings (O'Sullivan and O'Sullivan 2004). Other research explored the geographic differences in the prevalence of postnatal depression for women in rural and remote areas compared with urban areas. This study concluded that antenatal depression was more prevalent in urban areas compared with the rural group (8.5% vs. 3.4% $p=0.0006$) yet for postnatal depression there was no significant difference in prevalence (6.6% vs. 8.5%, $p=0.165$) (Bilszta, Gu et al. 2008).

Urban and rural environments may play an influential role in the prevalence rates of depression for women, however the literature suggests that poverty, unemployment, being female, lower socio-economic class, substance misuse, history of child hood sexual abuse, poor social networks, life event in the previous 12 months, size of primary support group, marital status, or low perceived social support, may have more powerful influences on the prevalence of depression for women living in either rural or urban communities (Deemal 2001; Durkin, Milgrom et al. 2004; France, Lee et al. 2004).

One issue rising from the literature surrounding geography and female depression is that of measurement. The ability to measure what is rural, remote, urban and metropolitan is a complex task that may or may not take into account distance to the nearest metropolitan area, access to health services, and population density. Some of the research in this review clearly stated and defined their geographic terms (eg ARIA, RRMA etc). However, sometimes the geographic locations were not defined. The method of area measurement is likely to contribute to discrepancies between the reported results and conclusions.

Table 9-1 includes the articles that were included in the review that pertained to rurality and depression. As will be noted, the available literature was surprisingly limited, leading to the conclusion that more research is needed to determine the influence of rurality on depression among women in Australia.

Table 9-1: Rurality and depression

Reference	Sample Characteristics	Prevalence	Significant Correlations
Australian Institute of Health and Welfare (2006). Chronic diseases and associated risk factors in Australia , 2006. Australia: 96p.	This report presents updated statistics on chronic diseases and their associated risk factors in Australia and differences in chronic diseases and their risk factors across geographical areas, socioeconomic status and Indigenous status.		This report focuses on patterns of disease across the age groups, the prevalence of risk factors and their trends, the impact of chronic diseases on health services in Australia, and differences in chronic diseases and their risk factors across geographical areas, socioeconomic status and Indigenous status.
Australian Institute of Health and Welfare (2008). Indicators for chronic diseases and their determinants, 2008. Australia: 119p.	The report uses findings from other Australian Institute of Health and Welfare (AIHW) reports and data sources to look at favourable and unfavourable trends in chronic disease over time.	The report states that there are no recent national estimates about the prevalence of people with diagnosed depressive disorders in the general population.	Stressful factors in a person's environment such as poverty, unemployment, child abuse and exposure to adverse life events (for example, relationship break-ups, trauma and family illness) can be contributing factors. Certain risk behaviours such as illicit drug use, alcohol misuse and dependence, and eating disorders and excess weight often occur in combination with depression. Depression is often present in people who have been diagnosed with chronic diseases such as cardiovascular disease, diabetes, cancer and rheumatoid arthritis.
Bilszta, J. L., Y. Z. Gu, et al. (2008). "A geographic comparison of the prevalence and risk factors for postnatal depression in an Australian population." Australian & New Zealand Journal of Public Health 32(5): 424-30.	Urban (n = 908) and rural (n = 1058) women attending perinatal health services in Victoria, mean age 31 years.	No significant difference in prevalence of postnatal depression was found between the urban and rural communities.	
Buys, L., K. A. Roberto, et al. (2008). "Prevalence and predictors of depressive symptoms among rural older Australians and Americans." The Australian Journal of Rural Health 16(1): 33-39.	Rural participants (N = 216; female n = 107) aged 65+ years completed a postal survey as part of the Australian Active Ageing Survey (Triple A).		Pain significantly predicted depressive symptoms among women.

