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Depression and comorbid chronic physical health diseases in the Australian population: A scoping review

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Abstract

Objective: Chronic diseases are a major challenge in Australia, contributing to disability, premature mortality, and a significant healthcare burden. This burden is intensified when depression, a common mental health issue, co-occurs with chronic diseases. This scoping review aimed to investigate the relationship between depression and comorbid chronic diseases, namely cardiovascular disease (CVD), diabetes, asthma, and chronic obstructive pulmonary disease (COPD) in the Australian population.

Methods: Following Joanna Briggs Institute (JBI) methodology, this scoping review searched for English-language articles published between January 2013 and December 2023. The review targeted studies examining depression and selected comorbid chronic diseases within the Australian population. Two independent reviewers conducted data screening and extraction, with results synthesised into tables and summarised narratively.

Results: The search yielded 31 quantitative studies, highlighting a high prevalence of depression co-occurring with chronic diseases. Key findings included the worsening of chronic disease severity by depression, compounded by gender and age disparities, and the impact of socioeconomic factors impairing the quality of life. The review also identified significant challenges in the provision of care, particularly in rural areas, emphasising the need for integrated care models, and enhanced healthcare training.

Conclusion: This review revealed critical research gaps in understanding the relationship between depression and chronic diseases, particularly regarding underrepresented groups such as younger adults and rural populations. It highlights the need for improved diagnostic criteria, treatment approaches, and professional training, advocating for targeted research and policy interventions to improve outcomes and quality of life for individuals with depression and selected comorbid chronic diseases.

Keywords

Australia, chronic disease, comorbidity, depression

Introduction

Multi-morbidity is the presence of two or more disorders in an individual at a time, which can include both physical and mental health conditions. It presents numerous challenges such as increased disease burden, elevated management costs, and diminished quality of life (Harris et al., 2018; Valderas et al., 2009). The prevalence of multi-morbidity is escalating in the general Australian population, with higher rates observed among women, the elderly, and individuals from socioeconomically disadvantaged backgrounds (Australian Institute of Health and Welfare

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[AIHW], 2023b). According to the AIHW, 1 in 5 Australians had multi-morbid chronic conditions in 2017–2018 (AIHW, 2023b). A gender disparity was noticeable with females (22.8%) experiencing a higher prevalence than males (17.7%) (AIHW, 2023b). Multi-morbidity frequency also increases with age, rising to about 1 in 2 individuals aged 65 and above (AIHW, 2023b).

Chronic diseases, such as cardiovascular disease (CVD), chronic obstructive pulmonary disease (COPD), type 2 diabetes mellitus (T2DM), and asthma, have emerged as primary drivers of disability and premature mortality in Australia (Australian Health Ministers' Advisory Council, 2017; World Health Organization, 2022). The conditions not only have high prevalence but also pose serious risks of premature death and hospitalisations, making them a priority for prevention and management in primary care settings (Australian Commission on Safety and Quality in Health Care, 2021; AIHW, 2023a). Together with mental and behavioural conditions, these chronic diseases accounted for 89% of deaths and contributed to 66% of the total disease burden in 2021 (Australian Bureau of Statistics, 2023; AIHW, 2023b). Chronic disease rates in Australia's rural and remote areas compared to urban regions for CVD (6.6% vs 5.4%), diabetes (6.7% vs 5.8%), asthma (12.2% vs 11.2%), COPD (6.8% vs 3.9%), mental and behavioural conditions (32.6% vs 27.5%) are found to be disproportionately higher (AIHW, 2024).

Mental illnesses, particularly depressive disorders, often co-occur with chronic diseases. Depressive disorders, the sixth leading cause of disease burden in Australia in 2023, disproportionately affects females and individuals aged between 5 and 44 years (AIHW, 2023a). Approximately 2.4 million Australians live with both a mental health condition and a chronic disease, representing around 9.3% of the population (AIHW, 2023b; Harris et al., 2018). This comorbidity is common in individuals with multi-morbidity, further complicating disease management (Sharpe et al., 2017).

The interaction between depression and chronic diseases creates a vicious cycle, where each condition exacerbates the other, leading to worse health outcomes and greater strain on the healthcare system (Herrera et al., 2021). Primary healthcare providers, who are central to Australia's healthcare system, are crucial in managing these comorbidities (AIHW, 2018). However, rural populations face significant barriers to accessing appropriate healthcare, such as workforce shortages, limited infrastructure, geographical distances, and stigma surrounding mental health (AIHW, 2023c; AIHW, 2024; Queensland Mental Health Commission, 2018).

Effective management of co-occurring depression and chronic diseases requires a better understanding of the relationship between these conditions in the general Australian population. This scoping review was conducted to answer the research question: 'What does the current literature reveal about the relationship between depression and selected chronic physical health diseases in the general Australian population?'

Methodology

A scoping review was conducted to explore the relationships between depression and chronic physical health diseases within the broader Australian population, particularly focusing on CVD, diabetes, and chronic respiratory diseases, such as asthma and COPD. Although common or pertinent, other chronic physical health diseases like cancer, chronic kidney disease (CKD), and musculoskeletal diseases were not the focus of this review. While CKD and cancer contribute significantly to the health burden, they often require more specialised care beyond the scope of primary care. Although cancer remains a leading cause of disease burden, its rank has decreased over the past two decades (2003–2023) (AIHW, 2023a), reflecting improvements in early detection and treatment. This contrasts with the relatively stable or increasing burden associated with heart diseases, respiratory diseases, and diabetes, which continue to rank within 1 to 12 and are among the top causes of fatal burden (AIHW, 2023a). Musculoskeletal diseases, while highly prevalent, largely contribute to non-fatal outcomes focused more on quality of life than on mortality (Australian Institute of Health and Welfare, 2023a).

The scoping review adhered to the Joanna Briggs Institute (JBI) methodology (Peters et al., 2020) specifically designed for conducting scoping reviews and aimed at revealing current knowledge gaps and proposing potential areas for future research. A protocol for conducting a scoping review was developed following the guidelines set by JBI Evidence Synthesis (Peters et al., 2020). The scoping review protocol is provided in Supplementary Appendix III.

