Monitoring changes in smoking and quitting behaviours among Australians with and without mental illness over 15 years

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Abstract

Objective: This study examines smoking prevalence and quitting behaviours among Australians with and without mental illness.

Methods: Analysis of data from Australia's triennial National Drug Strategy Household Surveys 2004–2019. The prevalence of regular smokers, never smokers, the quit proportion, cigarette consumption, and use of cessation aids were examined for those with and without mental illness.

Results: Among Australians with mental illness, there was a significant decrease in regular smokers and significant increases in never smokers and in the proportion of ever smokers who had quit between 2004 and 2019. Smokers with mental illness were generally as likely to attempt to quit and more likely to use cessation support; however, they were also more likely to report unsuccessful quit attempts. Smokers with mental illness who had quit reported lower levels of psychological distress than those still smoking.

Conclusion: Since 2004, there have been some encouraging trends in reducing tobacco use among people with mental illness; however, smoking rates remain substantially higher than among those without mental illness.

Implications for public health: Findings highlight the importance of routinely identifying smokers with mental illness and improving access and adherence to best practice smoking cessation treatment.

Key words: smoking, tobacco, mental health, disparities

In Australia, people with mental illness are more likely to experience a range of adverse social, economic and health outcomes.[1] Research has found that men with mental illness live an average 15.9 years less and women live 12 years less than those without mental illness, and that this gap has widened over time.[2] Much of this excess morbidity and mortality among people with mental illness is caused by smoking-related diseases.[2,3] Research in Australia,[4] the US,[5] and the UK[6] has found large disparities between smoking in the general population and among people with mental illness, who also tend to be heavier smokers and more dependent.[7,8]

The reasons why people with mental illness are more likely to smoke are complex.[9] One possible explanation is that there may be a shared genetic predisposition to smoking and mental illness.[10] People with mental illness are also more likely to experience other risk factors for smoking, including lower education and income levels.[11] Additionally, smokers with mental illness often report that smoking helps to manage psychiatric symptoms.[12] However, recent research has shown that smoking cessation does not worsen mental health; rather, people who quit smoking may experience improvements in their mental health and quality of life.[13]

Although smokers with mental illness have lower rates of smoking cessation,[6,14] such smokers appear to be just as motivated to quit as the general population,[6,15] and are able to achieve long-term cessation.[16] Despite this, smokers with mental illness report a lack of encouragement to quit by health professionals,[17] who are subject to a range of competing priorities and other systemic barriers,[18] and who may mistakenly believe that people with mental illness are not interested in quitting and that it will interfere with their mental health recovery.[19] Such beliefs, combined with a lack of training, experience, or confidence,[20] can act as significant barriers to providing cessation support.

Clinician concerns about mental health and smoking cessation may also be due to temporary symptoms of nicotine withdrawal being mistaken for mental health deterioration,[21] particularly as smokers with mental illness tend to experience more severe nicotine withdrawal.[22] Clinicians may also be concerned about the side effects of smoking cessation medications, despite evidence that the use of varenicline or bupropion is generally safe and effective in smokers with or without psychiatric disorders.[23,24] In addition, smoking cessation can increase the blood levels and hence side effects of some psychotropic medications, necessitating

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close monitoring.[14] Nonetheless, smokers with mental illness can quit using standard cessation methods[25] and should be offered the same evidence-based treatments as the general population; i.e. pharmacotherapy plus a multi-session behavioural intervention such as that offered by quitlines.[26] Incorporating tobacco cessation interventions into standard mental health treatment is needed to help reduce the large health disparities between those with and without mental illness.[9,14]

Although Australia's National Tobacco Strategy highlights the importance of prioritising people with higher smoking rates,[27] there is very little nationally representative data available on smoking prevalence, quitting behaviours and use of cessation aids among people with mental illness. Providing up-to-date figures is vital in order to monitor progress (or otherwise) in reducing tobacco use among this priority population and to inform Australia's tobacco control efforts; it may also help elucidate some of the underlying reasons for the ongoing disparities in smoking prevalence.