Reference	Sample Characteristics	Prevalence	Significant Correlations
Campbell, A., B. Hayes, et al. (2008). "Aboriginal and Torres Strait Islander women's experience when interacting with the Edinburgh Postnatal Depression Scale: A brief note." Australian Journal of Rural Health 16(3): 124-131.	210 Indigenous women (antenatally or postnatally) from Townsville 86.2%), Mtl (6.7%), and Yapatjarra (5.2%) 45.7 % aged between 20 and 25 years.	Used translated versions of the EPDS which when compared to the standard version, identified non-significantly higher rates of depression postnatally (28% using the translated versions compared to 24.6% of non-translated EPDS).	
Deemal, A. (2001). ""What choice do we have, there's no place for us to go": Young Women's Emotional and Mental Health Study." Aboriginal and Islander Health Worker Journal 25(5): 28-31.	A sample of 52 Indigenous women completed surveys and participated in focus groups. (Mean age = 22.94.)	The prevalence of reported depression was found to be 53.8%.	Depression was associated with unemployment, smoking, physical abuse, low coping skills, no place to relax or unwind, anxiety and distress, caring for other people's children and having partners who smoked cigarettes.
Durkin, S., J. Milgrom, et al. (2004). "Metropolitan regional differences in primary health care of postnatal depression." Australian Journal of Advanced Nursing, The 21(3): 20-7.	213 women (mean age 31 years) recruited from antenatal clinics at four major public hospitals in Melbourne covering two regions, one eastern (more affluent according to ABS) and western (less affluent according to ABS).		Mothers from a less affluent area reported fewer postnatal depressive symptoms than mothers from a more affluent area.
Johnstone, S. J., P. M. Boyce, et al. (2001). "Obstetric risk factors for postnatal depression in urban and rural community samples." Australian & New Zealand Journal of Psychiatry 35(1): 69-74.	A prospective study of 490 women from Wentworth and Central Coast regions (NSW) using NSW Midwives Data Collection data and information obtained from questionnaires completed 1 week and 8 weeks postpartum.		Increased odds of postnatal depression was associated with self-rated nervousness, shyness/self-consciousness, feeling 'obsessional', angry, or a worried. Major health problems and arguments with partner were also significantly associated with postnatal depression. History of depression, anxiety, or previous postnatal depression or having a family member with a psychiatric illness also increased the risk of current postnatal depression.
Kilkkinen, A., A. Kao-Philpot, et al. (2007). "Prevalence of psychological distress, anxiety and depression in rural communities in Australia." The Australian Journal of Rural Health 15(2): 114-119.	A cross-sectional survey of 1536 people aged 25-74 years, randomly selected from electoral role.		There were no gender differences in the prevalence of either mild or moderate to severe depression. 3% of the women in this rural sample reported moderate to severe depression.

Reference	Sample Characteristics	Prevalence	Significant Correlations
<p>Lee, K., A. Clough, et al. (2008). "Heavy cannabis use and depressive symptoms in three Aboriginal communities in Arnhem Land, Northern Territory." <i>Medical Journal of Australia</i> 188(10): 605-8.</p>	<p>106 Northern Territory Aboriginal peoples in remote Arnhem Land aged 13-42 years (46% female). Approximately half (50) were randomly selected from patient lists in health clinics and additional numbers were opportunistically recruited by Aboriginal health workers.</p>	<p>31% of females and 18% males scored in the moderate -severe range for depression.</p>	<p>Heavy cannabis users were nearly 3 times more likely to report moderate-severe depression compared to the remainder of the sample.</p>

10. Conclusions and recommendations

Depression is typically episodic, recurrent and chronic, with low-level symptoms present between episodes of disorder. On a global dimension, the public health burden from unrecognized and untreated depression is enormous (Herrman, Patrick et al. 2002). Regardless of degree of symptomatology or a formal diagnosis of depression, service burden and impairment due to depression is high, with decreased function and quality of life, and higher use of health services (Australian Bureau of Statistics and Australian Institute of Health and Welfare 2008).

This report highlights the findings of a systematic literature review of articles published between January 1999 to January 2010, specifically, focusing on the prevalence and correlates of depression in Australian females aged over 12 years. This review found that the prevalence of depression in Australia is more common among females and varies according to age, socioeconomic status, relationship status, Indigenous status, cultural and linguistic diversity, parity, adverse life events including abuse, physical illness including chronic disease, physical inactivity, previous mental health problems, and a range of age and life-stage specific correlates.

Before discussing recommendations, it is necessary to note a number of limitations of the current literature review. Publication bias was likely, given that only papers reported (or translated) in English were discussed and also because some researchers published multiple papers referring to the same study or data. Publication bias also occurs when well-resourced researchers, with track records, are more likely to have their work accepted for publication or identified for the review, compared with less experienced researchers. This review excluded papers that related to depression but not specifically prevalence or correlates. Therefore, information that related to depression per se may have been excluded. Some of the included studies had small sample sizes; this particularly related to those areas where as there were small numbers of these articles to start with. The recommendations, which follow, are made within the scope of the included literature (see Section 2) and in view of these limitations.