Search strategy

An initial search of the Cochrane Database of Systematic Reviews and JBI Evidence Synthesis yielded no evidence of ongoing or completed systematic or scoping reviews on the topic that specifically included only an Australian population sample. A systematic search strategy was subsequently implemented using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) for scoping review extension guidelines (PRISMA-ScR) (Page et al., 2021).

An initial search of Google Scholar and PubMed identified relevant articles to develop a comprehensive search strategy for multiple databases. The search included English-language studies published between January 2013 and December 2023. This time frame was opted as it reflects the most recent decade of research, ensuring that the review focuses on the latest developments in understanding the comorbidity of depression and chronic diseases.

Table 1. Eligibility criteria.

PCC	Inclusion criteria	Exclusion criteria
Population	Only Australian population	• Cohort from other countries • Cohort of two or more countries that include Australian population
Concept	Having depression and comorbid chronic physical health diseases (CVD or diabetes or chronic respiratory diseases – asthma or COPD)	• Having other diseases • Comorbidity of depression with other chronic physical health diseases • Comorbidity of specified chronic physical health diseases with other mental health illnesses
Context	Australia	Other countries
Participant age	Adults 18 years and over	Children 17 years and under
Timeframe	Published from January 2013 to December 2023	Published before 2013
Language	English	Languages other than English
Study design	Quantitative study design	Other study designs

COPD: chronic obstructive pulmonary disease; CVD: cardiovascular diseases; PCC: population concept context.

The key databases searched were PubMed, EMBASE, PsycINFO (EBSCO), and SCOPUS. The search strategy included studies focused only on the Australian Population. A full search strategy is provided in Supplementary Appendix I.

After the searches, citations were imported into EndNote 20 (Clarivate Analytics, PA, USA) (The EndNote Team, 2013), then screened using Covidence (2023), a web-based tool designed to streamline the systematic review process, facilitating the importation, screening, and data extraction of studies. Two independent reviewers, GS and BN, screened titles and abstracts against the inclusion criteria. The full texts were assessed for citations that met these criteria. Discrepancies were documented and resolved through discussion.

Eligibility criteria

The eligibility criteria for the review are outlined in Table 1.

Data extraction

A standardised data extraction template in Covidence (2023) was adapted to extract the relevant information from the selected studies. The extracted results are presented in tables and supplemented by a narrative summary organised according to the research question. This narrative elucidates the connections between the results and the review's objective, discussing implications for practice and policy, limitations, and future research directions, with a specific focus on rural populations in Australia.

Results

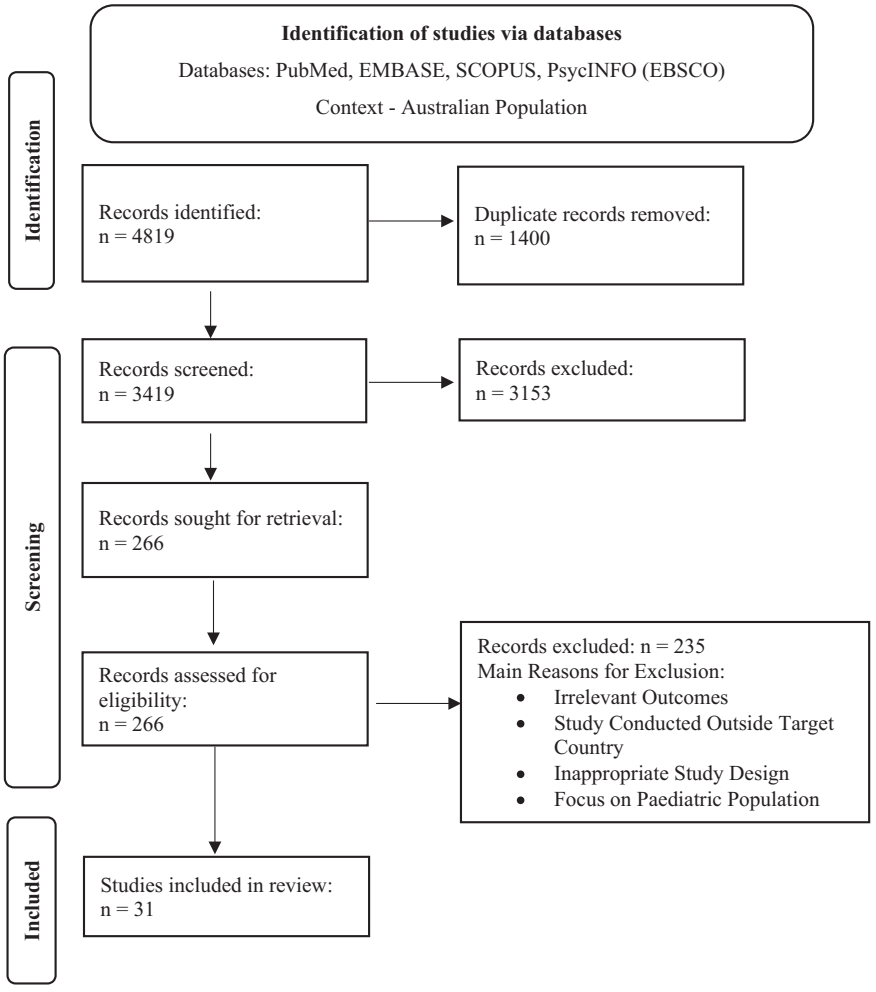
The screening process is detailed in the PRISMA flow diagram (Figure 1) (Page et al., 2021), and the PRISMA Extension for Scoping Reviews (PRISMA-ScR) Checklist (Tricco et al., 2018) is available in Supplementary Appendix II. Following the searches, 31 relevant articles were identified. These studies encompassed several chronic diseases, including CVD ($n=12$), diabetes (n=8), asthma and COPD (n=5), and multi-morbidity ($n=6$). An overview of the included studies, their characteristics, and main findings is presented in Table 2. A summarised description of study characteristics is provided in Table 3. While the majority of these studies focused on general Australian populations, six specifically examined the relationship between depression and selected chronic physical health diseases in rural settings (Srinivasan et al., 2024).

