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Specific phobias

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Abstract

Anxiety disorders are among the most prevalent mental disorders, but the subcategory of specific phobias has not been well studied. Phobias involve both fear and avoidance. For people who have specific phobias, avoidance can reduce the constancy and severity of distress and impairment. However, these phobias are important because of their early onset and strong persistence over time. Studies indicate that the lifetime prevalence of specific phobias around the world ranges from 3% to 15%, with fears and phobias concerning heights and animals being the most common. The developmental course of phobias, which progress from fear to avoidance and then to diagnosis, suggests the possibility that interrupting the course of phobias could reduce their prevalence. Although specific phobias often begin in childhood, their incidence peaks during midlife and old age. Phobias persist for several years or even decades in 10–30% of cases, and are strongly predictive of onset of other anxiety, mood, and substance-use disorders. Their high comorbidity with other mental disorders, especially after onset of the phobia, suggests that early treatment of phobias could also alter the risk of other disorders. Exposure therapy remains the treatment of choice, although this approach might be less effective in the long term than previously believed. This Review discusses the literature regarding the prevalence, incidence, course, risk factors, and treatment of specific phobias, and presents epidemiological data from several population-based surveys.

Introduction

Anxiety disorders, which include generalised anxiety disorder, panic disorder, agoraphobia, social phobia, and specific (simple) phobias, are more prevalent in adults than are other mental disorders.[1] In 1987, Marks[2] reviewed the existing literature and conceptualised the study of anxiety, which led to a surge in research on the epidemiology and natural history of the subcategories of panic and agoraphobia,[3–7] social phobia,[8–16] and generalised anxiety

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WWE conceived the paper, collaborated in the literature search, designed the figure, reviewed the preparation of the tables, interpreted data, and wrote the manuscript. OJB collaborated in the literature search, interpreted data, and wrote the manuscript. BM led the literature search, prepared the tables, interpreted data, and wrote the manuscript.

Declaration of interests

We declare no competing interests.

disorder.[17–20] However, less research has been done on the subcategory of specific phobias,[21–23] which is the subject of this Review. As many people with specific phobias do not seek treatment, the epidemiological aspects of this Review concentrate on population-based data, focusing on the prevalence, incidence, and natural history of specific phobias. We also discuss research on risk factors (including genetic epidemiology) and treatment modalities for specific phobias. We systematically reviewed the epidemiological research literature on any specific phobia, and eight specific phobias were assessed on the basis of three separate population-based surveys. The aim of this Review is to introduce researchers and clinicians to this relatively under-developed field, to highlight the importance of specific phobias, and to provide some guidance regarding treatment options.

Diagnosis

The diagnosis of phobic reaction was described in two short paragraphs in the first edition of the American Psychiatric Association DSM in 1952,[24] which stated that “the commonly observed forms of phobic reaction include fear of syphilis, dirt, closed places, high places, open places, animals, etc. The patient attempts to control his anxiety by avoiding the phobic object or situation.” Since then, types of phobia (including social phobias, agoraphobia, and specific phobias) have been more narrowly specified, and subtypes of specific phobias (including phobias related to blood, injections, and injury) have been expanded. The diagnosis of a specific phobia requires unreasonable fear associated with a specific object or situation, avoidance of the object or situation, persistence of the fear over time, and clinically significant distress or impairment associated with the fear, or avoidance.[25] The definitions in the American and international classifications[26] are similar, which is important for our discussion of worldwide results.

The requirement that the individual recognises their phobia as unreasonable indicates that the presence of insight is important, and suggests that the interview or self-report method of assessment by a clinician or survey interviewer (as used in much of the research discussed herein) is probably a valid method of diagnosis. Specific phobias can be diagnosed with only a few questions. For example, the first question about specific phobias from the revised third edition of the Diagnostic Interview Schedule,[27] used in the Epidemiologic Catchment Area (ECA) study,[28] asks about the fear itself and avoidance (eg, for blood and injection phobia, “have you ever had such an unreasonable fear of seeing blood; getting an injection; or going to the dentist that you tried to avoid it?”). The second question asks about persistence (eg, “did any of these fears continue for months or even years?”), and is followed by a series of questions about possible resulting distress or impairment, such as seeing a doctor, taking medication, or staying away from work.

