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Talking About The Smokes

Transforming the evidence to guide Aboriginal and Torres Strait Islander tobacco control

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Talking About The Smokes (TATS) is a model for how to do a large national epidemiological project in partnership with Aboriginal communities, the National Aboriginal Community Controlled Health Organisation (NACCHO) and the Aboriginal community-controlled health service (ACCHS) sector. Research has not always been done well in or in partnership with Aboriginal and Torres Strait Islander communities, which can make undertaking research with the sector challenging. The TATS project, however, has always felt like a full and respectful partnership between the ACCHS sector and research organisations, and between Aboriginal and non-Aboriginal people. We have appreciated our involvement in all elements of the project, the clarity of the formal agreements, and the funding and support of project staff employed at NACCHO and in our member ACCHSs. Our concerns and priorities were always addressed.

The ACCHS sector recognises how important undertaking research is to reduce smoking in our communities. Because TATS has been done ethically, we can have confidence in using the evidence from this project to improve our policies and programs to reduce the damage that smoking does to our people and communities.

Lisa Briggs

Chief Executive Officer
National Aboriginal Community
Controlled Health Organisation

Talking About The Smokes

Transforming the evidence to guide Aboriginal and Torres Strait Islander tobacco control

Project leader: David Thomas

Better Knowledge, Better Health
(Commissioned for Talking About The Smokes)

Artist's statement:
I created this artwork to highlight the significance of the work that is currently being undertaken to tackle Indigenous smoking. Having worked in this area for almost 8 years, I have personally seen the changes our community is experiencing in the reduction of tobacco use.

This artwork symbolises the unity between community and organisations (the circles) to reduce the burden of tobacco. Our people are becoming healthier and are living longer (symbolised by the leaves). The blue repeating pattern represents that we are forever learning, moving forward and improving our health by sharing the knowledge and information we gather through our stories and experiences. The white lines connecting the circles reflect the meaningful partnerships and connections we have to each other and to our communities.

Jasmine Sarin
February 2015

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The baseline cross-sectional results from the Talking About The Smokes project outlined in this supplement (and summarised in the Box) provide the most detailed national evidence yet to guide practice and policy to reduce the harm caused by tobacco smoking among Aboriginal and Torres Strait Islander peoples. The national prevalence of daily smoking in the Aboriginal and Torres Strait Islander population is falling, but at 42% is still 2.6 times that of other Australians.[1] Research evidence to guide Aboriginal and Torres Strait Islander tobacco control has been constrained by the uncertainties of generalising from small local research projects or from the large body of research in other populations. There have been competing hypotheses about whether Aboriginal and Torres Strait Islander smoking and quitting behaviour is similar to or different from other populations. These new results suggest many similarities with other populations.

We found the proportion of Aboriginal and Torres Strait Islander daily smokers who want to quit, have made a quit attempt in the past year, live in smoke-free homes and work in smoke-free workplaces is similar to that of the general population. Similar proportions also demonstrate knowledge of the most harmful health effects of smoking and hold negative personal attitudes towards smoking.

But there are also differences. Fewer Aboriginal and Torres Strait Islander daily smokers than other Australians have ever made a quit attempt or sustained a quit attempt for at least a month, and a lower proportion agree that social norms disapprove of smoking. Even though similar proportions agree that nicotine replacement therapy and stop-smoking medicines help smokers to quit, fewer have used these. In contrast, a higher proportion recalled being advised to quit by a health professional in the past year.

There are also differences in smoking and quitting behaviour and beliefs *within* the Aboriginal and Torres Strait Islander population, although the socioeconomic gradients were not consistent. For example, more employed people than those who were not employed wanted to quit, had ever tried to quit, had sustained a quit attempt for at least a month, knew about the harms of smoking, had a smoke-free home, had been advised to quit and had used nicotine replacement therapy or stop-smoking medicines. But there were no differences by employment status in quit attempts in the past year, recall of exposure to health information or in many of the attitudes towards smoking.

Using this new information, health staff working directly with Aboriginal and Torres Strait Islander smokers can be encouraged to do more, knowing that most of the smokers they see will want to quit, already know that smoking and passive smoking are harmful, and are likely to live in a smoke-free home and have a history of recent quit attempts. They can be confident that their messages will be understood and welcomed, then focus on the more difficult task of helping people to successfully sustain their quit attempts.

Those working in clinics can build on their existing good work in ensuring that most Aboriginal and Torres Strait Islander smokers regularly receive brief advice about smoking cessation. They can encourage more smokers to use evidence-based measures to prevent relapse during their next quit attempt, such as stop-smoking medicines, the telephone Quitline, and quit-smoking courses, clinics and groups.

Those working in health promotion will need to continue to reinforce and enhance social norms about being smoke-free, to encourage quit attempts and to support smokers trying to sustain quit attempts. There is a need for continued mainstream and national social marketing campaigns, especially those that build on the particular salience of Aboriginal and Torres Strait Islander smokers' concerns about the harmful effects of their smoking on others. Local and Aboriginal and Torres Strait Islander campaigns also appear to be useful.

There are also messages for public health professionals, policymakers, funders and managers. They can justify investing health resources in tobacco control, not only because smoking causes 20% of Aboriginal and Torres Strait Islander deaths,[2] but also because improvement is clearly possible. Our findings support maintaining an ongoing commitment to a comprehensive approach to Aboriginal and Torres Strait Islander tobacco control, rather than relying excessively on any single strategy or element. Those working directly with Aboriginal and Torres Strait Islander smokers should be made aware of this new evidence and aided in reorienting their practice to accommodate it. One of the specific challenges will be how to efficiently fund targeted social marketing activity, without wasting social marketing resources through too much fragmentation.[3]

Most recent national policy attention has concentrated on the large increase in dedicated funding initiated by the previous federal government through the Tackling Indigenous Smoking program, followed by the announced cuts to this funding and the review of the program in 2014. The information in this supplement is useful to guide the evolution of the program, but also reminds us that this is only part of the story. Aboriginal and Torres Strait Islander smoking is also being tackled through mainstream tobacco control activities (advertising campaigns, pack warnings and plain packaging, and smoke-free

Key findings from the baseline survey of the Talking About The Smokes project

We interviewed a nationally representative sample of 2522 Aboriginal and Torres Strait Islander people from 35 locations across Australia, including 1643 smokers (1392 daily smokers), 78 ex-smokers who had quit ⩽12 months before, 233 ex-smokers who had quit >12 months before, and 568 never-smokers.

Quitting (*pages S20, S26 and S39*)

- 70% of smokers want to quit
- 69% of daily smokers had ever made a quit attempt
- 48% of daily smokers had made a quit attempt in the past year
- 47% of daily smokers who had made a quit attempt in the past 5 years had sustained an attempt for at least 1 month
- 70% of daily smokers who had made a quit attempt in the past 5 years had strong cravings during their most recent quit attempt, and 72% found it hard to be around smokers

Second-hand smoke (*pages S33 and S63*)

- 53% of daily smokers reported that smoking was never allowed anywhere inside their home
- 88% of employed daily smokers reported that smoking was not allowed in any indoor area at their workplace
- 77% of daily smokers agreed that smoking should be banned everywhere (both indoors and outdoors) at Aboriginal community-controlled health services, 93% agreed it should be banned indoors at other Aboriginal organisations, and 51% agreed it should be banned at outdoor festivals and sporting events

Knowledge of the health effects of smoking and second-hand smoke (*page S45*)

- Most daily smokers reported knowing that smoking causes lung cancer (94%), heart disease (89%) and low birthweight (82%), but fewer were aware that it makes diabetes worse (68%)
- Most daily smokers reported knowing that second-hand smoke is dangerous to non-smokers (90%) and children (95%) and that it causes asthma in children (91%)

Personal attitudes towards smoking (*page S51*)

- 78% of daily smokers agreed that if they had to do it over again, they would not have started smoking
- 81% of daily smokers agreed that they spend too much money on cigarettes
- 32% of daily smokers agreed that smoking is an important part of their life

Social norms about smoking (*page S57*)

- 62% of daily smokers agreed that mainstream society disapproves of smoking, and 40% agreed that their local community leaders disapprove of smoking
- 70% of daily smokers agreed that there are fewer and fewer places where they feel comfortable smoking
- 90% of daily smokers agreed that being a non-smoker sets a good example to children

Anti-tobacco health information (*page S67*)

- 65% of smokers recalled often noticing pack warning labels in the past month
- 45% of smokers recalled often noticing anti-tobacco advertising or information in the past 6 months, most commonly on television
- 48% of smokers recalled ever noticing any targeted advertising or information featuring Aboriginal and Torres Strait Islander people or artwork in the past 6 months, with 16% noticing advertising or information featuring local people or artwork

Cessation support (*pages S73 and S78*)

- 75% of daily smokers who had seen a health professional in the past year had been advised to quit
- 37% of daily smokers had ever used nicotine replacement therapy or stop-smoking medicines, and 23% had used them in the past year
- Among all smokers and ex-smokers who had quit ⩽12 months before, nicotine patches were most commonly used (24%), followed by varenicline (11%) and nicotine gum (10%)

We also surveyed 645 staff at 31 Aboriginal community-controlled health services, including 374 Aboriginal and Torres Strait Islander staff who had a lower age- and sex-standardised prevalence of smoking compared with a national sample of the Aboriginal and Torres Strait Islander population (*page S85*). ◆

regulation) and activities already incorporated into routine health care (brief advice and individual cessation support).

This is only the beginning of the evidence that will emerge from the Talking About The Smokes project. It was designed primarily as a cohort study, and analyses of the prospective longitudinal data of the 849 recontacted smokers and ex-smokers will enable more definitive causal interpretations. The involvement of Aboriginal and Torres Strait Islander people and the Aboriginal community-controlled health service sector in all aspects of this project will facilitate the translation of the results into improved practices and policies that will reduce the harm caused by smoking in Aboriginal and Torres Strait Islander communities.

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Research methods of Talking About The Smokes: an International Tobacco Control Policy Evaluation Project study with Aboriginal and Torres Strait Islander Australians

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Abstract

Objective: To describe the research methods and baseline sample of the Talking About The Smokes (TATS) project.

Design: The TATS project is a collaboration between research institutions and Aboriginal community-controlled health services (ACCHSs) and their state and national representative bodies. It is one of the studies within the International Tobacco Control Policy Evaluation Project, enabling national and international comparisons. It includes a prospective longitudinal study of Aboriginal and Torres Strait Islander smokers and recent ex-smokers; a survey of non-smokers; repeated cross-sectional surveys of ACCHS staff; and descriptions of the tobacco policies and practices at the ACCHSs. Community members completed face-to-face surveys; staff completed surveys on paper or online. We compared potential biases and the distribution of variables common to the main community baseline sample and unweighted and weighted results of the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS). The baseline survey (Wave 1) was conducted between April 2012 and October 2013.

Setting and participants: 2522 Aboriginal and Torres Strait Islander people in 35 locations (the communities served by 34 ACCHSs and one community in the Torres Strait), and 645 staff in the ACCHSs.

Main outcome measures: Sociodemographic and general health indicators, smoking status, number of cigarettes smoked per day and quit attempts.

Results: The main community baseline sample closely matched the distribution of the Aboriginal and Torres Strait Islander population in the weighted NATSISS by age, sex, jurisdiction and remoteness. There were inconsistent differences in some sociodemographic factors between our sample and the NATSISS: our sample had higher proportions of unemployed people, but also higher proportions who had completed Year 12 and who lived in more advantaged areas. In both surveys, similar percentages of smokers reported having attempted to quit in the past year, and daily smokers reported similar numbers of cigarettes smoked per day.

Conclusion: The TATS project provides a detailed and nationally representative description of Aboriginal and Torres Strait Islander smoking behaviour, attitudes, knowledge and exposure to tobacco control activities and policies, and their association with quitting.

Australia is a world leader in tobacco control and in reducing its national smoking prevalence. However, 42% of Aboriginal and Torres Strait Islander Australians aged 15 years or older were daily smokers in 2012–2013 — 2.6 times the age-standardised prevalence among other Australians.[1] Tobacco smoking was responsible for 20% of deaths and 12% of the total burden of disease in the Aboriginal and Torres Strait Islander population, and 17% of the health gap with other Australians in 2003.[2,3]

In response, community and government attention to Aboriginal and Torres Strait Islander tobacco control has increased in recent years, including increased government funding.[4] It is important to understand what is assisting Aboriginal and Torres Strait Islander smokers to quit, both to evaluate the impact of current tobacco control efforts and to identify new strategies.

The International Tobacco Control Policy Evaluation Project (ITC Project) was established in 2002 to assess the effectiveness of national policy provisions in the World Health Organization Framework Convention on Tobacco Control.[5,6] ITC Project studies have been undertaken in more than 20 countries, following up nationally representative cohorts of smokers, asking questions about smoking attitudes, behaviour and exposure to different tobacco control policies and activities. Additional smokers are recruited in subsequent survey waves to replenish the sample, replacing those lost to follow-up. The survey questions are based on a conceptual model that describes the causal pathways from policies to public health impact.[6] This allows assessment of the impact of policies on behaviour and attitudes along the theorised causal pathway, and the investigation of how these impacts are moderated by other factors, such as sociodemographic factors, dependence and smoking history.

These key elements of the ITC Project (longitudinal design, comparisons between groups and countries exposed to different policies, and the conceptual model) have led to it being accepted as the most rigorous method of evaluating national tobacco control policies. They have now been used and adapted by those researching alcohol policy.[7,8]

Here, we describe the research methods used in the Talking About The Smokes (TATS) project, the first ITC Project study to sample only a high smoking prevalence subpopulation within a country; in this case, Aboriginal and Torres Strait Islander peoples. Like other studies of the ITC Project, it will answer research questions about the impact of tobacco control policies and activities along the theorised causal pathway to quitting, and compare findings with other ITC Project studies, especially the broader Australian surveys. We also compare

the baseline community sample with a national household survey of Aboriginal and Torres Strait Islander peoples.

Methods

Design features

The TATS project is a collaboration between research institutions and Aboriginal community-controlled health services (ACCHSs) and their state and national representative bodies. These partnerships and project governance are described elsewhere in this supplement.[9] Aboriginal organisations and Aboriginal and Torres Strait Islander people have been involved in all stages of the research project: design, data collection, analysis and research translation.

The project was approved by three Aboriginal human research ethics committees (HRECs) and two HRECs with Aboriginal subcommittees: Aboriginal Health & Medical Research Council Ethics Committee, Sydney; Aboriginal Health Research Ethics Committee, Adelaide; Central Australian HREC, Alice Springs; HREC for the Northern Territory Department of Health and Menzies School of Health Research, Darwin; and the Western Australian Aboriginal Health Ethics Committee, Perth.

Other Australian ITC Project surveys have been completed by random telephone survey, with an option to complete recontact surveys on the internet since 2008.[10] In contrast, we chose to conduct face-to-face surveys, as telephone ownership is incomplete in the Aboriginal and Torres Strait Islander population.[11] More importantly, past experiences have led to considerable distrust of research among the Aboriginal and Torres Strait Islander community, and we decided that the necessary respectful relationships to overcome this distrust were more likely to be created face to face.[12,13]

In addition to the surveys of community members, each ACCHS completed a single policy monitoring survey describing key tobacco control policies at each survey wave, and all staff of the ACCHSs were invited to complete an abbreviated version of the main community survey.

Sampling of clusters (ACCHSs)

Truly random probabilistic sampling was impractical as Aboriginal and Torres Strait Islander people account for only 3% of the total Australian population.[14] We used a quota sampling design, based on meaningful clusters: the communities served by ACCHSs (and a community in the Torres Strait). Involving ACCHSs built local trust, facilitated local use of results and employment of local staff, and enabled us to examine differences between policies and practices of ACCHSs. We invited all 150 member services of the National Aboriginal Community Controlled Health Organisation that provided comprehensive primary health care to participate, excluding smaller member organisations that provided more limited services, such as aged care or drug and alcohol rehabilitation. We also included a cluster in the Torres Strait where 15% of Torres Strait Islanders live, but where there is no ACCHS.[15]

We aimed to collect data from 40 clusters or sites reflecting the geographic distribution of the Aboriginal and Torres Strait Islander population. Target numbers of clusters for each of three remoteness categories (major cities, inner and outer regional, remote and very remote) were calculated for each jurisdiction using 2006 Census data.[15] As there were smaller numbers of eligible ACCHSs in the major cities, each eligible major-city ACCHS was invited to recruit double the standard cluster quota of participants, as was the Torres Strait community. Recruitment of sites occurred over 18 months.

Forty quotas (including double quotas from four major-city sites and the Torres Strait community) were recruited from 35 clusters (Box 1). This closely matched the national geographic distribution of the population: 28% of the 40 quotas were from major cities, 45% from regional areas, and 28% from remote and very remote areas, compared with 32%, 44% and 25%, respectively, of the total estimated resident Aboriginal and Torres Strait Islander population on 30 June 2006. For the three states with the largest Aboriginal and Torres Strait Islander population, 28% of quotas were from New South Wales, 30% from Queensland and 15% from Western Australia, compared with 29%, 28% and 15%, respectively, of the population.[15]

Sampling within each cluster (ACCHS)

In the baseline survey (Wave 1) at each site, we aimed to survey samples of 50 smokers or recent ex-smokers (who had quit $\leq$ 12 months previously, to examine relapse) and 25 non-smokers (never-smokers and ex-smokers who had quit >12 months previously) from the Aboriginal and Torres Strait Islander community, with equal numbers of men and women and in each of two age groups (18–34 and $\geq$ 35 years). The age cut-point was chosen because the median age of an Aboriginal or Torres Strait Islander smoker aged $\geq$ 18 years in the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) was 34 years. People were excluded if they were: non-Indigenous, aged less than 18 years, acutely unwell, not usual residents of the area, staff members of the ACCHS, unable to complete the survey in English (if there was no interpreter available), or if the quota for the relevant age–sex–smoking category had been filled.

In each location, we negotiated with the ACCHS to decide on the method of sampling. While we explained to local research assistants (RAs) the need to collect a representative sample of their community (eg, not just all the people from a few adjacent households), sampling was non-random. Methods included sampling of known Aboriginal or Torres Strait Islander households, opportunistic sampling at Aboriginal community events and organisations (including the ACCHS), and snowballed invitations to people whom others suggested might be interested. The project compensated participants with a $20 local business voucher on completion of the survey, except in nine sites where the ACCHS supplemented this to $30 or $50,

reflecting local perceptions of fair compensation.

In the follow-up survey (Wave 2) at each site, we focused on recontacting the smokers and recent ex-smokers who had completed the Wave 1 survey. As we did not expect to recontact them all, we replenished our sample with smokers who had not completed Wave 1 (to a maximum of 50, or 100 if a double quota, recontacted or replenished in each location), using the same sampling methods as in Wave 1. Participant compensation was increased to facilitate follow-up, ranging from $30 to $50. We did not recontact non-smokers from Wave 1, nor survey a new community sample of non-smokers. All staff at each ACCHS were invited at each wave to complete the short staff survey.

Sample size

Our target sample size in Wave 1 was 2000 smokers or recent ex-smokers (of whom we expected to recontact 1000 in Wave 2) and 1000 non-smokers. These sample sizes were not primarily based on power calculations but on available resources and the experience of other ITC Project studies that suggested 2000 baseline and 1000 recontacted smokers or recent ex-smokers would provide sufficient power for meaningful estimates. The sample size of non-smokers was smaller, to concentrate resources on sampling smokers and recent ex-smokers. Rather than simply excluding non-smokers at screening, we took the opportunity to ask fewer questions to examine differences between them and smokers.

Questionnaire development

Three surveys were developed for each survey wave: (1) the main survey for smokers and non-smokers in each community; (2) the ACCHS staff survey; and (3) the policy monitoring survey for each ACCHS. The final versions of all Wave 1 questionnaires were produced by a collaborative effort based on email exchanges, teleconferences and five face-to-face meetings of the research team, the Project Reference Group and project staff.[9]

The main community survey included sections on smoking behaviour, smoking in the participant's social network, second-hand smoke, quitting history, tobacco brands and prices, use of smokeless tobacco, knowledge about health effects, attitudes, advertising and promotion (including health warnings), medications to stop smoking and cessation support. It was based on core questions from ITC Project surveys, to enable comparisons with other studies. Other questions reflecting specific concerns in this setting were added. For example, the smokeless tobacco section included questions about chewing pituri or native tobaccos as well as store-bought tobacco, and the second-hand smoke section included specific questions about smoking bans at ACCHSs. The wording of some questions was modified to better reflect Aboriginal and Torres Strait Islander colloquial speech.

The main survey was piloted with 24 participants in Darwin in Wave 1. Our first site (with 48 participants) was treated as a quasi-pilot in Wave 1, trialling all aspects of the project, which were reviewed before the second site commenced. This led to us dropping some questions and revising the wording of others (mainly abbreviating questions and their preambles). As these changes were modest, data from this first site were included in the total sample.

The staff survey used a small selection of questions from the main community survey, supplemented by additional questions about staff roles at the ACCHS. The policy monitoring survey included questions about the ACCHS and the community it served, tobacco control activities run by the ACCHS and tobacco control policies (especially smoking bans) at the ACCHS.

Wave 2 survey instruments were closely based on Wave 1 and were not separately piloted. In Wave 2, some Wave 1 questions were dropped

1 Participating sites in the Talking About The Smokes project*

* There were three participating health services in Brisbane, and double quotas were recruited in Perth, Canberra, Newcastle, Wyong and the Torres Strait. ◆

after review, and new questions were added to reflect changes in the policy environment. The main survey was restructured by referring to responses in Wave 1, to accommodate people being recontacted, and did not repeat questions to which the answers were unlikely to have changed.

Copies of all the surveys are available at http://www.itcproject.org/countries/australia/tats.

Data collection methods

Wave 1 surveys were conducted between April 2012 and October 2013, and Wave 2 surveys between July 2013 and August 2014. The project funded participating ACCHSs to employ RAs for 6 weeks of data collection for each wave; however, many sites chose to continue recruitment longer in order to meet target numbers. In the Torres Strait community, the project funded the Queensland Aboriginal and Islander Health Council to employ RAs. Of the 101 local RAs (72 in Wave 1 and 57 in Wave 2, including 28 in both), all except seven were Aboriginal or Torres Strait Islander people. RAs received training on site from project staff for 1–3 days before each wave, followed by ongoing telephone and electronic support.

The main community surveys were conducted face to face, with results recorded on a computer tablet and data uploaded to a secure server. Depending on their answers, smokers generally completed the survey (including the consent process) in just under an hour, and non-smokers in 40 minutes, although some participants took much longer because of additional (unrecorded) "yarning" about the issues raised. Anonymous staff surveys were self-administered on paper or online and took 5–10 minutes to complete. The policy monitoring survey was completed on paper with key informants from the ACCHS at each wave.

Statistical methods

In this article, we compare baseline frequencies and percentages (by smoking status) for questions in the main community survey with unweighted and weighted results from the 2008 NATSISS. The NATSISS was a national, stratified, multistage, random, face-to-face household survey of 7823 Aboriginal and Torres Strait Islander adults and 5484 children conducted by the Australian Bureau of Statistics (ABS) from August 2008 to April 2009.[16] Visitors and those not in private dwellings were excluded. We analysed these data using the ABS's Remote Access Data Laboratory, with replicate weights used to estimate random sampling error and confidence intervals, as previously described.[17]

Person weights were used to generalise results to the total Aboriginal and Torres Strait Islander population, based on the inverse of the probability of selection in the NATSISS calibrated to benchmarks based on combinations of age, sex, remoteness and state in the estimated resident population in private dwellings on 31 December 2008. The ABS adjusted these person weights further due to the high estimated 53% undercoverage, in particular for those selected not being contacted or not responding, and for Indigenous people not identifying themselves as Indigenous.[16]

For one item not available in the NATSISS (having seen a health professional in the past year), we made comparisons with the National Aboriginal and Torres Strait Islander Health Survey (NATSIHS), a similar ABS household survey of 5757 adults and 4682 children conducted from August 2004 to July 2005, using similar person and replicate weights.[18] We also investigated the effect of the slightly different definitions of smoking status in our survey, the NATSISS and the Australian ITC Project surveys.

In other analyses of the baseline survey reported in this supplement, we mainly compared frequencies and percentages (by smoking status) for questions in the main community survey with weighted results from Australian ITC Project surveys — usually the most recent survey conducted by telephone or the internet from September 2011 to February 2012 (Wave 8.5, $n = 1504$). When appropriate (eg, if questions were not asked in the latest survey), we have made comparisons with earlier surveys.

As the Aboriginal and Torres Strait Islander population is much younger than the general Australian population, we weighted the Australian ITC Project results to the distribution of age (18–24, 25–34, 35–44, 45–54, ⩾55 years), sex and smoking status (smoker, ex-smoker, never-smoker) in the total Aboriginal and Torres Strait Islander population in the 2008 NATSISS, analogous to direct standardised comparisons. We concentrated comparisons on daily smokers, due to slightly different definitions of smokers in each survey which meant that only daily and weekly smokers were directly comparable.

We examined associations between variables in our main community sample using either simple logistic regression or multiple logistic regression (adjusted for sociodemographic and other variables) to generate odds ratios and Wald tests. Stata 13 (StataCorp) survey [SVY] commands were used to adjust for the sampling design, using 35 site clusters and eight strata based on age (18–34 v ⩾35 years), sex and smoking status (smokers and recent ex-smokers v non-smokers).[19]

Similar statistical methods were used to analyse results of the policy monitoring and staff surveys. However, given the different age and sex structure of Aboriginal and Torres Strait Islander staff at ACCHSs, staff responses have been weighted as above for comparisons with the community survey or the NATSISS.

As data from the follow-up survey (Wave 2) are not yet available and are not included in this supplement, we have not described the statistical methods for these longitudinal analyses.