Study design, location, and population demographics

A significant portion of the studies utilised cross-sectional designs ($n=20$), with cohort studies accounting for eight articles. Studies were geographically diverse, with the majority conducted in general Australian settings. Only six studies focused explicitly on rural populations. Among the 31 studies reviewed, only two studies explicitly addressed Aboriginal and Torres Strait Islander populations, pointing to a significant underrepresentation of Indigenous groups in the literature (Schierhout et al., 2013; Taylor et al., 2017).

The majority of the studies included older adults, with 19 studies involving populations with a mean age of less

Figure 1. Preferred reporting items for systematic reviews and meta-analyses (PRISMA) flow chart.



than 65 years and 11 studies with a mean age of greater than 65 years (Table 3). In terms of specific diseases, the studies having participants over the mean age of 65 were found more only in CVD and COPD.

The gender distribution across the studies showed a higher representation of female participants in the majority of studies, with 16 studies including more females and 11 studies including more males (Table 3). CVD and T2DM had a higher number of studies with more male participants, while other diseases had more studies with a greater proportion of female participants.

Depression and selected chronic physical health disease comorbidity

Depression is a highly prevalent condition among patients with CVD, diabetes, COPD and severe asthma (Cannon et al., 2018; Cramer et al., 2020; Denton et al., 2019; Foley et al., 2018; Haregu et al., 2020; Hasan et al., 2014; Jahan et al., 2022; Maneze et al., 2016; Murphy et al., 2019; Murphy et al., 2014; Phan et al., 2019; Schierhout et al., 2013; Schofield et al., 2013; Sharpe et al., 2017; Sindone et al., 2021; Stanton et al., 2019; Tully et al., 2016; Tully et al., 2014). It is one of the most common comorbidities in people with more than one disease (multi-morbidity) (Sharpe et al., 2017). This indicates that depression should be considered as an integral part of managing chronic disease treatment. Clinicians should diagnose depression and consider its impact on the treatment of these diseases.

Research also indicates that a diagnosis of depression is a major predictor of chronic diseases, particularly diabetes, CVD, and dysfunctional breathing in severe asthma (Denton et al., 2019; Hasan et al., 2014; Stanton et al., 2019; Tully et al., 2016). Therefore, it is essential for GPs and mental health professionals who treat patients with depression to regularly monitor them for the development of chronic physical health diseases.

Table 2. Summary of studies.

Author (year)	Exposure	Study design	Location and year of participant recruitment	Recruitment	Total number (n), age and sex of participants	Results
Mnatzaganian et al. (2021)	CHD	Population-based cross-sectional and panel study	438 general practices in Australia. 2016 to 2018.	Patient data with ⩾ 3 recent encounters with their GPs, last encounter during 2016–2018, using the MedicineInsight database	*n* = 137,408 Mean age = 66.2 years Females = 46.6%	• Patients with depression had an adjusted incidence rate ratio (IRR) for being prescribed secondary prevention medications of 1.01 (95% CI: 1.01–1.02, $p < 0.001$). • Patients with depression had an adjusted IRR of 0.98 (95% CI: 0.97–0.98) for achieving treatment targets.
Cramer et al. (2020)	Hypertension or heart disease	Cross-sectional study	New South Wales, Australia Between September 2016 and December 2016	From a subset of 45 and Up Study participants via a self-administered questionnaire	*n* = 1,925 666 women with hypertension and 220 women with heart disease Mean age = 70.8 years Female Participants	• Prevalence of depression among women with hypertension: 34.5%. • Prevalence of depression among women with heart disease: 33.2%. • No significant association between depression and risky alcohol consumption/smoking in women with heart disease and depression; 65% less likely to be highly physically active (AOR: 0.35; 95% CI: 0.12–0.95). • Women with hypertension and heart disease and depression were 2.25 times more likely to be risky alcohol consumers and 53% less likely to be highly physically active.
Schofield et al. (2014)	Heart disease	Cross-sectional Study: Microsimulation model analysis.	Australia 2003 SDAC data aged to 2009 population	Data from the 2003 SDAC by the Australian Bureau of Statistics.	8,864 records representing 467,300 individuals in the population. Age = 45–64 years Male = 50% Female = 50%	• People with heart disease and depression were more than 20 times more likely to be out of the labour force than those with heart disease alone (OR 20.52, 95% CI: 3.56–118.40)
O'Neil, Stevenson and Williams, (2013)	MDD and CVD	Cross-sectional study	Australia, excluding very remote areas. Data from the 2007 Australian National Survey of Mental Health and Well-being.	Stratified multistage probability sample of persons aged between 16 and 85 living in private dwellings.	*n* = 8,841 Age = 16–85 years Both Sexes	• Individuals with comorbid CVD and depression report the greatest deficits in AQOL utility scores (Coef: –0.32, 95% CI: –0.40, –0.23). • Influence of MDD and CVD on HRQOL is additive, not synergistic. • Significant dose-response relationship between depression severity and HRQOL (Mild: Coef: –0.16, 95% CI: –0.20, –0.12; Moderate: Coef: –0.28, 95% CI: –0.32, –0.24; Severe: Coef: –0.47, 95% CI: –0.51, –0.43).
Allen et al. (2013)	Cardiovascular and affective conditions	Cross-sectional study	New South Wales, Australia HCS: 2004 to 2007; ARMHS: 2007 to 2009	Self-report postal survey data from two population-based cohort studies: HCS and ARMHS	*n* = 4,364 Age = 55 and over Mean Age = 66 years Females = approximately half	• Lifetime depression diagnosis significantly associated with physical and psychological impairment. • Remoteness associated with lower psychological impairment. • Impact of Cardiovascular and affective conditions on quality of life not affected by remoteness.