Despite the breadth of information available, there were noticeable gaps in the literature. A high number of articles were discounted as being eligible for inclusion as analyses did not distinguish between males and females. The lack of gendered analyses means that important risk factors and correlates particular to males and females cannot be established. **It is therefore recommended that future research considers depression as a gendered experience and as such, warrants analyses that distinguish between males and females.**

Some studies reported on affective disorders, but did not specifically report on depression, while others treated anxiety and depression as a single construct. While it is recognised that differentiation of psychological disorders is difficult, it is also important to disentangle comorbid conditions and determine the relative onset of different disorders. **It is recommended that, where possible, depression be distinguished from other affective and psychological disorders.**

There is a lack of clarity about whether the reduced likelihood of depression in older age is due to cohort or age effects. In addition, associations between age, stage of life, life events, demographics, health behaviour, chronic illness, and life transitions (eg into and out of relationships) and depression, suggest that there are complex pathways that precede depression and a variety of consequences that occur subsequent to depression, some of which may lead to exacerbation of existing conditions. A comprehensive examination of pathways into and consequences of depression could shed light on causal factors in depression in addition to revealing mechanisms that assist with recovery from depression. **Further longitudinal research can help to clarify the nature of these age**

related differences. It is recommended that an audit of available longitudinal data be undertaken with a view to developing a plan for analysing these data where possible.

Hospital separation results indicated the highest rate of hospitalisation for depression occurred for middle-aged women, while the highest rates of depression in population surveys consistently occurred for young women suggesting there is much more to be learned about the progression and severity of depression over time. Linking survey based data with administrative datasets such as hospital separations data offer a potential option for investigating these matters further. **It is therefore recommended that the feasibility of linking population survey data with administrative datasets to examine the progression of depression over time be investigated.**

Although there was reasonable coverage in the literature of depression among young and older women, there was a surprising lack of literature that had examined depression in middle-age. In addition to menopause, a number of significant life events occur during middle age, including life transitions out of relationships (separation, divorce), children leaving home, and the onset of chronic health problems. **Therefore, it is recommended this gap in the literature be filled by focussing on depression in middle-age as a priority area for further research.**

This review found that research concerned with depression among Indigenous and culturally and linguistically diverse women was scarce and where it was available, often involved small sample sizes. No articles were found at all that had examined depression among lesbian, transgender or intersex women. **It is therefore recommended that appropriate research plans to fill these gaps in current knowledge be undertaken.** This is likely to involve varying levels of consultation with the groups concerned in order to establish appropriate research methods and protocols.

A dearth of research concerned with rurality was also noted. In part this occurred because area of residence was not the focus of population based studies, even though the datasets often include area as a variable. **It is recommended that existing data be examined to determine the differences, if any, in depression between urban and rural areas.**

A number of areas were noted throughout this review as being in need of further research. Many of these relate to the need for understanding factors that underlie certain findings. For example, while we know that body image and weight problems might be associated with depression, a more complete understanding of the factors that lead to body image and weight problems could be of great benefit in designing intervention strategies. **Investigations into the following areas would benefit from targeted and in-depth research:**

Body image, weight issues and depression among women aged 12 to 60 years.

Skin problems and depression among young women.

Age at first pregnancy and depression.

Pregnancy losses and depression.

Demographic profiles of women most susceptible to postnatal depression.

The impact of abuse on older women.

Depression among older women living in residential aged care facilities.

The final recommendation of this review takes account of the limitations inherent in a review of this type. The results and recommendations of the review are naturally limited by the scope of the investigation's aims and the criteria used to include some articles while omitting others. Similarly, research that is undertaken is limited by the research that precedes it and the ideas and theories of the researchers involved. However, it is highly likely that women who have experienced depression

have valuable information about their experiences of depression that could be used to inform further research in this area. **Therefore, it is recommended that an exploratory study be undertaken with women who have experienced or who are experiencing depression, in order to identify areas of future research.**

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This reference list includes all articles that were cited in the text of the report and may not include all papers that were included in tables.

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12. Appendices

12.1 Appendix I: Ovid Medline search history

#	Search History	Results
1	(depressi* or major depression or dysthym* or postnatal depression or postpartum depression or affective disorder* or mood disorder*).mp. [mp=title, original title, abstract, name of substance word, subject heading word, unique identifier]	249661
2	limit 1 to (english language and humans and yr="1999 - 2010")	84328
3	Australia*.mp.	84718
4	limit 3 to (english language and humans and yr="1999 - 2010")	34978
5	(prevalence or incidence or relat* or correlat* or associat* or risk factor* or comorbidit*).mp. [mp=title, original title, abstract, name of substance word, subject heading word, unique identifier]	5298642
6	limit 5 to (english language and humans and yr="1999 - 2010")	1830474
7	(adolescen* or aged or older or elder* or adult* or middle aged or age span*).mp. [mp=title, original title, abstract, name of substance word, subject heading word, unique identifier]	5268010
8	limit 7 to (english language and humans and yr="1999 - 2010")	1800328
9	(wom#n* or girl* or female*).mp. [mp=title, original title, abstract, name of substance word, subject heading word, unique identifier]	5353997
10	limit 10 to (english language and humans and yr="1999 - 2010")	1672901
11	7 and 9	3537807
12	limit 11 to (english language and humans and yr="1999 - 2010")	1330702
13	1 and 3	1869
14	limit 13 to (english language and humans and yr="1999 - 2010")	1346
15	11 and 13	1258
16	limit 15 to (english language and humans and yr="1999 - 2010")	971
17	15 and 5	1037
18	limit 17 to (english language and humans and yr="1999 - 2010")	827