Results

The Wave 1 survey sample included 2522 community members: 1643 smokers, 78 ex-smokers who quit ⩽12 months previously, 233 ex-smokers who quit >12 months previously, and 568 never-smokers. At the five sites with participation data available, a median of 9% of those approached by RAs refused to participate, with marked variation between sites. Only

2 Comparison of sociodemographic characteristics of the baseline community sample in the Talking About The Smokes (TATS) project with the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS)*

	Smokers†			Non-smokers†		
	TATS (*n* = 1643)	NATSISS (*n* = 3612)		TATS (*n* = 879)	NATSISS (*n* = 3551)	
Characteristic	% (*n*)	Unweighted, % (*n*)	Weighted, % (95% CI)	% (*n*)	Unweighted, % (*n*)	Weighted, % (95% CI)
Jurisdiction						
New South Wales	27% (441)	15.1% (547)	30.0% (27.9%–32.1%)	27% (241)	13.9% (494)	28.8% (26.7%–30.9%)
Victoria	5% (82)	17.0% (615)	6.6% (6.0%–7.2%)	6% (51)	16.4% (581)	6.7% (6.1%–7.2%)
Queensland	31% (517)	15.2% (550)	26.3% (24.4%–28.2%)	32% (283)	15.7% (556)	28.6% (26.6%–30.7%)
South Australia	6% (94)	10.0% (360)	5.7% (5.1%–6.3%)	5% (43)	9.6% (340)	5.4% (4.8%–6.0%)
Western Australia	12% (203)	14.4% (521)	12.8% (11.6%–14.1%)	14% (124)	14.8% (525)	14.0% (12.8%–15.3%)
Northern Territory	11% (179)	17.8% (643)	14.3% (13.1%–15.6%)	9% (75)	16.2% (575)	11.7% (10.5%–13.0%)
Tasmania‡	3% (47)	na	na	3% (26)	na	na
Australian Capital Territory‡	5% (80)	na	na	4% (36)	na	na
Tasmania and ACT combined‡	8% (127)	10.4% (376)	4.3% (3.9%–4.8%)	7% (62)	13.5% (480)	4.9% (4.4%–5.4%)
Area-level disadvantage§						
1st quintile (most disadvantaged)	39% (640)	65.9% (2380)	60.3% (55.2%–65.2%)	32% (277)	53.0% (1882)	46.7% (41.5%–51.9%)
2nd and 3rd quintiles	42% (683)	24.7% (891)	28.2% (23.8%–33.1%)	47% (409)	31.5% (1117)	36.8% (31.8%–42.2%)
4th and 5th quintiles	19% (320)	9.4% (341)	11.5% (8.9%–14.7%)	22% (193)	15.5% (552)	16.5% (13.3%–20.3%)
Remoteness						
Non-remote	77% (1258)	63.4% (2399)	71.8% (70.1%–73.5%)	80% (700)	69.1% (2789)	78.0% (76.5%–79.3%)
Remote	23% (385)	36.6% (1385)	28.2% (26.5%–29.9%)	20% (179)	31.0% (1250)	22.0% (20.7%–23.5%)
Age (years)						
18–24	21% (346)	19.5% (703)	24.7% (22.6%–26.9%)	25% (219)	16.6% (591)	21.8% (20.0%–23.7%)
25–34	27% (441)	28.6% (1034)	26.9% (25.4%–28.5%)	22% (195)	21.8% (775)	21.2% (19.7%–22.7%)
35–44	24% (400)	24.5% (884)	23.4% (21.8%–25.0%)	17% (150)	20.5% (729)	20.5% (19.0%–22.2%)
45–54	17% (274)	15.9% (575)	15.5% (14.1%–17.0%)	17% (151)	17.0% (605)	16.7% (15.4%–18.2%)
⩾ 55	11% (182)	11.5% (416)	9.5% (8.4%–10.7%)	19% (164)	24.0% (851)	19.8% (18.6%–21.0%)
Sex						
Female	52% (848)	55.3% (1998)	50.1% (48.0%–52.1%)	56% (488)	58.8% (2088)	55.3% (53.3%–57.3%)
Male	48% (795)	44.7% (1614)	49.9% (47.9%–52.0%)	44% (391)	41.2% (1463)	44.7% (42.7%–46.7%)
Labour force status						
Employed	35% (574)	47.9% (1731)	48.5% (45.8%–51.2%)	48% (423)	57.5% (2041)	59.4% (56.3%–62.4%)
Unemployed	34% (565)	11.8% (426)	13.1% (11.3%–15.2%)	22% (191)	5.5% (195)	6.1% (4.9%–7.6%)
Not in labour force	31% (502)	40.3% (1455)	38.3% (35.9%–40.8%)	30% (265)	37.0% (1315)	34.5% (32.0%–37.1%)
Highest education attained						
Less than Year 12	52% (842)	63.1% (2278)	62.9% (59.9%–65.8%)	40% (351)	50.4% (1789)	48.7% (45.7%–51.6%)
Finished Year 12	27% (434)	7.7% (278)	9.4% (7.9%–11.2%)	29% (253)	11.8% (420)	13.9% (12.2%–15.7%)
Post-school qualification	22% (351)	29.2% (1056)	27.7% (25.2%–30.3%)	31% (269)	37.8% (1342)	37.5% (34.9%–40.2%)
Housing tenure						
Owns or purchasing home	14% (230)	18.9% (679)	19.9% (17.3%–22.9%)	23% (203)	37.8% (1337)	38.3% (35.4%–41.3%)
Renter or other	86% (1400)	81.1% (2907)	80.1% (77.1%–82.7%)	77% (672)	62.2% (2196)	61.7% (58.7%–64.6%)
Speaks an Indigenous language at home						
No	78% (1262)	85.3% (3082)	86.8% (84.3%–88.9%)	80% (694)	86.9% (3085)	88.7% (86.8%–90.3%)
Yes	22% (365)	14.7% (530)	13.2% (11.1%–15.7%)	20% (178)	13.1% (466)	11.3% (9.7%–13.2%)
Treated unfairly because Indigenous in past year						
No	43% (690)	68.6% (2476)	69.1% (66.3%–71.8%)	51% (443)	75.5% (2680)	75.2% (72.6%–77.6%)
Yes	57% (908)	31.5% (1136)	30.9% (28.2%–33.7%)	49% (420)	24.5% (871)	24.8% (22.4%–27.4%)

na = not available. * Percentages exclude those who did not answer or answered "don't know". † Data for smokers include current smokers only, and data for non-smokers include all ex-smokers and never-smokers. ‡ The Australian Bureau of Statistics (ABS) only provides researchers with combined NATSISS results for Tasmania and the ACT. § The TATS project used postcodes and concordance tables for the ABS 2011 Socio-Economic Indexes for Areas (SEIFA) Index of Relative Socio-economic Disadvantage (IRSD).[21] The NATSISS used the 2006 SEIFA IRSD directly from Census Collection Districts. ◆

3 Comparison of smoking and health status of the baseline community sample in the Talking About The Smokes (TATS) project with the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS)*

	Smokers†			Non-smokers†		
	TATS (*n* = 1643)	NATSISS (*n* = 3612)		TATS (*n* = 879)	NATSISS (*n* = 3551)	
Characteristic	% (*n*)	Unweighted, % (*n*)	Weighted, % (95% CI)	% (*n*)	Unweighted, % (*n*)	Weighted, % (95% CI)
Smoking status						
Daily smoker	85% (1392)	95.2% (3439)	95.7% (94.5%–96.6%)	—	—	—
Non-daily smoker	15% (251)	4.8% (173)	4.3% (3.4%–5.5%)	—	—	—
Ex-smoker	—	—	—	35% (311)	43.8% (1554)	42.6% (39.9%–45.4%)
Never-smoker	—	—	—	65% (568)	56.2% (1997)	57.4% (54.6%–60.1%)
Cigarettes per day (daily smokers only)						
1–10	40% (547)	43.9% (1502)	43.9% (41.0%–46.7%)	—	—	—
11–20	39% (528)	34.1% (1164)	34.1% (31.5%–36.7%)	—	—	—
21–30	18% (242)	17.5% (598)	17.0% (15.1%–18.9%)	—	—	—
⩾ 31	4% (54)	4.5% (155)	5.0% (3.7%–6.3%)	—	—	—
Quit attempt in past year						
No	51% (813)	56.1% (1990)	55.3% (52.6%–58%)	—	—	—
Yes	49% (796)	43.9% (1560)	44.7% (42%–47.4%)	—	—	—
Self-reported health status						
Poor or fair	45% (735)	27.3% (985)	26.2% (23.7%–28.8%)	24% (209)	23.7% (842)	22.6% (20.3%–25.0%)
Good	40% (653)	35.7% (1290)	36.3% (33.6%–39.2%)	43% (367)	32.8% (1164)	32.4% (29.8%–35.1%)
Excellent or very good	15% (238)	37.0% (1337)	37.5% (35.1%–40.0%)	33% (281)	43.5% (1545)	45.0% (42.0%–48.0%)
Seen by doctor/health professional in past year‡						
Yes	75% (1225)	77.2% (2308)	75.2% (72.5%–77.6%)	85% (741)	83.0% (2251)	82.0% (79.6%–84.1%)
No	25% (399)	22.8% (683)	24.8% (22.4%–27.5%)	15% (134)	17.0% (460)	18.0% (15.9%–20.4%)

* Percentages exclude those who did not answer or answered "don't know". † Data for smokers include current smokers only, and data for non-smokers include all ex-smokers and never-smokers. ‡ As this question was not asked in the NATSISS, comparison is with the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS). The TATS project question asked whether the participant had seen a health worker, doctor, nurse or other health professional in the past year. The NATSIHS question asked only about the time since the participant had last consulted a doctor. ◆

37 participants were excluded because they were ineligible; a further 12 people did not complete the full survey but were retained in the final sample. Of the eligible smokers and recent ex-smokers, 75% (1295/1721) consented to be recontacted in Wave 2, and 49% (849/1721) were successfully recontacted and resurveyed.

The representativeness of the 645 staff surveyed is discussed elsewhere in this supplement, but as we were not able to determine the exact number of current staff in each ACCHS, we could not determine what proportion had been surveyed.[20]

Generalisability and comparison of our sample with other surveys

Our Wave 1 sample closely matched the distribution of the Aboriginal and Torres Strait Islander population in the weighted NATSISS by age, sex, jurisdiction and remoteness (Box 2). Similarly, most of our sample (89%) identified as Aboriginal, 5% as Torres Strait Islander, and 6% as both, compared with 91%, 6% and 3%, respectively, of Indigenous people aged ⩾ 20 years in the 2011 Census.[22]

However, compared with the weighted NATSISS, our sample had higher proportions of participants who were from less disadvantaged areas, were unemployed, had completed Year 12 at school, and reported speaking an Indigenous language at home or being treated unfairly because they were Indigenous (Box 2). Among smokers only, a higher proportion had poor or fair self-reported health (Box 3). A higher proportion of smokers in our sample were non-daily smokers and, among the non-smokers, a higher proportion were never-smokers. However, similar proportions of smokers in our sample and the NATSISS reported having attempted to quit in the past year, and daily smokers reported similar numbers of cigarettes smoked per day (Box 3).

The unweighted NATSISS included smaller proportions of participants from the two jurisdictions with most Aboriginal and Torres Strait Islander people (New South Wales and Queensland), non-remote areas and the youngest age group (18–24 years) compared with the population benchmarks used for providing the weighted NATSISS estimates. Apart from these weighting variables, there were only small differences between the unweighted and weighted NATSISS estimates for the other common variables.

Discussion

The 2008 NATSISS and related Aboriginal and Torres Strait Islander health and social surveys conducted

by the ABS are assumed to provide the most accurate available national estimates of the prevalence of key smoking-related and other health and social indicators. Unfortunately, access to detailed data from the most recent survey in this series, with its lower estimate of smoking prevalence, was not available at the time of writing.[1] Sampling errors in the NATSISS are small and can be estimated due to the probabilistic sampling design. However, the ABS acknowledges that non-sampling errors due to the large level of undercoverage in the 2008 NATSISS may introduce bias, if, for example, the estimated 31% of Indigenous people screened in areas other than discrete Indigenous communities who did not identify as Indigenous were different from those who did identify and so could participate.[16] Similarly, those excluded from the sample because they were not usual residents of private dwellings (eg, visitors and people in hostels, caravan parks, prisons or hospitals) may have responded differently to those who were included.

In contrast, it is not considered statistically acceptable to estimate sampling error in our non-probabilistic quota sample, and confidence intervals for prevalence estimates are not included. Probabilistic sampling was considered impractical in this instance, and accommodating local practical concerns in our sampling was part of building strong relationships with the local ACCHSs, RAs and communities.[13] These relationships not only facilitated the use of local and national results by ACCHSs, but built local trust in the research, reducing non-sampling bias and facilitating follow-up. We felt people would be more comfortable talking with a known RA from the local community than with an outsider. In contrast, the NATSISS was administered by ABS interviewers, only accompanied by local Indigenous facilitators in discrete Indigenous communities "where possible".[16] This may explain the higher proportions of people in our sample who reported speaking an Indigenous language at home or being treated unfairly because they were Indigenous.

The distribution of some sociodemographic factors was different in the NATSISS and our sample: our sample had higher proportions of unemployed people, but also higher proportions who had completed Year 12 and who lived in more advantaged areas. As our sample purposefully oversampled smokers (and recent ex-smokers), we have not combined smokers and non-smokers and have avoided providing estimates for the total sample in this and other articles in the supplement, as smokers and non-smokers vary for many of the variables we examined.

Potential bias may have been introduced by using the local ACCHSs to access the community, as we would expect people with greater links to the health services to be sampled. However, similar proportions of participants in our sample reported seeing a health professional in the past year as for the narrower question about seeing a doctor in the NATSIHS. The poorer self-reported health among smokers in our sample than in the NATSISS may be due to bias by sampling through ACCHSs or by this question coming at the end of a long survey specifically about smoking rather than as part of a much broader social survey in the NATSISS. Nevertheless, Aboriginal and Torres Strait Islander people with connections to an ACCHS may be different to others who have limited links to their local ACCHS or who do not live near an ACCHS. However, most tobacco control activity specifically targeting Aboriginal and Torres Strait Islander peoples has been delivered through ACCHSs, so our sample is focused on those who are also the target of this activity.

It is uncertain what potential biases were introduced by the compensation provided, or the differences in compensation, but we expect these to be small.

Unlike either ABS or other ITC Project surveys, we based smoking status entirely on self-definition rather than using additional probing questions. Other ITC Project surveys excluded smokers who said they had smoked less than 100 cigarettes in their lifetime and those who smoked less than monthly, but when recontacted smokers then said they smoked less than monthly, they were asked to self-identify as either smokers or ex-smokers (and then treated accordingly). In the 2008 NATSISS, the question about 100 lifetime cigarettes was only used to distinguish between ex-smokers and never-smokers. In our sample, 33 smokers and 36 ex-smokers said they had not smoked 100 lifetime cigarettes, and 16 of the total sample answered "don't know". We are concerned that this question may be sometimes misinterpreted in this population. As our sample included 64 less-than-monthly smokers, in this supplement we have concentrated our comparisons with Australian ITC Project results on daily smokers rather than all smokers.

In summary, we found no evidence of large systematic bias in our sample and, with appropriate caution, we can compare our prevalence estimates, cross-sectional associations and longitudinal analyses with other surveys, and generalise our findings to the national Aboriginal and Torres Strait Islander population. We are most confident in the methodological strengths of the longitudinal design and future longitudinal analyses.[7] More caution is needed in interpreting our prevalence estimates, but in spite of the methodological uncertainties of using a non-probabilistic sample, we believe this, like many other quota samples, is likely to give estimates similar to a probabilistic sample (which may be subject to different biases, as we have shown with the NATSISS).[23]

We do not report confidence intervals around our prevalence estimates, only report percentages of our sample to the nearest integer, and concentrate on large differences from other samples. Similarly, we have chosen not to present results at the state or territory level, in spite of policy interest, as for many jurisdictions the sample sizes were small and from a small number of clusters, and the results are not generalisable to the entire state or territory. Some caution is necessary in comparisons with Australian ITC Project results, as our survey was administered face to face, and Australian ITC Project

surveys were conducted on the telephone or internet, which can influence how people respond to some questions.[7]

In conclusion, the TATS project provides a detailed and nationally representative description of Aboriginal and Torres Strait Islander smoking behaviour, attitudes, knowledge and exposure to tobacco control activities and policies and their association with quitting, and comparisons with other contexts. This information has the potential to transform the evidence base being used to inform policies and programs to reduce Aboriginal and Torres Strait Islander smoking and the preventable illness and suffering it causes.

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Participants at project forum, held in August 2014, in Sydney, NSW, which fed back preliminary national results to project sites.

Talking About The Smokes: a large-scale, community-based participatory research project

Abstract

Objective: To describe the Talking About The Smokes (TATS) project according to the World Health Organization guiding principles for conducting community-based participatory research (PR) involving indigenous peoples, to assist others planning large-scale PR projects.

Design, setting and participants: The TATS project was initiated in Australia in 2010 as part of the International Tobacco Control Policy Evaluation Project, and surveyed a representative sample of 2522 Aboriginal and Torres Strait Islander adults to assess the impact of tobacco control policies. The PR process of the TATS project, which aimed to build partnerships to create equitable conditions for knowledge production, was mapped and summarised onto a framework adapted from the WHO principles.

Main outcome measures: Processes describing consultation and approval, partnerships and research agreements, communication, funding, ethics and consent, data and benefits of the research.

Results: The TATS project involved baseline and follow-up surveys conducted in 34 Aboriginal community-controlled health services and one Torres Strait community. Consistent with the WHO PR principles, the TATS project built on community priorities and strengths through strategic partnerships from project inception, and demonstrated the value of research agreements and trusting relationships to foster shared decision making, capacity building and a commitment to Indigenous data ownership.

Conclusions: Community-based PR methodology, by definition, needs adaptation to local settings and priorities. The TATS project demonstrates that large-scale research can be participatory, with strong Indigenous community engagement and benefits.

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Community-based "participatory research" (PR) is desirable because it fosters partnerships between a community and research agencies, enabling inclusivity, interdependence and democratic knowledge production to reduce health inequalities.[1-4] Support for PR is particularly strong when research involves indigenous peoples[5,6] as it promotes self-determination, creating more transparent and equitable conditions for knowledge creation and benefit sharing.[3,7] PR as a methodology may range from being consultative[5] through community-directed[8] to community-controlled, where community groups exercise the highest expression of autonomy over research, assisted by research institutions.[9]

In Australia, one Aboriginal human research ethics committee (HREC) will only approve a research project when "there is Aboriginal community control over all aspects of the proposed research", including design, data ownership, interpretation and publication.[10] Other approval criteria include the betterment of Aboriginal peoples' health, cultural sensitivity and a capacity to benefit. These are hallmarks of PR, and there are now World Health Organization guiding principles specific to indigenous peoples,[7] along with guidelines,[11,12] joint statements,[13-15] and a systematic review,[1] to influence PR design and complement guidelines for ethical research involving Indigenous Australians.[16] The WHO principles for PR reflect experience in various countries and provide guidance on the joint management of research by research institutions and indigenous peoples. These principles are described as being "applicable everywhere and to all fields of research involving Indigenous Peoples".[7]

In this supplement, we report on the Talking About The Smokes (TATS) project, a large-scale PR collaboration between Aboriginal and Torres Strait Islander peoples, their representative bodies, and researchers. This national research project was initiated in 2010 to examine pathways to quitting smoking and the impact of tobacco control policies in the Aboriginal and Torres Strait Islander population. The TATS project is one of many studies within the International Tobacco Control Policy Evaluation Project (ITC Project) to follow nationally representative cohorts of smokers, to measure psychosocial and behavioural impacts of tobacco control policies.[17] However, it is the first to sample only a high-prevalence subpopulation within a country.[18]

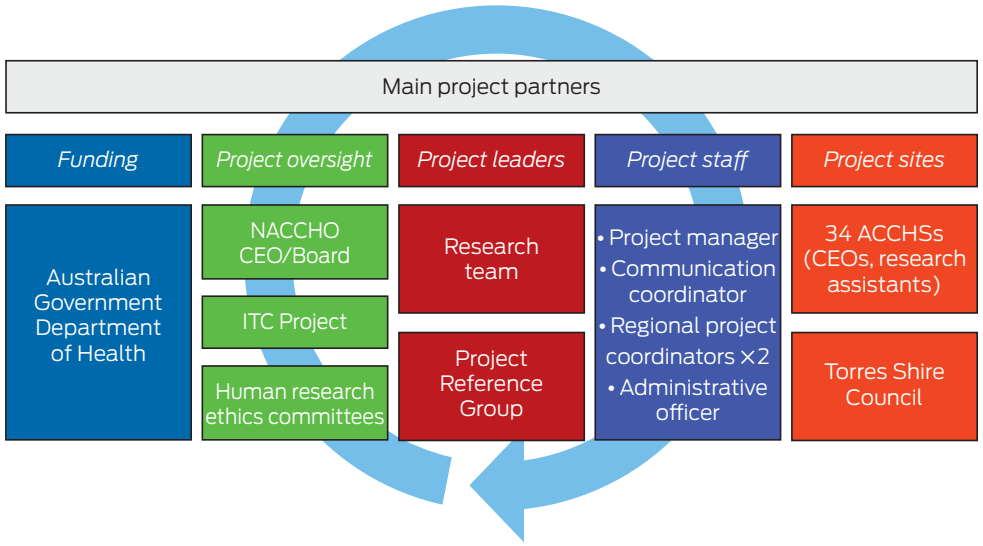
In this article, we describe the TATS project PR methodology according to the WHO guiding principles, to assist others planning large-scale PR projects.

Background

In 2012–2013, 42% of the Aboriginal and Torres Strait Islander population aged 15 years or older were daily smokers — 2.6 times the age-standardised prevalence among other Australians.[19] Australian governments aimed to halve the Indigenous Australian smoking rate by 2018 (from the 2009 baseline) through a range of Indigenous tobacco control initiatives.[20] Funded by the Australian Government in support of these national initiatives, the TATS project was conducted mainly through Aboriginal community-controlled health services (ACCHSs).

ACCHSs provide comprehensive primary health care services to more than 310 000 people (2010–11), with nearly 80% identifying as Aboriginal and/or Torres Strait Islander. The 150 ACCHSs located across Australia are almost entirely Aboriginal-controlled, with a governance structure comprising elected members of the Aboriginal community.[21] Although funded largely by the Australian Government,[21] they are independent not-for-profit agencies,

1 Governance structure of the Talking About The Smokes project



NACCHO = National Aboriginal Community Controlled Health Organisation. ACCHS = Aboriginal community-controlled health service. CEO = chief executive officer. ITC Project = International Tobacco Control Policy Evaluation Project. ◆

established by Aboriginal leaders from 1971 in response to significant unmet health needs.[22] ACCHSs were involved in the TATS project partly because those most affected by the research outcomes were likely to be patients and staff of these services, but also because of the representativeness of ACCHSs at the local community level, which enabled community control over the research process at each site.

The TATS project was led by the Menzies School of Health Research (Menzies) in a formal partnership with the National Aboriginal Community Controlled Health Organisation (NACCHO). The research team included researchers from Menzies, the Centre for Excellence in Indigenous Tobacco Control, Cancer Council Victoria, two state affiliate organisations of NACCHO (Affiliates) — the Queensland Aboriginal and Islander Health Council (QAIHC) and the Aboriginal Health and Medical Research Council of New South Wales (AH&MRC) — and researchers representing NACCHO. The researcher from Cancer Council Victoria is an investigator on other ITC Project surveys. Project support staff were employed at Menzies and NACCHO, and at 34 local ACCHSs as research assistants (Box 1).

The project used two waves of survey data in 35 locations (the 34 ACCHSs and a community in the Torres Strait). In the first of these waves, 2522 community members and 645 ACCHS staff were surveyed from April 2012 to October 2013. The research methods and baseline sample are described elsewhere.[18]

Methods

The WHO guiding principles were adapted from their narrative form into a reporting framework in which the text (verbatim) was rearranged into seven themes with numbered subsections (Appendix 1). A condensed version of the framework is shown in Box 2. This framework was used to assess the PR process in the TATS project. Anticipated and unanticipated benefits of the project were sourced from the research protocol, ethics submissions and anecdotal reports from ACCHSs.

Throughout this report, links to the numbered subsections of the framework are shown in parentheses. The framework and the WHO principles refer to indigenous peoples as those "with clearly identifiable community and leadership structures … and a significant political voice".[7] Our references to Indigenous peoples include Aboriginal peoples and Torres Strait Islanders and their representative bodies, such as NACCHO, ACCHSs and Affiliates — all independent but related entities.

Permission to use the framework was provided by the lead author of the WHO principles (Harriet Kuhnlein, Founding Director, Centre for Indigenous Peoples' Nutrition and Environment, Quebec, Canada, personal communication, February 2014).

Results

The PR approach adopted by the TATS project is described using the seven themes from the adapted framework (Box 2).

1. Consultation and approval

The TATS project was initiated as a result of conversations between three researchers (from Menzies, Cancer Council Victoria and the Centre for Excellence in Indigenous Tobacco Control), one of whom is Aboriginal, and was influenced by the usefulness of ITC Project surveys in other settings. A decision was made to invite Aboriginal organisations as partners. Initial contact with these organisations was made at a meeting of all Affiliates, after which two researchers (from QAIHC and AH&MRC) agreed to participate. In view of the national significance of the proposed research and synergies with national tobacco control policy and community priorities, NACCHO proposed a partnership with Menzies, which was accepted, and NACCHO representatives joined the research team (1.1–1.5).

2. Partnerships and research agreements

Several types of research agreements, some legally binding, were made between the partners (Box 3). The earliest agreement comprised a memorandum of understanding (MOU) initiated by NACCHO to guide the shared development of the research protocol and funding proposal with Menzies, and to ensure consistency with the research and policy priorities of both institutions (2.1). Other agreements comprised two funding contracts between Menzies and the

2 Condensed framework: guiding principles for participatory health research involving research institutions, Indigenous peoples and their representative bodies*

Theme	Subsection	The guiding principles refer to:
1. Consultation and approval	1.1–1.3	Initiation of research and making contact
	1.4–1.5	Approval for the research to proceed
2. Partnerships and research agreements	2.1–2.4	Equality of research relationships, joint preparation of a research agreement and research proposal
	2.5–2.6	Development of agreed research processes
	2.7–2.8	Joint obligations towards the research
3. Communication	3.1	Clarification of, and respect for, the lines of authority of the partners
	3.2	Committee selection by Indigenous peoples (for communication, facilitation and promotion); the committee should represent all relevant community-controlled organisations
	3.3–3.4	Maintenance of communication, including progress reports, results and implications of the research
4. Funding	4.1–4.2	A joint commitment to fund seeking, and agreement of sources in advance
	4.3	Research institutions' obligation to ensure Indigenous peoples are involved where resources or capacity are lacking
5. Ethics and consent	5.1–5.2	Respect for ethical guidelines, approval from human research ethics committees and Indigenous-controlled ethics committees
	5.3	Research commencing only after ethics approval is received and signed agreements are finalised
	5.4	Research conforming to additional protocols of the Indigenous peoples involved
	5.5	Consent for research at various levels: individual (study participants), representatives of Indigenous peoples, and the umbrella Indigenous organisation
	5.6	A jointly agreed consent-seeking process
	5.7	Umbrella Indigenous organisation demonstrating the collective consent of Indigenous peoples
6. Data	6.1–6.2	Intellectual property rights, benefit sharing and boundaries pertaining to information use
	6.3	Confidentiality and limiting access to research data
	6.4	Joint review and interpretation of data before publication
	6.5	Authorship or acknowledgement of participants in joint research
	6.6	Formatting data and reports for independent use by Indigenous peoples
	6.7	Indigenous ownership of data and authorisation for further use
7. Benefits of the research	7.1	Obligation for research to provide short-term and long-term benefits for Indigenous peoples, including provision of health care where lacking
	7.2	Disclosure of potential economic benefits of the research
	7.3	Research benefits including training, employment, general capacity building and improved health status or services (or prospects for such improvement)

* Adapted from the World Health Organization, 2003.[7] See Appendix 1 for the full framework. ◆

Australian Government and a subcontract with NACCHO, the research protocol, site agreements and consent forms.