Prevalence and incidence

Our literature search identified 25 population-based studies of the prevalence of specific phobias in adults, done between 1984 and 2016 in populations around the world (table 1). The median lifetime prevalence is 7·2% (IQR 4·0–10·4), and varies considerably among these reports, from 1·5% in Florence, Italy,[41] and 2·6% in China[50] to 14·4% in Oslo, Norway.[39] Although some of this variation is likely to be due to the use of different

assessment procedures, many structured survey assessment procedures are similar, deriving from the Diagnostic Interview Schedule[53] (used in the ECA studies[28]), which evolved into the University of Michigan Composite International Diagnostic Interview,[54] and then into the version used in the WHO World Mental Health Surveys.[55] Differences in survey responses or age ranges of the samples could also explain the variation. However, large variations are also present in studies striving to use identical methods, such as the high rate for Baltimore in the ECA study (14·5% for male participants and 23·5% for female participants) as compared with the New Haven (3·8% and 8·5%) and St Louis (4·0% and 9·4%) ECA sites,[56] and the large difference between two samples from different areas of Norway.[39,42] These differences could provide guidance about as-yet-unknown risk factors, and suggest different causes that might be amenable to prevention or treatment. In east Asian populations, geographical variation is low, confined within the low lifetime prevalence in these regions: 2·6% in China, 3·4% in Japan, and 3·8% in Korea. There is no obvious trend in prevalence by calendar period. The 25 WHO World Mental Health Surveys also showed less variation than did other population-based studies, presumably because the WHO surveys all used the same instrument.[57] However, low-income countries showed slightly lower prevalence in the WHO surveys, consistent with the pattern of results seen in the earlier individual studies. The large differences between populations suggest the importance of studying risk factors for specific phobias.

In all studies included in this Review, the lifetime prevalence of specific phobias was higher in female participants than in male participants. The greatest differences were observed in Chile, rural Norway, and Hong Kong, where prevalence in female participants was more than three times as high as in male participants, and the smallest differences were seen in two Latino populations: Mexicans in southern California[34] and Puerto Ricans (table 1).[33] The higher prevalence in women was consistent with a Darwinian interpretation[58] (ie, that the process of selection favours groups in which the female members of the species were most avoidant of danger, especially during child-rearing years).[59] However, there was no obvious explanation for the variation in male:female ratios around the world.

The first occurrence of a specific phobia can happen at any time throughout the lifespan, as shown by data from the Baltimore ECA follow-up,[60] a cohort study designed to explore the life-course structure of mental disorders (figure). This study interviewed individuals selected probabilistically from the household-residing population in eastern Baltimore in 1981, with follow-up interviews of the same respondents in 1982, 1993–96, and 2004–05.[60] When asked about the first occurrence of a phobia, many participants responded that they had experienced the phobia since they were a child or since they could remember, or similar, resulting in peaks in incidence at or below 5 years of age (figure). These findings are consistent with those of the Early Developmental Stages of Psychopathology study in Germany (in which almost all of the sample of 3021 adolescents reported onset of specific phobia in childhood or adolescence),[62] the National Comorbidity Survey (NCS; in which the median age of onset in 8098 adults was 15 years),[31] and the World Mental Health Surveys (completed in 22 countries with a total sample size of 124 902, in which the median age of onset was 8 years).[57] The incidence of new specific phobias in girls during childhood was much higher than in boys, and gently declined thereafter until the beginning of adulthood (about 20 years of age), after which it rose until about age 30 years for women (figure). The

peak incidence in women occurred during the years of reproduction and child rearing, possibly reflecting an evolutionary advantage. Men and women had an additional peak in incidence during old age that was much stronger for women, reaching nearly 1% per year. This pattern might reflect the new occurrence of physical conditions[63] or adverse life events (such as the unexpected death of a loved one)[64] during those years.

