Systematic review

# Mental health of Indigenous Australians: a review of findings from community surveys

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Indigenous Australians have a markedly higher burden of disease and injury than the general Australian population.[1] Most of this has been attributed to higher rates of non-communicable diseases, including mental disorders, but as there are no national data on the prevalence or incidence of diagnosed mental disorders for Indigenous people, proxy measures of relative rates have been used to estimate this component of the burden of disease.

Although there have been small studies of mental health in specific Indigenous communities over the past 50 years,[2] the only national statistics that have been available until recently were the suicide rate,[3] the hospitalisation rate for diagnosed mental disorders,[3] emergency department attendances for mental health and substance misuse-related conditions[3] and contacts with public community health services,[4] which indicate a relative prevalence two or three times the corresponding general population rate. Even this is likely to be an underestimate, as many Indigenous people do not access regular health services, or delay seeking help until problems are severe.[5]

Community diagnostic surveys potentially give a fuller picture of the mental health status of the population. The 2003–2004 New Zealand Mental Health Survey oversampled Maori people and used the same interview to yield separate Maori and non-Maori prevalence rates,[6] but the 1997 and 2007 Australian National Surveys of Mental Health and Wellbeing contained only a small incidental sample of Indigenous respondents, and separate data would have been too unreliable to be useful.[7,8]

On the other hand, Australia has large general health surveys at national and state levels that ask about Aboriginal and Torres Strait Islander identification and include brief measures of mental health. As the data from many of these surveys are not accessible through standard medical and psychological databases, we aimed to draw these data sources together in a convenient summary form and arrive at some preliminary conclusions about the status of Indigenous mental health in Australia. To be relevant to the contemporary situation, the review was restricted to studies since 2000.

## Methods

A systematic search was conducted using the method outlined by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement.[9] Studies were identified as eligible for inclusion if they:

- included a sample of Australian Aboriginal or Torres Strait Islander people;
- employed representative sampling;
- contained a measure of mental health;
- were published, or the data were collected, from the year 2000 onwards; and
- contained published or non-published survey data.

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## Abstract

**Objective:** To assemble what is known about the mental health of Indigenous Australians from community surveys.

**Data sources:** A systematic search was carried out of publications and data sources since 2000 using PubMed, PsycINFO, Australian Medical Index, the National Library of Australia and datasets known to the authors.

**Study selection:** Surveys had to involve representative sampling of a population, identify Aboriginal and Torres Strait Islander people and include a measure of mental health.

**Data extraction:** 11 surveys were found. Data were extracted on prevalence rates for Indigenous people by age and sex, along with comparison data from the general population, where available.

**Data synthesis:** Across seven studies, Indigenous adults were consistently found to have a higher prevalence of self-reported psychological distress than the general community. However, two studies of Indigenous adolescents did not find a higher prevalence of psychological distress. Two surveys of parents and carers of Indigenous children and adolescents found a higher prevalence of behaviour problems.

**Conclusions:** There is an inequality in mental health between Indigenous and non-Indigenous Australians that starts from an early age. This needs to be a priority for research, preventive action and health services.

Studies were identified by searching electronic databases, reviewing known state and national health datasets and consulting with others working in the field. References from the initial search were also scanned for additional relevant studies. This search was applied to PubMed, PsycINFO, the Australian Medical Index, and the National Library of Australia for publications from 1 January 2000 to 22 September 2009. The following search terms were used to search electronic databases: Australian AND (Aboriginal OR Indigenous OR "Torres Strait Islander") AND (anxiety OR depression OR distress OR mental OR "social emotional wellbeing"). The last search of electronic databases was run on 22 September 2009.

Studies from the initial search were excluded if the abstract and title showed they did not meet the eligibility criteria. The remainder were reviewed and selected for inclusion if they met the stated criteria. Two of us (S J B and A F J) reviewed the studies and came to a consensus decision about inclusion. If the same study had been published more than once, this was resolved by ensuring that data were reported consistently across publications, and then only including data from the report with the most detailed data.

The data extracted from each study were: population studied, sample size, survey method, type of measure of psychological distress, prevalence rates of psychological distress in the Aboriginal and Torres Strait Islander population, and corresponding rates in the non-Indigenous population. For two of the surveys, we analysed the data for the first time. For several surveys, the agencies that conducted them provided additional details not in the publication.

