

DSM-IV and DSM-5 social anxiety disorder in the Australian community

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Abstract

Objective: Current and accurate estimates of prevalence, correlates, comorbid concerns and treatment-seeking behaviours associated with disorders are essential for informing policy, clinical practice and research. The most recent snapshot of social anxiety disorder in Australia was published more than a decade ago, with significant changes to the accessibility of mental health treatment services and diagnostic measures occurring during this period. This paper aims to (i) update the understanding of social anxiety disorder, its associations and patterns of treatment-seeking behaviours in the Australian population, and (ii) explore the impact of revised diagnostic criteria detailed in the Fifth Edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) on prevalence estimates.

Methods: The National Survey of Mental Health and Wellbeing (NSMHWB) was conducted by the Australian Bureau of Statistics in 2007, collecting information from a nationally representative random sample of 8841 Australians aged 16–85 years. The presence of social anxiety disorder diagnostic criteria and related disorders were assessed over 12 months and lifetime periods using the World Mental Health Composite International Diagnostic Interview.

Results: Profiles of social anxiety disorder were consistent with previous estimates, with higher prevalence in females and younger age groups. Of the 8.4% of Australians meeting criteria for social anxiety disorder at some point in their lifetime (12-month prevalence 4.2%), a majority also experienced comorbid mental health concerns (70%). The revised performance-only specifier included in the DSM-5 was applicable to only 0.3% of lifetime cases. Just over 20% of people reporting social anxiety disorder as their primary concern sought treatment, most commonly through general practitioners.

Conclusions: Social anxiety disorder continues to be prevalent in the Australian population and highly related to other disorders, yet few people experiencing social anxiety disorder seek treatment

Keywords

DSM-5, performance fears, prevalence, social anxiety disorder

Introduction

Social anxiety disorder (SAD), characterised by an excessive fear of negative evaluation or judgement (American Psychiatric Association (APA), 2003, 2013), is one of the most prevalent mental disorders (Stein and Stein, 2008). It is typically most common in western societies and females and younger cohorts, with the presence of SAD linked to significant distress and impairment in educational attainment, employment opportunities, financial independence and the development of professional, peer and intimate relationships (Stein and Stein, 2008). Moreover, an early onset and chronic course is suggested to create vulnerability for secondary disorders such as depression and substance use disorders (Ruscio et al., 2008). Whilst these relationships are observed consist-

ently across time and assessment measures, there has historically been large variation in the estimated prevalence of SAD, with changes in how social anxiety is defined, assessed and diagnosed (Bögels et al., 2010). Ensuring our

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understanding of SAD is up to date is essential for informing service planning, policy reform, clinical practice and foundational research (Andrews et al., 2004; Whiteford and Groves, 2009).

Whilst McEvoy et al. (2011) provided a brief overview of the prevalence of all anxiety disorders assessed in a recent national mental health survey, the most recent detailed exploration of the correlates and risk profiles of SAD in the Australian population was published more than a decade ago following the 1997 National Survey of Mental Health and Wellbeing (NSMHWB). This survey, conducted by the Australian Bureau of Statistics, aimed to estimate the prevalence, correlates and comorbidity of 15 common mental disorders (Andrews et al., 2001). Using this survey, Lampe and colleagues (2003) estimated the 12-month prevalence of *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV) SAD as 2.3%, with 1.4% of the population meeting diagnostic criteria in the month prior to the survey. Consistent with existing studies, they observed an early onset (median onset age 14.5 years) and a significantly lower rate of SAD in adults over 55 years old. There was also an increased likelihood of SAD diagnosis for females, as well as people out of the labour force, who had never married and had comorbid mental disorders. In fact, almost 80% of people with SAD also met criteria for another mental illness. However, since the publication of this study, there have been several developments potentially affecting the prevalence of SAD in Australia, including the introduction of DSM-5 (APA, 2013), modifications to the diagnostic interviews used to assess mental health in epidemiological surveys (Kessler and Ustun, 2004) and the introduction of government initiatives to increase the accessibility of mental health treatment in Australia (Burgess et al., 2009).