19	(minority group* or ethnic group* or Indigenous or (Aboriginal and Torres Strait Islander*) or aborigin* or immigrant* or cross-cultural or non-english speaking or multicultural or migrant or (oceanic ancestry groups) or (culturally and linguistically diverse)).mp. [mp=title, original title, abstract, name of substance word, subject heading word, unique identifier]	98169
20	limit 19 to (english language and humans and yr="1999 - 2010")	43461
21	17 and 20	77
22	Limit 21 to (humans and English language and yr= "1995-2007")	56
24	(therap* or treatment or complementary or evidence or evidence based or self-help or st johns wort or antidepress* or psychotherap* or guideline* or recommendation* or (complementary or alternative medicine*)).mp. [mp=title, original title, abstract, name of substance word, subject heading word, unique identifier]	4169463
25	limit 24 to (english language and humans and yr="1999 - 2010")	1451565
26	17 and 24	460
27	limit 26 to (english language and humans and yr="1999 - 2010")	376
28	from 19 keep 1-827	827
29	from 27 keep 1-376	376
30	17 and 20 and 24	26
31	from 30 keep 26	26
32	from 22 keep 1-56	56

12.2 Appendix II: SCOPUS search history

#	Search History	Results
1	(Main) Depression AND wom*n* OR female* OR girl* AND Prevalence AND correlate* AND depress* AND Australia*	486
2	(ATSI) depression AND wom*n* OR female* OR girl* AND aborigin* OR Indigenous AND depression AND Australia*	26
3	(Multicultural) depression AND multicultural OR ethnic OR migrant* AND wom*n* OR female* OR girl* AND depression AND australia*	43
4	(Treatment) wom*n* OR female* OR girl* AND depression AND therap* OR diagnos* OR treatment* OR psychotherap* AND australia* AND prevalence AND correlat* AND depress*	49

12.3 Appendix III: Medline database results

Table 1 Medline Search Results

Medline Search	Search Results
*Search 1 Main	827
Search 2 Treatment	376
Search 3 CALD	56
Total	1259
With Duplicates removed	823
*Saved to combined Medline library	823

* Search termed 'main' combined depression key words, Australia, gender terms and age terms, with prevalence or correlates terms.

12.4 Appendix IV: PsychInfo database results

Table 2 PsychInfo Search Results

PsychInfo Search	Search Results
*Search 1 Main	111
Search 2 Treatment	33
Search 3 CALD	6
Total	150
With Duplicates removed	111
*Saved to combined Medline library	111

* Search termed 'main' combined depression key words, Australia, gender terms and age terms, with prevalence or correlates terms.

12.5 *Appendix V: SCOPUS database results*

Table 3 SCOPUS Search Results

SCOPUS Search	Search Results
*Search 1 Main	486
Search 2 Treatment	265
Search 3 CALD	65
Total	816
With Duplicates removed	529
*Saved to combined Medline library	529

* Search termed 'main' combined depression key words, Australia, gender terms and age terms, with prevalence or correlates terms.

12.6 Appendix VI: Informit database results

Table 4 Informit Search Results

Informit Search	Search Results
*Search 1 Main	149
Search 2 Treatment	156
Search 3 CALD	53
Total	358
With Duplicates removed	233
*Saved to combined Medline library	233

* Search termed 'main' combined depression key words, Australia, gender terms and age terms, with prevalence or correlates terms.

12.7 Appendix VII: Cinhal database results

Table 5 Cinhal Search Results

Cinhal Search	Search Results
*Search 1 Main	36
Search 2 Treatment	8
Search 3 CALD	13
Total	57
With Duplicates removed	43
*Saved to combined Medline library	233

* Search termed 'main' combined depression key words, Australia, gender terms and age terms, with prevalence or correlates terms.

12.8 Appendix VIII: Cochrane database results

Table 6 Cochrane Search Results

Cochrane Search	Search Results
*Search 1 Main	22
Search 2 Treatment	18
Search 3 CALD	8
Total	48
With Duplicates removed	29
*Saved to combined Medline library	29

* Search termed 'main' combined depression key words, Australia, gender terms and age terms, with prevalence or correlates terms.