The measures of psychological distress used in the studies located are outlined in Box 1.

**1 Measures of mental health used in the surveys**

**Kessler Psychological Distress Scales (K10, K6, K5)**

**K10:** a measure of the level of a person's psychological distress; it does not attempt to identify specific mental illnesses.[10] The K10 contains 10 items about non-specific psychological distress in the 4 weeks before interview. Scores range from 10 to 50.

**K6:** a six-item shortened version of the K10, yielding a score from 6 to 30.

**K5:** a culturally appropriate measure of psychological distress for Aboriginal and Torres Strait Islander populations.[11] The question "how much of the time have you felt worthless" was considered inappropriate to use in an Aboriginal and Torres Strait Islander population, and was therefore removed. The K5 also contains slight wording changes to increase understanding in an Aboriginal and Torres Strait Islander context.

**Strengths and Difficulties Questionnaire (SDQ)**

The SDQ is a brief behavioural screening questionnaire for children and adolescents.[12] The SDQ asks about 25 attributes, which are considered strengths, difficulties or neutral. There are five subscales each with five items: Hyperactivity, Emotional Symptoms, Conduct Problems, Peer Problems and Prosocial Behaviour. Each subscale yields a score from 0 to 10. There is also a total score, which involves summing all the subscales except Prosocial Behaviour and yields a score from 0 to 40.

**Mental Health Index (MHI5)**

The MHI5 is a five-item measure of mental health that asks about symptoms in the past 4 weeks. It is part of the Medical Outcome Study 36-item Short-Form (SF-36) Health Survey.[13] Scores are rescaled to range from 0 to 100, with higher scores representing better mental health.

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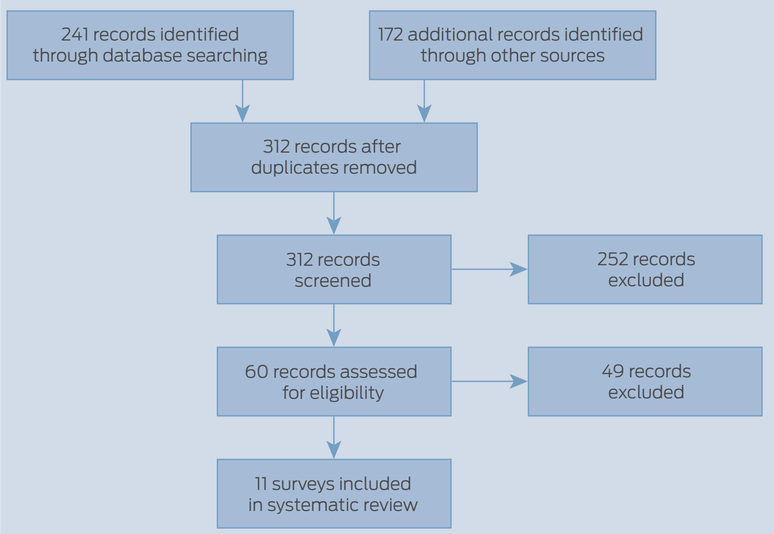
## Results

The PRISMA flow chart of included and excluded studies is shown in Box 2. We found eight surveys that used a self-report measure of psychological distress (Kessler Psychological Distress Scales [K10, K6, K5] or Mental Health Index [MHI5]).[11,14-25] These studies involved either adolescents, adults or both. Four studies were designed specifically to assess health in Aboriginal and Torres Strait Islander populations.[11,18,20,21] Seven of the studies provided non-Indigenous comparison data.[11,14-20,22-25] In the six studies involving adults, the Indigenous population had a higher prevalence rate of high or very high psychological distress scores, ranging from about 50% to three times higher (overall rates, 20.2%–26.6%). A higher prevalence rate was found for Indigenous Australians of both sexes and of all adult age groups. By contrast, there were two surveys that provided data specifically on adolescents, neither of which found any difference between Indigenous and non-Indigenous prevalence rates.[15,21] Overall rates of very high psychological distress scores were 10%–11%. Box 3 (http://dx.doi.org/10.5694/mja11. 10041) summarises the findings of these studies.