There have been several important changes between DSM-IV and DSM-5 aside from a shift from the term *social phobia* to *social anxiety disorder*. First, the duration criterion previously requiring symptom duration of over 6 months only in people aged under 18 years has now been extended to all age groups. Second, the emphasis on recognising whether the experience of anxiety is unreasonable or excessive, shifts from the individual in DSM-IV to the clinician in DSM-5 (Heimberg et al., 2014). The final significant diagnostic shift has been the removal of the 'generalised' specifier identifying people experiencing anxiety in numerous social situations as this appeared to be simply a marker of severity (Bögels et al., 2010). This has been replaced with a 'performance-only' specifier identifying significant social anxiety occurring only in public performance situations. There has also been a broadening of feared consequences from humiliation and embarrassment to now include fear of rejection or offending others (Heimberg et al., 2014).

There have also been significant developments in structured assessment measures and treatment access since the last estimate of SAD prevalence in Australia. The Composite International Diagnostic Interview (CIDI) was revised for the World Health Organization's World Mental Health (WMH) initiative (Kessler and Ustun, 2004) to create a measure assessing the prevalence, correlates of disorder, unmet need for treatment and burden of disorder. The WMH-CIDI also allows the estimation of lifetime prevalence (8.4% for SAD: McEvoy et al., 2011), impairment and distress. One of the aims of the second NSMHWB completed in 2007 was to assess changes in the prevalence and patterns of mental health treatment in Australia following the Better Outcomes in Mental Health Care program (2001) and Better Access to Psychiatrists, Psychologists and General Practitioners commencing in 2006 (Whiteford and Groves, 2009). It is conceivable that, with major changes in the funding of mental health services in Australia, there may be changes in the estimated prevalence of SAD. This paper aims to (i) update the understanding of social anxiety disorder, its associations and patterns of treatment-seeking behaviours in the Australian population, and (ii) explore the impact of revised diagnostic criteria detailed in DSM-5.

Methods

Sample and procedures

Participants. The NSMHWB was conducted by the Australian Bureau of Statistics in 2007. Participants aged 16–85 were selected using a stratified multistage random sample of households. Participation in the survey was voluntary and participants were not remunerated. Out of 17,352 selected households, 8841 participants responded to the survey (response rate of 60%). A follow-up survey of non-responders highlighted potential bias, especially in males, young people, and people from Perth. Overall demographics of the sample and further details about the survey are outlined by Slade and colleagues (2009).

Survey instrument. The survey was administered by trained interviewers using Computer-Assisted Personal Interview (CAPI), based on the World Mental Health Composite International Diagnostic Interview (WMH-CIDI 3.0: Kessler and Ustun, 2004). The WMH-CIDI assesses both DSM-IV and *International Classification of Diseases*, 10th Revision (ICD-10) criteria for lifetime experience of an affective disorder (depression, dysthymia, bipolar affective disorder), anxiety disorder (social anxiety disorder/social phobia, agoraphobia, panic disorder, generalised anxiety disorder, obsessive-compulsive disorder, post-traumatic stress disorder) or substance use disorder (abuse/harmful use and dependence). The survey also assesses whether symptoms were present in the past 12 months or 30 days. In

addition to mental disorders, the WMH-CIDI also assesses the severity of disorder, disability, psychological distress, quality of life and social support. The NSMHWB survey also included a tailored section assessing use of mental health care services over the past 12 months. Further information regarding survey design and instruments can be found in articles by Slade and colleagues (2009).