Fears of specific objects or situations are widespread in the population. For example, more than 70% of people in the USA report having one or more unreasonable fears.[23] The prevalence of these fears is much higher than that of the consequent diagnoses (table 2), which require the presence of avoidance and impairment related to the fear. In publicly available datasets from the USA (the National Epidemiologic Survey of Alcohol and Related Conditions [NESARC][23] and the NCS[31]) and from the Netherlands Mental Health Survey and Incidence Study (NEMESIS)[38]—all of which included large probabilistic samples representing national populations and used structured, diagnostically oriented interviews—fears of animals and heights are the two most prevalent fears in all three samples, and the order of prevalence of the different specific fears is relatively constant, with the exception that fear of blood is less prevalent in NESARC than in the other two studies (table 2). The conditional probabilities of meeting the diagnostic criteria for specific phobias given the presence of the fear are similar across all seven fears and across all three samples (about 25–30%). The lifetime prevalence estimates of particular specific phobias (about 2–6%; table 2, rightmost columns) are of the same order of magnitude as many other, more broadly defined, psychiatric diagnoses. The baseline prevalence estimates for specific phobias in the Baltimore ECA (table 3, left column) are higher than the estimates from the NESARC, NCS, and NEMESIS studies (table 2), suggesting Baltimore to be an outlier with particularly high prevalence (as also shown in table 1). Since phobias are, by definition, distressing or impairing, their effective prevention or treatment could have a non-trivial effect on the mental health of the population. For blood or injection phobia, prevention could also provide a physical health benefit, because people with this phobia presumably avoid contact with doctors who engage in preventive measures across the general health spectrum. Although there are a range of universal prevention programmes for early psychopathology in general, few of them have been examined specifically with respect to simple phobias.[66,67]

Clinical course

Specific phobias are not transient disorders, as shown by data from the ECA, NCS, and NESARC studies (table 3). Persistence, reflecting the chronicity of the disorder, is measured by the percentage of patients with a past-year history of the disorder at the baseline interview who report an occurrence of the disorder within the 12 months preceding the follow-up interview. In the ECA sample, 6–20% of specific phobias were persistent at 1 year, and 6–28% at 12 years; in the NCS sample, persistence at 10 years ranged from 25% to 38%; and in the NESARC sample, persistence at 3 years ranged from 12% to 19% (table 3). A similar estimate of persistence, 17·5% for any specific phobia, was observed after 8 years of follow-up in the Mexican Adolescent Mental Health Survey,[68] while persistence in the NCS sample after 10 years was greater, at about 25%. In all three samples shown in table 3, one of the most persistent phobias was that of heights. This degree of persistence is similar to that of other common, non-psychotic mental disorders.[61]

Specific phobias are strong predictors of other anxiety disorders and of mood and substance-use disorders (table 4). In the NESARC study,[23] anxiety disorders were the most strongly predicted, as might be expected, with odds ratios (ORs) ranging from 5·60 to 7·41 (95% CIs 4·95–8·40), without much change after adjustment for sociodemographic factors (5·12 to 7·18 [4·50–8·11]). Even after adjustment for other common mental disorders, the ORs for any anxiety disorder were high (3·84 [3·46–4·27]; table 4). Mood disorders were also strongly predicted (4·05 [3·69–4·46]), and the OR remained high after adjusting for closely related mood disorders (eg, the ORs for specific phobias predicting major depressive disorder were 1·99 [1·80–2·20] after adjusting for the earlier occurrence of dysthymia and mania). The ORs for substance-use disorders were lower than those of anxiety disorders, but still non-trivial and statistically significant (1·83 [1·67–2·00]).[23] High cooccurrence of specific phobias and other mental disorders was also observed across the World Mental Health Survey samples, in which 61% of lifetime cases of specific phobia had at least one other mental disorder.[57] These data suggest that the incidence of other common mental disorders could potentially be reduced by effective treatment of specific phobias.[69,70]

Risk factors

Risk factors for specific phobias have not been well studied. Most potentially pertinent studies group the anxiety disorders into one category in their presentation of even the most rudimentary risk factors. The most important demographic risk factor for specific phobias seems to be female sex (table 1). We identified five studies in which the prevalence of specific phobias could be compared between rural and urban populations,[23,39,42,34,33] and found very little difference between the two groups, except in Norway, where the prevalence was 14% in the urban population and 7% in the rural population.[39,42]

We estimated the association between the prevalence of specific fears and education, marital status, and residence in the NESARC sample, which was the only study to have this amount of detail for specific phobias of animals, heights, storms, and closed spaces (table 5).[23] Lower educational attainment was associated with higher prevalence of any specific phobia (40% in people with less than high school education *vs* 29% in college graduates), as was formerly married status (38% in people who were separated or divorced, and 42% in widowed people, *vs* 35% in married people). The difference in prevalence between rural and urban areas was trivial, which is surprising given that exposures to fear stimuli presumably differ between those areas, with more exposure to animals in rural areas and heights in urban areas.