We also found three surveys that reported data on Indigenous children and adolescents, using carer or teacher report with a variant of the Strengths and Difficulties Questionnaire (SDQ).[21,22,26] The two surveys of parents and carers found a higher prevalence of overall behaviour problems in Indigenous children.[22,26] The survey using teacher reports did not find a difference, but had a sample biased towards wealthier Indigenous families.[26] Only one of these surveys reported data by age group and sex, and this found a higher prevalence of behaviour problems among Indigenous young people of both sexes, and in both children and adolescents.[21] That survey was also the only one to report on SDQ subscales.[21] It found higher rates of Conduct Problems and Hyperactivity and, to a lesser degree, Peer Problems; however, there was no difference in Emotional Symptoms.[21] Box 4 (http://dx.doi.org/10.5694/mja11.10041) summarises the findings of these studies.

**2 PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow chart of included and excluded surveys**



## Discussion

The surveys we reviewed consistently showed a higher prevalence of psychological distress (anxiety and depression symptoms) in Indigenous adults, with rates between 50% and three times higher than for non-Indigenous adults. However, two studies of self-reported psychological distress in adolescents did not find any difference. Studies of parent-reported problems in children and adolescents showed a higher prevalence of behaviour problems, which mainly comprise externalising problems (conduct problems and hyperactivity) but not of internalising problems (emotional symptoms). The latter result is consistent with the lack of difference in psychological distress as self-reported by adolescents.

The causes of these differences (and similarities) in mental health between Indigenous and non-Indigenous Australians need to be explored, as has been done with the inequality in Indigenous physical health. With physical health, much of the gap has been found to be attributable to tobacco use, high body mass, physical inactivity, high blood cholesterol levels and alcohol misuse,[1] but the role of mental ill health in health-related behaviours has not been explored.

Potential mediators of differences in psychological distress and consequential behaviour include unemployment, fewer educational qualifications, lower income, adverse life events, smoking and chronic physical illnesses. These factors have been found to correlate with psychological distress,[27-30] and are experienced at higher rates by Indigenous people.[5,11,16] Social disadvantage is also associated with behaviour problems among children.[31] Such an analysis of mediators would allow better targeting and monitoring of preventive efforts for improving Indigenous mental health. We have attempted an analysis of socioeconomic mediators using data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey, but this survey found a smaller Indigenous mental health gap than others and was not suitable for this purpose. These issues could be better explored in other datasets.[11,16]

The existing evidence has many limitations. One is the cultural appropriateness of the survey questionnaires. Indigenous concepts of mental health tend to be broader than psychological distress and behaviour problems, and are usually described using the term "social and emotional wellbeing".[11,32] Social and emotional wellbeing includes mental health and acknowledges the importance of factors beyond the individual, such as cultural identification, spirituality and the community. While the measures used here do not cover the entirety of this concept, the Kessler scales do cover an important component (psychological distress), and this component has been found to be related to number of days unable to work and number of visits to a health professional among Indigenous people.[8] Less is known about the SDQ, but it has been reported to be culturally acceptable to clinicians working in Aboriginal health services in one region of Australia.[33]

The Kessler scales and the SDQ have been validated against diagnosis in samples of non-Indigenous Australians[12,34,35] and in different cultures.[36,37] However, this has not been done for Indigenous Australians. There is a major difficulty in carrying out such validation studies because no culturally acceptable diagnostic instrument exists, and there are considerable practical problems with adapting complex structured interviews across cultures,[38] particularly if there are diverse Indigenous communities that must be accommodated.

Nevertheless, we argue that measures like the Kessler scales and the SDQ are useful indicators of mental health in their own right, which do not necessarily have to be linked to diagnostic outcomes. For example, K6 results similar to those reported here have been found for Native American and Alaska Native adults,[39] and a United States study of the sociodemographic and health correlates of very high distress concluded that the K6 identified people with characteristics "the same as … persons with serious mental illnesses as described in psychiatric epidemiologic studies".[40] In addition, diagnostic concepts may be less acceptable to Indigenous people than scales measuring general psychological distress. Thus, for example, the Australian Indigenous Psychologists Association has built on survey data to outline a practical framework for evaluating social and emotional wellbeing that does not depend on diagnostic labelling at all.[32]

Survey methodologies also have limitations. Although most of the data were collected by personal interview and telephone interview, one study used written questionnaires,[14] which may be problematic if people with poorer literacy are less likely to participate.[41] Several surveys used telephone interviewing, which may produce biased sampling if the population includes remote residents. Thus, a telephone survey in the Northern Territory excluded most households in remote areas, and wealthier families were overrepresented.[26] By contrast, in New South Wales, where telephone ownership is high, this methodology has been endorsed by Aboriginal community organisations and the samples do not appear to be biased when considered against other sources of data.[17,23] Lastly, there is considerable diversity among Indigenous peoples in Australia,[42] and findings from population surveys may not apply equally to all groups. In particular, none of the surveys reviewed reported data specific to Torres Strait Islander people.