Statistical analyses

Assessment of prevalence and correlates. Weighted frequencies and prevalence rates were used to estimate the prevalence and correlates of SAD as well as associated service use and comorbid disorders. Owing to anticipated high comorbidity, rates of service use were estimated only in those people reporting social anxiety as their primary problem. Adjusted logistic regression analyses were conducted to assess, separately, the association between SAD and demographic information and comorbid disorders. Survival methods were implemented to assess the median age of onset of SAD. These methods incorporate censored data; that is, they accommodate individuals who have not yet developed the disorder (Langenbucher and Chung, 1995). This is most appropriate for epidemiological data sets such as the NSMHWB 2007, which contain a wide range of ages and symptomatology, as other commonly used methods such as the calculation of an average age of onset only take into account information from individuals who have lived through the risk period. Survival models using Kaplan-Meier (Williams, 1995) estimates were implemented using SUDAAN (SUDAAN Statistical Software Centre, 2008). All other analyses were conducted using SAS 9.2 (SAS Institute, 2008). To roughly determine whether 12-month SAD prevalence estimates from the 1997 and 2007 NSMHWB could be reliably compared, an anchor scale administered within each survey, the Kessler Psychological Distress Scale (K10; Kessler et al., 2002) was used to link the diagnoses generated from different survey administrations. This was achieved by running a regression analysis of psychological distress levels (K10 scores) with a specific interaction term between SAD diagnosis and survey year. A non-significant interaction term would confirm that psychological distress associated with a SAD diagnosis (in comparison to no diagnosis) did not significantly differ across each survey administration. This would provide preliminary support that any observable differences in SAD prevalence were not associated with arbitrary changes to survey instrumentation. For all analyses, the sample was weighted with replicate weights to account for the multistage sampling process utilised in the survey and match responses to the age and sex distribution of the Australian population.

Calculating the impact of revised criteria and specifiers in DSM-5 SAD. Diagnostic criteria from both DSM-IV and DSM-V were matched for theoretical similarities, as displayed in

Table 1. There are several changes in diagnostic criteria between the two DSM editions (duration, judgement of reasonableness, and the performance-only specifier). The impact of shifting the judgement of how reasonable the fears were from the individual to the clinician could not be assessed in the current self-report format. To model the potential impact of extending the duration criteria, existing WMH-CIDI algorithms for this criterion in people aged 16–18 years were extended to all survey participants. The specifier ‘performance-only’ was calculated based on endorsement of (i) fear only of public performances such as public speaking and (ii) all the DSM-IV SAD diagnostic criteria.

Results

Prevalence of social anxiety disorder (DSM-IV)

As highlighted in Table 2 and reported by McEvoy and colleagues (2011), 8.4% (95% CI: 7.8–8.6%) of Australians met criteria for DSM-IV SAD at some point in their lifetime, with half (4.2%; 95% CI: 3.9–4.5%) of these people experiencing SAD symptoms in the past 12 months. This equates to approximately 1,345,260 Australians experiencing SAD in their lifetime: 672,630 in any one year based on an estimated population count of 16,015,000 (Slade et al., 2009). Females and people between the ages of 25 and 64 years are significantly more likely to have met diagnostic criteria for SAD, both over their lifetime and within the previous 12 months. In contrast, people aged 65 and over reported significantly lower levels of social anxiety both throughout their lifetime and in the past 12 months. Both lifetime and 12-month SAD did not appear to be associated with differences in educational attainment or country of birth. Regression analysis indicated that the interaction term comparing mean levels of psychological distress (K10 scores) associated with 12-month SAD in the 1997 survey ($M=23.1$, $SE=0.60$) and the 2007 survey ($M=22.7$, $SE=0.60$) was not significantly different ($F=0.44$, $p=0.51$).

Effects of changes to specifiers and criteria included in DSM-5

A duration of 6 months or more was based on WMH-CIDI algorithms estimating differences between time points such as reported onset, time last experienced symptoms and/or age of treatment seeking. Using this definition, all people meeting lifetime and 12-month criteria of DSM-IV SAD also met the revised duration criterion. Therefore, changes to this criterion had no impact on SAD prevalence rates. The ‘performance-only’ subgroup was very rare in this sample, with 0.3% of people meeting criteria for lifetime SAD also reporting a singular fear of public performance. Therefore, overall, there was little impact of revisions to the diagnosis of SAD on the prevalence when applied to DSM-IV criteria.