Method

We used data from six waves – 2004, 2007, 2010, 2013, 2016, and 2019 – of the National Drug Strategy Household Survey (NDSHS), a triennial household survey that collects information on alcohol and tobacco consumption, and illicit drug use, among the general population in Australia. The NDSHS is conducted by the Australian Institute of Health and Welfare (AIHW) with a sample of about 24,000 participants per wave and a usual response rate of about 50%. More detailed descriptions of the NDSHS design and methodology for each wave are available elsewhere.[28]

Measures

Mental health status

Participants indicated whether they had been diagnosed with and/or treated for at least one of a range of mental illnesses in the past 12 months, including: depression; anxiety disorder; schizophrenia; bipolar disorder; other form of psychosis; and/or an eating disorder. The 10-item Kessler Psychological Distress Scale (K10) was also included,[29] which asked all participants about their emotional states in the past four weeks with a five-level response scale (from 1 = 'none of the time' to 5 = 'all of the time'). Based on their responses to the ten items, participants' overall level of psychological distress was categorised as low (score range 10–15), moderate (16–21), high (22–29) or very high (30–50).

Smoking status

Participants were asked a number of questions about their tobacco use, such as 'How often do you now smoke cigarettes, pipes or other tobacco products?' and 'Would you have smoked at least 100 cigarettes (manufactured or roll-your-own), or the equivalent amount of tobacco in your life?' Ever smokers were defined as all those who reported having smoked at least 100 cigarettes or the equivalent amount of tobacco. Regular smokers were defined as those who reported smoking daily or weekly, ex-smokers were defined as those who used to smoke but did not currently smoke at the time of the survey and who had smoked at least 100 cigarettes in their lifetime, and never smokers were defined as those who reported not having smoked at least 100 cigarettes. Past-year smokers were defined as those who reported smoking at least 100 cigarettes in their life and who reported currently smoking (daily, weekly, or less than weekly), or who responded that they did not currently smoke but had smoked in the past year. The quit proportion was calculated by dividing the proportion of ex-smokers by the proportion of ever smokers. Among regular smokers, weekly cigarette consumption was calculated by combining responses to two questions measuring the frequency of use of manufactured cigarettes and roll-your-own cigarettes. Heavy/pack-a-day smokers were defined as those who smoked 20 or more cigarettes per day.

Quit attempts

Past-year smokers were asked about any changes in their smoking behaviours. Successful quit attempts were defined by responses to 'In the last 12 months, have you successfully given up smoking (for more than a month)?', while unsuccessful quit attempts were defined by 'In the last 12 months, have you tried to give up unsuccessfully?'; participants were able to indicate that they had made both successful and unsuccessful attempts. Participants who selected either response (or both) were defined as having made a quit attempt in the past year.

Use of cessation aids

Past-year smokers reported whether, in the past year, they had: 'contacted the Quitline'; 'asked your doctor for help to quit'; 'used nicotine gum, patch, inhaler or spray'; 'used a smoking cessation pill (e.g. Zyban or Champix)'; 'read information on the internet or a brochure on how to quit'; 'used quit smoking app'; or 'used e-cigarettes to help quit smoking regular tobacco cigarettes'.

Demographics

Participants reported their age and sex, and socio-economic status was measured using the Socio-Economic Indexes for Areas (SEIFA). SEIFA is an area-level index of relative advantage or disadvantage developed by the Australian Bureau of Statistics (ABS).

Statistical analysis

Data were weighted to account for the probability of selection, household size, age, sex and geography.[30] All statistical analyses were conducted using Stata V.14.2 using weighted data (using the svy command with 'p' weights). To ensure correct estimation of the standard errors, an unconditional approach (i.e. the 'subpopulation' command in Stata) was used to limit the sample as appropriate for each analysis. First, we examined trends over time in the prevalence of regular smokers and never smokers, quit proportions, and the proportion of past year smokers making quit attempts (successful and unsuccessful) by mental health status using a series of logistic regression models in which year was entered as a continuous predictor variable. We also tested for interactions between year and mental health status for these outcomes, and we tested differences within each year in the odds of being a regular smoker among those with and without mental illnesses.

Logistic regression models were also used to examine differences by mental health status in the proportion of past year smokers using cessation aids in 2004 and again in 2019, in order to obtain a picture of differences in quitting behaviours that could underlie any persisting disparities. We also tested for differences by mental health status in weekly cigarette consumption using linear regression, and in the proportion who smoked daily and were categorised as heavy/pack-a-day smokers using logistic regressions (in 2004 and 2019 only). Finally, among ever smokers with a mental illness in 2019, we examined differences in levels of psychological distress by quit status, with each level of distress as a separate binary outcome and quit status as a binary predictor. We also examined whether the proportion of current and ex-smokers with each level of

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psychological distress changed over time. All regression models adjusted for SEIFA, sex and age and an alpha of 0.05 was used as the criterion level of statistical significance for all analyses.