The inequality in physical health between Indigenous and non-Indigenous Australians is well known. However, there is also an inequality in Indigenous mental health, which is evident from an early age and deserves equal attention. The causes of this gap need to be explored in order to guide policy development and preventive efforts. There is also a need to consider the resulting greater needs for culturally appropriate mental health services across the life span of Indigenous people.

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BOXES 3 and 4 online only

**4 Summary of community surveys on the prevalence of carer- or teacher-reported mental health problems in Indigenous children and adolescents**

| Study, years conducted | Population studied (sample size) | Survey method | Measure of mental health problems | Indigenous prevalence rates (95% CI) | Non-Indigenous prevalence rates (95% CI) |
|---|---|---|---|---|---|
| Western Australian Aboriginal Child Health Survey,[21] 2000–2001 | Indigenous children aged 4–17 y living in WA (5289); non-Indigenous children aged 4–17 y living in WA in 2004 (1200) | Carers of Indigenous children: Face-to-face interview with the carer in the household that knew most about the child. Carers of non-Indigenous children: Computer-assisted telephone interviews based on random selection from electronic White Pages | Parent Report SDQ (UK version) with modified response scale: high scores defined as 17–40 for total difficulties, 5–10 for Emotional Symptoms, 4–10 for Conduct Problems, 7–10 for Hyperactivity, 5–10 for Peer Problems, and 0–4 for Prosocial Behaviour | Overall: 24.0% (21.9%–26.1%)*<br>Male: 27.3% (24.4%–30.3%)*<br>Female: 20.5% (18.3%–23.0%)*<br>4–11 y: 26.3% (23.9%–28.8%)*<br>12–17 y: 20.5% (17.7%–23.6%)*<br>Emotional Symptoms: 23.4% (21.4%–25.6%)<br>4–11 y: 24.2% (21.8%–26.7%)<br>12–17 y: 22.3% (19.6%–25.3%)*<br>Conduct Problems: 33.9% (31.6%–36.1%)*<br>4–11 y: 35.5% (33.0%–38.2%)*<br>12–17 y: 31.4% (28.0%–34.7%)*<br>Hyperactivity: 15.3% (13.6%–17.0%)*<br>4–11 y: 17.1% (15.2%–19.1%)*<br>12–17 y: 12.5% (10.0%–15.1%)*<br>Peer Problems: 27.8% (25.7%–30.0%)*<br>4–11 y: 31.6% (28.9%–34.4%)*<br>12–17 y: 22.2% (19.4%–25.3%)<br>Prosocial Behaviour: 4.1% (3.4%–4.9%)*<br>4–11 y: 4.2% (3.4%–5.1%)<br>12–17 y: 3.9% (2.8%–5.3%) | Overall: 15.0% (12.9%–17.0%)<br>Male: 15.8% (12.9%–18.8%)<br>Female: 14.0% (11.2%–16.9%)<br>4–11 y: 16.9% (14.0%–19.8%)<br>12–17 y: 12.5% (9.6%–15.3%)<br>Emotional Symptoms: 21.5% (19.1%–23.8%)<br>4–11 y: 23.9% (20.6%–27.2%)<br>12–17 y: 18.3% (15.0%–21.7%)<br>Conduct Problems: 15.8% (13.7%–17.9%)<br>4–11 y: 18.0% (15.0%–20.9%)<br>12–17 y: 13.1% (10.1%–16.0%)<br>Hyperactivity: 9.7% (8.0%–11.4%)<br>4–11 y: 12.2% (9.7%–14.7%)<br>12–17 y: 6.4% (4.3%–8.6%)<br>Peer Problems: 23.8% (21.3%–26.2%)<br>4–11 y: 26.5% (23.1%–29.9%)<br>12–17 y: 20.3% (16.8%–23.8%)<br>Prosocial Behaviour: 2.9% (1.9%–3.9%)<br>(age-specific data not reported) |
| Growing Up in the Territory,[26] 2004[†] | Children aged 4–12 y living in the Northern Territory (Indigenous, 115; non-Indigenous, 923) | Computer-assisted telephone interviews with parents, who then gave permission for the child's teacher to report on social–emotional wellbeing of the child | Local teacher report using SDQ items with modified response scale: high scores defined as 16–40 for total difficulties | Overall: 13.2% (6.9%–19.2%) | Overall: 10.3% (8.3%–12.3%) |
| Victorian Child Health and Wellbeing Survey,[22] 2006 and 2009 | Children aged 4–12 y living in Victoria (Indigenous, 98; non-Indigenous, 6661) | Computer-assisted telephone interviews with parents based on random-digit dialling | Unspecified variant of Parent Report SDQ: high scores defined as 17–40 for total difficulties | Overall: 14.7% (6.5%–22.8%)* | Overall: 5.3% (4.6%–5.9%) |