Table 1. Conceptual comparison of diagnostic criteria for social anxiety disorder in the Fourth and Fifth Editions of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV and DSM-5).

DSM-5	DSM-IV
A	A
Marked fear of one or more situations where the individual is exposed to scrutiny by others. May include interaction, observation or performance situations.	A marked and persistent fear of one or more social situations where exposed to unfamiliar people or to possible scrutiny by others (or show anxiety symptoms) that will be humiliating or embarrassing.
B	
Individual fears will act in a way or show anxiety that will lead to being negatively evaluated.	
C	B
The social situations almost always provoke anxiety.	Feared situations almost invariably provoke anxiety, which may take the form of a panic attack.
D	D
The social situations are avoided or endured with intense fear or anxiety.	The feared social situation is avoided or endured with intense anxiety/distress.
E ^a	C
The fear/anxiety is out of proportion to actual threat.	The person recognises that the fear is excessive or unreasonable.
F ^a	F
The fear/anxiety/avoidance has lasted 6 months.	Duration over 6 months in individuals under 18 years.
G	E
The fear/anxiety/avoidance leads to significant distress or functional impairment.	Avoidance, anxious anticipation or distress interferes significantly with functioning or marked distress about having a phobia.
H	G
The fear/anxiety/avoidance is not due to a medical condition/drug.	Fear/avoidance not due to a drug, medical condition or another disorder.
I	
The fear/anxiety/avoidance is not due to another mental disorder.	
J	H
The fear/anxiety/avoidance is either unrelated to, or excessive considering existing medical conditions.	Fear/avoidance is primarily due to an existing medical condition or mental disorder.
<i>Specifier: Performance only: fear restricted to speaking or performing in public.</i>	<i>Specifier: Generalised: fears include most social situations.</i>

^aItems with significant conceptual differences between DSM-IV and DSM-5 definitions of social anxiety disorder.

Comorbidity

Almost 70% of people meeting criteria for social anxiety disorder in the past 12 months also experienced another mental disorder in their lifetime (Table 3). A majority of this comorbidity was associated with internalising disorders including major depressive disorder, generalised anxiety disorder and post-traumatic stress disorder. Whilst these patterns are comparable to outcomes from the NSMHWB 1997, new relationships emerged in this study; especially significant was the comorbidity between SAD and alcohol abuse, but not panic disorder. Interestingly, the likelihood of comorbid agoraphobia increased from an odds ratio of 7.8 in the NSMHWB 1997 survey to over 35 in the current sample.

Treatment seeking in people with social anxiety disorder as their primary concern

Of the people who reported experiencing SAD in the past 12 months, approximately 30% ($n=102$) indicated that

social phobia was their primary concern. Just over 20% of people reporting SAD as their primary concern had sought treatment in the previous year (Table 4). A majority of people with SAD had sought treatment through general practitioners or mental health workers other than psychologists or psychiatrists. Interestingly, chi-squared comparison tests indicated that whilst females were more likely to be diagnosed with SAD, they were no more likely than males to seek treatment.

Discussion

As previously reported, 8.4% of Australians met criteria for SAD in their lifetime, with half of these people symptomatic in the past year (McEvoy et al., 2011). The extension of the duration criterion or inclusion of a performance-only specifier in DSM-5 does not appear to affect this prevalence estimate. The prevalence of SAD in Australia is also comparable to SAD estimates using the WMH-CIDI in other westernised countries such as New Zealand (9.4%:

Table 2. Social anxiety disorder prevalence and odds ratios reflecting the relative risk for social anxiety disorder by demographic characteristics in the National Survey of Mental Health and Wellbeing 2007 (n=8841).