(Continued)

Table 2. (Continued)

Author (year)	Exposure	Study design	Location and year of participant recruitment	Recruitment	Total number (n), age and sex of participants	Results
Jahan et al. (2022)	CHD and Depression	Open cohort study	Australia 2011 to 2018	De-identified data from MedicineInsight database	*n* = 880,900 Age = 40 years and above Both sexes	• Prevalence of current depression: no CHD (9.6%; 95% CI 9.2–10.1), previous CHD (10.5%; 95% CI 10.0–11.1), new CHD (11.4%; 95% CI 10.3–12.6). • Nearly 60% of depressed patients are from major cities, less than 20% from outer regional/remote areas. • Age distribution: 60% of depressed patients without CHD are under 60 years; over 80% with past or new CHD are 60 or older. • Gender distribution: Equal ratio in new CHD, 56% men in previous CHD, 64% women in no CHD. • Antidepressant prescribing: New CHD (76.4%; 95% CI 72.1–80.6), previous CHD (71.6%; 95% CI 69.9–73.2), no CHD (69.5%; 95% CI 68.6–70.4). • Antidepressant prescriptions: higher in major cities for males and in inner regional areas for females with new CHD.
Sindone et al. (2021)	Heart Failure	Retrospective cohort study	Australia From 1st July 2013 to 30th June 2018	Anonymised patient data extracted from the clinical software of 43 participating GP clinics	*n* = 20,219 Mean age = 69.8 years Female = 50.6%	• Depression was among the most common chronic comorbidities in heart failure patients, being present in 18.4% of the entire sample.
Berecki-Gisolf et al. (2013)	Heart disease	Prospective cohort study	Australia 1996 to 2010	Australian Longitudinal Study on Women's Health	*n* = 11,828 Age = 45 - 50 years at recruitment in 1996 Female Participants	• Women with new heart disease more likely to have a history of depression and anxiety (OR = 1.78, 95% CI = 1.41–2.24). • Association between new heart disease and history of depression/anxiety in women remains after adjusting for various factors.
Almeida et al. (2013)	Depression and CVD	Longitudinal population-based cohort study	Perth, Western Australia 2001 to 2004 (HIMS wave 2) Follow up to 2007	HIMS	*n* = 431 Age = 69 to 86 years Male Participants	• Of 431 older men, 49.2% had a documented history of CVD. • Cox regression: no significant difference in hazard of subsequent depression in men with CVD (adjusted HR 0.78, 95% CI = 0.43–1.42). • Number of depression occurrences did not significantly differ between men with and without CVD. • Crude hazard ratio of death in depressed men with CVD vs. without CVD: 1.10 (95% CI = 0.78–1.56), no significant difference. • Logistic regression: odds of depression during follow-up not significantly different for participants with CVD (adjusted OR 0.98, 95% CI = 0.61–1.59).

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Table 2. (Continued)

Author (year)	Exposure	Study design	Location and year of participant recruitment	Recruitment	Total number (n), age and sex of participants	Results
Murphy et al., (2019)	Experienced an acute cardiac event – including AMI, ACS, UA, CABGS	Longitudinal Cohort Study	Melbourne and regional Victoria, Australia	Patients identified from hospital admission records and waiting lists, approached by researchers, completed self-report questionnaires at baseline (in-hospital), early convalescence (2-4 months post-event), and late convalescence (6-12 months post-event)	n = 911 Mean age = >55 years Male = 66.4% Female = 33.6%	• Depression prevalence: event (22.5%), early convalescence (17.2%), late convalescence (14.8%). • Similar predictors of depression in early and late convalescence. • Financial strain, poor self-rated health, and history of depression increase depression likelihood. • Financial strain: 4-5 times higher depression risk; poor self-rated health: 3-fold increased risk; history of depression: 2.5-3.4-fold increased risk. • Other risk factors: low SES, age under 55, smoking (each about 2-fold increased risk). • Unpartnered and living alone: higher risk of late depression, not early depression. • Obesity: higher early depression risk; diabetes: higher late depression risk (less significant effects). • Sex and event type are not predictive of depression.
Murphy et al. (2014)	Experienced an acute cardiac event – including AMI, ACS, PCI, CABGS	Longitudinal Study	Bendigo, Victoria	Patients consecutively admitted to two hospitals in Bendigo, Victoria. Interviews in hospital and follow-ups at 2- and 6 months post-discharge.	$n = 160$ Age = 40–96 years Mean age = 67.6 years Male = 68%	• Depression prevalence: in-hospital (50% above cardiac-specific cut-off for depression, HADS-D ≥ 4), 6 months (29% worsening depression, 17% resolving depression). • Significant predictors of depression trajectories: history of anxiety or depression, younger age, smoking, financial stress, poor self-rated health, lack of a close confidant. • Patients with worsening depression are more likely to take anxiety or depression medications at 2 months than those with resolving or no depression.
Tully et al. (2014)	Heart Failure	External Validity Study	Three hospitals in Adelaide, South Australia Between April 2011 and June 2012	Screening and referral were done based on specific criteria and questionnaires.	$n = 73$ Mean age = 60.6 years Female = 47.9%	• Major depression prevalence: 60.3%; dysthymia prevalence: 16.4%. • Patients with depression disorder are more likely to be excluded from RCTs due to exclusion criteria (60.4% vs. 29%, $p < .001$). • Exclusion criteria related to personality disorder and alcohol/substance abuse are more prevalent in patients with depression disorder ($p < .001$ and $p = .03$, respectively). • RCT-ineligible patients have higher antidepressant treatment rates, including amitriptyline use (58.8% vs. 23.1%, $p < .01$). • RCT-ineligible patients report greater severity of depression compared to RCT-eligible patients (PHQ $M = 16.66 \pm 5.0$ vs. 12.96 ± 7.2, $p = .02$).

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Table 2. (Continued)