SDQ = Strengths and Difficulties Questionnaire. UK = United Kingdom. y = years.
* Non-Indigenous prevalence rate lies outside of Indigenous 95% CI. † Survey only included children in households with a telephone. Most Indigenous households in remote areas do not have fixed telephones, leading to a bias towards wealthier Indigenous families.

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3 Summary of community surveys on the prevalence of self-reported mental health problems among Indigenous Australians

| Study, years conducted | Population studied (sample size) | Survey method | Measure of mental health problems | Indigenous prevalence rate (95% CI) | Non-Indigenous prevalence rate (95% CI) |
|---|---|---|---|---|---|
| 2004–2005 National Aboriginal and Torres Strait Islander Health Survey[11] | Indigenous Australians aged ⩾ 18 y (5757); non-Indigenous data from 2004–05 National Health Survey (25 900) | Household interviews | Aboriginal and Torres Strait Islander Health Survey: high or very high psychological distress (K5 scores 12–25). National Health Survey (non-Aboriginal): high or very high psychological distress, K5 items extracted from K10, cut-off as above) | Overall: 26.6% (24.5%–28.7%)*<br>Male: 22.3% (19.2%–25.5%)*<br>Female: 30.4% (28.5%–32.4%)*<br>18–24 y: 26.0% (22.3%–29.6%)*<br>25–34 y: 27.1% (23.6%–30.7%)*<br>35–44 y: 29.2% (25.5%–32.9%)*<br>45–54 y: 29.4% (24.4%–34.5%)*<br>⩾ 55 y: 23.0% (18.4%–27.5%)* | Overall: 13.1% (12.5%–13.6%)<br>Male: 10.8% (9.9%–11.7%)<br>Female: 15.3% (14.5%–16.1%)<br>18–24 y: 16.1% (13.9%–18.3%)<br>25–34 y: 12.2% (10.8%–13.7%)<br>35–44 y: 13.4% (12.1%–14.8%)<br>45–54 y: 13.6% (12.3%–15.0%)<br>⩾ 55 y: 11.7% (10.8%–12.5%) |
| Household, Income and Labour Dynamics in Australia (HILDA) Survey,[14] Wave 7, 2007,[†‡] longitudinal study from 2001 | Australian households occupying private dwellings. (Indigenous, 232; non-Indigenous, 10 991) | Household interviews, but K10 and MHI5 part of self-completion questionnaire. Random selection of households, excluding remote areas. | High or very high psychological distress (K10 scores 22–50) | Overall: 20.2% (12.9%–27.5%)<br>Male: 13.8% (4.6%–23.1%)<br>Female: 25.2% (15.7%–34.8%)<br>15–34 y: 23.6% (12.2%–35.0%)<br>35–54 y: 16.2% (5.1%–27.2%)<br>⩾ 55 y: 13.2% (0.0–28.0%) | Overall: 15.6% (14.7%–16.6%)<br>Male: 14.3% (13.0%–15.6%)<br>Female: 16.9% (15.6%–18.2%)<br>15–34 y: 18.3% (16.5%–20.2%)<br>35–54 y: 15.7% (14.1%–17.3%)<br>⩾ 55 y: 12.6% (10.6%–14.6%) |