Data from the World Mental Health Surveys also indicate a higher prevalence of any specific phobia in people with lower educational attainment.[57] Lower educational attainment is an indicator of lower socioeconomic status in general, which is presumably associated with less control over the social and physical environment, especially in conditions of stress. Consistent with data from the USA, World Mental Health Survey data indicate a higher prevalence of any specific phobia among formerly married people (relative odds 1·3 in high-income countries and 1·1 in low-income or middle-income countries).[57] These data suggest that marital status as a risk factor for specific phobias might vary by geographical region, or according to other environmental characteristics. It seems reasonable that having a marital

partner would alleviate fears somewhat in offering a protective element (ie, a spouse) to the environment; it is also possible that formerly married people are more likely to be depressed, which might be a risk factor for simple phobias.

Although genetic risk factors for specific phobias have been studied for at least three decades,[71] many of the existing studies involve overlapping samples.[72] Phobias are more likely to occur in people whose family members have phobias. Twin studies suggest that within-family resemblance is due to shared environmental factors in childhood,[73–75] whereas genetic factors influence familial resemblance in adulthood.[76] A meta-analysis of ten independent twin studies of specific phobias reported a mean heritability of about 30% for the three subtypes of phobias studied (animal, situational, and blood-illness).[72] Genetic epidemiological methods are also useful to elucidate how phobias relate to personality traits and other psychiatric disorders. Multivariate structural equation modelling of twin data suggests that genetic factors that influence animal and situational phobias are distinguishable from those that influence major depressive disorder, generalised anxiety disorder, panic disorder, agoraphobia, and social phobia.[77] Specific phobias also appear to be less genetically correlated with neuroticism and extraversion than are other anxiety and depressive disorders, including social phobia and agoraphobia.[78,79]

Treatment

Only about a tenth to a quarter of people with specific phobias eventually receive treatment, [30,57] possibly because avoidance can reduce stress and impairment. Predictors for receiving treatment include having more severe impairment, having particular phobias (eg, people with phobias of flying, closed spaces, or heights are more likely to seek treatment), and having a greater number of phobias.[57] To our knowledge, no studies have addressed the comparative effectiveness of different treatment options. Therefore, we discuss the evidence regarding the effectiveness of treatments relative to non-treatment control conditions, with a preference for published systematic reviews and meta-analyses.

Exposure therapy is the current treatment of choice for specific phobias.[80,81] The standard form of exposure therapy involves in-vivo or imaging approaches to phobic stimuli or situations. Virtual-reality exposure therapy was first introduced more than two decades ago to treat fear of heights[82] and remains a viable treatment option for other specific phobias.[83] Three decades ago, Öst pioneered a one-session treatment approach for specific phobias, with an average duration of approximately 2 h.[84,85] Subsequent studies by Öst and colleagues suggested that a single 3-h session of massed exposure therapy is as effective as multiple sessions (total 6 h) of more gradual exposure therapy for the treatment of phobias of flying,[86] blood and injections,[87] and claustrophobia.[88] The results of a 2008 meta-analysis indicate that multiple sessions might be somewhat more effective than the single-session approach, as measured by questionnaire-based functional outcomes at follow-up,[81] and careful consideration is needed when choosing the appropriate number and duration of sessions for patients;[89] however, the massed single-session approach could be considered a viable option for suitable patients.