Other research team members chose not to make legal agreements between their employers and Menzies; their involvement was sustained by common interests and a history of existing relationships between individuals. Researchers from QAIHC and AH&MRC received endorsement from the Aboriginal leadership of these bodies to participate as individuals in the project.

The research team collaboratively developed the research protocol, with review by the Project Reference Group (PRG), and this was endorsed by the NACCHO Board 18 months after the MOU was signed. The protocol articulated the roles and responsibilities of all partners, the agreed conditions and all steps of the research process (2.2–2.6). Menzies was the administering agency and project manager, and NACCHO acted as advisor for responsible research conduct, communication and coordination involving ACCHSs, in collaboration with other research team members.

Local ACCHSs were informed about the TATS project and the NACCHO–Menzies research partnership and invited to express an interest in participation, pending funding. Although ACCHSs had minimal involvement in the development of the research protocol, it formed the basis of the individually negotiated site consent forms and site agreements (Box 3). All parties to these agreements committed to the successful completion of the research,

3 Types of research agreements used in the Talking About The Smokes (TATS) project

Research agreement	Function	Signatories
Memorandum of understanding	Commit parties to developing a research partnership	Menzies, NACCHO
Funding contracts	Fund both the establishment phase and the full TATS project	Menzies, Australian Government Department of Health and Ageing
Subcontract	Fund NACCHO project staff to deliver TATS services	Menzies, NACCHO
Research protocol	Document the agreed research processes (goals, planning, design, methods, consent, data collection, analysis, interpretation, dissemination and reporting)	Research team members (and endorsed by NACCHO Board)
Site agreements	Articulate the terms of engagement including roles and responsibilities, and provide funding for employment of research assistants and purchase of consumables	Menzies, ACCHSs
Site consent forms	Document collective consent of the community served by the ACCHS	Menzies, ACCHSs
Survey consent forms	Document individual consent	Survey participants, research assistants

Menzies = Menzies School of Health Research. NACCHO = National Aboriginal Community Controlled Health Organisation. ACCHS = Aboriginal community-controlled health service. ◆

but could withdraw at any time with notice (2.7–2.8).

3. Communication

Lines of authority within participating Aboriginal organisations were respected; the project staff communicated with managers, chief executive officers and boards where appropriate (Box 1). The key to coordination was the employment of project staff to facilitate engagement between the research team and sites using existing ACCHS sector networks, communication between Menzies and NACCHO, and reporting to the NACCHO Board (3.1).

The NACCHO Board approved the structure, role and membership of the research team and the PRG. Appointments to the PRG were facilitated by NACCHO and comprised Aboriginal peoples and Torres Strait Islanders from all Affiliates and a member of the NACCHO Board as Chair. This ensured the PRG could represent ACCHSs from all jurisdictions. The PRG provided advice, monitored the ethical conduct of research, and assisted in prioritising data analysis (3.2). Members of the PRG were also involved in the interpretation of results, increasing the involvement of Indigenous peoples in this part of the research process.

Communication responsibilities were articulated in the research protocol, funding agreements and site agreements, and included the release of progress reports and a national knowledge exchange forum involving all sites (3.3–3.4).

4. Funding

The initiating three researchers procured establishment funding to negotiate and make agreements with key stakeholders and develop the research protocol and instruments. Thereafter, all research team members had oversight of project fund seeking, as the establishment of partnerships preceded the acquisition of these funds (4.1).

To assure mutual interests, primary contract negotiations involving Menzies and the funder were synchronously aligned with the development of the subcontract with NACCHO. All site agreements were also contracted with Menzies, which funded ACCHSs to undertake local surveys by employing research assistants (4.2) (Box 3).

5. Ethics and consent

Approval from three Aboriginal HRECs and two other HRECs with Aboriginal subcommittees was secured across four jurisdictions before finalisation of the research protocol and signing of the funding contract with NACCHO (5.2–5.3). The MOU, ethics applications and research protocol committed the parties to adhere to ethics guidelines[16] and conform to NACCHO data protocols.[23] These protocols were developed and endorsed by the ACCHS sector to affirm the importance of Aboriginal peoples and their representative bodies acting as owners and custodians of their own data (5.1, 5.4, 5.7).

Three levels of consent were sought and obtained: Aboriginal collective consent at the national level through NACCHO;[24] local community collective consent from each individual ACCHS and the Torres Shire Council (representing the Torres Strait community, as there is not a local ACCHS); and informed consent procured from individual survey participants by research assistants (5.5) (Box 2).

Research assistants had some control over how data would be collected in their community, thereby accommodating cultural and geographic diversity across sites. The consent of study participants was obtained in writing using consent forms approved by the research team as per ethics guidelines (5.6).[16]

6. Data

Primary contract negotiations stated that intellectual property rights to products arising from the project were vested in Menzies. Through subcontracting, NACCHO and individual ACCHSs were granted a perpetual licence to use, adapt and publish project outputs in accordance with the research protocol and, therefore, the NACCHO data protocols (6.1). The primary funding contract, NACCHO subcontract and research protocol stipulated that raw (unanalysed) data collected from ACCHSs remained the property of the specific ACCHSs "when considered both in isolation and at a national level". Site agreements clarified that: the collected data were to be used by the research team only as outlined in the research protocol; release of information identifying ACCHSs required their review; and publication of aggregated national results required review by NACCHO (or

Affiliates where jurisdictions were identified) (6.2).

Confidential information was protected using a password-protected database, with separate storage of a unique identifying code available only to approved staff and research team members (6.3). This code was necessary for the re-identification of participants in the follow-up survey a year after the baseline survey.

Research agreements ensured that data analyses and interpretations in publications and conference presentations were agreed on by the research team or through joint meetings with the PRG, and then reviewed by NACCHO before submission for publication (6.4). Authorship of manuscripts was negotiated based on international criteria,[25] with capacity for Indigenous members of the research team, PRG or project staff, or Indigenous research assistants, to be authors (6.5). ACCHSs were also provided with summaries of their local data in clear language and in formats enabling their independent use (6.6).

ACCHSs' ownership of their unanalysed data meant that new research requests unrelated to the original agreement would require endorsement from the relevant ACCHS or, on national matters, the NACCHO Board and the PRG (6.7).

7. Benefits of the research

Anticipated research benefits were identified in all research agreements and other information provided to ACCHSs and participants (7.1) (Box 4). No commercial benefits were considered likely (7.2). The recruitment of Aboriginal and Torres Strait Islander peoples to the PRG and the employment of three project staff at NACCHO and 101 local research assistants in ACCHSs helped build individual Indigenous and organisational capacity (7.3) (Box 4). All except seven of the research assistants were local Indigenous people. Funding was provided to ACCHSs for these appointments and to compensate survey participants (in the form of vouchers). Anecdotal benefits to survey participants and services were freely communicated (Box 5).

4 Benefits of the Talking About The Smokes project

Benefits	Explanation
To study participants	• Those identified as having an interest in quitting smoking were referred to health personnel in ACCHSs for quit support • Financial compensation for time spent doing surveys
To health services	• Provision of local information about smoking and tobacco control encouraged ACCHSs to develop: ▸ more effective local quit initiatives (eg, quit smoking programs were newly established in some ACCHSs; health promotion activities were improved) ▸ workplace smoking policies • Funds were provided for the employment of local staff on the project
Towards employment	• Employment of local Indigenous and non-Indigenous Australians: ▸ 101 research assistants across 35 sites, with all but seven being Aboriginal or Torres Strait Islander; three NACCHO staff (one of whom was Aboriginal); two Menzies staff (one of whom was Torres Strait Islander) • Some research assistants were offered ongoing employment in ACCHSs
Enhancing research capacity	• Onsite training of research assistants by regional coordinators, which was also sometimes attended by other ACCHS staff • ACCHSs' ownership of their survey data, enabling further analyses at each service's discretion
Towards partnerships	• Collaborative relationships between partners in the research sector, the Aboriginal community and communities in the Torres Strait
Towards Indigenous participation	• Involvement of Indigenous peoples in all aspects of the project
Towards improved knowledge exchange	• Results from the project will inform improved tobacco control activities and policies to reduce the harm caused by smoking • This knowledge exchange will be enhanced by the involvement of the potential users of this research, especially ACCHSs, throughout the project

ACCHS = Aboriginal community-controlled health service. NACCHO = National Aboriginal Community Controlled Health Organisation. ◆

Discussion

The TATS project exemplifies community-directed research,[8] where participation between partners is democratised. While the design of the TATS project was shaped by the institutional, policy and research experience of Aboriginal organisations, research agencies and individual researchers, it closely mirrored the WHO's PR principles. The TATS project involved 34 ACCHSs conducting baseline and follow-up surveys, making it one of the largest PR projects in Australia. We can affirm that large-scale PR involving vulnerable populations is achievable.

When communities and researchers seek solutions to the same health problems, negotiating this interdependence into a research partnership can help community researchers feel like they are "doing meaningful public health work, not just conducting research".[26] Ultimately, PR relies on forming the right partnerships.[27] The relational ethics of the TATS project were negotiated through pre-existing trust between individuals from partner organisations and the individual relationships that developed

5 Quote from a project site illustrating the benefits of the Talking About The Smokes project

"In our 2 years doing the Talking About The Smokes project, [our] Aboriginal Corporation has been able to engage with over 125 community members (smokers!!), allow a staff member to get paid, and allow a staff member to be in a leadership role in the community. These results from the 2 years will now feed into the Tobacco Action Group that is newly formed for [our] region. We supported World No Tobacco Day last year, with over 60 community members attending, and hope for a repeat this year."

Matt Burke, OAM, Chief Executive Officer, Mungabareena Aboriginal Corporation, Wodonga, Victoria, March 2014 (with permission).

during the project. They were also negotiated formally through research agreements that embedded community "ways of knowing" and Indigenous ownership over products such as research data.[5] This meant that ACCHSs retained autonomy over their collected local information, including into the future — an outcome normally considered challenging.[6] Establishing partnerships can take months, particularly where legal agreements are negotiated. Securing an establishment grant for TATS project preparatory work, as well as being transparent about funding uncertainty and research time frames, allowed time for partnerships to develop.

Through NACCHO, the project received the approval and involvement of the Aboriginal health leadership of the ACCHS sector nationwide. Research assistants recruited by ACCHSs from the local population enhanced trust and increased participant recruitment, as did the provision of financial compensation. These strategies are known to increase research response rates in minority populations.[26,28,29] Aboriginal peoples and Torres Strait Islanders were employed and involved in all aspects of the project, from conception and design to analysis and dissemination. While the WHO principles promote active Indigenous involvement, including self-determination over the degree of research involvement, advice on building Indigenous capacity through Indigenous employment and career development is more explicit in other guidelines.[13,15]

We did not attempt to quantify congruence of our project with PR principles,[1,8] but the framework we adapted served to structure and focus our reporting "beyond the rhetoric",[5] illustrating applied PR principles in large-scale community-based research. Investment in a research *process* that is participatory, in both "methodology and method", is rewarding and sometimes more important than the outcome.[30] Participation can empower communities and is recognised as an outcome in itself.[31] Community participation in research delivers social and cultural validity when inquiries are aligned with the needs and priorities of those being researched, and better external validity of findings for generalisability.[3] Achieving this through PR may be more costly in the short term but in the long term builds health equity[32] and facilitates translation of research into policy.[3]

PR is common but there is no single PR strategy, as self-determined community priorities are unique.[4] Sharing our strategies may encourage others to adopt similar research models involving indigenous peoples for equitable knowledge creation, and to build stronger future partnerships.

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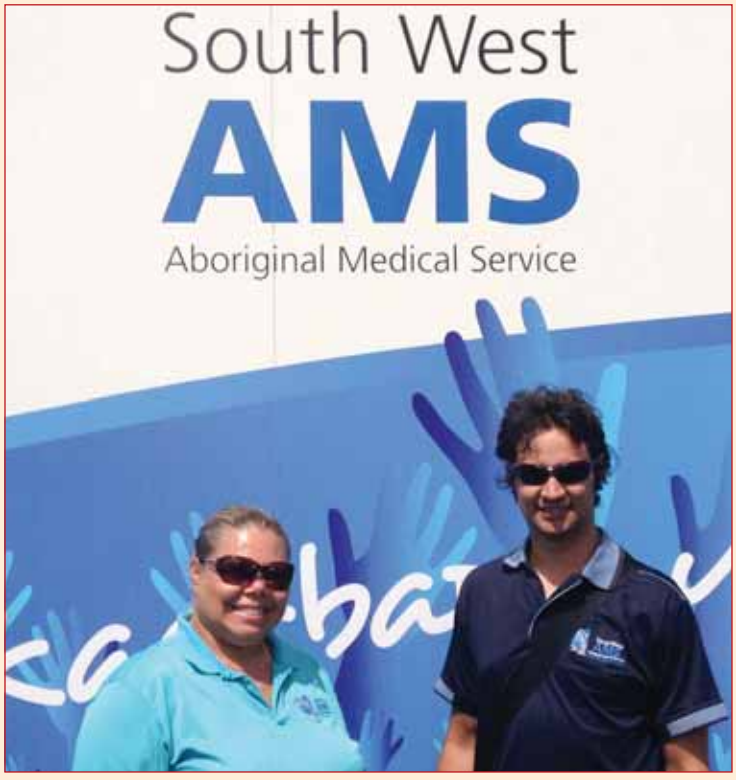

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Past quit attempts in a national sample of Aboriginal and Torres Strait Islander smokers

Abstract

Objectives: To describe past attempts to quit smoking in a national sample of Aboriginal and Torres Strait Islander people, and to compare their quitting activity with that in the general Australian population.

Design, setting and participants: The Talking About The Smokes (TATS) project used a quota sampling design to recruit participants from communities served by 34 Aboriginal community-controlled health services and one community in the Torres Strait. We surveyed 1643 smokers and 78 recent quitters between April 2012 and October 2013. Baseline results for daily smokers ($n = 1392$) are compared with results for daily smokers ($n = 1655$) from Waves 5 to 8.5 (2006–2012) of the Australian International Tobacco Control Policy Evaluation Project (ITC Project).

Main outcome measures: Ever having tried to quit, tried to quit in the past year, sustained a quit attempt for 1 month or more.

Results: Compared with the general population, a smaller proportion of Aboriginal and Torres Strait Islander daily smokers had ever tried to quit (TATS, 69% v ITC, 81.4%), but attempts to quit within the past year were similar (TATS, 48% v ITC, 45.7%). More Aboriginal and Torres Strait Islander daily smokers than those in the general population reported sustaining past quit attempts for short periods only. Aboriginal and Torres Strait Islander smokers whose local health services had tobacco control resources were more likely to have tried to quit, whereas men and people who perceived they had experienced racism in the past year were less likely. Younger smokers, those who had gone without essentials due to money spent on smoking, and those who were often unable to afford cigarettes were more likely to have tried to quit in the past year, but less likely to have ever sustained an attempt for 1 month or more. Smokers who were unemployed, those who had not completed Year 12 and those from remote areas were also less likely to sustain a quit attempt.

Conclusions: Existing comprehensive tobacco control programs appear to be motivating Aboriginal and Torres Strait Islander smokers to quit but do not appear to overcome challenges in sustaining quit attempts, especially for more disadvantaged smokers and those from remote areas.

Smoking is the leading cause of preventable death and disability for Aboriginal and Torres Strait Islander peoples, claiming one in every five lives.[1] The prevalence of daily smoking in those aged 15 years or older decreased steadily from 49% in 2002 to 42% in 2012–2013.[2] While this is due in part to fewer people starting to smoke, it is also due to more people quitting successfully.[2]

According to the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS), 62% of adult smokers had cut down or stopped smoking in the past year,[3] and 45% had attempted to quit.[4] This indicates strong motivation to quit. It also suggests quitting activity is similar to that of smokers in the general Australian population, of whom about 40% report having attempted to quit in the previous year.[5] However, in the general population, only one in five quit attempts are sustained for 1 month or longer.[5,6] Further, predictors of sustaining a quit attempt differ from predictors of making a quit attempt.[7]

Sex, age, education and income are not consistently associated with making quit attempts in other populations.[7] While there are no comparable studies for Aboriginal and Torres Strait Islander smokers, prevalence data show that smoking rates in remote areas have not declined as much as in other areas,[2] particularly for women.[8] This suggests that certain groups of smokers may be less motivated to quit or have more difficulty quitting than other smokers.

Here, we investigate patterns of attempting to quit and sustaining quit attempts in a national sample of Aboriginal and Torres Strait Islander smokers, and compare their quitting activity to that in the general Australian population.

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Methods

Survey design and participants

The Talking About The Smokes (TATS) project surveyed 1643 current smokers and 78 recent quitters (ex-smokers who quit ⩽ 12 months before) from April 2012 to October 2013 (Wave 1, or baseline). The survey design and participants have been described in detail elsewhere.[4,9]

Briefly, the study used a quota sampling design to recruit participants from communities served by 34 Aboriginal community-controlled health services (ACCHSs) and one community in the Torres Strait. Project sites were selected based on the population distribution of Aboriginal and Torres Strait Islander people by state or territory and remoteness. In most sites (30/35), we aimed to interview a sample of 50 smokers or recent quitters, with equal numbers of men and women and those aged 18–34 and ⩾ 35 years. The sample sizes were doubled in four large city sites and the Torres Strait community.

People were excluded if they did not identify as Aboriginal or Torres Strait Islander, were less than 18 years old, were not usual residents of the area, were staff of the ACCHS, or were deemed unable to consent or complete the survey. In each site, different locally determined methods were used to collect a representative, albeit non-random, sample. The baseline sample closely matched the sample distribution of the 2008 NATSISS by age, sex, jurisdiction, remoteness, quit attempts in the past year and number of daily cigarettes smoked (for current daily smokers). However, there were inconsistent differences in some socioeconomic indicators: our sample had higher proportions of

unemployed people, but also higher proportions who had completed Year 12 and who lived in more advantaged areas.[4]

Surveys were conducted face to face by trained interviewers, almost all of whom were members of the local Aboriginal and Torres Strait Islander community. The survey, entered directly onto a computer tablet, took 30–60 minutes to complete. In addition, a single survey of health service activities was completed for each site.

The project was approved by three Aboriginal human research ethics committees (HRECs) and two HRECs with Aboriginal subcommittees: Aboriginal Health & Medical Research Council Ethics Committee, Sydney; Aboriginal Health Research Ethics Committee, Adelaide; Central Australian HREC, Alice Springs; HREC for the Northern Territory Department of Health and Menzies School of Health Research, Darwin; and the Western Australian Aboriginal Health Ethics Committee, Perth.

ITC Project comparison sample

Comparisons were made with Australian smokers newly recruited to the International Tobacco Control Policy Evaluation Project (ITC Project) in Australia, between 2006 and 2012 (Wave 5, 2006–2007, $n = 624$; Wave 6, 2007–2008, $n = 485$; Wave 7, 2008–2009, $n = 114$; Wave 8, 2010–2011, $n = 189$; Wave 8.5, 2011–2012, $n = 243$). ITC Project participants were recruited using random digit telephone dialling, with strata defined by jurisdiction and remoteness, and surveys were completed by telephone.[10] Due to slightly different definitions of smokers, we concentrate our comparisons between the TATS project and ITC Project on daily smokers.

Main outcome measures

Survey questions were based on ITC Project surveys, particularly the Australian ITC Project surveys. All smokers were asked: "In the last month, have you tried to cut down the number of smokes you have?" and "Have you ever tried to quit smoking?". Those who had ever tried to quit were asked "How many times have you tried to quit smoking?" and "How long ago was your most recent quit attempt?".

Responses regarding ever trying to quit and when the last quit attempt occurred were used to derive the dichotomous outcome "tried to quit in the past year". If the last attempt occurred within the past 5 years, participants were asked "Of all the times you tried to quit smoking, what was the longest period you stayed completely off the smokes for?". This information was used to derive the outcome "ever sustained a quit attempt for ⩾ 1 month" (if tried to quit in the past 5 years). Those who had tried to quit more than once were also asked about their most recent attempt.

The exact questions, and comparisons with questions used in Australian ITC Project surveys, are presented in Appendix 1.

Covariates

Variation in quitting activity was described according to daily smoking status and key sociodemographic indicators (sex, age group, identification as Aboriginal and/or Torres Strait Islander, labour force status, highest level of education, remoteness, area-level disadvantage, perceived racism, not having enough money for food or essentials because of money spent on cigarettes, and being unable to buy cigarettes most of the time because of having no money). We also assessed variation according to whether or not the project site reported that it had received dedicated tobacco control resources (staff or funding) in the past year.

Statistical analyses

We calculated percentages and frequencies for all TATS project results (for daily smokers, non-daily smokers and recent quitters). ITC Project data (for daily smokers only) were summarised using percentages and 95% confidence intervals, which were directly standardised to match the age and sex profile of Aboriginal and Torres Strait Islander smokers according to the 2008 NATSISS. We did not include confidence intervals for TATS prevalence estimates as it is a non-probabilistic sample.

Simple logistic regression was used to assess variation in attempts to quit (ever, past year) and their duration (ever sustaining a quit attempt for ⩾ 1 month) among those who had smoked in the past year (ie, current smokers and recent quitters). Stata 13 (StataCorp) survey [SVY] commands were used to adjust for the sampling design, identifying the 35 project sites as clusters, and the quotas based on age, sex and smoking status as strata.[11] Refused and "don't know" responses were treated as missing, excluding up to 3% of participants from analyses, with the exception that 4.2% of those who had tried to quit in the past year (37/874) were missing data for the duration of their most recent attempt.

Results

Quitting activity is summarised in Box 1. Compared with daily smokers in the general Australian population who participated in ITC Project surveys, a smaller proportion of Aboriginal and Torres Strait Islander daily smokers had ever tried to quit (TATS, 69% v ITC, 81.4%). The proportion of Aboriginal and Torres Strait Islander daily smokers who had tried to reduce their cigarette consumption in the previous month was similar to that in the general Australian population (TATS, 59% v ITC, 55.3%), as was the proportion who had tried to quit in the past year (TATS, 48% v ITC, 45.7%). Of those who had tried to quit in the past year, similar proportions reported sustaining their most recent quit attempt for ⩾ 1 month (TATS, 31% v ITC, 33%). Differences were greater when comparing the longest quit attempts of those who had tried to quit in the past 5 years: 47% of Aboriginal and Torres Strait Islander smokers had ever sustained a quit attempt for ⩾ 1 month, compared with 60% in the general population. This greater difference is mainly due to more Aboriginal and Torres Strait Islander smokers reporting their longest quit attempt was shorter than 1 week (TATS, 28% v ITC, 14%).

Within the TATS project sample, more non-daily than daily smokers

1 Past quitting activity among daily smokers in the Australian population and among a national sample of Aboriginal and Torres Strait Islander smokers and recent quitters, by smoking status*

	Australian ITC Project†	Talking About The Smokes project‡		
Past quitting activity	**Daily smokers**	**Daily smokers**	**Non-daily smokers**	**Recent quitters**
All smokers (*n*)	1655	1392	251	78
Tried to reduce cigarettes smoked per day (past month)ǂ	55.3% (47.5%–62.9%)	59% (805)	70% (168)	—
Ever tried to quit	81.4% (78.8%–83.8%)	69% (961)	74% (181)	—
Tried to quit in the past year	45.7% (42.8%–48.6%)	48% (664)	56% (132)	—
Tried to quit in the past 5 years	69.9% (67.1%–72.5%)	62% (844)	63% (149)	—
Number of times ever tried to quit				
Never	18.6% (16.2%–21.3%)	31% (422)	28% (65)	—
1–2 times	35.2% (32.4%–38.0%)	32% (438)	32% (75)	46% (35)
3–4 times	22.8% (20.5%–25.3%)	18% (241)	19% (45)	21% (16)
5 or more	23.4% (21.2%–25.8%)	19% (259)	21% (48)	33% (25)
If tried to quit in the past 5 years (*n*)	1143	844	149	78
Median duration (IQR) of longest quit attempt, days	91 (14–274)	21 (4–122)	56 (14–274)	213 (91–365)
Duration of longest quit attempt				
Less than 24 hours	1.8% (1.0%–3.2%)	5% (38)	1% (1)	0
1 day or more (and less than 1 week)	12.4% (10.2%–14.9%)	24% (198)	7% (10)	0
1 week or more (and less than 1 month)	25.8% (22.8%–29.1%)	25% (209)	29% (42)	3% (2)
1 month or more (and less than 6 months)	23.2% (20.4%–26.3%)	24% (199)	32% (46)	26% (19)
6 months or more (and less than 1 year)	15.0% (12.7%–17.6%)	11% (88)	8% (11)	32% (23)
1 year or more	21.8% (19.2%–24.6%)	12% (101)	24% (35)	40% (29)
If tried to quit in the past year (*n*)	692	664	132	78
Median duration (IQR) of most recent quit attempt, days	14 (3–61)	14 (3–30)	30 (12–152)	152 (49–304)
Duration of most recent quit attempt				
Less than 24 hours	4.3% (2.8%–6.4%)	6% (37)	2% (2)	0
1 day or more (and less than 1 week)	27.0% (23.2%–31.3%)	33% (213)	12% (15)	5% (4)
1 week or more (and less than 1 month)	35.5% (31.3%–40.0%)	30% (192)	31% (39)	15% (11)
1 month or more (and less than 6 months)	21.5% (18.0%–25.5%)	20% (130)	32% (40)	31% (23)
6 months or more	11.7% (9.1%–14.8%)	10% (66)	23% (29)	49% (36)

ITC Project = International Tobacco Control Policy Evaluation Project. IQR = interquartile range. * Percentages and frequencies exclude refused responses and "don't know" responses. † Except where specified, results are percentages (95% confidence intervals) for daily smokers in the Australian population from Waves 5–8.5 of the Australian ITC Project (*n* = 1655), directly standardised to the age and sex of Aboriginal and Torres Strait Islander smokers surveyed in the 2008 National Aboriginal and Torres Strait Islander Social Survey. ‡ Except where specified, results are percentages (frequencies) for the baseline sample of Aboriginal and Torres Strait Islander current smokers (*n* = 1643) and ex-smokers who quit ≤ 12 months before (*n* = 78) in the Talking About The Smokes project. ǂ Data available for Australian ITC Project Wave 8.5 only (*n* = 243). ◆

had tried to reduce their cigarette consumption in the previous month (70% v 59%), tried to quit in the past year (56% v 48%) and sustained a quit attempt for ≥ 1 month (ever: 63% v 47%; most recent: 55% v 31%). There was little difference in the number of past quit attempts recalled by daily smokers, non-daily smokers and recent quitters (Box 1).