Author (year)	Exposure	Study design	Location and year of participant recruitment	Recruitment	Total number (n), age and sex of participants	Results
Stubbs et al. (2022)	Severe asthma	Cross-sectional study	Newcastle, New South Wales Between July 2012 and October 2016	From respiratory ambulatory care clinics at John Hunter Hospital and clinical research databases of the Department of Respiratory and Sleep Medicine at the John Hunter Hospital	$n = 140$ Mean age ± SD = 59.3 years ± 14.7 years Female = 62%	• Severe asthma with depression linked to higher dyspnoea levels than severe asthma without anxiety or depression. • Dyspnoea associated with depression symptoms (OR = 1.90, 95% CI: 1.10, 3.25). • Higher Nijmegen scores (dysfunctional breathing) in severe asthma with depression. • Dysfunctional breathing linked to anxiety and depression symptoms (OR = 1.16, 95% CI: 1.04, 1.23). • Higher hsCRP levels in severe asthma with depression. • Severe asthma with depression had the highest exacerbations in the past year. • Impaired quality of life and asthma control in severe asthma with depression.
Denton et al. (2019)	Difficult to treat asthma	Cross-sectional study	Melbourne, Victoria, Australia Between 1st June 2014 and 31st December 2017.	From difficult asthma programme at The Alfred Hospital.	157 patients with difficult asthma, 73 (47%) had dysfunctional breathing. Mean age = 52 ± 14 years Female = 65%	• 29% of patients had depression; higher prevalence with positive Nijmegen scores (44% vs. 18%, $p = .001$). • Higher HADS D scores in dysfunctional breathers (7.6 vs. 3.6, $p < .001$). • Depression is an independent risk factor for dysfunctional breathing (OR, 2.8; 95% CI, 1.14–6.9; $p = .03$).
Lartey et al. (2023)	Poorly controlled asthma	Secondary Analysis of a Cluster Randomised Trial with a Longitudinal Follow-up	New South Wales, Tasmania, and Western Australia July 2018 to February 2020	Identified and recruited by pharmacy staff through community pharmacies.	$n = 341$ Mean Age = 56.6 years Females = approximately 71%	• Depression diagnosis associated with an adjusted mean monthly expenditure increase of $AU171 (95% CI: 36, 306). • Interaction between employment status and depression/anxiety shows unemployed individuals, with or without depression, have high incremental expenditures.
Phan et al. (2019)	COPD	Cross sectional study	Perth, Western Australia January 2013 to July 2013	Breathing New Life: Investigating Ways to Improve the Mental Health of People Living With chronic obstructive pulmonary disease research study	$n = 242$ in total, 199 with COPD For COPD participants, Age = 72.6 ± 8.6 years Male = 46.2% Female = 53.8%	• 33.5% of participants had depression symptoms, mean BDI-II score 24.1 (SD 8.3). • Concomitant anxiety and depression in 40.7% of COPD participants.
Cannon et al. (2018)	COPD	Cross-sectional study	South East Queensland, Australia September 2015 to November 2016	From COPD education days at Brisbane or Gold Coast Health Community Centres	$n = 159$ Age = 40 years and above Female = 51.3%	• 4.2% of COPD subjects had anxiety or depression. • Anxiety or depression confounds the relationship between resilience factors and HRQOL in breathlessness and cough domains. • High HRQOL in symptom domain linked to high self-efficacy and self-esteem without anxiety or depression. • Better HRQOL in cough domain for hospital-recruited subjects without anxiety or depression.

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Table 2. (Continued)

Author (year)	Exposure	Study design	Location and year of participant recruitment	Recruitment	Total number (n), age and sex of participants	Results
Taylor et al. (2017)	Diabetes	Cross-sectional study	Torres Strait Islands, Queensland, Australia 2012 to 2014	Participants were identified via local diabetes registers	*n* = 198 Mean age = 58.2 years Males = 38.8% Females = 61.2%	• Median PHQ–9 depression score: 5.5. • PHQ–9 scores: 42% (none-minimal depression), 46% (mild depression), 12% (moderate-severe depression). • Significant differences in mean age, diastolic blood pressure, and LDL cholesterol across depression levels. • Significant variation in moderate-to-vigorous exercise and nightly screen time across depression categories. • Less exercise and higher screen time in moderate-severe depression compared to none-minimal depression. • Higher prevalence of moderate-severe depression among unemployed, those without year 12 education, and obese individuals.
Poulsen et al. (2016)	Diabetes	Cross-sectional study	Brisbane, Australia	Approached during their routine clinic visit or contacted via mail	*n* = 81 Mean age = 56.54 years Male = 43.2% Female = 56.8%	• 57% of participants met clinical depression criteria (CES-D scores). • Depression significantly correlated with glycaemic control ($r = 0.32$, $p = 0.003$) and age ($r = -0.29$, $p = 0.003$), not with diabetes duration. • Each 1-point increase in CES-D score raises odds of depression detection by health professionals (OR = 1.12, 95% CI = 1.05 - 1.20, $p < .001$). • Glycaemic control, age, diabetes duration, and gender do not predict depression detection by health professionals.
Maneze et al. (2016)	Type 2 diabetes mellitus	Cross-sectional study	South Western Sydney, Australia Between May 2015 and December 2015	Convenience sampling was used from the outpatient diabetes clinics.	*n* = 224 Mean age = 60 years (range: 22–90) Male = 53%	• Depressed mood (PHQ–2 score ⩾ 2) in 50% of participants. • Depressed mood associated with longer diabetes duration (over 10 years) and more comorbidities (more than 2). • Lower confidence and fewer self-management behaviours in participants with depressed mood. • Depressed mood predicts low health literacy (AOR: 2.01, 95% CI: 1.12–3.59). • Depressed mood predicts low diabetes self-management (AOR: 2.30, 95% CI: 1.30–4.06).
Schierhout et al. (2013)	Type 2 diabetes mellitus	Cross-sectional analytic study	Aboriginal and Torres Strait Islander primary care health centres in Australia Between April 2009 and December 2009	Clinical audit data from Audit and Best-practice for Chronic Disease Extension project	*n* = 1,174 Median age = 51.5 years Male = 489 Female = 685	• Only 5% of clients at health centres were screened for depression. • Among those screened, 69% scored 11+ on K–5 distress tool, indicating high distress. • 6% had a documented depression diagnosis, 5% had another mental illness, 6% were on antidepressants. • 39% on antidepressants had no documented diagnosis of depression or other mental illness.