	12-month prevalence (n=396)				Lifetime prevalence (n=767)			
	4.2% (0.3 SE)				8.4% (0.4 SE)			
	%	SE	Odds ratio	95% CI	%	SE	Odds ratio	95% CI
Sex								
Male ^a	3.3	0.4	1.0	–	6.9	0.5	1	–
Female	5.1	0.4	1.5	1.1–2.1	9.8	0.7	1.5	1.2–1.9
Age								
16–24 ^a	4.3	0.5	1.0	–	6.4	0.6	1.0	–
25–44	4.9	0.4	1.8	1.2–2.5	10.1	0.6	2.2	1.6–2.9
45–64	4.8	0.6	1.9	1.3–3.0	9.8	0.9	2.3	1.7–3.1
65–85	1.2	0.3	0.3	0.2–0.6	3.2	0.5	0.6	0.4–0.9
Marital status								
Married / de facto ^a	3.3	0.4	1.0	–	7.4	0.7	1.0	–
Widowed / separated / divorced	4.5	0.5	1.5	1.0–2.3	8.9	0.8	1.3	0.9–1.7
Never married	5.6	0.5	2.0	1.4–2.7	9.8	0.6	1.7	1.3–2.1
Labour force status								
Employed ^a	4.0	0.4	1.0	–	8.4	0.6	1.0	–
Unemployed	7.0	1.9	1.5	0.8–2.9	12.2	3.5	1.5	0.7–3.0
Not in the labour force	4.4	0.5	1.5	1.1–2.2	8.0	0.6	1.3	1.0–1.8
Education								
School qualification only	4.8	0.5	1.3	1.0–1.8	8.2	0.6	1.0	0.8–1.3
Post-school qualification ^a	3.7	0.3	1.0	–	8.5	0.5	1.0	–
Country of birth								
Australia	4.4	0.3	1.3	0.8–2.1	8.7	0.4	1.5	1.1–2.2
Other English speaking country	4.1	0.7	1.4	0.8–2.4	9.8	1.5	1.9	1.1–3.0
Other non-English speaking country ^a	3.3	0.8	1.0	–	6.0	1.0	1.0	–

Note: These prevalence estimates are consistent with prevalence estimates by McEvoy et al. (2011).

Odds ratios significant at $p < 0.05$ are highlighted in bold.

^aReference category.

Oakley Browne et al., 2007) and the United States (12.1%: Ruscio et al., 2008); and significantly higher than countries such as China (0.5%: Lee et al., 2006), Korea (0.2%: Cho et al., 2007), Mexico (2.9%: Medina-Mora et al., 2007) and the Ukraine (2.6%: Bromet et al., 2005). In the current study, country of birth did not significantly affect the prevalence of SAD, and this may be due to factors such as acculturation or complex relationships not captured using data reduced into discrete categories (Schreier et al., 2010). Importantly, only 12-month SAD was related to relationship and employment status, suggesting that impairments in developing intimate relationships or gaining employment associated with social anxiety may change over time. Alternatively, this relationship may simply reflect greater chronicity and severity in the more recent cases, with this increased severity being more likely to influence relationships and employment.

On a descriptive level, the current results indicate an almost twofold increase from 2.3% to 4.2% in the prevalence of 12-month SAD between 1997 and 2007. However, given the differences in assessment instruments between the two surveys, it is difficult to make direct prevalence comparisons between the 1997 and 2007 surveys. Importantly, the WMH-CIDI administered in the 2007 survey provides more prompts for social situations, potentially eliciting anxiety in comparison to the 1997 survey, thus increasing opportunities to screen into the SAD diagnostic section. Estimates of 12-month disorder in the WMH-CIDI also only require lifetime diagnosis, as well as *some* symptoms in the previous 12 months (Slade et al., 2009). As discussed below, this assumption that the presence of some symptoms within the previous year is conceptually equivalent to the level of disorder reflected by clinical diagnosis raises some important theoretical and measurement questions. That being said,

Table 3. Adjusted odds ratios of 12-month DSM-IV-TR social phobia ($n=396$) by comorbidity.