There was some socioeconomic patterning of quitting activity within the TATS project sample (Box 2). Ever having tried to quit (but not having tried to quit in the past year) and ever sustaining a quit attempt for ≥ 1 month were both associated with being employed and having completed Year 12, but not with area-level disadvantage. Attempts to quit (but not sustain a quit attempt) were more likely for those whose local health service had dedicated tobacco control resources and were less likely among men and those who perceived they had experienced racism in the previous year. Smokers who had been unable to afford cigarettes most of the time in the past month, and those who did not have enough money for food or other essentials in the past 6 months because of money spent on cigarettes were significantly more likely to have attempted to quit in the past year, but were less likely to have ever sustained a quit attempt for ≥ 1 month.

Discussion

Consistent with previous research, our results show that nearly half of Aboriginal and Torres Strait Islander smokers had tried to quit in the past year, similar to the general Australian population.[3,4] Together with the finding that two-thirds of Aboriginal and Torres Strait Islander smokers want to quit (reported elsewhere in this supplement),[12] this strengthens evidence that lack of motivation to stop smoking does not present a significant barrier to lowering smoking rates. However, we observed some variation in quitting activity that appears specific to the social context of quitting for Aboriginal and Torres Strait Islander peoples.

2 Demographic and socioeconomic variation in quitting activity in a national sample of Aboriginal and Torres Strait Islander smokers and recent quitters*

	Ever tried to quit		Tried to quit in the past year		Ever sustained a quit attempt for >1 month†	
Sociodemographic variable	% (frequency)‡	OR (95% CI)§	% (frequency)‡	OR (95% CI)§	% (frequency)‡	OR (95% CI)§
Sex		*P* = 0.02		*P* = 0.04		*P* = 0.35
Female	75% (668)	1.0	55% (479)	1.0	51% (294)	1.0
Male	67% (552)	0.68 (0.50–0.93)	49% (395)	0.78 (0.61–0.99)	54% (257)	1.13 (0.87–1.47)
Age (years)		*P* = 0.53		*P* = 0.006		*P* = 0.03
18–24	72% (261)	1.0	62% (224)	1.0	44% (107)	1.0
25–34	71% (325)	0.96 (0.69–1.33)	53% (238)	0.68 (0.51–0.90)	54% (157)	1.55 (1.11–2.15)
35–44	69% (285)	0.87 (0.58–1.32)	46% (188)	0.52 (0.37–0.73)	57% (135)	1.75 (1.21–2.54)
45–54	73% (207)	1.07 (0.70–1.65)	48% (133)	0.56 (0.38–0.82)	55% (92)	1.59 (1.06–2.40)
⩾55	76% (142)	1.22 (0.75–1.98)	49% (91)	0.59 (0.40–0.87)	53% (60)	1.44 (0.94–2.21)
Indigenous status		*P* = 0.20		*P* = 0.04		*P* = 0.17
Aboriginal	71% (1073)	1.0	51% (758)	1.0	53% (482)	1.0
Torres Strait Islander	67% (60)	0.84 (0.36–1.97)	49% (44)	0.94 (0.44–2.01)	59% (33)	1.29 (0.73–2.30)
Both	78% (87)	1.47 (0.85–2.53)	65% (72)	1.78 (1.09–2.90)	46% (36)	0.75 (0.52–1.09)
Labour force status		*P* = 0.04		*P* = 0.14		*P* < 0.001
Unemployed or not in labour force	69% (763)	1.0	50% (547)	1.0 (ref)	46% (301)	1.0
Employed	75% (455)	1.34 (1.01–1.79)	55% (325)	1.19 (0.95–1.51)	62% (249)	1.89 (1.45–2.46)
Highest education attained		*P* = 0.001		*P* = 0.20		*P* < 0.001
Less than Year 12	67% (584)	1.0	50% (428)	1.0	47% (236)	1.0
Year 12 or higher	75% (626)	1.47 (1.17–1.86)	53% (440)	1.15 (0.93–1.43)	58% (314)	1.56 (1.23–1.99)
Remoteness		*P* = 0.43		*P* = 0.24		*P* = 0.03
Major cities	74% (334)	1.0	54% (240)	1.0	59% (172)	1.0
Inner and outer regional	69% (597)	0.78 (0.51–1.20)	49% (419)	0.81 (0.59–1.11)	52% (262)	0.76 (0.56–1.02)
Remote and very remote	73% (289)	0.95 (0.58–1.54)	55% (215)	1.03 (0.69–1.54)	47% (117)	0.63 (0.44–0.89)
Area-level disadvantage		*P* = 0.10		*P* = 0.12		*P* = 0.44
1st quintile (most disadvantaged)	67% (440)	1.0	48% (310)	1.0	50% (190)	1.0
2nd and 3rd quintiles	74% (533)	1.40 (1.01–1.93)	55% (392)	1.33 (1.01–1.75)	54% (246)	1.18 (0.87–1.59)
4th and 5th quintiles	74% (247)	1.43 (0.90–2.26)	52% (172)	1.19 (0.84–1.69)	54% (115)	1.20 (0.87–1.64)
Perceived racism (past year)		*P* = 0.003		*P* = 0.01		*P* = 0.45
No	75% (549)	1.0	55% (400)	1.0	51% (246)	1.0
Yes	68% (639)	0.70 (0.55–0.88)	49% (454)	0.77 (0.63–0.94)	54% (295)	1.10 (0.86–1.41)
Unable to buy food or other essentials because of money spent on cigarettes (past 6 months)		*P* = 0.14		*P* < 0.001		*P* = 0.004
No	70% (896)	1.0	48% (609)	1.0	53% (403)	1.0
Yes	74% (278)	1.24 (0.93–1.67)	59% (220)	1.55 (1.20–2.01)	43% (108)	0.67 (0.51–0.88)
Ever unable to buy cigarettes because of having no money		*P* = 0.17		*P* = 0.007		*P* < 0.001
Never	68% (352)	1.0	44% (228)	1.0	61% (181)	1.0
Some or most of the time	72% (766)	1.21 (0.93–1.57)	52% (547)	1.37 (1.09–1.71)	44% (286)	0.49 (0.36–0.67)
Dedicated tobacco control resources at project site		*P* < 0.001		*P* = 0.005		*P* = 0.78
No	62% (305)	1.0	45% (219)	1.0	53% (140)	1.0
Yes	75% (915)	1.83 (1.32–2.54)	54% (655)	1.45 (1.12–1.88)	52% (411)	0.96 (0.70–1.30)

OR = odds ratio. * Results are based on the Talking About The Smokes project baseline sample of current smokers (n = 1643) and ex-smokers who quit ⩽12 months before (n = 78) (total, n = 1721, or n = 874 for those who had tried to quit in the past year). † For those who had tried to quit in the past 5 years. ‡ Percentages and frequencies exclude refused responses and "don't know" responses. § P values for overall variable significance, using adjusted Wald tests. ◆

In contrast to the general Australian population, where there is no difference between the sexes in quitting activity,[7,13] Aboriginal and Torres Strait Islander men were less likely to have ever tried to quit or tried to quit in the past year, and they have been shown elsewhere to be less interested in quitting.[12] Given the prevalence of daily smoking was somewhat higher for Aboriginal and Torres Strait Islander men than women across each age group in 2012–2013,[2] this represents a considerable concern and challenge. Future tobacco control campaigns must increase the urgency and priority of quitting for both men and women.

Quitting activity was also lower among smokers who perceived they had experienced racism in the past year, strengthening previous findings regarding the link between racism and smoking.[14,15] The 2012 Australian Reconciliation Barometer showed that 84% of Aboriginal and Torres Strait Islander people and 78% of non-Indigenous people perceive that trust of one another is low or very low.[16] For some Aboriginal and Torres Strait Islander people, this distrust extends to mainstream health authorities.[17] These relationships may be critical to motivating and supporting quitting activity.[12,17,18] While supportive, non-discriminatory health services are a starting place to tackle racism, broader campaigns such as the National Anti-Racism Strategy could also play an important role.[19]

While it is encouraging that the presence of tobacco control resources at local health services was associated with greater quitting activity, access to these resources did not appear to improve the likelihood of sustaining a quit attempt. This is a reminder that a higher number of quit attempts is not alone associated with improved odds for successfully quitting, as those who try repeatedly are more likely to relapse.[20,21] A considerably higher proportion of Aboriginal and Torres Strait Islander daily smokers than those in the general population had been unable to sustain a quit attempt for longer than a week, which suggests the main challenge in reducing their prevalence of smoking lies in boosting quit success.

Consistent with international research,[22-24] smokers who live in remote areas, who had frequently been unable to afford cigarettes in the past month, and who had gone without food or other essentials because of money spent on cigarettes were as or more likely to have tried to quit than those who did not, but less likely to sustain a quit attempt. In part, these associations may be explained by higher levels of nicotine dependence, which has been shown to be associated with measures of disadvantage[25] and is predictive of early relapse.[7,25,26] Further, as for the broader population, smokers who live in remote and disadvantaged areas appear equally likely to be asked about their smoking by a health professional but may be less likely to use stop-smoking medications.[5,27,28]

However, while access to cessation support plays an important role, the high levels of psychological distress that are associated with chronic disadvantage are another important factor, which is likely to require action that extends beyond these services.[29,30] For example, there is some evidence that moving above the poverty line increases the chances of quitting successfully.[31] If the overall economic position of Aboriginal and Torres Strait Islander peoples can be raised, it has the potential to reduce smoking among future generations.[32]

Strengths and limitations

The associations presented here are all cross-sectional and should not be used to infer causation. The sample, while not random, is broadly representative, although using health services as the sampling frame is likely to have introduced some biases. It is likely that the TATS project participants were more closely connected to their health services than average, and thus had higher exposure to health professionals and anti-tobacco materials. However, the proportion of smokers who reported seeing a health professional in the past year was similar to that in the 2008 NATSISS, as was the proportion who had tried to quit in the past year.[4] With these considerations in mind, this study remains the most comprehensive exploration of quitting activity in Aboriginal and Torres Strait Islander smokers to date.

We chose to compare our results with the Australian ITC Project dataset, which was collected over several years (from 2006 to 2012), because it allowed us to compare TATS and ITC baseline surveys. While the prevalence of smoking in Australia declined over the decade to 2011–2012,[33] this was not reflected in quit attempts reported in the ITC Project dataset. Although comparisons of attempts to quit in the past year may be somewhat compromised by differences in question wording (Appendix 1), we think large differences due to wording are unlikely. Further, while past research suggests that many quit attempts are forgotten,[34] we have no reason to believe forgotten attempts would differ greatly across populations. Finally, our outcome for ever sustaining a quit attempt for 1 month or more was intended as an indicator of ability to sustain a quit attempt, not as a measure of quit success per se. Given the relatively high proportion of Aboriginal and Torres Strait Islander daily smokers who had never sustained a quit attempt for 1 week or longer, finding ways to improve quit success will be an important area of future research in this population, as it is for the general population.[35]

In conclusion, existing comprehensive tobacco control programs appear to be motivating Aboriginal and Torres Strait Islander smokers to try to quit, but do not appear to overcome challenges in sustaining quit attempts for more disadvantaged smokers and those from remote areas. Strengthening of support could usefully include broader policies that tackle poverty, racism and other causes of chronic stress.

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Predictors of wanting to quit in a national sample of Aboriginal and Torres Strait Islander smokers

Abstract

Objective: To describe factors that predict wanting to quit smoking in a national sample of Aboriginal and Torres Strait Islander people.

Design, setting and participants: The Talking About The Smokes (TATS) project used a quota sampling design to recruit participants from communities served by 34 Aboriginal community-controlled health services and one community in the Torres Strait. Baseline survey data were collected from 1643 current smokers between April 2012 and October 2013.

Main outcome measure: Wanting to quit smoking.

Results: More than two-thirds of smokers (70%) said they want to quit. Many factors were associated with wanting to quit, including past quitting activity. Interest in quitting was lower among men and smokers from economically disadvantaged areas, but there was no difference by age, remoteness or other measures of economic disadvantage. Attitudes and beliefs negatively associated with wanting to quit included enjoying smoking and believing quitting to be very difficult, and those positively associated included regretting ever starting to smoke, perceiving that local Aboriginal and Torres Strait Islander community leaders disapprove of smoking, believing non-smokers set a good example to children, worrying about future smoking-related health effects and believing quitting to be beneficial. Reporting support from family and friends was predictive of wanting to quit, but factors related to smoking in the social network were not. Associations with health and wellbeing were mixed. While most tobacco control policy exposure variables were positively associated with wanting to quit, two — receiving advice to quit from a health professional, and recall of targeted anti-tobacco advertising — appeared to have an effect that extended beyond influencing relevant attitudes and beliefs.

Conclusion: Interest in quitting among Aboriginal and Torres Strait Islander smokers appears to be influenced by a broad range of factors, highlighting the importance of taking a comprehensive approach to tobacco control. Advice from health professionals and targeted advertising appear to be important intervention strategies.

Smoking kills one in five Aboriginal and Torres Strait Islander people.[1] Encouragingly, there was a steady decrease in the prevalence of daily smoking in the decade to 2012–2013, from 49% to 42% in those aged 15 years or older.[2] The 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) found that 62% of smokers had either cut down or attempted to quit smoking in the previous year,[3] indicating high levels of motivation to quit.

However, smoking in remote areas has not declined to the same degree as in other areas, and the difference between smoking rates of Aboriginal and Torres Strait Islander peoples and non-Indigenous Australians has not diminished.[4] Factors reported to contribute to the high prevalence of smoking among Aboriginal and Torres Strait Islander peoples include ongoing effects of colonisation and dispossession, normalisation of smoking, socioeconomic inequalities and a lack of access to services that support quitting.[5-9] Smoking has also been associated with high rates of psychological distress, experiences of racism and binge drinking among Aboriginal and Torres Strait Islander peoples.[10,11] Where and how these factors influence the pathway to smoking and quitting has important implications for tobacco control interventions.[12]

While there has been limited evaluation of strategies to reduce smoking among Aboriginal and Torres Strait Islander peoples, there is some evidence that health professional advice and advertising campaigns increase interest in quitting.[13,14] Here, we explore which policies and other factors predict wanting to quit in a national sample of Aboriginal and Torres Strait Islander smokers.

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Methods

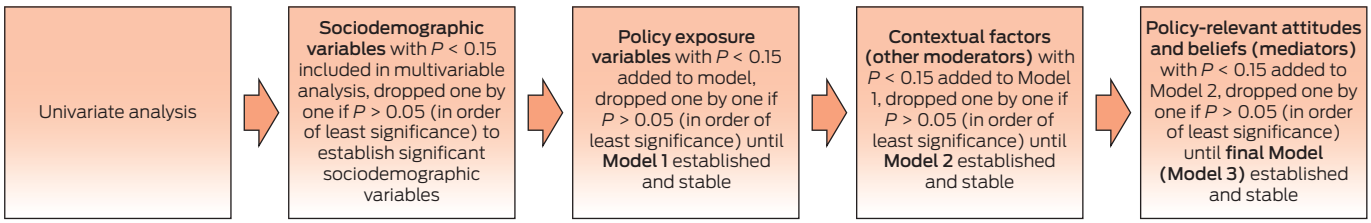
Survey design and participants

The Talking About The Smokes (TATS) project surveyed 1643 current smokers from April 2012 to October 2013 (Wave 1, or baseline). The survey design and participants have been described in detail elsewhere.[15,16] Briefly, the study used a quota sampling design to recruit participants from communities served by 34 Aboriginal community-controlled health services (ACCHSs) and one community in the Torres Strait. Project sites were selected based on the population distribution of Aboriginal and Torres Strait Islander people by state or territory and remoteness. In most sites (30/35), we aimed to interview a sample of 50 smokers or recent quitters (ex-smokers who had quit ⩽ 12 months before), with equal numbers of men and women and those aged 18–34 and ⩾ 35 years. The sample sizes were doubled in four large city sites and the Torres Strait community. People were excluded if they did not identify as Aboriginal or Torres Strait Islander, were less than 18 years old, were not usual residents of the area, were staff of the ACCHS or were deemed unable to consent or complete the survey.

In each site, different locally determined methods were used to collect a representative, albeit non-random, sample. The baseline sample closely matched the sample distribution of the 2008 NATSISS by age, sex, jurisdiction and remoteness, and number of cigarettes smoked per day for current daily smokers. However, there were inconsistent differences in some socioeconomic indicators: our sample had higher proportions of unemployed people, but also higher proportions who had completed Year 12 and who lived in more advantaged areas.[15]

Interviews were conducted face to face by trained interviewers, almost

1 Hierarchical model for multivariable analysis



all of whom were members of the local Aboriginal and Torres Strait Islander community. The survey, entered directly onto a computer tablet, took 30–60 minutes to complete. A single survey of health service activities was also completed for each site.

The project was approved by three Aboriginal human research ethics committees (HRECs) and two HRECs with Aboriginal subcommittees: Aboriginal Health & Medical Research Council Ethics Committee, Sydney; Aboriginal Health Research Ethics Committee, Adelaide; Central Australian HREC, Alice Springs; HREC for the Northern Territory Department of Health and Menzies School of Health Research, Darwin; and the Western Australian Aboriginal Health Ethics Committee, Perth.

Main outcome measure

All smokers were asked "Do you want to quit smoking?" ("yes", "no" or "don't know"). This outcome was dichotomised for logistic regression analyses, with "don't know" responses excluded. Those who reported wanting to quit were also asked how much they want to quit ("a little", "somewhat" or "a lot").

Predictors of wanting to quit

Predictors of wanting to quit were explored for key sociodemographic indicators, known predictors of smoking and quitting, and policy exposure variables. These questions, and how they have been grouped for multivariable analyses, are summarised in Appendix 1.

Statistical analyses

All analyses were performed using Stata, version 13.1 (StataCorp). Stata's survey [SVY] commands were used to adjust for the sampling design, identifying the 35 project sites as clusters, and the quotas based on age, sex and smoking status as strata.[17] The relationship between wanting to quit and each predictor variable (Appendix 1) was explored using logistic regression. Variables with two or more categories were then collapsed based on previously established cut-points or those that best fitted the data and context. With the exception of the quitting history subset, which was not included in the multivariable model, variables of importance (with $P < 0.15$ on adjusted Wald tests) were added hierarchically, commencing with the sociodemographic factors (Box 1). Measures of past quitting activity were not included in the multivariable models because they are indicators of past motivation to quit, which may confound analyses about present intentions. A backwards elimination technique was used to arrive at each model.

Less than 1% of smokers (11/1643) did not respond to the question on wanting to quit and were excluded from all analyses. Of the remainder, data for the 4.8% of smokers (79/1632) who did not know if they wanted to quit were also excluded, leaving 1553 smokers for analysis. While those who declined to respond to questions on predictor variables (≤ 34/1553) were also excluded from relevant analyses, all "don't know" responses for these variables were combined with other categories as best fitted the data, for a more complete representation of our smoker sample (Appendix 2).

Results

Of the 1553 smokers, 1083 (70%) reported wanting to quit. Of these, 9% (100/1079) wanted to quit "a little", 31% (330/1079) said "somewhat" and 60% (649/1079) wanted to quit "a lot".

Many of the 56 predictor variables (Appendix 1) were associated with wanting to quit; those that were not are listed in Appendix 3. Variables that were significant predictors in at least one multivariable model are included in Box 2. Those that only held significant univariate associations are listed in Appendix 4, along with variables for quitting history. Measures of past quitting activity were consistently associated with wanting to quit on univariate analysis, which demonstrates convergent validity.

There were no differences in wanting to quit by age or remoteness (Appendix 3). However, men were less likely than women to want to quit (63% v 76%). While those from areas of greater disadvantage were less likely to want to quit (Box 2), other measures of economic advantage (such as education and employment) did not predict interest in quitting in any of the multivariable models (Appendix 4).

Smokers who said they enjoyed smoking and that smoking is an important part of life were less likely to want to quit (Appendix 4), although only enjoying smoking significantly predicted lack of interest in quitting in the final model (Model 3) (Box 2). Agreement with each of the statements regarding the negative aspects of smoking was associated with increased interest in quitting in unadjusted analyses (Appendix 4). When controlling for other factors (Model 3, Box 2), wanting to quit was higher among those who regretted ever starting to smoke, were very worried about the future effects of smoking on their health,

2 Hierarchical model of associations with wanting to quit in a national sample of Aboriginal and Torres Strait Islander smokers*

	Smokers	Univariate† (*n* = 1553)		Model 1‡ (*n* = 1454)		Model 2§ (*n* = 1416)		Model 3¶ (*n* = 1503)	
	% (frequency)	Odds ratio (95% CI)	*P***	AOR (95% CI)	*P***	AOR (95% CI)	*P***	AOR (95% CI)	*P***
Do you want to quit? — Yes	70% (1083)			—	—	—	—	—	—
Sociodemographic factors									
Male	63% (476)	0.55 (0.40–0.76)	< 0.001	0.65 (0.47–0.90)	0.01	0.68 (0.49–0.94)	0.02	0.59 (0.42–0.83)	0.002
Area-level disadvantage††	68% (849)	0.59 (0.42–0.84)	0.004	0.53 (0.37–0.76)	0.001	0.56 (0.38–0.82)	0.003	0.61 (0.41–0.90)	0.01
Policy exposure variables									
Advised to quit by health professional‡‡	78% (675)	2.50 (1.91–3.26)	< 0.001	2.07 (1.56–2.74)	< 0.001	1.71 (1.24–2.35)	0.001	1.42 (1.04–1.94)	0.03
How often warning labels noticed§§									
Never	45% (71)	1.0	< 0.001	1.0	< 0.001	1.0	< 0.001	dropped	—
Sometimes or don't know	58% (204)	1.65 (1.03–2.63)		1.50 (0.97–2.32)		1.34 (0.84–2.14)			
Often	78% (755)	4.31 (2.64–7.04)		3.02 (1.93–4.73)		2.58 (1.59–4.20)			
How often news stories noticed¶¶									
Never	59% (271)	1.0	< 0.001	1.0	0.03	1.0	0.04	dropped	—
Sometimes or don't know	71% (512)	1.73 (1.33–2.26)		1.30 (0.99–1.71)		1.33 (1.00–1.78)			
Often	81% (297)	3.03 (2.03–4.53)		1.75 (1.15–2.68)		1.73 (1.12–2.68)			
How often advertising or information noticed¶¶									
Never	48% (112)	1.0	< 0.001	dropped	—	dropped	—	dropped	—
Sometimes or don't know	68% (403)	2.26 (1.60–3.19)							
Often	79% (548)	4.09 (2.67–6.27)							
Noticed targeted advertising¶¶	80% (592)	2.57 (2.03–3.27)	< 0.001	1.75 (1.36–2.25)	< 0.001	1.79 (1.38–2.32)	< 0.001	1.74 (1.32–2.31)	< 0.001
Noticed local advertising¶¶	84% (203)	2.58 (1.77–3.74)	< 0.001	dropped	—	dropped		dropped	
Contextual factors (other moderators)									
High nicotine dependence***	62% (190)	0.65 (0.49–0.86)	0.003	—	—	0.63 (0.48–0.83)	< 0.001	dropped	
High perceived difficulty of quitting	66% (360)	0.77 (0.58–1.02)	0.07	—	—	0.59 (0.44–0.80)	0.001	0.54 (0.39–0.74)	< 0.001
Smoking-induced deprivation¶¶	76% (265)	1.49 (1.08–2.05)	0.02	—	—	1.51 (1.04–2.20)	0.03	dropped	
Satisfied with life	67% (879)	0.42 (0.28–0.64)	< 0.001	—	—	0.55 (0.37–0.83)	0.005	dropped	
Risky alcohol intake (binge drinking) weekly‡‡	63% (349)	0.63 (0.49–0.80)	< 0.001	—	—	0.62 (0.47–0.82)	0.001	0.66 (0.49–0.88)	0.005
How often too many worries to deal with¶¶									
Never	60% (219)	1.0	< 0.001	—	—	1.0	0.002		
Sometimes or don't know	71% (644)	1.64 (1.21–2.22)		—	—	1.76 (1.24–2.51)		1.60 (1.10–2.32)	0.01
Often	79% (214)	2.52 (1.74–3.65)		—	—	2.27 (1.41–3.66)		2.15 (1.29–3.58)	
Support to quit from family and friends	78% (729)	2.54 (1.90–3.40)	< 0.001	—	—	2.03 (1.48–2.79)	< 0.001	1.51 (1.10–2.07)	0.01
Smoke-free home (effective indoor ban)	74% (574)	1.55 (1.22–1.97)	< 0.001	—	—	1.41 (1.08–1.84)	0.01	dropped	
Policy-relevant attitudes and beliefs (mediators)									
You enjoy smoking†††	61% (594)	0.28 (0.20–0.41)	< 0.001	—	—	—	—	0.32 (0.23–0.44)	< 0.001
If you had to do it over again, you would not have started smoking†††	75% (907)	2.79 (1.96–3.97)	< 0.001	—	—	—	—	1.55 (1.06–2.27)	0.02
Community leaders where you live disapprove of smoking†††	77% (504)	1.89 (1.47–2.43)	< 0.001	—	—	—	—	1.61 (1.19–2.19)	0.002
Being a non-smoker sets a good example to children†††	73% (1029)	4.64 (2.91–7.38)	< 0.001	—	—	—	—	2.31 (1.38–3.86)	0.002
Very worried about future health effects	90% (500)	6.20 (4.44–8.65)	< 0.001	—	—	—	—	3.43 (2.35–5.00)	< 0.001
High perceived benefit from quitting	82% (780)	4.42 (3.25–6.00)	< 0.001	—	—	—	—	2.21 (1.59–3.07)	< 0.001

AOR = adjusted odds ratio. * Current smokers in the baseline survey of the Talking About The Smokes project, excluding those who did not know if they want to quit smoking and others for whom questions were declined or not applicable. † Variables with significant univariate but not multivariable associations are in Appendix 4. ‡ Policy exposure variables plus sociodemographic factors. § Model 1 plus contextual factors. ¶ Model 2 plus policy-relevant attitudes and beliefs. ** *P* values for overall variable significance, using adjusted Wald tests. †† Socio-Economic Indexes for Areas quintiles 1–3. ‡‡ In the past year. §§ In the past month. ¶¶ In the past 6 months. *** Heaviness of Smoking Index score, 4–6. ††† "Agree" or "strongly agree" responses. ◆

and believed quitting would be beneficial. Believing that not smoking sets a good example to children and perceiving that local Aboriginal and Torres Strait Islander community leaders disapprove of smoking also predicted wanting to quit in multivariable modelling, but perceiving disapproval of smoking by mainstream society did not.