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Table 2. (Continued)

Author (year)	Exposure	Study design	Location and year of participant recruitment	Recruitment	Total number (n), age and sex of participants	Results
Donald et al. (2013)	Type 2 diabetes mellitus	Cross-sectional study	Queensland, Australia 2008	The Living with Diabetes Study National Diabetes Services Scheme	*n* = 3,609 Mean age = 62.2 years Female = 44%	• Significant association between mental health issues (including depression) and diabetes-specific quality of life. • History of mental health problems correlated with poorer diabetes-specific quality of life in partially adjusted analyses. • Final model showed lower diabetes-specific quality of life in patients with a history of mental health issues.
Foley et al. (2018)	People with psychosis diagnosed for diabetes	Cross-sectional study	Australia (5 Australian states) Interviewed between April and December 2010.	The Australian National Survey of Psychosis	*n* = 1155 Age = 18–64 years Male = 61.6% Female = 38.4%	• Depression significantly associated with diabetes (OR = 2.16, *p* = .048) and diabetes medication use (OR = 2.50, *p* = .050) in people with schizophrenia. • Higher depression prevalence in people with schizophrenia and diabetes or on diabetes medication. • Adjusting for confounders like premorbid IQ, cognitive processing speed, and housing reduces odds of depression in individuals with diabetes.
Tully et al. (2016)	Without diabetes at baseline	Prospective Cohort study	North and West Adelaide, South Australia 2002 and 2005 (baseline) Follow-up - 2007 to 2010 (5-year follow-up)	The Florey Adelaide Male Ageing Study.	*n* = 688 Age = 35 years and above Male Participants	• Persistent depressive symptoms associated with increased risk of incident diabetes (OR = 2.45, 95% CI = 1.16–5.20, *p* = 0.019).
Hasan et al. (2014)	The exposure was depression symptoms measured at 5 years and 14 years after delivery. Self-reported diabetes mellitus in the 21 years after the index pregnancy	Prospective cohort study	Brisbane, Australia 21 year follow-up starting from 1981	Part of the Mater-University of Queensland Study of Pregnancy	*n* = 3,663 Female	• Persistent depression symptoms associated with 2.23-fold increased diabetes risk (95% CI: 1.09–4.57) after adjusting for sociodemographic factors, psychotropic drug use, and BMI. • Positive change in depression symptoms linked to 1.97-fold increased diabetes risk (95% CI: 1.14–3.40).

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Table 2. (Continued)

Author (year)	Exposure	Study design	Location and year of participant recruitment	Recruitment	Total number (n), age and sex of participants	Results
Haregu et al. (2020)	Comorbid conditions of depression and obesity	Cross-sectional study	Australia October 2013 to July 2014	Data from the first wave (2013–2014) of the Australian Longitudinal Study on Male Health (Ten to Men study)	*n* = 13,763 Age = 18–55 years Male participants	• Strong positive association between comorbid depression, obesity, and risk of other non-communicable diseases like diabetes. • Men with comorbid depression and obesity had 7.6 times the risk of diabetes and 6.7 times the risk of hypertension compared to those without these conditions.
Gonzalez-Chica, Hoon and Stocks, (2020)	Mental health problems (anxiety, depression, another mental condition), and number of physical health conditions (none, 1–2, 3 + conditions)	Cross-sectional study	South Australia September to December 2017.	Representative sample of individuals aged 15 + years, interviewed face-to-face.	2977 interviewed; analyses restricted to 535 individuals self-reporting a current mental health problem. Mean age = 57.3 years Females = 51.9%	• Depression prevalence (11.7%) similar in urban and rural areas. • No significant urban-rural differences in GP visits for multiple physical health conditions.
Stanton et al. (2019)	Depression and/or anxiety	Cross-sectional population-based survey	Australia 2017	The telephone-based survey 2017 (National Social Survey)	*n* = 1,265 Mean age (without depression/anxiety) = 55.0 years (± 18.9 SD) Mean age (with depression/anxiety) = 53.3 years (± 17.0 SD). Females = 52.7%	• Individuals with depression/anxiety had more chronic diseases than those without. • 71.3% of participants with depression/anxiety reported at least one chronic condition, higher than those without (47.8%, $p < 0.001$). • Depression/anxiety diagnosis is the strongest predictor of chronic health conditions (OR = 3.38, 95% CI = 2.33–4.83, $p < 0.001$).
Sharpe et al. (2017)	Multi-morbidity, with chronic illnesses such as chronic pain, diabetes, respiratory illness, and neurological illness	Cross-sectional study	Australia Between 20th March 2013 and 6th May 2014	Consecutive attendees aged 65 + in GP waiting rooms, approached by administrative staff or researchers	*n* = 1,281 Mean age (SD) = 75 years (7.9) Female = 55%	• Positive correlation between number of illnesses and severity of depressive symptoms. • Depressive symptoms significantly vary with the number of medical illnesses. • 26% of those with multi-morbidity scored as likely depressed on the GDS, compared to 15% with one or no illness. • 34% with multi-morbidity and moderate to severe pain scored in the clinical range for depression. • Diabetes and respiratory disease linked to higher levels of depressive symptoms.

(Continued)

Table 2. (Continued)

Author (year)	Exposure	Study design	Location and year of participant recruitment	Recruitment	Total number (n), age and sex of participants	Results
Schofield et al. (2013)	Depression and comorbidities	Cross-sectional study	Australia Data based on 2003 SDAC, aged to reflect 2009 Australian population.	2003 SDAC	8,864 records representing 467,300 individuals in the population. Age = 45–64 years	• 4% of the 2003 SDAC sample reported depression as their main health condition. • Among those, 13% had only depression, 87% had at least one co-morbidity. • One-third of those with depression and co-morbidities were in the workforce. • Depression with one co-morbidity had 3.37 times the odds of being out of the labour force compared to depression only. • Depression with three or more co-morbidities had 4.31 times the odds of being out of the labour force. • Heart disease, circulatory system diseases, and diabetes associated with higher odds of being out of the labour force among those with depression. • Private income and tax paid per week declined with increasing co-morbidities in individuals with depression. • Transfer income increased with the number of co-morbidities in individuals with depression.
Almeida et al. (2014)	Severe mental disorders (alcohol-induced, mood and schizophrenia spectrum disorders)	Longitudinal cohort study	Perth, Western Australia April 1996–November 1998	HIMS	*n* = 37,892 Age = 65–85 years Male Participants	• Men with depression had excess mortality from cardiovascular events (HR = 2.3, 95% CI = 2.1–2.5), chronic respiratory diseases, and suicide.