Early studies of exposure therapies for specific phobias[90] were criticised for their various methodological limitations, including selection biases, the use of small, unrepresentative samples, and compromised control conditions. Although exposure therapy is much more widely studied and accepted now than it was in the early 1970s, systematic reviews suggest that the evidence base could still be improved.[80,81] Additionally, although the available evidence indicates moderately high short-term efficacy of psychological treatments for specific phobias,[80] most studies have only followed up patients for short durations. The assessment of long-term effectiveness is particularly important because treated phobias in patients (and extinguished fear responses in other animals) are susceptible to relapse.[91–96] One of the notable risk factors for relapse is context change, in which the individual reencounters the phobic stimulus or situation outside of the context in which extinction originally occurred.[93,96] Accordingly, studies have sought to extinguish conditioned responses to fear or phobic stimuli in multiple contexts, finding this approach to be comparatively more effective than extinction in a single context.[95–98]

Pharmacotherapy is not a common treatment choice for specific phobias. However, within the past decade, studies have investigated pharmacological augmentation of exposure therapy in attempts to improve treatment outcomes. In one approach, clinicians administer the antibiotic D-cycloserine, which is thought to facilitate fear extinction learning through its role as an N-methyl D-aspartate receptor agonist.[99,100] The results of the first published, double-blind, randomised trial in humans indicated that oral administration of D-cycloserine (50 mg or 500 mg) before virtual-reality exposure therapy for phobia of heights was associated with substantially greater improvement than was placebo.[100] Results from a systematic review of placebo-controlled studies suggest that pre-exposure D-cycloserine administration (50 mg, 250 mg, or 500 mg) is associated with a small exposure augmentation benefit in patients with anxiety, obsessive-compulsive, or post-traumatic stress disorders (compared with pretreatment, d=–0·25 at post-treatment, d=0·19 at follow-up).[101] In another approach, clinicians administer glucocorticoids—which appear to have a role in fear extinction processing—before exposure therapy. In two randomised trials, participants in the treatment group were orally administered 20 mg cortisol 1 h before virtual-reality exposure therapy for fear of heights[102] or in-vivo exposure therapy for fear of spiders.[103] Both studies found that cortisol administration enhanced the efficacy of treatment relative to placebo-controlled exposure therapy.

Conclusion

Although specific phobias have a high prevalence, a low percentage of affected people seek treatment. Specific phobias begin early in life and persist over years or decades, and are associated with increased risk of various other mental disorders. The prevalence, incidence, course, and comorbidities of specific phobias are similar across the different subtypes, with the possible exception that fear of heights is more prevalent and more persistent than other subtypes. The consistent associations with some risk factors, such as female sex, education, and formerly married status, suggest the possible existence of causal pathways that could be altered to produce beneficial effects.

Future studies should more thoroughly examine barriers to treatment for specific phobias, and more high-quality studies assessing longer-term outcomes in patients treated with different forms of exposure therapy (eg, massed single-session *vs* more gradual multiple-session exposure, or single-context *vs* multiple-context exposure) are needed. The potential benefits of pharmacological augmentation of exposure also warrant further study. There is insufficient research regarding how the onset of related phobias is affected by the initial exposure to the feared object or situation, or the context of the exposure (such as the presence of social support or stress, and the magnitude of the exposure itself). Furthermore, little is known about the possibility of crossover from one type of specific phobia to another. Future research could illuminate these possibilities.

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Search strategy and selection criteria

We searched PubMed on Oct 11, 2017, combining MeSH and open terms for phobias (“phobia*”[tw]) and epidemiology (“Epidemiologic Studies”[MeSH:NoExp] OR “Observational Study”[Publication Type] OR “Observational Study as Topic”[MeSH] OR “Cohort Studies”[MeSH] OR “epidemiologic study”[tw] OR “epidemiologic studies”[tw] OR “follow up”[tw] OR “longitudinal”[tw] OR “prospective*”[tw] OR “observational study”[tw] OR “observational studies”[tw]). The search was limited to studies in English and yielded 1536 records, which we assessed for their relevance to the prevalence, incidence, course, risk factors, or consequences of phobias. Citations included in reviews that did not meet the inclusion criteria were searched to identify relevant articles that the original search might have failed to capture.