More non-daily smokers than daily smokers said they want to quit (78% v 68%). Those assessed as highly nicotine-dependent (based on the Heaviness of Smoking Index) were less likely to want to quit, compared with those who were less dependent (Model 2, Box 2). While a perception that quitting would be very difficult reduced the odds of wanting to quit, even when controlling for relevant attitudes (Model 3, Box 2), reporting strong urges or cravings did not (Appendix 3). Smokers who consumed risky levels of alcohol at least weekly were also less likely to want to quit. On the other hand, smokers who experienced too many worries or went without food or other essentials (because of money spent on cigarettes) were more likely to want to quit, although only having too many worries was predictive in the final model (Box 2).

Very few contextual factors relating to the social environment predicted wanting to quit, and only support from family and friends remained in the final model. Smoke-free environments were also associated with interest in quitting: home (but not workplace) smoking bans predicted wanting to quit when adjusting for sociodemographic factors (Model 2, Box 2), but not when relevant attitudes were considered (Model 3).

All variables relating to exposure to tobacco control policies were positively associated with wanting to quit, except for the presence of dedicated tobacco control staff or resources at the local health service (determined from the project site survey). Only two policy exposure variables appeared to have relationships that were not fully explained (mediated) by relevant attitudes and beliefs: these were having received advice to quit from a health professional in the past year, and having noticed targeted anti-tobacco advertising in the past 6 months.

Discussion

It is encouraging that most Aboriginal and Torres Strait Islander smokers said they want to quit, similar to past studies.[6,13,18] We found that a broad range of factors were associated with wanting to quit, including attitudes towards smoking, social normative beliefs, dependence-related measures, other contextual factors and exposure to a range of tobacco control interventions. The diversity of influences highlights the importance of taking a comprehensive approach to tobacco control, through strategies that target the individual, the community and broader aspects of society and the environment.

It is of particular importance that many of the tobacco control strategies assessed were associated with wanting to quit. While it is possible (as with all cross-sectional associations) that wanting to quit led to heightened attention to materials or programs about smoking, these relationships remained significant whether or not other strategies were also noticed. There would seem to be little doubt that the tobacco control strategies assessed were contributing to interest in quitting. In particular, being advised to quit smoking by a health professional and recalling targeted anti-tobacco advertising were predictive of wanting to quit, and these relationships were not contingent on forming relevant attitudes and beliefs. That is, if a health professional says "you should quit smoking", people become more motivated to do so, even if their beliefs about smoking (eg, whether they will benefit from quitting) remain unchanged. This suggests that these interventions have some direct influence on interest in quitting, whether or not they also influence other beliefs. This motivational effect of brief advice is consistent with past findings,[13,19] including in other populations,[20] and should affirm the importance of such conversations for health professionals.

While there are mixed findings regarding the effect of media campaigns on quit intentions, there is good evidence that well funded mass media campaigns promote quitting.[21] Our results suggest that targeted messages have added potency for Aboriginal and Torres Strait Islander peoples, beyond that of mainstream mass media messages, which are thought to be equally effective for Indigenous peoples as for the general population.[14] The added potency of targeted and local advertising may be due to greater cultural relevance,[14,22,23] or because of community involvement and leadership in its development. For example, ACCHSs often use targeted advertising and information that may incorporate Aboriginal and Torres Strait Islander cultural beliefs, holistic wellbeing, family messages, storytelling, role modelling and community elders.[24] In general, targeted messages are indicated where beliefs and sources of motivation differ from those in the general population.[25] Elsewhere in this supplement, we report that beliefs about harm to others appear particularly motivating,[26] and that smokers who recalled more targeted or local targeted advertising were more likely to hold these beliefs.[27]

Our results emphasise previous findings regarding the power of others to motivate quitting.[7,19,26,28,29] Similar findings have been reported for other indigenous populations.[30-32] In this regard, it is relevant that having more friends and family members who smoke did not reduce interest in quitting in our sample, consistent with previous findings.[13] That said, social networks may be more important in making and sustaining quit attempts, as reported elsewhere.[33,34]

Our finding that fewer men wanted to quit is cause for concern, particularly when interpreted alongside findings elsewhere in this supplement that fewer men are making quit attempts.[35] Sex was not found to predict wanting to quit in a similar but smaller study conducted in regional New South Wales.[13] Further, national surveys have not shown large differences between the sexes in the decline of smoking uptake or the rise of successful quitting among Aboriginal

and Torres Strait Islander peoples.[36] International literature shows the relationship between sex and quitting is complex and appears to differ according to age, social standing and other factors such as differential use of stop-smoking medications,[37,38] which we have not explored here.

In contrast to the general population, where younger, economically advantaged smokers report greater interest in quitting,[39,40] wanting to quit was not predicted by age, remoteness, education or employment in our results, despite evidence of smaller reductions in smoking among those in remote areas and older age groups.[2] This suggests differences in smoking prevalence may be due to the challenges of quitting successfully for these smokers, not lack of motivation.

Similarly, past research shows that smokers who experience mental ill health are no less interested in quitting, consistent with our findings for smokers who reported having too many worries or feeling depressed.[41-43] However, these people are less likely to succeed, particularly if they are economically disadvantaged.[41-43] The solution for these smokers extends beyond building motivation to quit. In other settings of disadvantage, a combination of short-term strategies, which deal with immediate challenges to quitting, and longer-term policy interventions, which tackle factors that cause disadvantage and marginalisation, is recommended.[44] These recommendations are consistent with taking a comprehensive approach to tobacco control.

Strengths and limitations

The TATS project sample was broadly representative of the Aboriginal and Torres Strait Islander population, albeit with some inconsistent sociodemographic differences when compared with the 2008 NATSISS sample. It is possible that a bias towards those who were more connected to the local health service boosted levels of exposure to policies or programs such as brief intervention or use of local educational materials, which may have inflated our estimates of these exposures. However, comparisons between the TATS project and the 2008 NATSISS show that similar proportions of smokers had seen a health professional in the previous year and had attempted to quit in the previous year,[15] which reassures us that there was not strong systematic bias caused by recruitment by health service staff.

While interviewer-assisted surveys could lead to a social desirability bias towards wanting to quit, evidence from elsewhere suggests that respondents are equally or less likely to say they want to quit in interviewer-assisted telephone surveys compared with postal or online surveys.[45,46] Social desirability biases can also be culturally moderated, which we sought to overcome by engaging local interviewers to reduce the social distance between the interviewer and participant.[47] Given there was no evidence of any strong or systematic bias, we believe it appropriate to compare our estimates and cross-sectional associations with other surveys and to generalise our findings to the national Aboriginal and Torres Strait Islander population.[15]

While we excluded 4.8% of smokers who did not know if they want to quit (to better predict wanting to quit, as a dichotomous outcome), the demographic characteristics of these smokers were similar to those who were included in our analyses.

Using a hierarchical approach for the multivariable analysis allowed us to determine the degree to which policy exposures could be accounted for by relevant attitudes and beliefs (ie, those that precede wanting to quit). The hierarchical model unmasks policy exposure variables that have influenced wanting to quit by strengthening relevant attitudes and beliefs on the pathway to quitting. It is likely that we have not measured all attitudes and beliefs that are influenced by the tobacco control interventions assessed, which may explain why some interventions remained in the final model (ie, appearing to exert a direct effect on wanting to quit). However, although not exhaustive, the variables included in the multivariable modelling have been shown in other articles in this supplement to be relevant and important, and have also been shown to be relevant to a diverse range of societies and tobacco control environments.[47] Further, the strong relationships between wanting to quit and past quitting activity mirror findings from other populations, which demonstrate that repeated (and failed) attempts to quit are common among those who are most interested in quitting.[48,49] This validates the question "Do you want to quit?" as an indicator of interest in quitting among Aboriginal and Torres Strait Islander peoples.

It is important to remember that some of the predictors of wanting to quit are likely to be caused by wanting to quit. Further, at least for the general population, determinants of success once a quit attempt is initiated are quite different to those for wanting and attempting to quit.[48,50,51] Some of the variables that were unrelated to interest in quitting among Aboriginal and Torres Strait Islander smokers are likely to predict quit success. Longitudinal research is needed to assess how factors associated with wanting to quit influence the pathway to making and sustaining quit attempts.

With these considerations in mind, it is clear that most Aboriginal and Torres Strait Islander smokers want to quit. The broad range of factors associated with wanting to quit highlight the importance of taking a comprehensive approach to tobacco control. While it is likely that a continuation of the strategies already in use will enable high levels of motivation to be maintained, the next challenge will be to translate this into more successful quitting.

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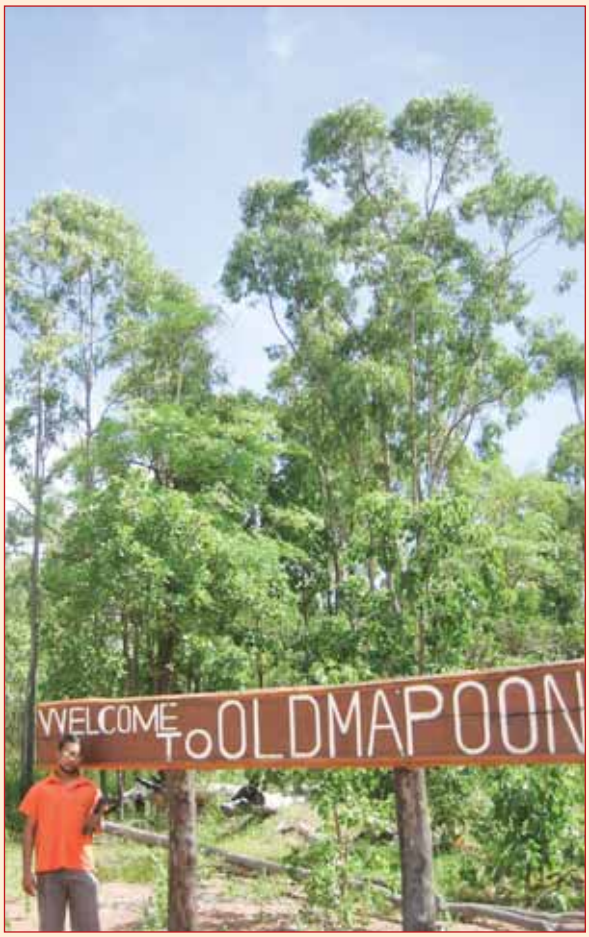

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Smoke-free homes and workplaces of a national sample of Aboriginal and Torres Strait Islander people

Abstract

Objective: To examine Aboriginal and Torres Strait Islander people's protection from second-hand smoke at home and work.

Design, setting and participants: The Talking About The Smokes project surveyed 2522 Aboriginal and Torres Strait Islander people from communities served by 34 Aboriginal community-controlled health services and one community in the Torres Strait, using quota sampling, from April 2012 to October 2013. We made comparisons with data from Australian smokers in the International Tobacco Control Policy Evaluation Project (ITC Project), collected from either July 2010 to May 2011 or September 2011 to February 2012.

Main outcome measures: Whether smoking was not allowed anywhere in the home, or not allowed in any indoor area at work.

Results: More than half (56%) of Aboriginal and Torres Strait Islander smokers and 80% of non-smokers reported that smoking was never allowed anywhere in their home. Similar percentages of daily smokers in our sample and the Australian ITC Project data reported bans. Most employed Aboriginal and Torres Strait Islander daily smokers (88%) reported that smoking was not allowed in any indoor area at work, similar to the Australian ITC Project estimate. Smokers working in smoke-free workplaces were more likely to have smoke-free homes than those in workplaces where smoking was allowed indoors (odds ratio, 2.85; 95% CI, 1.67–4.87). Smokers who lived in smoke-free homes were more likely to have made a quit attempt in the past year, to want to quit, and to have made quit attempts of 1 month or longer.

Conclusion: Most Aboriginal and Torres Strait Islander people are protected from second-hand smoke at work, and similar proportions of Aboriginal and Torres Strait Islander smokers and other Australian smokers do not allow smoking inside their homes.

Second-hand smoke was estimated to cause more than 600 000 deaths globally in 2004, mainly from ischaemic heart disease, respiratory infections, asthma and lung cancer.[1] Protecting people from the dangers of second-hand smoke by banning smoking in indoor and other public places is an essential element of effective tobacco control programs.[2]

Smoking is banned in virtually all enclosed public places in Australia.[3] More than 92% of Australian smokers and ex-smokers reported that smoking was not allowed in any indoor area at their workplace in 2010–2011, slightly less than in similar surveys in the United Kingdom and Canada but more than in the United States and European and middle- and low-income countries surveyed.[4] In Australia[5] and all countries with available trend data, the proportion of the population living in smoke-free homes is increasing; this is not just due to falling smoking prevalence.[6]

Forty-two per cent of Aboriginal and Torres Strait Islander people aged 15 years or older were daily smokers in 2012–2013, 2.6 times the age-standardised prevalence among other Australians.[7] This is a decrease from 45% in 2008 and 49% in 2002, a similar rate of decline as among other Australians.[7] In 2008, Aboriginal and Torres Strait Islanders who smoked daily were less likely than other Australians to live in homes where no one usually smoked inside (56% v 68%).[5] Aboriginal and Torres Strait Islander smokers with lower household incomes were significantly more likely to live in homes where someone usually smoked inside.[5]

Here, we provide the first national picture of smoking bans in the workplaces of Aboriginal and Torres Strait Islander people. We also describe whether home smoking bans were always followed and assess the associations between smoke-free workplaces and homes and quitting.

Methods

The Talking About The Smokes (TATS) project surveyed 2522 Aboriginal and Torres Strait Islander people using a quota sampling design in the communities served by 34 Aboriginal community-controlled health services (ACCHSs) and one community in the Torres Strait, and has been described elsewhere.[8,9] Briefly, the 35 sites were selected based on the geographic distribution of the Aboriginal and Torres Strait Islander population by state or territory and remoteness. In 30 sites, we aimed to interview 50 smokers or ex-smokers who had quit ⩽12 months before, and 25 non-smokers, with equal numbers of women and men and in each of two age groups (18–34 and ⩾35 years). In four major-city sites and the Torres Strait community, the sample sizes were doubled. People were excluded if they were aged less than 18 years, not usual residents of the area, staff of the ACCHS, or deemed unable to complete the survey. In each site, different locally determined methods were used to collect a representative, although not random, sample.

Baseline data were collected from April 2012 to October 2013. Interviews were conducted face to face by trained interviewers, almost all of whom were members of the local Aboriginal and Torres Strait Islander community. The survey was completed on a computer tablet and took 30–60 minutes. The baseline sample closely matched the distribution of

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1 Smoking bans in homes and workplaces*

	Australian ITC Project†	Talking About The Smokes project			
	Daily smokers, % (95% CI)	Daily smokers, % (frequency)	Non-daily smokers, % (frequency)	Ex-smokers, % (frequency)	Never-smokers, % (frequency)
Home (*n*)	1010	1377	251	310	568
Total smoking ban	53.4% (47.7%–59.0%)	53% (735)	69% (173)	79% (246)	80% (455)
Partial smoking ban	31.0% (25.7%–36.8%)	23% (313)	18% (46)	15% (46)	14% (80)
No ban	15.7% (11.7%–20.6%)	24% (329)	13% (32)	6% (18)	5% (31)
Work (*n*)	604	461	89	131	284
Total indoor ban	88.5% (80.9%–93.3%)	88% (406)	89% (79)	95% (124)	93% (263)
Partial indoor ban	4.5% (2.0%–10.0%)	6% (27)	11% (10)	2% (2)	4% (11)
No ban	7.0% (3.3%–14.3%)	6% (28)	0	4% (5)	4% (10)

ITC Project = International Tobacco Control Policy Evaluation Project. * Percentages and frequencies exclude refused responses and "don't know" responses, or when not applicable. † Australian ITC Project results are from Wave 8.5 (home), conducted September 2011 to February 2012, and Wave 8 (work), conducted July 2010 to May 2011, and were age- and sex-standardised to smokers in the 2008 National Aboriginal and Torres Strait Islander Social Survey. ◆

age, sex, jurisdiction, remoteness, quit attempts in past year and number of daily cigarettes smoked reported in the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS). There were inconsistent differences in some socioeconomic indicators: our sample had higher proportions of unemployed people, but also higher proportions who had completed Year 12 and who lived in more advantaged areas.[8] A single survey of health service activities, including whether there were dedicated tobacco control resources, was completed at each site.

The project was approved by three Aboriginal human research ethics committees (HRECs) and two HRECs with Aboriginal subcommittees: Aboriginal Health & Medical Research Council Ethics Committee, Sydney; Aboriginal Health Research Ethics Committee, Adelaide; Central Australian HREC, Alice Springs; HREC for the Northern Territory Department of Health and Menzies School of Health Research, Darwin; and the Western Australian Aboriginal Health Ethics Committee, Perth.

As the TATS project is part of the International Tobacco Control Policy Evaluation Project (ITC Project), interview questions were closely based on those in other ITC Project studies, especially the Australian ITC surveys.[10] We asked questions about whether smoking was allowed inside the home, and whether people smoked inside even if it was not allowed. For those with either an incomplete smoking ban or a complete ban where people still smoked inside the house, we asked if participants were uncomfortable telling elders or community leaders, other visitors or other household members to smoke outside. For participants who were employed, we asked about smoking rules in indoor areas at work. The questions used in this article are listed in Appendix 1.

Results were compared with those from the Australian ITC Project surveys conducted in September 2011 to February 2012 (Wave 8.5, $n = 1504$) or July 2010 to May 2011 (Wave 8, $n = 1513$). These surveys were completed by random digit telephone dialling or on the internet, and included those contacted for the first time and those who were recontacted after completing surveys in previous waves. Only smokers were recruited, so these samples only included smokers and ex-smokers who had quit since previous waves. Slightly different definitions of smokers between the TATS project and ITC Project surveys meant that only daily and weekly smoker categories were directly comparable. We focused our comparisons on daily smokers.

Statistical analyses

We calculated the percentages and frequencies of responses to the TATS project questions, but did not include confidence intervals for these as it is not considered statistically acceptable to estimate sampling error in non-probabilistic samples. We compared results for daily smokers with those from Australian ITC Project surveys, which were directly standardised to the distribution of age and sex of Aboriginal and Torres Strait Islander smokers reported in the 2008 NATSISS.

Associations between the outcome variables and sociodemographic and smoking variables were assessed using logistic regression to generate odds ratios (ORs) and *P* values based on Wald tests. Stata 13 (StataCorp) survey [SVY] commands were used to adjust for the sampling design, using 35 site clusters, and the age–sex quotas as strata.[11]

Reported percentages and frequencies exclude participants who refused to answer, answered "don't know", or for whom the question was not applicable (eg, not employed or no indoor area at work). Less than 1% answered "don't know" or refused to answer each of the questions analysed in this report, except for questions about being uncomfortable telling others to smoke outside, being treated unfairly, quit attempts and wanting to quit. However, even the least completely answered of these questions, about wanting to quit, had only 79 participants (4.8%) who answered "don't know" and 11 (0.7%) who refused to answer.

Results

Smoke-free homes

More than half of smokers (56%, 908/1628) and 80% (701/876) of

non-smokers reported that smoking was never allowed anywhere in their home. Non-daily smokers (69%; OR, 1.94; 95% CI, 1.45–2.58), ex-smokers (79%; OR 3.36; 95% CI, 2.50–4.51) and never-smokers (80%; OR, 3.58; 95% CI, 2.84–4.52) were significantly more likely to report such bans than were daily smokers (53%) (Box 1). A similar age–sex-standardised percentage of Australian daily smokers (53.4%) reported total home smoking bans in Wave 8.5 of the Australian ITC Project study.

Of the smokers who reported that smoking was never allowed inside, 10% (91/903) said that some people still smoked inside regardless. So, 50% (812/1623) reported an effective total ban, and 28% (450/1623) a partial ban (including a total ban that was not fully effective), while 22% (361/1623) reported that smoking was allowed anywhere inside. Of those with a partial ban, 51% (225/442) reported being uncomfortable telling elders or community leaders (190/439; 43%), visitors (154/443; 35%) or other householders (125/442; 28%) to smoke outside. Of the respondents with no ban, 59% (213/363) reported it would be possible to stop people smoking inside, but 53% of these (114/215) reported that they would have to make some exceptions.

Smokers who were significantly more likely to report an effective total home smoking ban included non-daily smokers, employed people, Torres Strait Islanders and people who were both Torres Strait Islander and Aboriginal (v Aboriginal people), people aged 18–24 years (v those aged 45 years or over), people with children in their home, those who had finished Year 12 or had post-secondary educational qualifications (v those with less than Year 12), and those who did not feel they had been treated unfairly in the past year because they were Aboriginal or Torres Strait Islander (Box 2). There was no significant association between sex, remoteness or area-level disadvantage and having an effective ban.

2 Aboriginal and Torres Strait Islander smokers with effective home smoking bans,* by sociodemographic factors ($n = 1643$)

Characteristic	% (frequency)†	Odds ratio (95% CI)	P‡
Total	50% (812)		
Age (years)			
18–24	56% (193)	1.0	< 0.001
25–34	55% (242)	0.95 (0.71–1.28)	
35–44	51% (199)	0.79 (0.54–1.16)	
45–54	38% (102)	0.47 (0.31–0.70)	
⩾55	43% (76)	0.58 (0.39–0.86)	
Sex			
Female	53% (441)	1.0	0.15
Male	47% (371)	0.81 (0.61–1.08)	
Number of infants in home			
None	47% (670)	1.0	< 0.001
One or more	69% (139)	2.49 (1.79–3.48)	
Number of children in home			
None	39% (267)	1.0	< 0.001
One or more	58% (540)	2.11 (1.68–2.65)	
Indigenous status			
Aboriginal	49% (699)	1.0	0.04
Torres Strait Islander or both	60% (113)	1.61 (1.03–2.52)	
Labour force status			
Employed	56% (318)	1.0	0.02
Unemployed	47% (260)	0.69 (0.52–0.91)	
Not in labour force	47% (232)	0.70 (0.53–0.94)	
Highest education attained			
Less than Year 12	44% (371)	1.0	< 0.001
Finished Year 12	57% (246)	1.69 (1.30–2.21)	
Post-school qualification	56% (193)	1.58 (1.16–2.15)	
Treated unfairly because Indigenous in past year			
No	54% (369)	1.0	0.01
Yes	47% (425)	0.75 (0.60–0.93)	
Smoking status			
Daily smoker	48% (660)	1.0	0.003
Non-daily smoker	61% (152)	1.68 (1.20–2.34)	
Remoteness			
Major cities	52% (220)	1.0	0.66
Inner and outer regional	50% (412)	0.93 (0.68–1.27)	
Remote and very remote	47% (180)	0.82 (0.53–1.26)	
Area-level disadvantage			
1st quintile (most disadvantaged)	51% (325)	1.0	0.30
2nd and 3rd quintiles	51% (348)	1.01 (0.74–1.37)	
4th and 5th quintiles	45% (139)	0.78 (0.52–1.15)	
Local health service has dedicated tobacco control resources			
No	52% (244)	1.0	0.55
Yes	49% (568)	0.91 (0.67–1.25)	

* An effective total ban is when smoking is both never allowed and never occurs. † Percentages and frequencies exclude refused responses and "don't know" responses, or when not applicable. ‡ Wald test for each variable. ◆

Smoke-free workplaces

Most employed Aboriginal and Torres Strait Islander daily smokers (406; 88%) reported that smoking was not allowed in any indoor area at work, similar to the standardised estimate in Wave 8 of the Australian ITC Project study (88.5%) (Box 1). Remoteness and area-level disadvantage were significantly associated with non-smokers not being protected by a workplace indoor smoking ban (Box 3). Smokers working in

3 Aboriginal and Torres Strait Islander employed non-smokers with total indoor smoking bans at work, by sociodemographic factors ($n = 417$)

Characteristic	% (frequency)*	Odds ratio (95% CI)	P†
Total	93% (387)		
Age (years)			
18–24	95% (105)	1.0	0.17
25–34	89% (90)	0.47 (0.17–1.26)	
35–44	96% (92)	1.31 (0.35–4.92)	
45–54	96% (67)	1.28 (0.32–5.07)	
⩾55	89% (33)	0.47 (0.12–1.81)	
Sex			
Female	95% (204)	1.0	0.10
Male	91% (183)	0.50 (0.22–1.14)	
Indigenous status			
Aboriginal	94% (349)	1.0	0.43
Torres Strait Islander or both	90% (38)	0.65 (0.23–1.90)	
Highest education attained			
Less than Year 12	94% (103)	1.0	0.99
Finished Year 12	94% (118)	1.00 (0.32–3.13)	
Post-school qualification	93% (165)	0.93 (0.32–2.72)	
Treated unfairly because Indigenous in past year			
No	95% (193)	1.0	0.35
Yes	92% (188)	0.67 (0.29–1.55)	
Smoking status			
Ex-smoker	95% (124)	1.0	0.43
Never-smoker	93% (263)	0.71 (0.30–1.67)	
Remoteness			
Major cities	95% (116)	1.0	0.01
Inner and outer regional	96% (197)	1.13 (0.40–3.18)	
Remote and very remote	85% (74)	0.29 (0.11–0.80)	
Area-level disadvantage			
1st quintile (most disadvantaged)	88% (111)	1.0	0.02
2nd and 3rd quintiles	97% (202)	3.90 (1.50–10.1)	
4th and 5th quintiles	93% (74)	1.67 (0.61–4.56)	

* Percentages and frequencies exclude refused responses and "don't know" responses, or when not applicable. † Wald test for each variable. ◆

smoke-free workplaces were more likely to have effective smoking bans at home than those in workplaces where smoking was allowed in some or all indoor areas (287/484, 59% v 22/65, 34%; OR, 2.85; 95% CI, 1.67–4.87).