Results

Prevalence of mental illness

In 2019, 16.9% of Australians aged 18+ reported that they had been diagnosed with and or/treated for one or more mental illnesses in the past year. Among those with mental illness, 78.6% reported having depression, 68.4% reported having an anxiety disorder, and 14.1% reported one or more of the 'other' conditions (schizophrenia, bipolar disorder, an eating disorder, or other form of psychosis). Between 2004 and 2019, there was a significant increase in the proportion of Australians reporting mental illness (AOR=1.05, 95%CI [1.04, 1.05]; 2004: 9.3%, 2007: 11.1%, 2010: 12.0%, 2013: 13.9%, 2016: 15.8%, 2019: 16.9%).

Smoking prevalence

Figure 1 shows the proportion of Australian adults aged 18+ who were regular smokers, by mental health status, from 2004 to 2019. In each of the survey years, adults with mental illness were about twice as likely to report being a regular smoker as those without (2004: AOR=1.90, 95%CI [1.70, 2.13]; 2007: AOR=2.04, 95%CI [1.81, 2.29]; 2010: AOR=2.06, 95%CI [1.85, 2.29]; 2013: AOR=1.89, 95%CI [1.68, 2.12]; 2016: AOR=2.49, 95%CI [2.23, 2.79]; 2019: AOR=2.24, 95%CI [1.98, 2.53]).

Although there was a significant linear decrease over time in the prevalence of regular smoking, both among those with mental illness and those without, the interaction of mental health status by year for regular smoking was significant (F=8.41, p=0.001). Examination of the data in Figure 1 suggested that patterns in smoking changed from 2013 onward, and subsequent exploratory analyses indicated that between 2013 and 2016 the prevalence of smoking decreased among those without mental illness (AOR=0.88, 95%CI [0.82, 0.95]), but *increased* among those with mental illness (AOR=1.16, 95%CI [1.01, 1.33]). For the two most recent survey years (2016–2019), prevalence decreased among both groups (with mental illness: AOR=0.83, 95%CI [0.72, 0.96]; without: AOR=0.91, 95%CI [0.83, 0.98]).