ACS: acute coronary syndrome; AOR: adjusted odds ratio; AQOL: assessment of quality of life; AMI: acute myocardial infarction; ARMHS: Australian Rural Mental Health Study; BDI: beck depression inventory; BMI: body mass index; CABGS: coronary artery bypass graft surgery; CES-D: Centre for Epidemiological Studies-Depression Scale; CHD: coronary heart disease; CI: confidence interval; Coef: coefficients; COPD: chronic obstructive pulmonary disease; CVD: cardiovascular disease; GDS: Geriatric Depression Scale; GP: general practitioner; HADS: Hospital Anxiety and Depression Scale; HCS: hunter community study; HIMS: health in men study; HR: hazard ratio; HRQOL: health-related quality of life; hsCRP: high sensitivity C-reactive protein; IQ: intelligent quotient; IRR: incidence rate ratio; LDL: low-density lipoproteins; MDD: major depressive disorder; OR: odds ratio; PCI: percutaneous coronary intervention; PHQ: patient health questionnaire; RCT: randomised controlled trial; SD: standard deviation; SDAC: survey of disability, ageing and carers; SES: socioeconomic status; UA: unstable angina.

Table 3. Summarised study characteristics.

Characteristic	Number of articles	
Study design	Cross-sectional study: *n* = 20 Cohort study: *n* = 8 Longitudinal study: *n* = 1 External validity study: *n* = 1 Secondary analysis of a cluster randomised trial with a longitudinal follow-up: *n* = 1	
Location	Australia	General: *n* = 11 Rural: *n* = 2
	Victoria	General: *n* = 2 Rural: *n* = 1
	Queensland	General: *n* = 4 Rural: *n* = 1
	New South Wales	General: *n* = 3 Rural: *n* = 1
	South Australia	General: *n* = 2 Rural: *n* = 1
	Western Australia	General: *n* = 3
Exposure	CVD: *n* = 12	
	COPD and Asthma: *n* = 5	Asthma: *n* = 3 COPD: *n* = 2
	Diabetes: *n* = 8	Type 2 diabetes mellitus: *n* = 3 Diabetes – type not specified: *n* = 5
	Multi-morbid exposures: *n* = 6	
Age of the participants	Mean age	<65 years: *n* = 19 >65 years: *n* = 11
	Age range	40 and older: *n* = 1
Sex of the participants	Only female participants: *n* = 3 Only male participants: *n* = 2 >50% female participants: *n* = 13 >50% male participants: *n* = 9 Equal proportion of sexes: *n* = 1 Both sexes (ratio not specified): *n* = 3	

CVD: cardiovascular disease; COPD: chronic obstructive pulmonary disease.

Impact on health outcomes

Depression has a substantial impact on the health outcomes of individuals with chronic physical health diseases. Depression significantly affects health outcomes by exacerbating the severity of chronic physical health disease. Depression impairs health-related quality of life (HRQOL) among individuals with comorbid conditions such as CVD and severe asthma (Cannon et al., 2018; Maneze et al., 2016; O'Neil et al., 2013; Stubbs et al., 2022). Individuals with comorbid depression and heart diseases were more likely to be out of the labour force (Schofield et al., 2014). Depression not only worsens disease symptoms but also diminishes self-management capabilities and overall quality of life. These findings suggest that interventions targeting depression and chronic physical health diseases should be considered to improve overall health outcomes.

Socioeconomic and demographic factors

The evaluation of socioeconomic and demographic factors has revealed that financial strain, poor self-rated health, and social isolation markedly increase the risk of depression (Murphy et al., 2019). The prevalence and impact of depression is significantly influenced by factors such as age, sex, lifestyle, and socioeconomic status among individuals with chronic physical health diseases such as CVD, specifically coronary heart disease (CHD) and diabetes (Almeida et al., 2013; Berecki-Gisolf et al., 2013; Cramer et al., 2020; Jahan et al., 2022; Lartey et al., 2023; Murphy

et al., 2019; Poulsen et al., 2016; Schofield et al., 2013). Older adults and women, particularly those recently diagnosed with CHD, have a higher prevalence of depression, which is exacerbated by lifestyle factors such as reduced physical activity and alcohol consumption behaviours (Almeida et al., 2013; Berecki-Gisolf et al., 2013; Cramer et al., 2020; Jahan et al., 2022). Moreover, depression has a significant impact on socioeconomic outcomes, leading to increased healthcare expenditures and reduced workforce participation (Lartey et al., 2023; Schofield et al., 2013). This highlights the necessity for not only the clinical aspects of managing depression alongside chronic physical conditions, but also the socioeconomic dimensions to support improved health outcomes and quality of life.

Barriers to care and treatment gaps

The assessment of obstacles to care and treatment disparities discloses crucial shortcomings in managing depression, highlighting a limited patient comprehension of treatment adherence, substantial exclusion of individuals with depression from clinical trials, and low depression screening rates in healthcare settings (Poulsen et al., 2016; Schierhout et al., 2013; Tully et al., 2014). Tully and colleagues revealed that nearly half of patients with depression are excluded from research studies, often due to additional mental health issues or substance abuse, which skews research outcomes and potentially denies those most in need of new treatments (Tully et al., 2014). Furthermore, only a small proportion of patients are screened for depression in health centres, indicating a deficit in routine mental health assessments (Schierhout et al., 2013). This situation emphasises the need for patient education on comprehensive treatment strategies and greater inclusivity in clinical research to ensure findings are representative and applicable.

Rural and remote contexts

The findings related to urban–rural disparities in depression and selected comorbid chronic diseases reveal less about differences in prevalence and more about the quality of life and healthcare access challenges (Allen et al., 2013; Gonzalez-Chica et al., 2020; Jahan et al., 2022; Mnatzaganian et al., 2021; Murphy et al., 2014; Taylor et al., 2017).

Gonzalez-Chica et al. (2020) and Jahan et al. (2022) revealed that the prevalence of depression is surprisingly similar in urban and rural populations. This suggests that factors beyond mere access to healthcare and social services, such as urban living conditions, social isolation, and environmental stressors, may similarly influence the occurrence of depression in both urban and rural settings. However, these findings may not be generalizable at the population level.