Association with quit attempts and wanting to quit

Smokers who lived in homes with an effective total smoking ban were significantly more likely than other smokers to have made a quit attempt in the past year, to want to quit and (among smokers who had attempted to quit in the past 5 years) to have made a quit attempt of 1 month or longer (Box 4). In contrast, there were no such significant associations with working in a smoke-free workplace.

Discussion

Smoke-free homes

Previous research has shown that the proportion of smokers who reported living in smoke-free homes was increasing faster among Aboriginal and Torres Strait Islanders than among other Australians, but that a gap remained in 2008.[5] Our study demonstrates that this gap now appears to have been closed, reflecting a significant change in behaviour by Aboriginal and Torres Strait Islander smokers.

This does not mean that there is no gap in the proportion of households that are smoke-free or in the proportion of children who live in smoke-free households. Changes to these will probably require smoking prevalence to fall further, along with more smokers choosing to smoke outside. We found that the presence of infants, children and adult non-smokers in the household was associated with having a smoke-free home, consistent with earlier ITC Project research, including Australian surveys.[12] Longitudinal research in Darwin also showed that Aboriginal households implemented smoking bans after the birth of a baby.[12,13] As in previous research, we found that the most disadvantaged Aboriginal and Torres Strait Islander people were the least likely to live in smoke-free homes, although this association did not hold for remoteness or area-level disadvantage.[5]

It is encouraging that few people reported any lapses in maintaining their home smoking bans, and more than half of those with no ban reported that a ban would be possible. People more often reported being uncomfortable telling elders or community leaders to smoke outside, rather than other visitors or householders. Local tobacco action workers could work with elders and community leaders to find respectful solutions, so that people do not feel uncomfortable about asking them not to smoke inside. Further research into the barriers to maintaining effective home smoking bans would be useful.

A literature review suggested that comprehensive national tobacco control programs to reduce smoking prevalence are the most effective in increasing the prevalence of smoke-free homes.[14] Australia has boosted comprehensive national tobacco control activity in recent years, including programs specifically for Aboriginal and Torres Strait Islander peoples.[15] This has been complemented by local tobacco control activity at the participating sites. Local and regional Aboriginal and Torres Strait Islander social marketing campaigns have focused on smoke-free homes (eg, "Smoking can kill those close to you"

4 Quitting-related outcomes of Aboriginal and Torres Strait Islander smokers, by home and work smoking bans

	Made quit attempt in past year			Want to quit			Quit attempt of 1 month or longer*		
	% (frequency)†	OR (95% CI)	*P*‡	% (frequency)†	OR (95% CI)	*P*‡	% (frequency)†	OR (95% CI)	*P*‡
Home (*n*)	1594			1540			970		
No ban or partial ban	45% (363)	1.0		65% (502)	1.0		45% (201)	1.0	
Effective total ban	54% (425)	1.39 (1.10–1.75)	0.006	74% (574)	1.55 (1.22–1.97)	< 0.001	53% (277)	1.38 (1.08–1.77)	0.01
Work (*n*)	538			515			352		
No ban or partial ban	47% (30)	1.0		68% (42)	1.0		51% (19)	1.0	
Total ban	52% (246)	1.22 (0.68–2.19)	0.50	76% (344)	1.50 (0.81–2.79)	0.20	59% (186)	1.37 (0.66–2.83)	0.40

OR = odds ratio. * For those with at least one quit attempt in the past 5 years. † Percentages and frequencies exclude refused responses and "don't know" responses, or when not applicable. ‡ Wald test for each variable. ◆

in the Northern Territory).[16] However, the evidence for the impact of such campaigns on the prevalence of smoke-free homes is more modest, as is the evidence for direct counselling of families about smoke-free homes.[3,14,17]

Other research has demonstrated an increase in smoke-free homes after smoking bans have been implemented in public places, and we have similarly demonstrated an association between smoke-free homes and smoke-free workplaces.[4] The previously demonstrated greater concern by Aboriginal people for the effects of smoking on family, especially children, rather than on their own health, further explains the rapid spread of home smoking bans.[18] Introducing a home smoking ban is easier than successfully quitting, but the significant association we found between smoke-free homes and quitting suggests that smokers are not making their homes smoke-free as a substitute to quitting.

However, this optimism needs to be tempered by research that shows reported indoor home smoking bans reduce but do not eliminate children's exposure to environmental tobacco smoke and its toxins.[19,20]

Smoke-free workplaces

It is good news that almost all Aboriginal and Torres Strait Islander people reported being protected by indoor smoking bans at work, as is reported by other Australians. We are not aware of comparable data to assess trends, but there has been considerable recent attention to promoting and supporting smoke-free policies at Aboriginal organisations. Improvements can still be made in the most disadvantaged and remote areas. Better monitoring and enforcement of existing indoor smoking bans, as well as their extension to outdoor public spaces (where people are close together), is a focus of the current National Tobacco Strategy.[15]

Association with quit attempts and wanting to quit

Our cross-sectional study is consistent with longitudinal ITC Project research, including Australian surveys, which showed that having a total indoor home smoking ban was associated with both quit intentions and making more and longer quit attempts.[12] However, a cross-sectional study using earlier Australian Bureau of Statistics (ABS) Aboriginal and Torres Strait Islander survey data found only a non-significant association with quit attempts, but did find a significant association with successful past cessation.[5] Making the home smoke-free might make it easier for a smoker to quit, but it is also likely that this association is in part due to smokers who are most concerned about their smoking making their homes smoke-free as part of the quitting process.

Strengths and limitations

This is a large nationally representative (albeit not random) survey of Aboriginal and Torres Strait Islander people. However, caution is needed as it relies on self-report of smoke-free homes and workplaces without biochemical verification. Due to inaccurate recall or social desirability bias, it is likely that some participants with reportedly effective total smoking bans are still being exposed to second-hand smoke. However, we think marked bias is unlikely as smoking is still very common and normalised in these communities. Our finding that 10% of smokers reported that some smoking occurred in the home despite not being allowed suggests there was minimal bias towards the most socially desirable response (complete adherence to the smoking ban).

Our questions were the same as in the ITC Project comparison survey, but they differed from those used in ABS surveys.[5] The ABS asked whether any householders *usually* smoke inside, whereas we asked whether smoking (by anyone) was *ever allowed* inside, and whether people smoked in spite of bans. Therefore, our estimates for the percentage of daily smokers living in homes where smoking was either not allowed (53%) or with effective total home smoking bans (48%) were understandably lower than the 2008 ABS estimate for those living in homes where no householder usually smoked inside (56.3%; 95% CI, 52.4%–60.2%).

Analyses of longitudinal data using follow-up surveys to this baseline survey will provide more methodologically sound confirmation of likely causal directions of the observed cross-sectional associations.

In conclusion, we found that the gap has closed between the proportion of Aboriginal and Torres Strait Islander smokers and all Australian smokers who live in homes with smoking bans, and that these bans may help smokers to quit. Aboriginal and Torres Strait Islander non-smokers are also well protected from second-hand smoke at work.

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Local research assistants Elaine Daylight and Kirrie Machan with TATS project coordinator Arika Errington during on-site training at Nhulundu Wooribah Indigenous Health Organisation, Gladstone, Queensland.

Local research assistant Kirrie Machan and TATS project coordinator Arika Errington in Gladstone, Queensland.

Dependence in a national sample of Aboriginal and Torres Strait Islander daily smokers

Abstract

Objectives: To examine indicators of nicotine dependence in a national sample of Aboriginal and Torres Strait Islander daily smokers and their association with sustaining a quit attempt for at least 1 month, and to make comparisons with a national sample of Australian daily smokers.

Design, setting and participants: The Talking About The Smokes project used a quota sampling design to recruit 1392 daily smokers from communities served by 34 Aboriginal community-controlled health services and one community in the Torres Strait from April 2012 to October 2013. These were compared with 1010 daily smokers from the general Australian population surveyed by the International Tobacco Control Policy Evaluation Project from September 2011 to February 2012.

Main outcome measures: Cigarettes per day (CPD), time to first cigarette, Heaviness of Smoking Index (HSI), other indicators of dependence, and whether smokers had ever sustained a quit attempt for at least 1 month.

Results: There was little difference in the mean HSI scores for Aboriginal and Torres Strait Islander and other Australian daily smokers. A higher proportion of Aboriginal and Torres Strait Islander daily smokers smoked ⩽10 CPD (40% v 33.4%), but more also smoked their first cigarette within 30 minutes of waking (75% v 64.6%). Lower proportions of Aboriginal and Torres Strait Islander smokers reported having strong urges to smoke at least several times a day (51% v 60.7%) or that it would be very hard to quit (39% v 47.9%). Most Aboriginal and Torres Strait Islander smokers reported experiencing difficulties during their most recent quit attempt. All indicators of dependence, except CPD and strong urges, were positively associated with not having made a sustained quit attempt. Reported difficulties during the most recent quit attempt were more strongly associated with being unable to sustain quit attempts than were traditional measures of dependence.

Conclusion: Aboriginal and Torres Strait Islander smokers' experiences of past attempts to quit may be more useful than conventional indicators of nicotine dependence in understanding their dependence.

In 1988, the United States Surgeon General concluded that nicotine is the drug in tobacco that causes dependence on smoking.[1] The nicotine that is delivered to the brain when smoking interacts with the habits and sensory stimuli associated with smoking to reinforce the behaviour.[2] Genetic factors also influence the biological processes of nicotine delivery, metabolism and dependence.[2]

Clinicians and scientists have sought indicators to predict the success or failure of quit attempts, beyond indicators of motivation. The best such measure is the Heaviness of Smoking Index (HSI),[3] or at least one of its two component items: cigarettes per day (CPD) and the time to first cigarette (TTFC) after waking.[4,5] These two items are a subset of the six items in the Fagerström Test for Nicotine Dependence.[6] There is also evidence that strong cravings (both before and after quitting) and shorter periods of abstinence on past attempts may independently predict failure of quit attempts.[7-9] Identifying smokers who are most likely to have difficulty quitting is important in determining who might benefit from medications to assist cessation.

The age-standardised prevalence of smoking is 2.6 times higher among Aboriginal and Torres Strait Islander people as among other Australians.[10] While both smoking prevalence and smoking intensity (based on self-reported CPD) are falling among the Aboriginal and Torres Strait Islander population, measures of dependence may differently predict which smokers will have the most difficulty quitting in this high-prevalence population where smoking is more normalised.[10,11] Two small research reports have suggested that over-reliance on strategies that use stop-smoking medications may not be appropriate in this population, as nicotine dependence may be lower than in other populations.[12,13] One of these studies found only low per capita consumption of cigarettes in remote Aboriginal communities,[12] and the other found that only a small proportion of a sample of pregnant Aboriginal and Torres Strait Islander women who smoked were highly dependent.[13]

Here, we use a large national study of Aboriginal and Torres Strait Islander smokers to examine different indicators of dependence in this population and their association with sustained quit attempts, and to make comparisons with a national sample of Australian smokers.

Methods

The Talking About The Smokes (TATS) project surveyed 1392 Aboriginal and Torres Strait Islander daily smokers using a quota sampling design in the communities served by 34 Aboriginal community-controlled health services (ACCHSs) and one community in the Torres Strait, and has been described elsewhere.[14,15] Briefly, the 35 sites were selected based on the distribution of the Aboriginal and Torres Strait Islander population by state or territory and remoteness. In 30 sites, we aimed to interview 50 smokers or ex-smokers who had quit ⩽12 months before, and 25 non-smokers, with equal numbers of women and men and of those aged 18–34 and ⩾35 years. In four major-city sites and the Torres Strait community, the sample sizes were doubled. People were excluded if they were aged less than 18 years, not usual residents of the area, staff of the ACCHS, or deemed unable to complete the survey. In each site,

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1 Comparison of indicators of nicotine dependence among Aboriginal and Torres Strait Islander daily smokers and those in the Australian population*

Indicator of dependence	Talking About The Smokes project, % (frequency)†	Australian ITC Project, % (95% CI)‡
Cigarettes per day		
1–10	40% (547)	33.4% (27.9%–39.3%)
11–20	39% (528)	42.2% (36.8%–47.7%)
21–30	18% (242)	18.5% (14.7%–22.9%)
⩾31	4% (54)	6.0% (3.7%–9.6%)
Time to first cigarette		
More than 60 minutes	9% (125)	16.1% (11.9%–21.3%)
31–60 minutes	16% (220)	19.4% (15.3%–24.2%)
6–30 minutes	64% (884)	46.7% (41.2%–52.3%)
5 minutes or less	11% (145)	17.9% (13.6%–23.2%)
Heaviness of Smoking Index (HSI) score		
Low (0–1)	17% (234)	24.5% (19.5%–30.3%)
Moderate (2–3)	59% (796)	44.6% (39.2%–50.1%)
Heavy (4–6)	24% (328)	30.9% (25.8%–36.5%)
How often do you get strong urges to smoke?		
Never or less than daily	21% (291)	12.4% (9.0%–16.9%)
Daily	27% (375)	26.9% (21.9%–32.5%)
Several times a day or more often	51% (706)	60.7% (54.9%–66.2%)
How easy or hard would it be for you to quit?		
Very or somewhat easy	17% (234)	10.4% (6.9%–15.4%)
Neither easy nor hard	11% (156)	7.9% (5.0%–12.2%)
A little bit hard	32% (439)	33.7% (28.8%–39.0%)
Very hard	39% (537)	47.9% (42.3%–53.6%)

ITC Project = International Tobacco Control Policy Evaluation Project. * Percentages and frequencies exclude refused responses and "don't know" responses. † Results are for Aboriginal and Torres Strait Islander daily smokers (n = 1392) in the baseline sample of the Talking About The Smokes project (April 2012 – October 2013). ‡ Results are for daily smokers (n = 1010) in the Australian population from Wave 8.5 of the Australian ITC Project (September 2011 – February 2012) and were age- and sex-standardised to smokers in the 2008 National Aboriginal and Torres Strait Islander Social Survey. ◆

different locally determined methods were used to collect a representative, although not random, sample.

Baseline data were collected from April 2012 to October 2013. Interviews were conducted face to face by trained interviewers, almost all of whom were members of the local Aboriginal and Torres Strait Islander community. The survey was completed on a computer tablet and took 30–60 minutes. The baseline sample closely matched the national distribution of age, sex, jurisdiction, remoteness, quit attempts in the past year and number of daily cigarettes smoked reported in the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS). However, there were inconsistent differences in some socioeconomic indicators: our sample had higher proportions of unemployed people, but also higher proportions who had completed Year 12 and who lived in more advantaged areas.[14]

The TATS project is part of the International Tobacco Control Policy Evaluation Project (ITC Project) collaboration. Interview questions were closely based on those in ITC Project surveys, especially the Australian surveys.[16] TATS project results were compared with those for 1010 daily smokers surveyed in Wave 8.5 of the Australian ITC Project between September 2011 and February 2012. That survey was completed by random digit telephone dialling or on the internet, and included smokers contacted for the first time and those who were recontacted after completing surveys in previous waves.

We asked questions about daily smokers' usual smoking behaviour and variations in tobacco consumption, how easy it would be to not smoke, difficulties during their most recent quit attempt (eg, strong cravings, being around others who smoke), the duration of their longest quit attempt (to assess if any attempt had been sustained for at least 1 month) and sociodemographic factors. The questions are described in detail in Appendix 1.

The HSI was coded 0 to 6 based on the sum of the responses to the two questions about CPD and TTFC. These items were each coded as 0 (0–10 CPD; TTFC, ⩾61 min), 1 (11–20 CPD; TTFC, 31–60 min), 2 (21–30 CPD; TTFC, 6–30 min) or 3 (⩾31 CPD; TTFC, ⩽5 min).[3] We categorised HSI as low (0–1), moderate (2–3) or high (4–6).[17,18] We also assessed the three criteria for dependence given in the Royal Australian College of General Practitioners (RACGP) cessation guidelines: TTFC ⩽30 min, >10 CPD, and withdrawal symptoms on previous quit attempts (defined in our sample as strong cravings during the most recent quit attempt).[2]

The project was approved by three Aboriginal human research ethics committees (HRECs) and two HRECs with Aboriginal subcommittees: Aboriginal Health & Medical Research Council Ethics Committee, Sydney; Aboriginal Health Research Ethics Committee, Adelaide; Central Australian HREC, Alice Springs; HREC for the Northern Territory Department of Health and Menzies School of Health Research, Darwin; and the Western Australian Aboriginal Health Ethics Committee, Perth.

Statistical analyses

We calculated the percentages and frequencies of responses to the TATS project questions, but did not include confidence intervals for these as it is not considered statistically acceptable to estimate sampling error in non-probabilistic samples. Therefore, we could not assess the statistical significance of differences with the Australian ITC Project results. The results for daily smokers in the Australian ITC Project were directly standardised to the distribution of age and sex of Aboriginal and Torres Strait Islander smokers reported in the 2008 NATSISS.

Within the TATS project sample, we assessed the association between sociodemographic variables and HSI using χ^2 tests adjusted for the sampling design, using the 35 sites as clusters and the age–sex quotas as strata in Stata 13 (StataCorp) survey [SVY] commands.[19] We assessed the association between indicators of dependence and sustained quit attempts using simple logistic regression, with confidence intervals adjusted for the sampling design and *P* values calculated for each variable using adjusted Wald tests.

Reported percentages and frequencies exclude those refusing to answer, answering "don't know", or for whom the question was not applicable (eg, questions about the most recent quit attempt excluded those who had not made an attempt in the past 5 years). Less than 2% of daily smokers answered "don't know" or refused to answer each of the questions analysed here, except that 18 smokers (2.0%) answered "don't know" to the question about difficulty in saying no when offered a cigarette during their most recent quit attempt, and 32 (2.3%) refused to answer the question about being unable to afford to buy cigarettes.

Results

There was little difference in the mean HSI scores for daily smokers in the TATS project compared with those in the Australian ITC Project (2.62 v 2.64; 95% CI, 2.45–2.83), but the TATS sample had fewer low and high scores and more moderate scores (Box 1). A higher proportion of smokers in the TATS project smoked 10 or fewer cigarettes per day (40% v 33.4%), but more also smoked their first cigarette within 30 minutes of waking (75% v 64.6%; 95% CI, 58.8%–70.0%). Lower proportions of Aboriginal and Torres Strait Islander smokers reported having strong urges to smoke at least several times a day (51% v 60.7%) or that it would be very hard to quit (39% v 47.9%).

Within the TATS sample, older smokers were more likely to have higher HSI scores, as were smokers who were not in the labour force, those with less education, those from both the most and least disadvantaged areas, and Aboriginal smokers compared with Torres Strait Islander smokers (Box 2).

Box 3 presents the results for questions that were only asked in the TATS project. Nearly half the smokers (47%) reported finding it very or extremely hard to go without smoking for a whole day, and most reported experiencing difficulties during their most recent quit attempt. A quarter (24%) of daily smokers had all three of the RACGP indicators of dependence.

Among the 61% of smokers in the TATS sample (833/1371) who had made a quit attempt in the past 5 years, all the indicators of dependence, except CPD and strong urges, were associated with being less likely to have made a sustained quit attempt of at least 1 month (Box 4). The indicators with the strongest negative associations with making a sustained quit attempt were the smokers' assessments of how hard it would be to quit and their difficulties during the most recent quit attempt. Although the HSI and the

2 Heaviness of Smoking Index among Aboriginal and Torres Strait Islander daily smokers, by sociodemographic factors ($n = 1392$)*

Characteristic	Heaviness of Smoking Index score: Low, % (frequency)	Moderate, % (frequency)	High, % (frequency)	*P*†
Total daily smokers	17% (234)	59% (796)	24% (328)	
Age (years)				< 0.001
18–24	22% (60)	68% (187)	11% (29)	
25–34	21% (76)	57% (209)	23% (84)	
35–44	14% (45)	58% (186)	28% (92)	
45–54	16% (37)	56% (132)	28% (67)	
⩾ 55	10% (16)	53% (82)	36% (56)	
Sex				0.12
Female	19% (134)	59% (417)	22% (153)	
Male	15% (100)	58% (379)	27% (175)	
Indigenous status				0.027
Aboriginal	16% (195)	59% (717)	25% (297)	
Torres Strait Islander or both	26% (39)	53% (79)	21% (31)	
Labour force status				< 0.001
Employed	21% (101)	58% (274)	21% (97)	
Unemployed	18% (82)	63% (293)	19% (89)	
Not in labour force	12% (51)	54% (227)	34% (142)	
Highest education attained				0.036
Less than Year 12	14% (101)	59% (411)	27% (188)	
Finished Year 12	19% (68)	58% (204)	23% (80)	
Post-school qualification	22% (63)	59% (172)	20% (57)	
Treated unfairly because Indigenous in past year				0.72
Never	18% (106)	57% (335)	25% (145)	
At least some of the time	17% (124)	59% (439)	24% (176)	
Remoteness				0.34
Major cities	15% (52)	60% (214)	25% (88)	
Inner and outer regional	19% (137)	59% (420)	22% (158)	
Remote and very remote	16% (45)	56% (162)	28% (82)	
Area-level disadvantage				0.027
1st quintile (most disadvantaged)	16% (83)	57% (290)	27% (137)	
2nd and 3rd quintiles	21% (121)	59% (342)	21% (121)	
4th and 5th quintiles	11% (30)	62% (164)	27% (70)	

* Percentages and frequencies exclude those answering "don't know" or refusing to answer. † *P* values were calculated using the χ^2 test adjusted for sampling design. ◆

3 Other indicators of nicotine dependence and difficulties during the most recent quit attempt among Aboriginal and Torres Strait Islander daily smokers

Indicator of dependence	Daily smokers, % (frequency)*
All daily smokers (*n*)	1392
RACGP criteria for dependence†	
None	12% (162)
One	24% (334)
Two	41% (564)
All three	24% (327)
How hard is it to go without smoking for a whole day?	
Not at all or somewhat hard	47% (654)
Very or extremely hard	47% (657)
Not sure or never tried	6% (79)
If tried to quit in the past 5 years (*n*)	884
During last quit attempt	
Had strong cravings	70% (591)
Hard to be around smokers	72% (621)
Hard to say no when offered a smoke	67% (572)
Missed the time out you get when having a smoke	51% (430)

RACGP = Royal Australian College of General Practitioners. * Percentages and frequencies exclude those answering "don't know" or refusing to answer. † Time to first cigarette ≤ 30 min, > 10 cigarettes per day, and withdrawal symptoms on previous quit attempts (strong cravings during most recent quit attempt). ◆

RACGP criteria of dependence were negatively predictive of making a sustained quit attempt, CPD — one of their component measures — was not.

Nearly half the daily smokers in the TATS sample (45%, 606/1354) reported being unable to buy cigarettes for at least a few days in each fortnight before pay day, and 23% (314/1354) less often, while for 32% (435/1354) this was never a problem. When smokers were unable to buy them, 37% (342/916) reported they were often or very often given cigarettes, and 50% (460/916) were sometimes given them. As a result, 27% (245/911) said they smoked the same amount as usual when unable to buy cigarettes, while 50% (456/911) smoked a bit less and only 23% (210/911) smoked a lot less or not at all.

Compared with Australian smokers in the ITC Project, fewer Aboriginal and Torres Strait Islander smokers in the TATS project reported that the amount they smoked varied from day to day (42% [580/1392] v 58.5% [95% CI, 53.1%–63.7%]), but more reported that spending money on cigarettes left them with insufficient money for food or other essentials (23% [321/1378] v 12.9% [95% CI, 8.7%–18.6%]).

The Aboriginal and Torres Strait Islander smokers whose smoking led to insufficient money for essentials were less likely to have made sustained attempts to quit (odds ratio [OR], 0.70; 95% CI, 0.37–0.71; $P < 0.001$). Smokers who were never unable to afford cigarettes were less likely to have made a sustained quit attempt than those who were sometimes unable to buy them (OR, 0.51; 95% CI, 0.37–0.71; $P < 0.001$). Those who said they smoked about the same as usual when they were unable to buy cigarettes were also less likely to have made a sustained quit attempt, compared with those who at such times smoked a lot less or not at all (OR, 0.61; 95% CI, 0.41–0.91; $P = 0.01$).

Discussion

We found mixed relationships between indicators for dependence and sustained quit attempts in our sample of Aboriginal and Torres Strait Islander smokers. Based on CPD, frequency of strong urges to smoke and perceptions of how hard it would be to quit, dependence in this population appeared lower than among all Australian smokers. In contrast, our sample had a shorter TTFC. Nevertheless, the associations we found between dependence, as measured by the HSI, and being older and socially disadvantaged were similar to those in previous cross-sectional Australian ITC Project research.[20]

Previous research suggests TTFC is a more useful measure of dependence and a better predictor of successful quitting than CPD, although both are predictive and may contribute independently.[4,5,21,22] Consistent with this, we found that longer TTFC was associated with having made a sustained quit attempt, while CPD was not. However, we also found no association for the frequency of strong urges while still smoking, which has been shown to be associated with successful quitting in longitudinal research, performing better than the Fagerström Test for Nicotine Dependence or its components, HSI, TTFC or CPD.[7,8] These findings question the utility of existing indicators of dependence to predict successful quitting in Aboriginal and Torres Strait Islander smokers.

Aboriginal and Torres Strait Islander smokers' perceptions of greater ease in quitting (quitting self-efficacy) may be falsely optimistic, perhaps reflecting less experience of unsuccessful quit attempts.[23] In 2012–2013, only 37% of Aboriginal and Torres Strait Islander adults who had ever smoked had successfully quit, compared with 63% of other Australians.[10] Some of the cross-sectional association we found between quitting self-efficacy and sustained quit attempts is likely to be in the reverse direction, with those who have not been able to sustain quit attempts understandably reporting that quitting will be harder. However, in other longitudinal research of the ITC Project, quitting self-efficacy has been associated with preventing relapses, both before and after a month.[7] Nevertheless, we can take advantage of this optimism to encourage quit attempts.