	%	SE	Adjusted odds ratio	(95% CI)
<i>Model 1: Individual disorders</i>				
Major depressive disorder	36.5	3.4	4.7	3.2–6.9
Dysthymia	16.8	2.4	1.4	0.6–3.0
Bipolar mood disorder	6.8	1.3	1.5	0.6–3.7
Panic disorder	12.2	2.1	1.4	0.5–4.2
Agoraphobia	20.2	3.4	35.7	11.7–109.1
Generalised anxiety disorder	25.1	3.1	2.7	1.4–5.2
Post-traumatic stress disorder	22.4	2.7	2.7	1.6–4.7
Obsessive-compulsive disorder	12.9	2.1	1.9	0.8–4.2
Alcohol abuse	9.9	1.9	2.5	1.2–5.3
Alcohol dependence	4.6	1.0	0.5	0.1–2.2
Any cannabis use disorder	3.2	0.9	0.8	0.2–3.0
Any other drug use disorder	2.0	0.7	1.3	0.3–4.9
<i>Model 2: Disorder group</i>				
Any affective disorder	39.3	3.5	11.9	8.6–16.6
Any alcohol use disorder	11.5	2.0	1.9	1.1–3.4
Any drug use disorder	5.2	1.1	1.2	0.6–2.6
<i>Model 3: Number of disorders</i>				
No other disorders	31.4	3.6	1.0	1.0–1.0
One other disorder	25.4	3.9	7.8	4.8–12.6
Two or more other disorders	43.2	3.7	22.6	15.9–32.3
<i>Model 4: Any other disorder</i>				
Any mental disorder vs no mental disorder	68.6	3.6	13.3	9.5–18.6

Odds ratios significant at $p < 0.05$ are highlighted in bold.

regression analysis indicates that psychological distress scores associated with the 12-month SAD diagnosis across both surveys were not significantly different. This implies that SAD diagnostic criteria and associated clinical thresholds are identifying respondents with similar levels of psychological distress between the two survey measures. Whilst comparisons indicate that the prevalence of SAD has increased twofold in the 10 years between 1997 and 2007, this does not necessarily suggest a growth of SAD cases over time in Australia. Indeed, it is also feasible to conclude that the 1997 survey may have been too restrictive and failed to include additional cases of sub-threshold or just-threshold SAD that demonstrated equivalent psychological distress levels as threshold cases.

The almost universal finding of higher SAD prevalence for females in community samples was replicated in this study of SAD in Australians. There is also strong evidence this is not due to measurement bias (e.g. females being more likely to self-report at comparable levels of social anxiety; see Crome et al., 2012). Other relationships observed with SAD, such as decreased prevalence in older adults, people in stable married or de-facto relationships or full-time employment, were also consistent with a majority of the SAD literature (Stein and Stein, 2008). In contrast to

literature regarding the cumulative impairment associated with an early experience of social anxiety reviewed by Stein and Stein (2008), social anxiety only appeared to be related to negative relationship and employment outcomes if experienced in the past year. As discussed above, this may suggest that once social anxiety is resolved, associated impairments may also resolve. The high level of comorbidity found in this study is also consistent with estimates from the NSMHWB 1997. This is concerning given that comorbidity typically signifies higher levels of distress and poorer outcomes in treatment (Teesson et al., 2009). The cause of comorbidity largely guides how it should be managed, and, in fact, comorbidity can be due to many factors including overlapping definitions, chance occurrence, shared underlying pathogenesis, temporal progression or pseudo-comorbidity created by assessing discrete disorders occurring at different times in a single retrospective study (Klein and Riso, 1994). Agoraphobia and SAD were more highly comorbid (OR 35.7; 95% CI: 11.7–109.1) than previously reported but the large confidence interval associated with this result suggests this result is unstable and may be more likely to be due to incomplete theoretical separation of agoraphobia without panic disorder and social anxiety disorder or low prevalence of agoraphobia distinct from

Table 4. Prevalence of service use amongst those with 12-month DSM-IV social phobia (main problem) in the 2007 National Survey of Mental Health and Wellbeing.