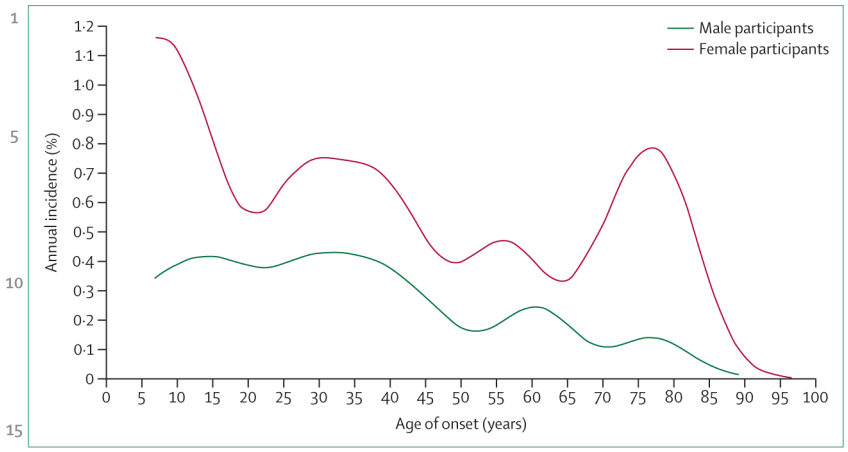

Figure: Incidence of specific phobia by age of first onset

Data are from the Baltimore Epidemiologic Catchment Area follow-up study[61] of 1920 respondents followed up from 1981 through 1993 (adapted from Public Mental Health [Oxford University Press] with permission). Kernel smoothing was applied, averaging incidence over a 5-year window to reduce variation.

Table 1:

Lifetime prevalence of specific phobia in adults according to study and population

	Survey	Sample size	Age range, years	Lifetime prevalence (%)		
				Male participants	Female participants	Total
USA and Canada						
Bland et al, 1988[29]	Edmonton	3258	≥18	4·6%	9·8%	7·2%
Eaton et al, 1991[30]	ECA	14436	≥18	7·8%	14·4%	11·2%
Magee et al, 1996[31]	NCS	8098	15–54	6.7%	15·7%	11·3%
Kessler et al, 2005[32]	NCS·R	9282	≥18	8·9%	15·8%	12·5%
Stinson et al, 2007[23]	NESARC	43093	18–98	6·2%	12·4%	9·4%
Latino populations						
Canino et al, 1987[33]	Puerto Rico	1551	17–64	7·6%	9·6%	8·6%
Vega et al, 1998[34]	MAPSS	3012	18–59	6·2%	8·8%	7·4%
Vicente et al, 2006[35]	Chile	2978	≥15	4·0%	14·8%	9·8%
Medina·Mora et al, 2007[36]	MNCS	5826	18–65			7·0%
Viana and Andrade, 2012[37]	SPMMHS	5037	≥18	7·9%	16·5%	
Europe						
Bijl et al, 1998[38]	NEMESIS	7076	18–64	6·6%	13·6%	10·1%
Kringlen et al, 2001[39]	Oslo	2066	18–65	8·0%	19·5%	14·4%
Alonso et al, 2004[40]	ESEMeD	21 425	≥18	4·9%	10·3%	7·7%
Faravelli et al, 2004[41]	Italy	2500	≥14	0·8%	2·1%	1·5%
Kringlen et al, 2006[42]	Rural Norway	1080	18–65	2.4%	10·6%	6·5%
de Graaf et al, 2012[43]	NEMESIS2	6646	18–64	5·5%	10·3%	7·9%
Kiejna et al, 2015[44]	Poland	10 081	18–64	2·2%	4·6%	3·4%
Middle East and Africa						
Gureje et al, 2006[45]	Nigeria	4984	≥18			5·4%
Karam et al, 2008[46]	Lebanon	2857	≥18	4·0%	10·2%	7·1%
Alhasnawi et al, 2009[47]	Iraq MHS	4332	≥18			4·2%
Asia						
Chen et al, 1993[48]	Hong Kong	7229	18·64	0·96%	3·16%	

	Survey	Sample size	Age range, years	Lifetime prevalence (%)		
				Male participants	Female participants	Total
Oakley Browne et al, 2006[49]	NZ MHS	12 992	≥16	7·3%	14·1%	10·8%
Lee et al, 2007[50]	China	5201	18·70			2·6%
Cho et al, 2010[51]	Korea ECA·R	6510	18·64	2·1%	5·5%	3·8%
Ishikawa et al, 2016[52]	Japan	2130	≥20			3·4%
Overall *						
Median (IQR)				5·8% (2·4–7·6)	6.7% (9·2–14·6)	7·2% (4·0–10·4)
World MHS[26]						
6 low·income and low·middle·income countries		31 773	≥18			5·7%
6 upper·middle·income countries		24 612	≥18			8·0%
13 high·income countries		68 517	≥18			8·1%