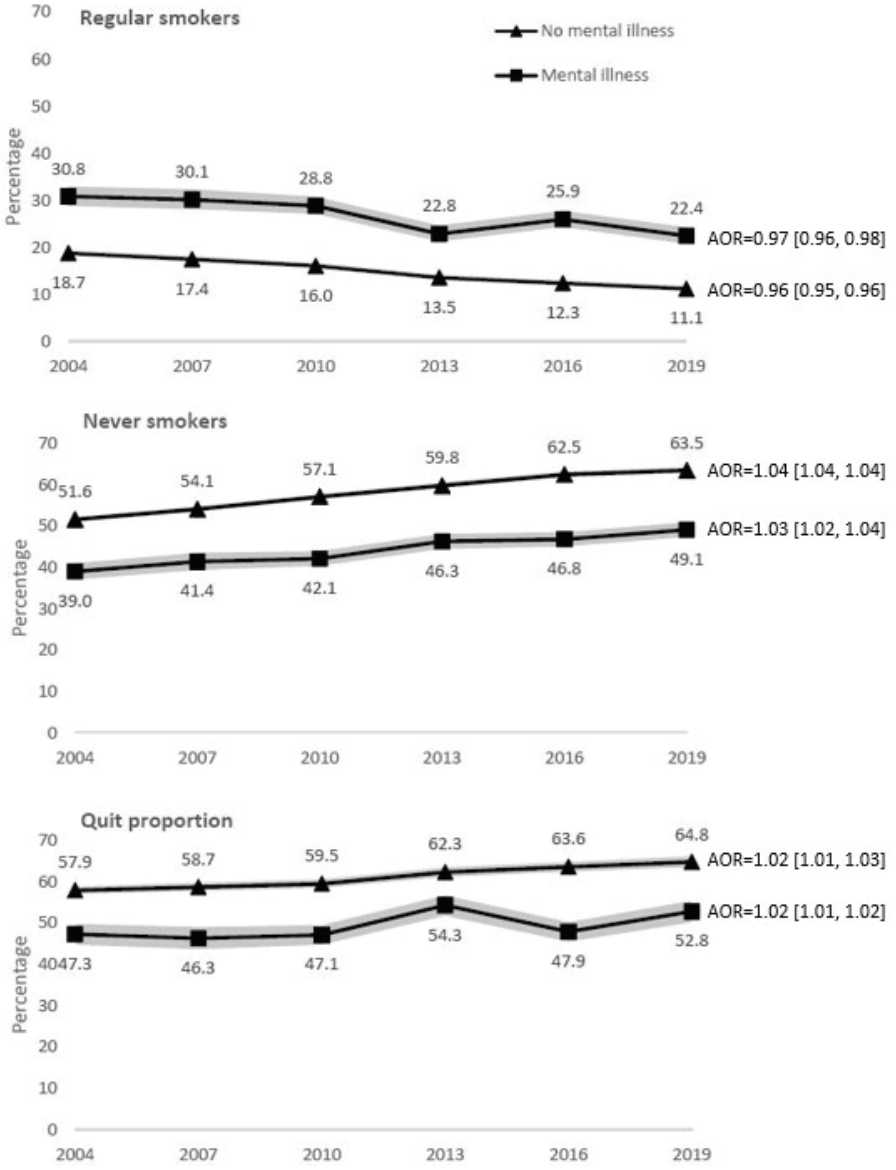
Smoking uptake

Figure 1 shows the proportion of never smokers by mental illness status, from 2004 to 2019. There has been progress since 2004 in increasing the proportion of never smokers, with significant linear increases in both groups. Again, there was a significant mental health status by year interaction for never smoking (F=6.30, p=0.012). Between 2013 and 2016, there was a significant increase among those without mental illness (AOR=1.14, 95%CI [1.09, 1.20]), but no change in the proportion of adults with mental illness who were never smokers (AOR=1.03, 95%CI [0.91, 1.16]). Between 2016 and 2019, there was no significant change among either group (with mental illness: AOR=1.05, 95%CI [1.00, 1.11]; without: AOR=1.08, 95%CI [0.96, 1.21]).

Quit proportions

Figure 1 shows the quit proportion by mental illness status over time. Between 2004 and 2019 there was a small but significant increase in the quit proportion among both groups. Although the interaction of mental health status by year for quit proportions was non-significant (F=0.01, p=0.928), examination of the data in Figure 1 suggested that the pattern was more variable over time

Figure 1: Proportion of regular (daily or at least weekly) smokers, never smokers, and ever smokers who have quit ("quit proportion") among those with and without mental illness, Australians aged 18+, 2004–2019.



Notes:

Shaded areas show 95%CIs.

Weighted Ns (2004 | 2019): Regular smokers (with mental illness: 430,436 | 702,882; without: 2,534,478 | 1,723,653); Never smokers (with mental illness: 545,666 | 1,544,026; without: 6,988,847 | 9,828,828); Quit proportion: (with mental illness: 403,863 | 844,531; without: 3,797,306 | 3,658,112)