Rural residents seem to experience lower levels of psychological impairment than their urban counterparts, which could suggest that individuals in rural areas possess a form of resilience or benefit from lifestyle factors unique to their environment, which might buffer against psychological distress (Allen et al., 2013). Individuals with depression and co-existing heart disease or diabetes in rural areas had a higher likelihood of being prescribed secondary prevention medications (Mnatzaganian et al., 2021). Moreover, lifestyle factors such as physical activity and screen time vary significantly with depression severity, indicating that the effects of depression extend into daily behaviours that can further influence physical health outcomes (Taylor et al., 2017). This aspect is particularly important in the context of chronic diseases, where self-management behaviours are crucial for disease control and quality of life.

Discussion

This scoping review was conducted to explore the relationship between depression and selected chronic physical health diseases in the Australian population. The review reveals that depression exacerbates the burden of chronic diseases such as CVD, diabetes, COPD, and asthma, impairing self-management and treatment outcomes. Depression complicates disease management, resulting in poorer health outcomes. Furthermore, this review highlights gaps in the literature that warrant further investigation.

A demographic trend identified in the literature is the higher number of female participants, particularly in studies focused on CVD, asthma, and diabetes. This is noteworthy as women are more likely to experience depression, especially in the context of chronic disease. However, the lower number of male participants highlights a significant gap in understanding of how depression affects men with chronic diseases. Future research should address this gender imbalance to provide more insights into sex-specific trends in depression and chronic disease management.

Age distribution is another important factor in the literature, with many studies focusing on older adults, particularly in CVD studies. However, there is a clear underrepresentation of younger adults (under 50). Only two studies (Schierhout et al., 2013; Taylor et al., 2017) specifically addressed the Aboriginal and Torres Strait Islander populations, despite well-documented health disparities. This underrepresentation of younger adults (aged under 50) and Indigenous Australians is a significant gap that future research must address to better understand the unique challenges faced by them in managing both depression and selected chronic diseases and to ensure that health interventions are inclusive and culturally appropriate.

Depression's negative impact on disease management is well-established in the literature, with studies demonstrating how it impairs self-management of chronic diseases

and diminishes the effectiveness of treatment strategies. However, current diagnostic tools for depression, particularly in chronic disease contexts, are insufficient (Coorey et al., 2023; Di Benedetto et al., 2014). Screening tools such as the PHQ-9 (Kroenke et al., 2001) could be integrated into chronic disease care settings to improve early detection of depression. Enhanced training for GPs and mental health professionals in recognising and treating this comorbidity is essential for providing timely, holistic care.

Considering the detrimental effect of depression on the management and outcomes of chronic diseases, integrated, and synergistic treatment approaches, such as holistic care models that address both mental and physical health, are essential for improving patient outcomes (Harrison et al., 2016). However, evidence from other countries shows that the success of these models depends on ensuring effective implementation (Baxter et al., 2018; Czypionka et al., 2020; Kumar and Cheng, 2023). The establishment of interdisciplinary teams and improved communication between healthcare providers are crucial for delivering holistic, patient-centred care that meets the complex needs of individuals with comorbidities.

By focusing on publications from 2013 onwards, this review ensures that only studies incorporating contemporary scientific analysis and methods are included. While restricting the search to the last decade may introduce some publication bias by excluding older studies, the inclusion of studies reporting on pre-2013 data mitigates this limitation to an extent. This focus on more recent publications also highlights current research trends, gaps, and emerging insights into the relationship between depression and selected chronic diseases in Australia.

The limitations of current research methodologies, including the reliance on cross-sectional study designs and self-reported questionnaires, are significant barriers to a deeper understanding of depression-chronic disease comorbidity. In the studies reviewed, 20 were cross-sectional in design, limiting their ability to establish causal relationships and temporal dynamics between depression and selected chronic diseases. In addition, many studies used self-reported measures of depression, which can introduce bias and reduce the accuracy of the findings. There are also concerns about the use of datasets collected for purposes other than depression-chronic disease research. This aligns with previous research that has identified similar limitations, including the overuse of cross-sectional designs, reliance on self-reported data, and underrepresentation of key demographic groups (Aw et al., 2020; Bagai et al., 2022; Coorey et al., 2023; Cordova-Rivera et al., 2019; Di Benedetto et al., 2014; Gavino et al., 2018; Handley et al., 2019; Leach et al., 2021).

A notable gap in the literature is the lack of research on the relationship between depression and selected chronic diseases in rural Australian settings. Geographic isolation, limited access to specialised care, and the unique challenges faced by rural healthcare providers may significantly influence disease management and outcomes in these populations. A few studies have reported that lifestyle, socioeconomic status, and rural healthcare delivery models have an effect on depression and selected chronic disease comorbidities. Previous studies have pointed to the lack of representation and tailored approaches for rural areas, which presents a significant gap in understanding how to support these populations (Leach et al., 2021; Mnatzaganian et al., 2021).

Given the gaps identified, there is a pressing need for research employing diverse methodologies, particularly in rural Australian contexts. Large-scale epidemiological comparisons of depression prevalence between urban and rural settings are lacking. Longitudinal and prospective study designs are essential to address gaps and to provide more evidence on the temporal progression of depression and chronic diseases.

Policies and interventions should be designed with a deeper understanding of disparities in healthcare access and socioeconomic status to ensure equitable health services across geographic locations, from rural to urban areas. Ensuring that future research and healthcare strategies are inclusive of underserved populations, including rural residents, Indigenous Australians, and younger adults, is essential for improving health outcomes and addressing the complex interplay between depression and selected chronic physical health diseases.

Conclusion

This scoping review highlights the complex relationship between depression and chronic physical health diseases, namely CVD, diabetes, asthma, and COPD, among the Australian population. Also, it identifies significant gaps in the current literature which include gender and age disparities in study populations, underrepresentation of younger adults and Indigenous Australians, and an overreliance on cross-sectional study designs. To bridge these gaps, there is a need for collaborative efforts to improve diagnostic criteria, treatment approaches, professional training, and interdisciplinary communication to achieve equitable physical and mental health outcomes. Furthermore, this review draws attention to the importance of targeted research and policy interventions that address the unique challenges faced by individuals with comorbidities, particularly in rural areas where access to healthcare is limited. Addressing these issues is essential for improving health outcomes and the quality of life of individuals across Australia, ensuring that future healthcare strategies are inclusive, culturally appropriate, easily adaptable, and responsive to the needs of all populations.

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Supplemental material

Supplemental material for this article is available online.

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