ECA=Epidemiologic Catchment Area. NCS=National Comorbidity Survey. NCS-R=National Comorbidity Survey Replication. NESARC=National Epidemiologic Survey of Alcohol and Related Conditions. MAPSS=Mexican American Prevalence and Services Survey. MNCS=Mexican National Comorbidity Survey. SPMMHS=São Paulo Megacity Mental Health Survey Sample. NEMESIS=Netherlands Mental Health Survey and Incidence Study. ESEMeD=European Study of the Epidemiology of Mental Disorders. MHS=Mental Health Survey. ECA-R=Epidemiologic Catchment Area Replication.

* Including all studies in table except World MHS.

Table 2:

Lifetime prevalence of specific fears, phobia given specific fears, and specific phobias

	Prevalence of fear (%) in total sample*			Prevalence of specific phobia (%) in participants with specific fear†			Prevalence of specific phobia (%) in total sample‡		
	NESARC (n=43093)	NCS (n=8098)	NEMESIS (n=7076)	NESARC (n=43093)	NCS (n=8098)	NEMESIS (n=7076)	NESARC (n=43093)	NCS (n=8098)	NEMESIS (n=7076)
Animals	19·7%	22·2%	12·6%	24·0%	25·8%	26·5%	4·7%	5·7%	3·3%
Heights	18·7%	20·4%	19·1%	24·2%	26·2%	25·5%	4·5%	5·3%	4·9%
Flying	11·4%	13·2%	6·9%	25·6%	26·9%	36·6%	2·9%	3·5%	2·5%
Closed spaces	11·1%	11·9%	9·5%	28·9%	35·1%	35·0%	3·2%	4·2%	3·3%
Water	9·5%	9·4%	7·1%	25·7%	35·8%	30·4%	2·4%	3·4%	2·2%
Storms	7·6%	8·7%	7·0%	25·7%	33·1%	31·3%	1·9%	2·9%	2·2%
Blood	7·4%	13·9%	9·5%	28·6%	32·8%	33·3%	2·1%	4·5%	3·2%

NESARC=National Epidemiologic Survey of Alcohol and Related Conditions (using the Alcohol Use Disorder and Associated Disabilities Interview Schedule).[23] NCS=National Comorbidity Survey (using the Composite International Diagnostic Interview).[31] NEMESIS=Netherlands Mental Health Survey and Incidence Study (using the Composite International Diagnostic Interview).[38]

*Lifetime prevalence of specific fears in the total sample.

†Lifetime prevalence of specific phobia diagnosis among people with a specific fear of the same stimulus.

‡Lifetime prevalence of specific phobia diagnosis with a particular fear in the total sample.

Table 3:

12-month prevalence and persistence of specific phobias in adults in three longitudinal studies

	ECA[65]			NCS[31]		NESARC[23]	
	Baseline prevalence	**Persistence at 1 year**	**Persistence at 12 years**	**Baseline prevalence**	**Persistence at 10 years**	**Baseline prevalence**	**Persistence at 3 years**
Animals	8·6% (04)	12%	14%	4·9% (0·3)	25%	3·7% (0·2)	15%
Heights	6·9% (0·4)	20%	11%	4·3% (0·4)	38%	3·4% (0·1)	17%
Storms *	3·9% (0·3)	14%	8%	2·4% (0·3)	25%	1·5% (0·1)	14%
Water *	4·0% (0·3)	17%	6%	2·8% (0·3)	25%	1·9% (0·1)	11%
Flying †	3·0% (0·3)	12%	6%	2·9% (0·3)	37%	2·3% (0·1)	16%
Crowds	1·9% (0·2)	9%	28%	··	··	1·2% (0·1)	19%
Closed spaces	2·5% (0·2)	6%	··	3·5% (0·4)	34%	2·4% (01)	17%
Blood ‡	··	··	··	3·6% (0·3)	28%	1·6% (0·1)	15%
Dentist ‡	··	··	··	··	··	0·5% (0·1)	14%
Hospital ‡	··	··	··	··	··	1·8% (0·1)	12%

Baseline prevalence (in 12 months preceding initial interview) is shown as % (SE). Persistence is defined as occurrence in the 12-month period preceding the follow-up interview among patients who met the criteria for the disorder in the 12 months preceding the baseline interview. ECA=Epidemiologic Catchment Area. NCS=National Comorbidity Survey. NESARC=National Epidemiologic Survey of Alcohol and Related Conditions.