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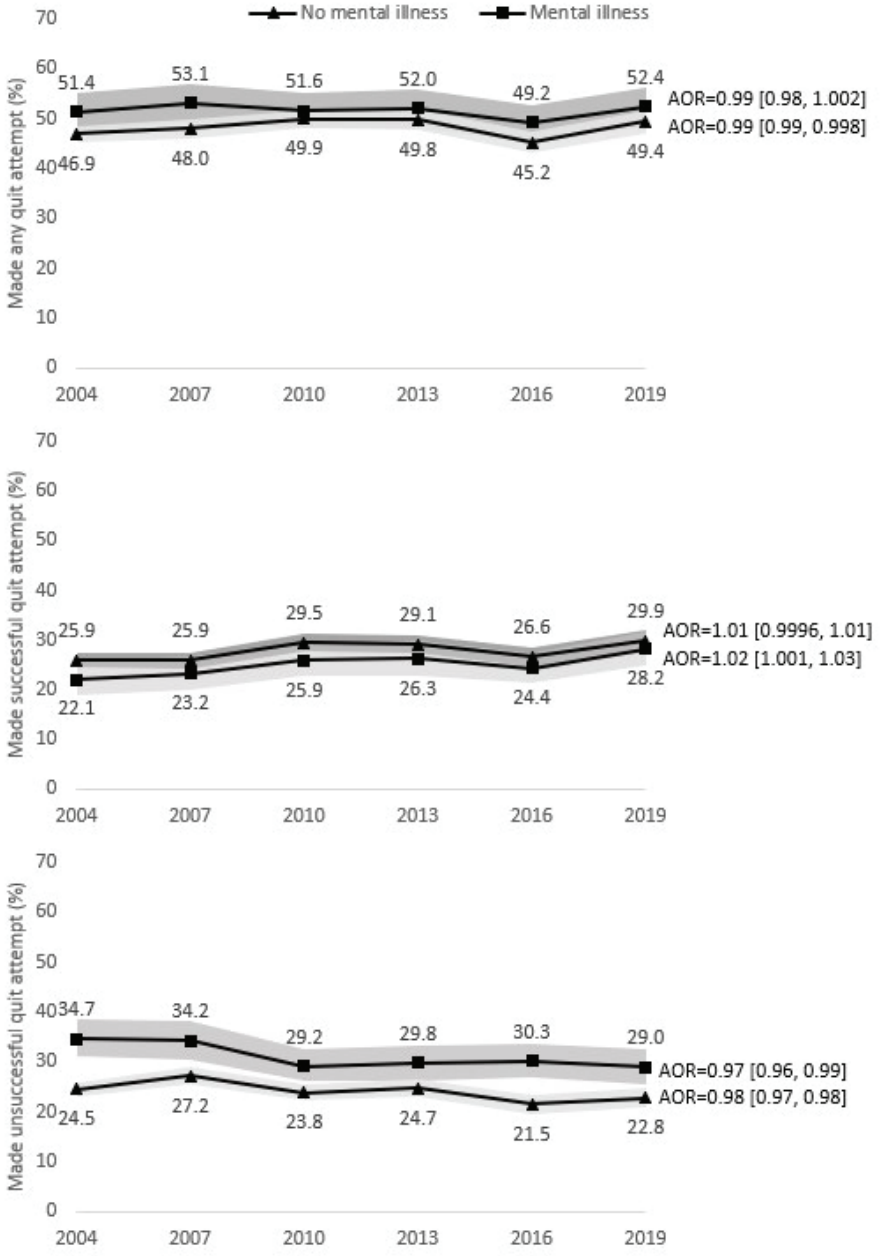
for those with mental illness than for those without. There was a significant decrease in the quit proportion between 2013 and 2016 among those with mental illness (AOR=0.79, 95%CI [0.67, 0.93]), and no change among those without (AOR=1.02, 95%CI [0.94, 1.11]). For the most recent period of 2016–2019, there was again no change among those without mental illness (AOR=1.03, 95%CI [0.94, 1.13]), but the quit proportion significantly *increased* among those with mental illness (AOR=1.22, 95%CI [1.04, 1.43]).

Quit attempts

The prevalence of quit attempts among past-year smokers with and without mental illness from 2004 to 2019 are presented in Figure 2. Among those with mental illness – although there was no change over time in the proportion who had made any quit attempt – there was a small linear increase in successful attempts, and a small linear decrease in unsuccessful attempts. Attempts were higher among those with mental illness in 2004 (AOR=1.20, 95%CI [1.02, 1.42]) and 2007 (AOR=1.26 [1.05, 1.51]), but from 2010 onwards there were no differences in the proportion of smokers with and without mental illness who made a quit attempt (2010: AOR=1.08 [0.92, 1.27]; 2013: AOR=1.12 [0.94, 1.34]; 2016: AOR=1.18 [0.99, 1.40]; 2019: AOR=1.13 [0.93, 1.37]). Between 2004 and 2019 there were no differences in rates of successful quit attempts (2004: AOR=0.84, 95%CI [0.68, 1.02]; 2007: AOR=0.90 [0.72, 1.11]; 2010: AOR=0.88 [0.73, 1.06]; 2013: AOR=0.90 [0.74, 1.11]; 2016: AOR=0.92 [0.75, 1.11]; 2019: AOR=0.95 [0.77, 1.17]). However, smokers with mental illness were significantly more likely to report an unsuccessful attempt in each survey year (2004: AOR=1.60, 95%CI [1.33, 1.91]; 2007: AOR=1.41 [1.17, 1.70]; 2010: AOR=1.26 [1.06, 1.51]; 2013: AOR=1.28 [1.05, 1.56]; 2016: AOR=1.56 [1.28, 1.90]; 2019: AOR=1.34 [1.09, 1.66]).

Figure 2: Prevalence of quit attempts by mental health status among past year smokers, aged 18+, 2004–2019.



Notes:

Shaded areas show 95%CIs

Participants were asked 'In the last 12 months, have you successfully given up smoking (for more than a month)?' and 'In the last 12 months, have you tried to give up unsuccessfully?'. Participants were able to report having made both successful and unsuccessful quit attempts in the last 12 months

Use of cessation aids

In 2004, among past year smokers who made a quit attempt, there were no differences in the use of pharmacotherapies, but those with mental illness were significantly more likely to have called the Quitline, read internet/brochure information, or asked their doctor for help to quit. In 2019, those with mental illness were significantly more likely to report the use of almost all cessation aids than those without, with the exception of having read information on the internet or a brochure on how to quit (where there was no difference; see Table 1).