Most Aboriginal and Torres Strait Islander smokers reported withdrawal symptoms (cravings) and situational difficulties during their most recent quit attempt, which have been described in more detail in previous qualitative research.[24] It is notable that questions about the most recent quit attempt were consistently stronger predictors of being unable to sustain quit attempts than were traditional measures of dependence based on typical daily smoking patterns. Our results are consistent with more detailed recent research in other settings, which suggested that the components of the HSI are only predictive of early relapses in the first weeks of a quit attempt, whereas cravings and situational cues (such as the number of close friends who smoke) are important after 1 month.[7,25]

Current clinical guidelines recommend that clinicians ask smokers not only about CPD and TTFC, but also about their past unsuccessful quit attempts.[26,27] Beyond emphasising

the utility of the existing question about difficulties experienced during past attempts, we recommend waiting for further research on how the different measures prospectively predict quitting success before suggesting changes to the guidelines for Aboriginal and Torres Strait Islander smokers.

It is possible that estimates of CPD might be less accurate among Aboriginal and Torres Strait Islander smokers, where the relationship between purchase and consumption is more complicated because sharing and being unable to buy cigarettes are common. Two small studies of Aboriginal and Torres Strait Islander people showed that self-reported CPD is associated with urinary cotinine levels, but did not discuss whether the association was similar to that in other populations.[28,29] However, we found that Aboriginal and Torres Strait Islander smokers were less likely than all Australian smokers to report variation in the number of cigarettes smoked each day, so it is difficult to suggest that such day-to-day variations are the reason for CPD being less useful in this setting. Those who managed to maintain usual consumption levels when they were unable to buy cigarettes were less likely to have sustained a quit attempt than those who smoked less at these times. Sharing of cigarettes therefore seems to increase in response to the inability to buy cigarettes among more dependent smokers, as has been reported elsewhere in response to pay cycles and the increased cost of cigarettes after tobacco excise rises.[24,30]

Strengths and limitations

The main strength of our study is its large national sample of Aboriginal and Torres Strait Islander smokers, providing detailed information about dependence directly from a population with a high prevalence of smoking. However, it is a non-random, albeit broadly representative, sample and caution is needed in making comparisons with the Australian ITC Project sample.

The cross-sectional associations we found warrant confirmation from

4 Association of indicators of dependence with sustaining a quit attempt for at least 1 month in a national sample of Aboriginal and Torres Strait Islander daily smokers*

Indicator of dependence	Sustained quit attempt, % (frequency)†	Odds ratio (95% CI)‡	*P*§
Total	47% (388)		
Heaviness of Smoking Index score			0.046
Low (0–1)	50% (71)	1.0	
Moderate (2–3)	48% (238)	0.91 (0.66–1.26)	
Heavy (4–6)	38% (68)	0.60 (0.39–0.91)	
RACGP criteria for dependence			0.001
None	54% (38)	1.0	
One	57% (92)	1.12 (0.60–2.09)	
Two	47% (133)	0.73 (0.43–1.24)	
All three	39% (124)	0.55 (0.33–0.90)	
Cigarettes per day			0.19
1–10	47% (153)	1.0	
11–20	48% (163)	1.02 (0.75–1.38)	
21–30	45% (57)	0.89 (0.58–1.37)	
⩾ 31	27% (9)	0.42 (0.18–0.94)	
Time to first cigarette			0.024
More than 60 minutes	53% (43)	1.0	
31–60 minutes	55% (73)	1.08 (0.57–2.03)	
6–30 minutes	45% (235)	0.72 (0.45–1.13)	
5 minutes or less	36% (31)	0.51 (0.27–0.94)	
How often do you get strong urges to smoke?			0.49
Never or less than daily	49% (90)	1.0	
Daily	47% (109)	0.91 (0.61–1.38)	
Several times a day or more often	45% (184)	0.82 (0.58–1.17)	
How hard is it to go without smoking for a whole day?			0.01
Not at all or somewhat hard	51% (219)	1.0	
Very or extremely hard	42% (159)	0.69 (0.52–0.92)	
Not sure or never tried	33% (9)	0.47 (0.22–1.05)	
How easy or hard would it be for you to quit?			< 0.001
Very or somewhat easy	61% (94)	1.0	
Neither easy nor hard	53% (46)	0.72 (0.42–1.25)	
A little bit hard	46% (125)	0.53 (0.36–0.78)	
Very hard	38% (120)	0.39 (0.27–0.56)	
During most recent quit attempt			
Did you get strong cravings?			< 0.001
No	59% (149)	1.0	
Yes	42% (236)	0.49 (0.37–0.66)	
Was it hard to be around smokers?			< 0.001
No	59% (133)	1.0	
Yes	42% (252)	0.51 (0.38–0.69)	
Was it hard to say no when offered a smoke?			< 0.001
No	58% (154)	1.0	
Yes	41% (225)	0.50 (0.35–0.70)	
Did you miss the time out you get when having a smoke?			0.03
No	51% (197)	1.0	
Yes	44% (179)	0.74 (0.56–0.98)	

RACGP = Royal Australian College of General Practitioners. * Results are based on daily smokers in the baseline sample of the Talking About The Smokes project who had made at least one quit attempt in the past 5 years ($n = 833$). † Percentages and frequencies exclude those answering "don't know" or refusing to answer. ‡ Odds ratios calculated using simple logistic regression adjusted for the sampling design. § *P* values for the entire variable, using adjusted Wald tests. ◆

future longitudinal analyses. There may have been some reverse causation, with past experiences of sustaining or not sustaining quit attempts influencing answers to the questions about dependence. Further, sustained attempts may have occurred years earlier, and the smokers' dependence may have since changed. The use of past sustained quit attempts as an outcome necessarily meant excluding those who had not made any attempts. Predicting future quitting in this subgroup will be important but cannot include measures based on non-existent past attempts.

Our self-reported data are probably limited by incomplete recall of past quit attempts, and both forgetting and misremembering of symptoms. The effect of most of these biases will be to weaken reported associations, leading to greater confidence in the significant associations but requiring caution in the implications of findings of no association. For example, the lack of association of strong urges to smoke with sustained quitting found here, in contrast to other research, requires further exploration.[8] More Aboriginal smokers than other Australian smokers use roll-your-own cigarettes, which may have caused greater misclassification bias of estimates of CPD.[31] Future longitudinal analyses of the predictive association of these dependence measures with relapses and successful quitting should also control for the moderating effect of stop-smoking medication, which we were not able to do.[25]

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Smoking-related knowledge and health risk beliefs in a national sample of Aboriginal and Torres Strait Islander people

Abstract

Objectives: To describe general knowledge and perceived risk of the health consequences of smoking among Aboriginal and Torres Strait Islander people; and to assess whether knowledge varies among smokers and whether higher knowledge and perceived risk are associated with quitting.

Design, setting and participants: The Talking About The Smokes project used quota sampling to recruit participants from communities served by 34 Aboriginal community-controlled health services and one community in the Torres Strait. Baseline survey data were collected from 2522 Aboriginal and Torres Strait Islander adults from April 2012 to October 2013.

Main outcome measures: Knowledge of direct effects of smoking and harms of second-hand smoke (SHS), risk minimisation, health worry, and wanting and attempting to quit.

Results: Most Aboriginal and Torres Strait Islander participants who were daily smokers demonstrated knowledge that smoking causes lung cancer (94%), heart disease (89%) and low birthweight (82%), but fewer were aware that it makes diabetes worse (68%). Similarly, almost all daily smokers knew of the harms of SHS: that it is dangerous to non-smokers (90%) and children (95%) and that it causes asthma in children (91%). Levels of knowledge among daily smokers were lower than among non-daily smokers, ex-smokers and never-smokers. Among smokers, greater knowledge of SHS harms was associated with health worry, wanting to quit and having attempted to quit in the past year, but knowledge of direct harms of smoking was not.

Conclusion: Lack of basic knowledge about the health consequences of smoking is not an important barrier to trying to quit for Aboriginal and Torres Strait Islander smokers. Framing new messages about the negative health effects of smoking in ways that encompass the health of others is likely to contribute to goal setting and prioritising quitting among Aboriginal and Torres Strait Islander people.

Fifty years since the United States Surgeon General's first report on smoking and health, smoking prevalence has reduced globally,[1] in part due to increased public awareness that smoking causes death and disease.[2,3] However, it is possible that gaps in knowledge are contributing to health inequalities.[4,5] In Australia, the prevalence of daily smoking has declined to just over 16% among adults but is higher in disadvantaged populations.[6] Among the Aboriginal and Torres Strait Islander population, 42% of people aged 15 years or older smoked daily in 2012–2013.[7] Understanding and tackling the causes of this disparity is a public health priority accepted by all Australian governments.[8]

Communicating information about the harmful effects of tobacco use is a major focus of programs to reduce smoking among Aboriginal and Torres Strait Islander peoples.[9] Some evidence suggests that most Aboriginal and Torres Strait Islander people know that smoking causes lung cancer and heart disease,[10-12] and that second-hand smoke (SHS) is dangerous.[13-15] However, there is no current national research that describes knowledge of the harms of smoking and SHS exposure among Aboriginal and Torres Strait Islander smokers, or how it varies across this diverse population. Further, the extent to which lack of smoking-related knowledge contributes to the high smoking prevalence is unknown.

Greater knowledge and worry about future health effects of smoking have been shown to increase quit intentions and attempts in other settings.[16-18] However, decisions to quit smoking are not one-dimensional, rational choices,[19,20] and they may be obstructed by beliefs that diminish the likelihood or severity of smoking harms (risk minimisation).[21,22] There has been some investigation into risk-minimising beliefs in Aboriginal and Torres Strait Islander tobacco control research. For example, perceived risk and worry may be low where there is discordance between information about the health consequences of smoking and the individual's lived experience,[14,23] or where there are fatalistic views of health effects that are perceived to be outside an individual's control.[12,24] This may explain why smoking persists in some contexts where knowledge of health effects is found to be high.

This is the first broadly representative description of smoking-related knowledge and health risk beliefs of Aboriginal peoples and Torres Strait Islanders. We also look at how this knowledge varies among smokers, and whether knowledge and health risk beliefs are related to quitting.

Methods

Survey design and participants

The Talking About The Smokes (TATS) project surveyed 2522 Aboriginal and Torres Strait Islander people (1643 current smokers, 311 ex-smokers and 568 never-smokers) from April 2012 to October 2013 (Wave 1, or baseline), and is described in detail elsewhere in this supplement.[25,26] Briefly, we used a quota sampling design to recruit participants from communities served by 34 Aboriginal community-controlled health services (ACCHSs) and one community in the Torres Strait (project sites), which were selected based on the population distribution of Aboriginal and Torres Strait Islander people by state or territory and remoteness. In most sites (30/35),

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we aimed to interview samples of 50 smokers (or ex-smokers who had quit ≤ 12 months before) and 25 non-smokers (never-smokers and ex-smokers who had quit > 12 months previously), with equal numbers of men and women and those aged 18–34 years and 35 years or older. The sample sizes were doubled in four major urban sites and in the Torres Strait community. People were excluded if they were: not Indigenous, not aged 18 years or older, not usual residents of the area, staff members of the ACCHS, or unable to complete the survey in English (if there was no interpreter available), or if the quota for the relevant age–sex–smoking category had been filled.

In each site, different locally determined methods were used to collect a representative, albeit non-random, sample. The baseline sample closely matched the sample distribution of the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) by age, sex, jurisdiction and remoteness, and also number of cigarettes smoked per day for current daily smokers. However, there were inconsistent differences in some socioeconomic indicators: our sample had higher proportions of unemployed people, but also higher proportions who had completed Year 12 and who lived in more advantaged areas.[25]

Interviews were conducted face to face by trained interviewers, almost all of whom were members of the local Aboriginal and Torres Strait Islander community. The survey, entered directly onto a computer tablet, generally took 30–60 minutes to complete. A single survey of health service activities, including whether there were dedicated tobacco control resources, was completed for each site. The project was approved by three Aboriginal human research ethics committees (HRECs) and two HRECs with Aboriginal subcommittees (Appendix 1).[25]

Survey questions

As the TATS project is part of the International Tobacco Control Policy Evaluation Project (ITC Project), survey questions were based on ITC Project surveys previously used in Australia and New Zealand (http://www.itcproject.org/surveys). The exact questions used for this article are listed in Appendix 2.

Knowledge and health risk beliefs

Four questions assessed knowledge of the direct health effects of smoking among smokers and non-smokers — whether it causes lung cancer, causes heart disease, makes diabetes worse and causes low birthweight (answer options: "yes", "no" or "don't know"). Three questions assessed knowledge of the effects of SHS exposure — whether it causes asthma in children ("yes", "no" or "don't know") and whether it is dangerous to non-smokers and to children (both assessed on a five-point scale from "strongly agree" to "strongly disagree"). We also computed two summary items, for correct responses to all four direct effects questions ("yes" to all) and correct responses to all three SHS measures ("yes" or at least "agree").

Two items assessed health risk beliefs among smokers. Smokers who responded "agree" or "strongly agree" to the statement that "Smoking is not very risky when you think about all the things that people do" (assessed on a five-point scale from "strongly agree" to "strongly disagree") were assessed as holding risk-minimising beliefs. Those who responded "very worried" to the question "How worried are you that smoking will damage your health in the future?" (assessed on a four-point scale from "not at all worried" to "very worried") were assessed as having health worry.

Wanting and attempting to quit

Two quit-related outcomes were used: wanting to quit ("yes" or "no") and having attempted to quit in the past year ("yes" or "no"), which was derived from questions on ever having tried to quit and timing of the most recent quit attempt.

Statistical analyses

Percentages and frequencies were calculated for all knowledge and health risk belief questions. Logistic regression was used to assess: (i) variation in correct responses among smokers, by daily smoking status, key sociodemographic variables, and presence of tobacco control resources at the local health service; and (ii) the association of knowledge and health risk beliefs with quitting interest and activity among smokers. Stata 13 (StataCorp) survey [SVY] commands were used to adjust for the sampling design, identifying the 35 project sites as clusters, and the quotas based on age, sex and smoking status as strata.[27] Both unadjusted and adjusted logistic regression analyses were performed, with daily smoking status and key sociodemographic variables included as covariates in the adjusted analyses. As unadjusted and adjusted calculations were very similar, only adjusted odds ratios (ORs) are reported here, with 95% confidence intervals.

Less than 1.5% of responses to each question were excluded (due to missing or refused responses), with the exception of quitting outcomes, which excluded a further 79 participants (4.8%) who did not know if they wanted to quit and 21 (1.3%) who did not know whether they had attempted to quit within the past year.

Results

Knowledge and health risk beliefs

Knowledge that smoking causes lung cancer and heart disease was high, and consistently over 90% of smokers and non-smokers knew about the harmful effects of SHS (Box 1). Knowledge that smoking makes diabetes worse was the lowest of all four direct effects, with 24% of daily smokers responding "don't know" to this question (compared with 13% for low birthweight, 7% for heart disease and 3% for lung cancer). Among daily smokers, 44% held risk-minimising beliefs and 36% had health worry. Non-daily smokers had higher levels of risk-minimising beliefs and lower levels of health worry than did daily smokers.

Compared with daily smokers, non-daily smokers were more likely to respond correctly to all questions about the direct effects of smoking (OR, 1.79; 95% CI, 1.32–2.43; $P < 0.001$) and the harms of SHS (OR, 1.69; 95% CI, 1.08–2.62; $P = 0.02$) (Appendix 3).

1 Smoking-related knowledge and health risk beliefs in a national sample of Aboriginal and Torres Strait Islander peoples*

Survey question and response	Daily smokers (*n* = 1392)	Non-daily smokers (*n* = 251)	Ex-smokers (*n* = 311)	Never-smokers (*n* = 568)
Knowledge of direct health effects of smoking				
Does smoking cause lung cancer?				
Yes	94% (1305)	96% (242)	96% (298)	99% (560)
No	2% (34)	1% (3)	2% (5)	1% (4)
Don't know	3% (45)	2% (6)	2% (7)	1% (4)
Does smoking cause heart disease?				
Yes	89% (1234)	92% (231)	92% (286)	93% (526)
No	4% (50)	2% (6)	4% (11)	2% (13)
Don't know	7% (101)	6% (14)	4% (13)	5% (29)
Does smoking make diabetes worse?				
Yes	68% (945)	78% (197)	71% (220)	77% (435)
No	7% (102)	6% (15)	5% (16)	5% (28)
Don't know	24% (338)	16% (39)	24% (74)	18% (105)
Does smoking cause low birthweight?				
Yes	82% (1131)	87% (218)	84% (261)	88% (499)
No	5% (75)	3% (7)	5% (15)	2% (9)
Don't know	13% (179)	10% (25)	11% (33)	11% (60)
Correct response to all four questions on direct effects of smoking	59% (822)	72% (181)	61% (190)	71% (403)
Knowledge of health effects of second-hand smoke				
Does smoking cause asthma in children from second-hand smoke?				
Yes	91% (1265)	94% (235)	95% (293)	94% (535)
No	3% (38)	2% (6)	2% (7)	1% (6)
Don't know	6% (82)	4% (10)	3% (10)	5% (27)
Cigarette smoke is dangerous to non-smokers				
Agree or strongly agree	90% (1251)	95% (238)	95% (295)	96% (546)
Neutral or don't know	7% (92)	3% (7)	2% (7)	2% (14)
Disagree or strongly disagree	3% (40)	2% (6)	2% (7)	1% (8)
Cigarette smoke is dangerous to children				
Agree or strongly agree	95% (1317)	98% (245)	99% (306)	99% (560)
Neutral or don't know	4% (52)	2% (4)	1% (2)	1% (6)
Disagree or strongly disagree	1% (14)	1% (2)	0 (1)	0 (2)
Correct response to all three questions on harms of second-hand smoke	85% (1173)	90% (227)	91% (282)	91% (518)
Health risk beliefs				
Smoking is not very risky when you think about all the things that people do				
Agree or strongly agree	44% (605)	50% (126)	—	—
Neutral or don't know	18% (243)	16% (39)	—	—
Disagree or strongly disagree	39% (535)	34% (86)	—	—
How worried are you that smoking will damage your health in the future?				
Very worried	36% (498)	27% (68)	—	—
A little or moderately worried	54% (735)	63% (156)	—	—
Not at all worried	10% (138)	10% (24)	—	—

*Results are based on the baseline sample (*n* = 2522) of the Talking About The Smokes project and are presented as % (frequency). Refused responses are excluded. ◆

There was some social patterning based on sociodemographic variables (Appendix 3). While knowledge of direct effects was significantly associated with employment and education, only area-level indicators were associated with both direct effects and SHS knowledge. Smokers were more likely to respond correctly to all questions if they were from a remote or very remote area (direct effects OR, 1.73; 95% CI, 1.16–2.57; SHS OR, 2.69; 95% CI, 1.61–4.52), compared with those from major cities, and smokers from an area of the highest level

2 Association of knowledge and health risk beliefs with wanting and attempting to quit in a national sample of Aboriginal and Torres Strait Islander smokers*

	Want to quit			Attempted to quit in the past year		
Knowledge and health risk beliefs	% (frequency)†	Adjusted OR (95% CI)‡	*P*§	% (frequency)†	Adjusted OR (95% CI)‡	*P*§
Knowledge about direct effects of smoking						
Fewer than all four questions correct	66% (395)	1.0	0.16	50% (312)	1.0	0.67
All four questions correct	72% (686)	1.21 (0.93–1.57)		49% (482)	0.95 (0.77–1.18)	
Knowledge about harms of second-hand smoke						
Fewer than all three questions correct	46% (101)	1.0	< 0.001	36% (83)		< 0.001
All three questions correct	74% (981)	3.26 (2.25–4.70)		52% (710)	1.89 (1.38–2.57)	
Risk-minimising beliefs						
Don't know or disagree (neutral)	72% (622)	1.0	0.21	50% (440)	1.0	0.79
Agree	67% (461)	0.83 (0.62–1.11)		49% (353)	0.97 (0.78–1.21)	
Health worry						
Not at all or moderately worried	59% (576)	1.0	< 0.001	43% (450)	1.0	< 0.001
Very worried	90% (500)	6.17 (4.40–8.66)		60% (338)	2.14 (1.68–2.73)	

OR = odds ratio. * Results are based on the baseline sample of current smokers ($n = 1643$) in the Talking About The Smokes project. † Percentages and frequencies exclude refused responses (for all variables) and "don't know" responses (with the exception of knowledge questions, where "don't know" is coded as incorrect). ‡ ORs are adjusted for daily smoking status and key sociodemographic variables (age, sex, identification as Aboriginal and/or Torres Strait Islander, labour force status, highest level of education, remoteness and area-level disadvantage). § *P* values are reported for overall variable significance, using adjusted Wald tests. ◆

of disadvantage were more likely to respond correctly (direct effects OR, 1.83; 95% CI, 1.32–2.54; SHS OR, 1.33; 95% CI, 0.85–2.08) than were those from areas of least disadvantage.

Conversely, smokers from areas where the local health service had dedicated tobacco control staff or funding were less likely to respond correctly to all direct effects questions (OR, 0.64; 95% CI, 0.48–0.86) and all questions about the harms of SHS (OR, 0.58; 95% CI, 0.40–0.82), compared with those from areas where there were no dedicated resources (Appendix 3).

Relationship of knowledge and health risk beliefs with quitting

Smokers who responded correctly to all questions about harms of SHS were more likely to want to quit and to have attempted to quit in the past year, but those who responded correctly to questions about direct effects of smoking were not (Box 2). Similarly, smokers who responded correctly to all SHS knowledge questions were more likely to be very worried about their future health (OR, 4.74; 95% CI, 3.01–7.45; $P < 0.001$), but those with knowledge of all direct effects were not (Appendix 4). Those who were very worried about their health were more likely to want to quit and to have made a quit attempt in the past year (Box 2). Risk-minimising beliefs were not significantly associated with either wanting to quit or having attempted to quit in the past year.

Discussion

Our results show high levels of knowledge among Aboriginal and Torres Strait Islander people that smoking causes lung cancer and heart disease, along with strong awareness of the harms of SHS, consistent with previous tobacco control research in this population.[10-14] Knowledge that smoking causes lung cancer and heart disease and is dangerous to others was assessed at very similar levels among Aboriginal and Torres Strait Islander daily smokers and those in the general population, based on comparable measures last assessed by Australian ITC Project surveys from 2002 to 2004.[16,28]

The main gap in knowledge, which has also been reported elsewhere,[12] concerned the role of smoking in exacerbating diabetes. As Aboriginal and Torres Strait Islander people are more than three times as likely as non-Indigenous Australians to report a diagnosis of diabetes or high blood or urine sugar levels,[7] with diabetes prevalence estimates ranging from 3.5% to 33.1%,[29] this gap highlights the need for targeted education about the link between smoking and diabetes. This applies to clinicians as well as the broader Aboriginal and Torres Strait Islander population, particularly in light of updated evidence presented in the 2014 report of the US Surgeon General, which concludes that smoking increases the risk of developing type 2 diabetes in a clear dose–response manner.[2]

Our results also show a need to build knowledge that smoking causes low birthweight, which was either denied or not known by 18% of daily smokers, similar to previous findings.[14,30] Messages that smoking causes lung cancer and heart disease and is dangerous to children have all featured on cigarette pack warning labels.[31] Together with other sources of health information, such as mass media, news stories, local health promotion strategies and advice from health professionals, these are likely to have contributed to the high knowledge about these health effects among our Aboriginal and Torres Strait Islander participants.

Given health services are an important source of health information, it was surprising that knowledge was lower among smokers surveyed by sites with dedicated tobacco

control resources. Though difficult to explain, this may be an indirect effect of the prioritisation of limited tobacco control resources to areas of greatest need, particularly as these resources included federally funded positions that had not long been established.[9] Alternatively, it may suggest that information about the health effects of smoking is more effective when incorporated into established routine health service activities that include other areas of health and wellbeing.

Our findings suggest that gaps in knowledge are not responsible for the high prevalence of smoking or the social patterning of smoking among Aboriginal and Torres Strait Islander people. Contrary to the geographic and social patterning of smoking prevalence among Aboriginal and Torres Strait Islander people,[7,32] we found that those from more remote and disadvantaged areas were more knowledgeable about the harmful effects of smoking and SHS. This is not to say that increasing knowledge is not important; prospective analyses from other ITC Project studies consistently show that knowledge, worry and risk beliefs contribute to motivation to quit.[16,18,22,33] Though we have shown that knowledge is also related to interest in quitting among Aboriginal and Torres Strait Islander smokers, other factors are likely to be more important in influencing the success of quit attempts (and their translation to reduced prevalence), as found in other populations.[17] For example, stress is commonly cited by Aboriginal and Torres Strait Islander smokers as a trigger for relapse,[12,15,34,35] and it should be considered among other possible barriers including social normalisation of smoking, underlying social disadvantage, nicotine dependence and access to and uptake of services to support quitting.[36]

Among smokers, knowledge of SHS harms was associated with wanting to quit and attempts to quit, but knowing about direct, personal health consequences was not. Similarly, in an ITC Project survey in New Zealand, setting an example to children was more likely to be identified by Maori and Pacific peoples as a reason to quit, and was associated with SHS awareness and protective behaviour among smokers.[37] Our findings are also consistent with qualitative research from the Northern Territory,[15,24] in which Aboriginal participants expressed higher levels of concern for the health of others than for personal risk. Health is considered by many Aboriginal and Torres Strait Islander people to include the health of others.[38] This may also explain why risk-minimising beliefs did not reduce interest in quitting, as predicted from research in the general population, despite being held at similar levels.[21,22] It may be that these counter-arguments are an ineffective shield to risks that include the health of others, and so have little or no effect on interest in quitting among Aboriginal and Torres Strait Islander people.

Our findings weaken the argument that risk-minimising beliefs explain why smoking persists in contexts where knowledge is high, and provide evidence that challenging these beliefs is unlikely to increase interest in quitting among Aboriginal and Torres Strait Islander people. Rather, health information may be interpreted with greater priority and relevance where negative health effects are framed in ways that include the health of others. This supports the approach used in the "Break the Chain" campaign, Australia's first national Aboriginal and Torres Strait Islander antismoking campaign, launched in March 2011.[39]

Strengths and limitations

This is the first broadly representative survey of knowledge and health risk beliefs about smoking among Aboriginal and Torres Strait Islander peoples. The survey design made it feasible to interview a large number of people and to explore variation within our sample.