* NCS assessed fear of storms and water together at 10-year follow-up.

† ECA assessed fear of flying together with other forms of public transportation at baseline and 1 year.

‡ NCS assessed fear of blood and injections together with fear of dentists, doctors, and hospitals.

Table 4:

Lifetime specific phobia as a predictor of lifetime mood, anxiety, and substance disorders (National Epidemiologic Survey of Alcohol and Related Conditions [n=43 093])[23]

	Unadjusted OR (95% CI)	OR adjusted for sociodemographic factors (95% CI)*	OR adjusted for sociodemographic and psychiatric factors (95% CI)†
Mood disorders	4·05 (3·69–4·46)	3·70 (3·36–4·09)	2·03 (1·84–2·25)
Major depression	4·08 (3·72–4·46)	3·68 (3·34–4·04)	1·99 (1·80–2·20)
Dysthymia	3·69 (3·24–4·19)	3·40 (2·99–3·87)	1·51 (1·32–1·74)
Mania or hypomania	3·66 (3·27–4·10)	3·65 (3·23–4·12)	1·84 (1·62–2·09)
Anxiety disorders	6·27 (5·66–6·94)	5·89 (5·32–6·52)	3·84 (3·46–4·27)
Panic disorder	5·60 (4·95–6·33)	5·12 (4·50–5·82)	3·05 (2·67–3·48)
Social phobia	7·41 (6·54–8·40)	7·18 (6·36–8·11)	4·68 (4·12–5·32)
Generalised anxiety disorder	6·22 (5·47–7·07)	5·79 (5·08–6·60)	3·09 (2·71–3·53)
Substance use disorders	2·18 (2·00–2·37)	2·63 (2·41–2·87)	1·83 (1·67–2·00)
Alcohol use disorder	1·79 (1·64–1·96)	2·30 (2·09–2·54)	1·62 (1·46–1·79)
Nicotine dependence	2·59 (2·37–2·83)	2·74 (2·51–3·00)	1·83 (1·66–2·03)
Drug use disorder	2·20 (1·96–2·46)	2·54 (2·24–2·87)	1·52 (1·35–1·72)

All associations are significant at p<0·001.

*Adjusted for age, sex, education, and urbanicity.

†Adjusted for age, sex, education, urbanicity, and selected lifetime mental disorders (mood, anxiety, and substance-use disorders).

Table 5:

Lifetime prevalence of specific phobias by three demographic characteristics (National Epidemiologic Study of Alcohol and Related Conditions [n=43 093])[23]

	Any specific phobia	Animals	Heights	Storms	Closed places
Educational level					
Less than high school	40% (1·0)	24% (0·8)	23% (0·6)	14% (07)	13% (0·6)
High school graduate	37% (0·7)	21% (0·6)	20% (0·5)	9% (0·3)	11% (0·4)
Some college	35% (0·7)	19% (0·5)	18% (0·5)	6% (0·3)	11% (0·4)
College graduate	29% (0·7)	15% (0·6)	15% (0·5)	4% (0.2)	9% (0·4)
Marital status					
Never married	33% (0·8)	19% (0·6)	17% (0.6)	6% (0·4)	9% (0·4)
Married	35% (0·6)	19% (0·4)	18% (0·4)	7% (0.3)	11% (0·3)
Separated or divorced	38% (0·8)	22% (07)	21% (0·6)	9% (0·5)	13% (0·5)
Widowed	42% (1·1)	25% (0·9)	22% (0·8)	14% (0·6)	14% (0·6)
Residence					
Rural	38% (0.9)	21% (0·8)	21% (0·5)	9% (0·4)	12% (0·5)
Suburban	34% (0·8)	18% (0·5)	18% (0·5)	7% (0.3)	11% (0·3)
City	35% (0·9)	21% (0·6)	19% (0·6)	8% (0·4)	11% (0·4)

Data are % (SE)