Consumption

In 2004 and 2019, regular smokers with mental illness smoked an average of about one extra pack per week compared to those without mental illness (2004: 135 and 114 cigarettes per week, respectively, F=28.47, $p<0.001$; 2019: 117 and 98 cigarettes per week, respectively, F=14.33, $p<0.001$).

Current smokers with mental illness were significantly more likely to smoke daily than those without mental illness (2004: 91.4% and 83.3%, respectively, AOR=2.12, 95%CI [1.55, 2.90]; 2019: 83.8% and 76.9%, respectively, AOR=1.50, 95%CI [1.13, 2.01]). Among daily smokers, those with mental illness were also significantly more likely to be heavy/pack-a-day smokers than those without mental illness (2004: 50.8% and 42.6%, respectively, AOR=1.51 95%CI [1.23, 1.85]; 2019: 37.3% and 32.3%, respectively, AOR=1.38, 95%CI [1.06, 1.78]).

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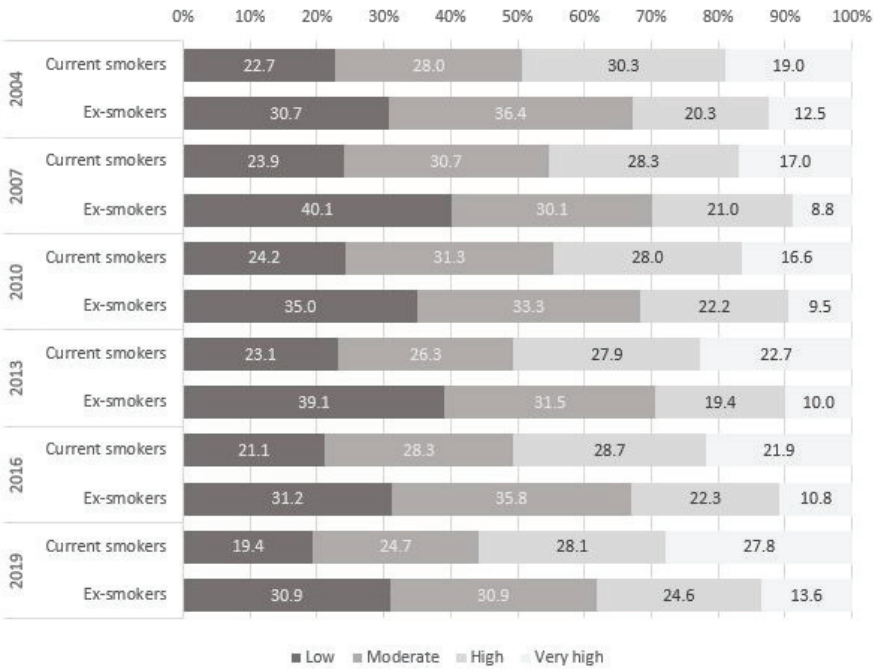
Psychological distress

Among those who reported mental illness in 2019, compared with current smokers, ex-smokers were significantly more likely to report low levels of psychological distress (AOR=1.51, 95%CI [1.15, 1.98]), and conversely, were significantly less likely to report very high levels of psychological distress (AOR=0.55, 95%CI [0.40, 0.76]; Figure 3). There were no significant differences in levels of moderate (AOR=1.19, 95%CI [0.93, 1.54]) or high (AOR=0.90, 95%CI [0.68, 1.18]) psychological distress between current smokers and ex-smokers in 2019. The only significant change over time was an increase in the proportion of current smokers with mental illness who reported very high levels of psychological distress (AOR=1.04, 95%CI [1.02, 1.05]).

Figure 3: Level of psychological distress by quit status among ever smokers with mental illness, Australians aged 18+ years, 2004–2019.



Conclusions

This study used nationally representative data to examine the smoking prevalence and quitting behaviours among people with and without mental illness between 2004 and 2019. Overall, there has been a decrease in regular smoking and an increase in never smoking among both groups. However, smoking prevalence among those with mental illness remained substantially higher in each of the survey years, and progress has varied over time. Nonetheless, for the most recent survey period (2016–2019), the prevalence of regular smoking decreased and there was an increase in the proportion who had quit, indicating some headway in increasing smoking cessation among people with mental illness in Australia.