Service use	12-month social phobia (main problem)								
	Males (n=41)			Females (n=61)			Total (n=102)		
	Weighted %	SE	Population count	Weighted %	SE	Population count	Weighted %	SE	Population count
Overall prevalence	1.4% (0.3)			1.2% (0.2)			1.3% (0.2)		
General practitioner	9.4	4.7	10,102	19.0	6.8	18,452	14.0	4.5	28,553
Psychiatrist	1.6	1.3	1,728	2.3	1.7	2,281	2.0	1.1	4,009
Psychologist	8.2	6.4	8,807	10.4	4.3	10,088	9.2	3.7	18,896
Mental health professional ^a	10.8	6.9	11,638	13.7	4.6	13,358	12.2	3.9	24,996
Other health professional ^b	0.0	0.0	0	1.2	1.3	1,185	0.6	0.6	1,185
Mental health hospitalisation	0.8	0.9	888	0.0	0.0	0	0.4	0.5	888
Any service use	15.7	7.8	16,989	27.4	7.2	26,667	21.3	5.7	43,656

^aIncludes mental health nurse and other professional providing mental health services.

^bIncludes specialist doctor or surgeon, other professional providing general services and complimentary or alternative therapist.

panic disorder. Social anxiety typically precedes comorbid disorders so it is possible early intervention would not only prevent the distress and impairment associated with SAD, but prevent the development of comorbid disorders.

Roughly 20% of people with 12-month SAD as their primary concern sought some form of treatment, which is lower than average treatment seeking for other mental disorders in the NSMHWB 2007 (Burgess et al., 2009). The highest proportion of service provision was by general practitioners. As there is no temporal or comparison data regarding treatment seeking, it is unclear whether this high proportion of attendance at general practice reflects general practitioners being the gatekeepers to subsidised mental health services or other factors such as an established relationship, making it easier to identify or discuss social fears. As previous research questions the ability of general practitioners to identify and appropriately manage SAD (Hidalgo et al., 2001), the adequacy of treatment received by people seeking treatment for social anxiety is unclear. As females are more likely to meet diagnostic criteria for SAD, yet are not significantly more likely to also seek treatment from any services than males, highlights the need to direct resources towards engaging more women in social anxiety interventions. There are many potential reasons why people with SAD in particular do not seek treatment, including shame and fear of humiliation about discussing perceived flaws,

uncertainty about where to seek treatment, beliefs that fears are an untreatable personality characteristic or that anxiety will resolve by itself (Olfson et al., 2000). As these analyses focused only on the proportion of people reporting SAD as their primary concern, it is unclear whether people experiencing SAD as a secondary concern received any treatment specifically for social anxiety. However, the low proportion of people seeking treatment for SAD as a primary concern highlights that clinicians may increase SAD treatment rates by explicitly screening for social anxiety as routine practice when people present with other mental disorders (Stein and Stein, 2008). Engaging people with SAD as early as possible may prevent the personal suffering and lost opportunity associated with this chronic mental disorder and associated secondary disorders (Whiteford and Groves, 2009).

Whilst fully structured diagnostic interviews assessing DSM-5 diagnostic criteria in epidemiological surveys are yet to be developed and validated, it appears some changes introduced in DSM-5 are unlikely to affect the conceptions or prevalence of SAD in any meaningful way. For example, extending the duration criterion by 6 months aimed to exclude transient anxiety such as that experienced during significant role transitions (e.g. starting school, getting married, having children; Bögels et al., 2010). However, these results suggest it is unlikely that many people experience clinical levels of social anxiety only during discrete periods

such as these transitions. The very low prevalence of a performance-only subgroup, discussed further below, also raises important questions about the utility of this specifier. Whilst several other changes to diagnostic criteria between DSM-IV and DSM-5 could not be precisely projected in this study; there are also important theoretical questions about how they may affect prevalence. The first of these is how the reliance on clinician judgement of 'excessiveness' or whether fears are reasonable will be translated into the self-report assessment measures administered by lay interviewers currently used to estimate prevalence on a population level. There are also questions about how the semantic changes to criteria defining core fears of social anxiety will impact the prevalence of SAD. Heimberg and colleagues (2014) emphasise that in addition to the fear of negative evaluation, humiliation and embarrassment of self or others, DSM-5 also aims to incorporate fears of rejection or offending others. However, they also acknowledge it is unclear whether these items alone would identify any additional cases of social anxiety. They argue, instead, these changes primarily improve consistency between diagnostic criteria and common theoretical and clinical models of SAD.