| | | | Poor mental health (MHI5 with cut-off of ⩽ 60) | Overall: 30.0% (20.8%–39.2%)<br>Male: 19.8% (6.4%–33.2%)<br>Female: 38.3% (28.1%–48.5%)*<br>15–34 y: 32.6% (19.8%–45.3%)<br>35–54 y: 24.2% (11.3%–37.1%)<br>⩾ 55 y: 30.0% (0.0–63.0%) | Overall: 22.0% (20.9%–23.1%)<br>Male: 20.1% (18.7%–21.5%)<br>Female: 23.8% (22.3%–25.3%)<br>15–34 y: 21.9% (19.9%–23.9%)<br>35–54 y: 22.8% (20.9%–24.6%)<br>⩾ 55 y: 21.2% (19.0%–23.4%) |
| National Survey of Youth Mental Health Literacy,[15†] 2006 | Australians aged 12–25 y (Indigenous, 125; non-Indigenous, 3614) | Telephone interviews based on random-digit dialling | Very high psychological distress (K6 scores 19–30) | Overall: 11.2% (5.7%–16.7%)*<br>Male: 4.2% (0.0–8.8%)<br>Female: 20.8% (9.8%–31.7%)*<br>12–17 y: 5.6% (0.3%–11.0%)<br>18–25 y: 18.5% (8.2%–28.9%)* | Overall: 5.0% (4.3%–5.7%)<br>Male: 3.7% (2.8%–4.6%)<br>Female: 6.2% (5.1%–7.2%)<br>12–17 y: 4.2% (3.2%–5.2%)<br>18–25 y: 5.6% (4.6%–6.6%) |
| National Aboriginal and Torres Strait Islander Social Survey, 2008[16§] | Indigenous Australians aged ⩾ 15 y in 2008 (13 300); non-Indigenous aged ⩾ 18 y from 2007–08 National Health Survey (20 800) | Household interviews | Aboriginal and Torres Strait Islander Social Survey: high or very high psychological distress (K5 scores 12–25). National Health Survey (non-Aboriginal): high or very high psychological distress, K5 items extracted from K10, cut-off as above) | 18–24 y: 32.9%<br>25–34 y: 30.6%<br>35–44 y: 32.4%<br>45–54 y: 33.0%<br>⩾ 55 y: 29.0%<br>Males:<br>15–24 y: 24.8%<br>25–34 y: 25.4%<br>35–44 y: 29.6%<br>45–54 y: 28.9%<br>⩾ 55 y: 27.4%<br>Females:<br>15–24 y: 33.9%<br>25–34 y: 35.4%<br>35–44 y: 34.9%<br>45–54 y: 36.7%<br>⩾ 55 y: 30.2% | 18–24 y: 13.3%<br>25–34 y: 13.3%<br>35–44 y: 11.3%<br>45–54 y: 13.3%<br>⩾ 55 y: 11.2% |
| New South Wales Population Health Survey, 2002 –2005[17-19¶] | NSW residents aged ⩾ 16 y (Indigenous, 930; non-Indigenous, 43 178 ) | Telephone interviews based on random-digit dialling | High or very high psychological distress (K10 scores 22–50) | Overall: 23.8% (20.1%–27.5%)*<br>Male: 20.5% (15.1%–26.0%)*<br>Female: 26.8% (21.8%–31.7%)*<br>16–24 y: 18.6% (9.0%–28.2%)<br>25–34 y: 17.6% (11.3%–23.8%)<br>35–44 y: 34.9% (26.3%–43.6%)*<br>45–54 y: 28.0% (19.6%–36.5%)*<br>55–64 y: 21.3% (13.0%–29.7%)<br>⩾ 65 y: 9.3% (20.1%–27.5%)* | Overall: 11.8% (11.4%–12.3%)<br>Male: 10.0% (9.3%–10.6%)<br>Female: 13.6% (13.0%–14.2%)<br>16–24 y: 12.9% (10.3%–15.5%)<br>25–34 y: 15.2% (12.6%–17.8%)<br>35–44 y: 12.9% (10.8%–15.0%)<br>45–54 y: 12.2% (10.4%–14.0%)<br>55–64 y: 11.3% (9.6%–13.0%)<br>65–74 y: 6.1% (4.8%–7.3%)<br>⩾ 75 y: 6.4% (4.9%–7.9%) |