Table 1: Use of cessation aids by mental health status, among past-year smokers who had made at least one quit attempt, 2004 (Weighted N=1,431,289) and 2019 (Weighted N=1,696,707).

Use of cessation aids	2004				2019			
	Weighted N	Weighted per cent	AOR (95% CI)[a]	*p* value	Weighted N	Weighted per cent	AOR (95% CI)[a]	*p* value
Used NRT								
No mental illness	338,001	27.9%	1.00		241,996	19.6%	1.00	
Mental illness	68,534	31.2%	1.15 (0.87, 1.51)	0.320	164,705	35.4%	2.14 (1.59, 2.90)	<0.001
Used cessation pill (e.g. Zyban/Champix)								
No mental illness	72,798	6.0%	1.00		107,093	8.7%	1.00	
Mental illness	17,244	7.9%	1.23 (0.77, 1.94)	0.386	70,770	15.2%	1.69 (1.15, 2.48)	0.007
Asked doctor for help to quit								
No mental illness	112,236	9.3%	1.00		133,672	10.9%	1.00	
Mental illness	43,609	19.9%	2.21 (1.60, 3.06)	<0.001	117,150	25.2%	2.50 (1.76, 3.55)	<0.001
Contacted the Quitline								
No mental illness	52,236	4.3%	1.00		20,135	1.6%	1.00	
Mental illness	25,112	11.4%	2.86 (1.90, 4.32)	<0.001	25,784	5.5%	2.84 (1.45, 5.55)	0.002
Read internet/brochure for quitting help[b]								
No mental illness	193,953	16.0%	1.00		113,659	9.2%	1.00	
Mental illness	72,123	32.8%	2.49 (1.84, 3.36)	<0.001	67,732	14.6%	1.41 (0.96, 2.06)	0.076
Used quit smoking mobile app[c]								
No mental illness					89,651	7.3%	1.00	
Mental illness					69,026	14.8%	1.85 (1.22, 2.82)	0.004
Used e-cigarettes[c]								
No mental illness					139,152	11.3%	1.00	
Mental illness					79,892	17.2%	1.66 (1.14, 2.41)	0.008

Notes:

a: AOR were estimated using logistic regression, adjusting for age, sex, and SEIFA

b: In 2013 and earlier years, this was asked as two separate questions: 'During the last 12 months, have you read How to Quit' literature?' And 'During the last 12 months, have you used the internet to help you quit?'

c: Questions not asked in 2004

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In contrast to common beliefs that smokers with mental illness do not want to quit,[19,31] results show that while smokers with mental illness reported greater tobacco consumption, they were just as likely to make quit attempts and were often more likely to use cessation aids. However, they reported less success in their quitting efforts. Rather than a lack of motivation or disinterest in using cessation support, a key driver of continuing disparities appears to be the greater difficulty people with mental illness experience turning quit attempts into sustained cessation, perhaps largely due to their greater physical and psychological nicotine dependence, as well as social – environmental factors such as lower socioeconomic status, smoking stigma, and lack of support to quit.[32]

Earlier Australian research found no increase in the prevalence of psychological distress among smokers between 1997 and 2007;[33] however, the present findings showed an increase in the proportion of smokers with mental illness with very high levels of psychological distress over time. Results also showed that more than one in four people with mental illness who were still smoking reported very high levels of psychological distress in 2019, compared with one in seven who had quit. Together, these findings are consistent with evidence showing that those with higher levels of psychological distress and severe mental illness find it more difficult to quit,[7] as well as the ineffectiveness of smoking for managing psychiatric symptoms, and the mental health benefits of smoking cessation.[13]

High rates of failure in quitting among those with mental illness highlight the need for a greater focus on treatment efficacy, particularly in light of greater levels of nicotine dependency suggested by heavier smoking. Although the NDSHS does not measure adherence with NRT, in general, it is known that many smokers do not use the products as directed.[34] Further, clinical best practice suggests higher and/or extended doses of NRT may be appropriate for heavier smokers, but this is not reflected in the product information provided to consumers.[35] Only nicotine patches, gum or lozenges are available at reduced cost as part of the Australian Government's Pharmaceutical Benefits Scheme (PBS); however, best practice for nicotine dependent smokers is combination therapy[36] – a long-acting patch in combination with fast-acting products.