The extremely low prevalence of a 'performance-only' SAD subgroup using DSM-IV criteria has also been observed in comparable projections of the impact of DSM-5 SAD criteria in adolescent samples (Burstein et al., 2011; Kerns et al., 2013). This questions the usefulness of this specification for either research or clinical practice. It is interesting to revisit why this specifier was included, with Bögels and colleagues' (2010) review highlighting potential differences in genetic heritability, physiological responses, age of onset and response to treatment in performance and other types of social anxiety. However, they also concede this research may be confounded by numerous definitions of 'performance' fears and characteristics of other individuals who were included in comparison groups. Growing evidence suggests SAD simply reflects the most severe end of a spectrum of social anxiety severity (Crome et al., 2010; Stein and Stein, 2008), and it is possible people experiencing anxiety only in public performance situations experience sub-threshold social anxiety not severe enough to meet diagnostic criteria. This is supported by Crome and Baillie's (2014) ranking of different types of social fears using item response theory techniques in four population surveys. These results highlight that, across samples and measures, public speaking and public performance fears often require the lowest levels of social anxiety to be endorsed (even though the anxiety experienced in these situations is often quite severe). This finding is interesting considering that the generalised specifier was discarded in DSM-5 as it did not appear to provide much additional information aside from an indication of greater severity (Bögels et al., 2010). Perhaps the performance-only specifier merely reflects the inverse; and may instead be an indicator of severity, often in sub-threshold levels.

Whilst considering these concerns, it is also important to highlight that as structured interviews are designed to be interpreted by lay people and balance the need to collect information whilst minimising respondent fatigue, they often do not directly correspond to diagnostic criteria. Examples of this include no verification that all symptoms were present at the same time in WMH-CIDI algorithms (Slade et al., 2009). Key clinical terms such as 'significant' and 'marked' in reference to distress or impairment are also defined in the WMH-CIDI with language such as *ever* having felt very upset or nervous in a social situation, or *ever* having felt disappointed for experiencing social anxiety. There is some evidence that increasing the criteria for distress and impairment to at least one or more full days of disability due to social anxiety would improve the concordance of WMH-CIDI SAD with diagnoses derived from other gold-standard clinical interviews (Alegria et al., 2009; Haro et al., 2006). However, these limitations are common to the many surveys using the WMH-CIDI and there has been extensive development work to ensure the WMH-CIDI information and comprehension are maximised whilst respondent fatigue is minimised (Kessler and Ustun, 2004). Overall, these concerns may be considered minor given the benefit of the information about disorder and treatment seeking provided by the WMH-CIDI. Similarly, whilst limitations to the NSMHWB 2007 outlined by Slade and colleagues (2009) (e.g. exclusion of homeless or institutionalised populations) are important to consider, they are typical of epidemiological studies of mental health.

In conclusion, SAD continues to be a prevalent mental disorder in the Australian population and be highly related to other affective and anxiety disorders. As this study was restricted to people meeting the clinical diagnosis of SAD, there is likely to be an even higher number of Australians experiencing significant distress and impairment associated with sub-threshold levels of social anxiety. Findings of significant relationships with poorer relationship and employment outcomes were observed in people with recent SAD symptomatology and suggest the effects of SAD resolve once symptoms resolve. When compared to the alternative trajectory of ongoing impairment and potential for the development of secondary disorders such as depression and substance use, there is a strong case for the early intervention and treatment of SAD. However, despite improvements in accessibility to mental health treatment in Australia, people with SAD are some of the least likely to seek treatment – with only a small percentage of these treatment seekers receiving expert treatment through psychologists or psychiatrists. This highlights the need to improve the identification, treatment and referral of people with significant social anxiety by general practitioners and other mental health professionals where people with social anxiety typically present.

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Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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