The use of quitlines is more common among smokers with mental illness in Australia than among the rest of the population. However, the rate of use is nevertheless low, indicating that very few used best practice treatment, i.e. multi-session behavioural intervention plus pharmacotherapies.[26] Among those who contacted Quitline, the level of support may also vary, from brief intervention (i.e. one call) through to a series of calls that spans pre- to post-quitting. Victorian Quitline clients received an average of 2.7 calls in 2019 (personal communication with L. Whelan, Quitline manager, September 2021). In Australia, Quitline is the most readily available and cheapest multi-session behavioural intervention, and such services can have positive impacts on smoking cessation among people with mental illness[37] and are just as effective as face-to-face interventions.[38] Many quitline services offer coordinated care with clinicians, and some have introduced monitoring of nicotine withdrawal symptoms and common medication side effects for people with mental illness.[39]

Healthcare providers are important sources of smoking cessation support for smokers with mental illness, with one-quarter of smokers with mental illness who made a quit attempt reporting they had asked a doctor for help to quit. Healthcare providers and policy makers should focus on the development and dissemination of supportive systems, policies and training that set expectations regarding the provision of cessation treatment. Quality improvement payments from government to health services can increase the delivery of best practice cessation treatment.[40] Staff training increases the provision of cessation support,[41] and should include how to deliver brief advice, the benefits of cessation, and the effectiveness of quitlines, and the safety of pharmacotherapies.[23] Provision of NRT vouchers via quitlines (as is done in New Zealand) would help increase the use of combination NRT in Australia, but such vouchers are currently only available for priority population smokers in Queensland. In addition, while smoke-free inpatient services routinely offer free combination NRT, it is rare for combination NRT to be provided on discharge, despite evidence that this strategy combined with telephone counselling can increase cessation among people with mental illness.[42]

About one in six smokers with mental illness who made a quit attempt reported using e-cigarettes as a cessation aid. From 1 October 2021, an Australian medical prescription is required to purchase nicotine vaping products (NVPs). Updated national guidelines note that NVPs remain an unapproved medicine and are not a first-line treatment for smoking cessation, i.e. may be considered with ongoing behavioural support for people who have tried to quit with Therapeutic Goods Administration (TGA)-approved pharmacotherapies combined with behavioural intervention but failed and are still motivated to quit smoking.[26] The guidelines note the limited evidence for NVPs as a cessation aid and make practice recommendations to minimise risks of NVP use, including for people with mental illness. Future research should monitor how e-cigarettes are being used by people with mental illness. The effects of e-cigarette use on mental health – and particularly whether such use has similar negative effects to smoking – also warrants careful attention.[43]

As almost one-third (29%) of daily smokers reported having a mental illness in 2019,[44] population-level approaches need to be at least as effective with this group. People with mental illness are highly responsive to price increases,[45] and more than half of Australian smokers reported that the cost of cigarettes had motivated them to try quitting in 2019.[44] However, no further real increases in the tobacco excise duty are scheduled. Mass-reach communications such as graphic health warnings and health promotion pack inserts could educate smokers about the mental health benefits of quitting and stimulate quit attempts. Research from the US has shown that public education campaigns featuring people with mental illness can increase quit attempts among people with mental illness;[46] such campaigns may also help to reduce disparities in Australia. Recently there has been little to no expenditure on whole-of-population national mass media campaigns in Australia.[47] Without additional emphasis on effective population-level strategies, quit attempts could fall in coming years among both those with and without mental illness.

Strengths and limitations

Findings from the present study are cross-sectional and therefore are limited in establishing causation. For example, although other cohort studies have demonstrated that quitting is associated with improvements in mental health,[13] those with lower levels of psychological distress may find it easier to quit. Further, people in institutional settings and those experiencing homelessness are excluded from NDSHS sampling. Due to substantial overlap in respondents diagnosed

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with depression and anxiety and only small numbers of those diagnosed with other mental illnesses in the dataset, it was not possible to examine differences by diagnosis. Thus, the present findings may underestimate the smoking prevalence and overestimate quitting behaviours among those with severe mental illness.

Strengths of the study include the use of nationally representative data over an extended period to examine trends over time. To our knowledge, this is the first study to explore quitting behaviours among those with mental illness at the population level in Australia. Other strengths include the large sample size and consistent measurement of outcomes within each survey year.

Implications for public health

Despite significant progress in reducing the prevalence of smoking in Australia, it remains substantially higher among people with mental illness. Nonetheless, the most recent findings indicate some encouraging progress. Further progress in reducing smoking and its enormous harms requires the continuation and strengthening of existing evidence-based tobacco control strategies, as well as targeted and innovative approaches that can address the unique barriers people with mental illness face to achieving cessation.

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