However, use of closed-ended questions may have led to overestimation of knowledge,[40,41] which was assessed for a limited number of general health consequences of smoking. Knowledge may also have been overestimated if participants responded "yes" without fully scrutinising each question or because they did not want to appear uninformed. However, variation in the proportion of respondents who showed uncertainty in response to each item is evidence against this being systematic. Repeating the analyses with the "no" response as the dependent variable found the same general pattern of results (reversed). This increased our confidence in the validity of these outcomes, but did show that respondents from the most remote and disadvantaged areas were less likely to respond "don't know", consistent with biases to acquiesce or provide socially desirable responses in these areas. Some of the differences found, particularly area-level ones, may be due to social desirability biases, which are thought to be moderated by culture.[42] Although face-to-face interviews can increase perceived pressure to provide socially acceptable responses, we attempted to reduce any such effects by engaging local interviewers, to minimise the social distance between the interviewer and participant.[42]

The questions used to assess health worry and risk minimisation showed good face validity, but have not been previously used to investigate these constructs with Aboriginal and Torres Strait Islander people. While these results paint a broad, representative picture of general health knowledge, concern and influence on quitting among Aboriginal and Torres Strait Islander people, more detailed assessments of knowledge may identify other gaps to target in future health information campaigns.

In conclusion, this national study found that lack of basic knowledge about the health consequences of smoking is not an important barrier to wanting and attempting to quit for Aboriginal and Torres Strait Islander smokers. Framing new messages in ways that encompass the health of others is likely to contribute to goal setting and prioritisation of quitting.

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Personal attitudes towards smoking in a national sample of Aboriginal and Torres Strait Islander smokers and recent quitters

Abstract

Objectives: To describe attitudes towards smoking in a national sample of Aboriginal and Torres Strait Islander smokers and recent quitters and assess how they are associated with quitting, and to compare these attitudes with those of smokers in the general Australian population.

Design, setting and participants: The Talking About The Smokes project used a quota sampling design to recruit participants from communities served by 34 Aboriginal community-controlled health services and one community in the Torres Strait. We surveyed 1392 daily smokers, 251 non-daily smokers and 78 recent quitters from April 2012 to October 2013.

Main outcome measures: Personal attitudes towards smoking and quitting, wanting to quit, and attempting to quit in the past year.

Results: Aboriginal and Torres Strait Islander daily smokers were less likely than daily smokers in the general Australian population to report enjoying smoking (65% v 81%) and more likely to disagree that smoking is an important part of their life (49% v 38%); other attitudes were similar between the two groups. In the Aboriginal and Torres Strait Islander sample, non-daily smokers generally held less positive attitudes towards smoking compared with daily smokers, and ex-smokers who had quit within the past year reported positive views about quitting. Among the daily smokers, 78% reported regretting starting to smoke and 81% reported spending too much money on cigarettes, both of which were positively associated with wanting and attempting to quit; 32% perceived smoking to be an important part of their life, which was negatively associated with both quit outcomes; and 83% agreed that smoking calms them down when stressed, which was not associated with the quitting outcomes.

Conclusions: Aboriginal and Torres Strait Islander smokers were less likely than those in the general population to report positive reasons to smoke and held similar views about the negative aspects, suggesting that factors other than personal attitudes may be responsible for the high continuing smoking rate in this population.

Contemporary theories of smoking and other addictive behaviours see attitudes as one set of forces influencing behaviour.[1,2] Negative attitudes towards smoking, such as those about its high cost or regret about starting to smoke, are associated with increased interest in quitting and attempts to quit,[3-5] but perhaps not with sustained abstinence.[6,7] These attitudes compete with the benefits attributed to smoking, which have been shown to predict continued smoking and relapse.[8-10] Identifying attitudes that influence behaviour contributes to our understanding of what motivates and sustains quitting. This may differ between social and cultural environments, affecting which tobacco control policies work to reduce smoking.[4,11]

There is no nationally representative research that explores attitudes towards smoking among Aboriginal and Torres Strait Islander people. It is plausible that part of the reason for the high daily smoking prevalence, which was over double that of the non-Indigenous population in 2012–2013,[12] is that Aboriginal and Torres Strait Islander people hold more positive attitudes and/or fewer negative beliefs about smoking. It is also theorised that thoughts about quitting may be cast aside in stressful circumstances, when motivation shifts from future goals to immediate priorities,[2,13] which may be seen to be alleviated by benefits of smoking. Benefits of smoking described by Aboriginal and Torres Strait Islander peoples include coping with stress,[14-21] providing belonging and connectedness,[15,17,19-22] reinforcing sharing and reciprocity,[15,17,19,21] and creating opportunities for yarning or talking through problems.[14,15,17,19-21] Though concern about the high cost of smoking does not feature heavily in Aboriginal tobacco control literature, it is reported as one of the top motivators to quit among the general Australian population.[23]

Here, we describe attitudes towards smoking among a national sample of Aboriginal and Torres Strait Islander smokers and recent quitters, assess their association with quitting among smokers, and compare these attitudes with those among smokers in the general Australian population.

Methods

Survey design and participants

The Talking About The Smokes (TATS) project surveyed 1643 current smokers and 78 ex-smokers who had quit ⩽12 months previously, from April 2012 to October 2013 (Wave 1, or baseline). The survey design and participants are described in detail elsewhere.[24,25]

Briefly, the study used a quota sampling design to recruit participants from communities served by 34 Aboriginal community-controlled health services (ACCHSs) and one community in the Torres Strait (project sites), which were selected based on the population distribution of Aboriginal and Torres Strait Islander people by state or territory and remoteness. In most sites (30/35), we aimed to interview a sample of 50 smokers or recent quitters (those who had quit within the past 12 months), with equal numbers of men and women, and those aged 18–34 years and ⩾35 years. The sample sizes were doubled in four large city sites

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and in the Torres Strait community. People were excluded if they did not identify as Aboriginal or Torres Strait Islander, were less than 18 years old, were not usual residents of the area, were staff of the ACCHS, or were deemed unable to complete the survey. In each location, different locally determined methods were used to collect a representative, albeit non-random, sample (eg, surveying Aboriginal or Torres Strait Islander households, opportunistic event-based sampling, snowball sampling using established contacts).

Interviews were conducted face to face by trained interviewers, almost all of whom were members of the local Aboriginal and Torres Strait Islander community. The survey, entered directly onto a computer tablet, took 30–60 minutes to complete. The baseline sample closely matched the distribution of the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) by age, sex, jurisdiction and remoteness, and also for number of cigarettes smoked per day (for current daily smokers). However, there were inconsistent differences in some socioeconomic indicators: our sample had higher proportions of unemployed people, but also higher proportions who had completed Year 12 and who lived in more advantaged areas.[24] A single survey of health service activities was also completed for each site.

The project was approved by three Aboriginal human research ethics committees (HRECs) and two HRECs with Aboriginal subcommittees: Aboriginal Health & Medical Research Council Ethics Committee, Sydney; Aboriginal Health Research Ethics Committee, Adelaide; Central Australian HREC, Alice Springs; HREC for the Northern Territory Department of Health and Menzies School of Health Research, Darwin; and the Western Australian Aboriginal Health Ethics Committee, Perth.

ITC Project comparison sample

The TATS project is part of the International Tobacco Control Policy Evaluation Project (ITC Project) collaboration. Comparisons were made with results from the Australian ITC Project, which surveyed 1017 daily smokers between July 2010 and May 2011 (Wave 8), and 1010 daily smokers between September 2011 and February 2012 (Wave 8.5). Participants of the Australian ITC Project were adult smokers who were recruited by random digit telephone dialling from within strata defined by jurisdiction and remoteness.[26,27]

The ITC Project sample mostly comprised those recontacted from previous survey waves, in addition to smokers who were newly recruited to replace those lost to follow-up (Wave 8, 14.6%; Wave 8.5, 17.8%). While baseline surveys were completed over the telephone, follow-up surveys could be self-administered online (Wave 8, 29.6%; Wave 8.5, 32.1%). Slightly different definitions of smokers between the TATS project and ITC Project surveys meant that only daily and weekly smoker categories were directly comparable. We have concentrated on daily smokers in our analyses.

Outcome measures

Survey questions were based on ITC Project surveys, particularly the Australian ITC Project surveys. The exact questions used for this article are presented in Appendix 1.

Eight questions measured attitudes towards smoking, all of which captured responses using a five-point scale from "strongly agree" to "strongly disagree" (plus a "don't know" response, which was later merged with "neither agree nor disagree"). Five of these questions are reported here for smokers, and three for recent quitters.

Two outcomes were used to assess quitting: wanting to quit, and having attempted to quit in the past year, which was derived from questions on ever having tried to quit and how long ago the most recent quit attempt occurred.

Statistical analyses

We summarised the TATS project and ITC Project survey results using descriptive statistics. ITC Project data were directly standardised to match the age and sex profile of Aboriginal and Torres Strait Islander smokers according to the 2008 NATSISS. Given that our sample was not randomly selected, we did not calculate standard errors for comparisons of percentages between our data and ITC Project data. Thus, these comparisons do not incorporate calculations for statistical significance, but consider differences that are large and meaningful.

For smokers, we used logistic regression to analyse the five attitudinal outcomes and two outcomes on quitting. Unadjusted odds ratios (ORs) are reported for the five personal attitudes (dichotomised), by daily smoking status, sociodemographic variables, and presence of tobacco control resources at the local health service. For the outcomes on quitting, we report adjusted ORs for the five personal attitudes, controlling for daily smoking status and sociodemographic variables. Stata 13 (StataCorp) survey [SVY] commands were used to adjust for the TATS project sampling design in all tests of association, using Stata's svyset command to identify the 35 project sites as clusters and the quotas based on age and sex as strata.[28]

Data for less than 1% of participants were excluded due to missing or refused responses. For the associations with wanting to quit, we excluded a further 79 participants (4.8%) who did not know if they wanted to quit, and for associations with quitting in the past year, we excluded 21 (1.3%) who did not know when their last quit attempt occurred (if ever).

Results

Attitudes held by smokers

Comparison with ITC Project data

Most attitudes among Aboriginal and Torres Strait Islander smokers were similar to those assessed for smokers in the general Australian population (Box 1). Most daily smokers reported regret about ever starting to smoke (TATS, 78%; ITC, 81.8%) and agreed that they spent too much money on cigarettes (TATS, 81%; ITC, 83.6%). A lower proportion of Aboriginal and Torres Strait Islander daily

1 Attitudes towards smoking among smokers in the Australian population and a national sample of Aboriginal and Torres Strait Islander people*

Survey question and response	Australian ITC Project†	Talking About The Smokes project‡	
	Daily smokers, % (95% CI)	Daily smokers, % (frequency)	Non-daily smokers, % (frequency)
If you had to do it over again, you would not have started smoking§			
Strongly agree or agree	81.8% (75.7%–86.6%)	78% (1081)	79% (197)
Neither agree nor disagree	6.8% (4.3%–10.7%)	7% (102)	9% (23)
Disagree or strongly disagree	11.4% (7.3%–17.3%)	15% (200)	12% (30)
You spend too much money on cigarettes¶			
Strongly agree or agree	83.6% (78.4%–87.6%)	81% (1116)	54% (134)
Neither agree nor disagree	7.4% (5.0%–11.0%)	8% (110)	11% (28)
Disagree or strongly disagree	9.0% (5.9%–13.5%)	11% (156)	35% (87)
You enjoy smoking§			
Strongly agree or agree	80.6% (75.8%–84.6%)	65% (898)	51% (127)
Neither agree nor disagree	10.1% (7.5%–13.6%)	19% (261)	20% (49)
Disagree or strongly disagree	9.3% (6.3%–13.4%)	16% (223)	29% (73)
Smoking is an important part of your life§			
Strongly agree or agree	34.6% (29.8%–39.9%)	32% (444)	20% (50)
Neither agree nor disagree	27.4% (22.5%–33.0%)	19% (268)	12% (30)
Disagree or strongly disagree	37.9% (32.5%–43.6%)	49% (670)	68% (169)
Smoking calms you down when you are stressed or upset¶			
Strongly agree or agree	80.3% (75.5%–84.3%)	83% (1143)	70% (174)
Neither agree nor disagree	11.0% (7.7%–15.7%)	9% (127)	13% (33)
Disagree or strongly disagree	8.7% (6.6%–11.2%)	8% (111)	17% (42)

ITC Project = International Tobacco Control Policy Evaluation Project. * Percentages and frequencies exclude refused responses. † Results for daily smokers from Wave 8 (n = 1017) or Wave 8.5 (n = 1010) of the Australian ITC Project, directly standardised to the age and sex of Aboriginal and Torres Strait Islander smokers surveyed in the 2008 National Aboriginal and Torres Strait Islander Social Survey. ‡ Results for the baseline sample of Aboriginal and Torres Strait Islander daily smokers (n = 1392) and non-daily smokers (n = 251) in the Talking About The Smokes project, April 2012 – October 2013. § Australian ITC Project Wave 8.5, September 2011 to February 2012. ¶ Australian ITC Project Wave 8, July 2010 to May 2011. ◆

smokers (65%) than those in the general Australian population (80.6%) said they enjoyed smoking (Box 1). Though similar proportions of daily smokers agreed that smoking is an important part of their life (TATS, 32%; ITC, 34.6%), a higher proportion of Aboriginal and Torres Strait Islander respondents disagreed with this statement (TATS, 49%; ITC, 37.9%). A high proportion of daily smokers agreed that smoking calms them down when stressed or upset (TATS, 83%; ITC, 80.3%).

Attitudes of Aboriginal and Torres Strait Islander smokers

Non-daily smokers generally held less positive attitudes towards smoking (Appendix 2); compared with daily smokers, they were significantly less likely to say that they enjoy smoking (OR, 0.56; 95% CI, 0.42–0.75; P < 0.001), that smoking is an important part of their life (OR, 0.53; 95% CI, 0.35–0.81; P = 0.004) and that smoking calms them down when stressed (OR, 0.48; 95% CI, 0.35–0.67; P < 0.001). Non-daily smokers were also less likely to report that they spend too much money on cigarettes (OR, 0.28; 95% CI, 0.20–0.39; P < 0.001).

There was little variation in smoker attitudes by sociodemographic and other factors (Appendix 2). Compared with the youngest smokers, those aged 35–44 years were less likely to say they enjoy smoking (OR, 0.64; 95% CI, 0.43–0.93), whereas older smokers were more likely to report that smoking is an important part of their life (P < 0.001). Smokers from areas of the highest level of disadvantage were more likely to report that they enjoy smoking (OR, 1.66; 95% CI, 1.19–2.30) compared with those from the least disadvantaged areas (P = 0.01). Smokers from regional areas (OR, 1.67; 95% CI, 1.27–2.20) and remote or very remote areas (OR, 2.13; 95% CI, 1.49–3.04) were also more likely than those from major cities to report that they enjoy smoking (P < 0.001). Smokers who were not in the labour force (OR, 1.78; 95% CI, 1.32–2.38) were more likely to see smoking as an important part of their life than those who were employed (P < 0.001).

Attitudes about regretting ever starting to smoke, being calmed by smoking when stressed, and spending too much money on cigarettes did not vary according to sociodemographic indicators.

Relationship of smoker attitudes with quitting

The likelihood of wanting to quit or having attempted to quit in the past year was higher for Aboriginal and Torres Strait Islander smokers who regretted starting to smoke and those who said they spend too much money on cigarettes, and lower for smokers who said they enjoy smoking and those who reported that smoking is an important part of their life (Box 2).

Attitudes held by recent quitters

Ex-smokers who had quit within the past 12 months reported positive

2 Association of personal attitudes towards smoking with wanting and attempting to quit in a national sample of Aboriginal and Torres Strait Islander smokers*

	Want to quit			Attempted to quit in the past year		
Attitude	% (frequency)†	Adjusted OR (95% CI)‡	*P*§	% (frequency)†	Adjusted OR (95% CI)‡	*P*§
If you had to do it over again, you would not have started smoking						
Neutral or disagree	52% (176)	1.0	< 0.001	38% (131)	1.0	< 0.001
Agree	75% (907)	2.79 (1.96–3.97)		53% (662)	1.84 (1.37–2.48)	
You spend too much money on cigarettes						
Neutral or disagree	59% (204)	1.0	< 0.001	45% (167)	1.0	0.02
Agree	73% (879)	2.22 (1.59–3.10)		51% (626)	1.41 (1.06–1.88)	
You enjoy smoking						
Neutral or disagree	85% (489)	1.0	< 0.001	58% (348)	1.0	< 0.001
Agree	61% (594)	0.29 (0.21–0.42)		44% (445)	0.56 (0.44–0.70)	
Smoking is an important part of your life						
Neutral or disagree	75% (805)	1.0	< 0.001	53% (591)	1.0	0.001
Agree	59% (278)	0.48 (0.37–0.63)		41% (202)	0.68 (0.55–0.86)	
Smoking calms you down when you are stressed or upset						
Neutral or disagree	70% (203)	1.0	0.75	46% (140)	1.0	0.09
Agree	70% (880)	1.06 (0.75–1.51)		50% (653)	1.28 (0.97–1.69)	

OR = odds ratio. * Results are based on the baseline sample of current smokers ($n = 1643$) in the Talking About The Smokes project. † Percentages and frequencies exclude refused responses (for all variables) and "don't know" responses (for quitting outcomes only). ‡ ORs are adjusted for daily smoking status and key sociodemographic variables (age, sex, identification as Aboriginal and/or Torres Strait Islander, labour force status, highest level of education, remoteness and area-level disadvantage). § *P* values are reported for overall variable significance, using adjusted Wald tests. ◆

3 Attitudes towards smoking and quitting among recent quitters in a national sample of Aboriginal and Torres Strait Islander people*

Survey question and response	% (frequency)†
Since you quit you have more money	
Strongly agree or agree	87% (68)
Neither agree or disagree (or don't know)	8% (6)
Disagree or strongly disagree	5% (4)
You can now cope with stress as well as you did when you were smoking	
Strongly agree or agree	74% (57)
Neither agree or disagree (or don't know)	12% (9)
Disagree or strongly disagree	14% (11)
Your life is better now that you no longer smoke	
Strongly agree or agree	90% (70)
Neither agree or disagree (or don't know)	8% (6)
Disagree or strongly disagree	3% (2)

* Results for the baseline sample of Aboriginal and Torres Strait Islander ex-smokers who had quit within past ≤ 12 months ($n = 78$) in the Talking About The Smokes project. † Percentages and frequencies exclude refused responses. ◆

views about having quit (Box 3). Among these recent quitters, 87% agreed that they have more money since they quit, 74% agreed that they cope with stress at least as well as they did when smoking, and 90% agreed that their life is better now that they no longer smoke.

Discussion

Our results show that Aboriginal and Torres Strait Islander people were less likely than the general Australian population to report positive reasons to smoke and held similar views about the negative aspects of smoking. As negative attitudes to smoking were already common, approaches that seek to *change* these beliefs are not likely to affect Aboriginal and Torres Strait Islander smoking or quitting rates. In particular, levels of regret for ever starting to smoke were comparable to those seen globally.[5,29] We hope this energises and reassures those in comprehensive primary health care settings who face the challenge of prioritising smoking cessation amid other, often pressing, demands.[30]

It is encouraging that a majority of smokers rejected the idea that smoking is an important part of their life, and that a lower proportion of Aboriginal and Torres Strait Islander smokers compared with those in the general Australian population said they enjoy smoking. As in other populations, smokers who agreed with statements about positive attributes of smoking were less interested in quitting and less likely to attempt to quit.[10,31] The ITC Project has found that smokers who hold these positive attitudes are also less likely to quit successfully, but that part of this effect can be explained by differences in measures of nicotine dependence.[10] However, factors that predict successful quitting sometimes differ from those that predict quit intentions and attempts.[6,7] The complex relationships between attitudes, other factors and successful quitting is an important topic for future prospective research in this population.

Qualitative research has demonstrated broad recognition among Aboriginal and Torres Strait Islander peoples that stress is both a trigger for smoking and a common cause of relapse,[14-17,19-21] consistent with international evidence on smoking for stress management.[9,10] While we were surprised to find that those who believe smoking reduces their stress were no less motivated to quit, our outcomes were limited to quit attempts and not the success of such attempts. Connections between smoking and stress, or psychological reactions to stress, would benefit from further

study using measures shown to be sensitive to the multiple life stressors and high levels of psychological distress experienced by Aboriginal and Torres Strait Islander peoples.[32,33] Exploration of supports and strategies that enable successful quitting in the presence of these stressors is also indicated. Research on resilience to stress describes the pride associated with mastering the transition to becoming a non-smoker.[16] In our results, most ex-smokers agreed that they cope with stress at least as well as they did when smoking and that their life is better now that they no longer smoke. The reduction in psychological distress that follows quitting is well documented.[34,35] Health professionals and cessation resources could work towards extinguishing the myth that smoking reduces stress by replacing it with a more accurate and empowering message that ex-smokers experience less stress and greater quality of life once they quit.

Strengths and limitations

This article provides a broadly nationally representative snapshot of attitudes towards smoking held by Aboriginal and Torres Strait Islander smokers. The use of single items to measure constructs can lack sensitivity but enabled us to enquire about a broad range of topics, using attitudinal and functional utility items that have established validity in other populations.[36] While the validity of these items is yet to be established for Aboriginal and Torres Strait Islander peoples, comparable associations with quit-related outcomes provide some evidence of convergent validity.[36] However, the limited number of closed-ended questions used here would not have captured the full range of attitudes held by Aboriginal and Torres Strait Islander smokers and may have missed important constructs.

Further, comparisons with ITC Project data must be made with a degree of caution. There is expert consensus that response styles are culturally moderated, meaning that the degree to which social desirability bias affects the tendency to agree or respond using scale extremities can vary according to respondent characteristics.[36] Methods of recruitment and data collection also differ between the TATS and ITC projects, which may affect response biases present in each. However, the degree of variation to responses across the eight attitude items provides some evidence against any systematic response preference or bias in our data.

Finally, these results do not provide information about whether negative attitudes towards smoking precede quitting, or whether those who are already making quit attempts tend to develop more negative views about smoking. Our understanding of the likely direction of these relationships is informed by prospective research from other settings, which can be tested using longitudinal data from the follow-up of these baseline results.

With these limitations in mind, our findings add to our understanding of the context of smoking and quitting for Aboriginal and Torres Strait Islander peoples. The finding that their personal attitudes towards smoking are similar to those among the general Australian population, and appear to share the same motivating effects, suggests factors other than personal attitudes are likely to explain the high prevalence of smoking among Aboriginal and Torres Strait Islander people. Future research should consider the effect of structural factors, such as access to services that support quitting, intergenerational effects of colonisation and dispossession, levels of racism and psychological distress, and normalisation of smoking within Aboriginal and Torres Strait Islander social networks.[17,19,22,37-39]

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Project staff and leadership group meeting at NACCHO (National Aboriginal Community Controlled Organisation) offices, June 2014, Canberra, Australian Capital Territory.

Social acceptability and desirability of smoking in a national sample of Aboriginal and Torres Strait Islander people

Abstract

Objectives: To describe social normative beliefs about smoking in a national sample of Aboriginal and Torres Strait Islander people, and to assess the relationship of these beliefs with quitting.

Design, setting and participants: The Talking About The Smokes project used a quota sampling design to recruit participants from communities served by 34 Aboriginal community-controlled health services and one community in the Torres Strait. We surveyed 1392 daily smokers, 251 non-daily smokers, 311 ex-smokers and 568 never-smokers from April 2012 to October 2013.

Main outcome measures: Eight normative beliefs about smoking; wanting and attempting to quit.

Results: Compared with daily smokers in the general Australian population, Aboriginal and Torres Strait Islander daily smokers were less likely to report that mainstream society disapproves of smoking (78.5% v 62%). Among Aboriginal and Torres Strait Islander daily smokers, 40% agreed that Aboriginal and Torres Strait Islander community leaders where they live disapprove of smoking, 70% said there are increasingly fewer places they feel comfortable smoking, and most (90%) believed non-smokers set a good example to children. Support for the government to do more to tackle the harm caused by smoking was much higher than in the general Australian population (80% v 47.2%). These five normative beliefs were all associated with wanting to quit. Non-smokers reported low levels of pressure to take up smoking.

Conclusion: Tobacco control strategies that involve the leadership and participation of local Aboriginal and Torres Strait Islander community leaders, particularly strategies that emphasise protection of others, may be an important means of reinforcing beliefs that smoking is socially unacceptable, thus boosting motivation to quit.

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Smoking is partly motivated by social factors, although the strength of this influence has declined as smoking has become less socially normative in the community.[1,2] Social norms have two aspects: social acceptability, or the contexts where the behaviour is accepted, and social desirability, or the extent to which it is valued. Separating the two can be difficult in practice.

Challenging normative beliefs was a focus of community-based programs to reduce the smoking rate and burden of tobacco-related disease among Aboriginal and Torres Strait Islander communities,[3] as part of the 2009 National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes.[4] In particular, these programs tackled the social desirability and acceptability of smoking in contexts where the smoke affects other people. There has been very little published research to guide this approach.

In the broader Australian population, most smokers (86%) agree that society disapproves of smoking,[5] which is an indication that smoking is no longer socially acceptable in certain situations. In contrast, the high prevalence of smoking in Aboriginal and Torres Strait Islander peoples (42% in those aged 15 years or older)[6] contributes to beliefs that smoking is normal, expected or intergenerational.[7-12] This suggests a certain level of acceptability but does not necessarily indicate whether smoking is socially desirable or valued.

The negative impact of tobacco use on Aboriginal and Torres Strait Islander families appears to reduce the desirability of smoking.[7] In particular, the importance of protecting others from the harms of second-hand smoke and setting an example to children are said to provide strong motivation to quit.[7,13,14] Parents, older relatives, health staff and elders have been identified as important anti-tobacco role models for Aboriginal and Torres Strait Islander youth.[7-9]

However, there is evidence that smoking is also valued within Aboriginal and Torres Strait Islander networks, among which smoking and sharing tobacco are associated with connectedness, affirmation of cultural identity and the opportunity to talk through problems.[7,9,11-13,15,16] The strength of these competing values and their influence on quitting has not been previously investigated.

Here, we describe social normative beliefs about smoking in a national sample of Aboriginal and Torres Strait Islander peoples, and assess the relationship of these beliefs with quitting.

Methods

Survey design and participants

We used data from the Talking About The Smokes (TATS) project, which conducted baseline surveys of 2522 Aboriginal and Torres Strait Islander people (1643 current smokers, 311 ex-smokers and 568 never-smokers) from April 2012 to October 2013. The survey design and participants have been described in detail elsewhere.[17,18]

Briefly, the study used a quota sampling design to recruit participants from communities served by 34 Aboriginal community-controlled health services (ACCHSs) and one community in the Torres Strait. These project sites were selected based on the population distribution of Aboriginal and Torres Strait Islander people by state or territory

and remoteness. In most sites (30/35), we aimed to interview a sample of 50 smokers (or ex-smokers who had quit ≤ 12 months previously) and a smaller sample of 25 non-smokers, with equal numbers of men and women, and those aged 18–34 and ≥ 35 years. The sample sizes were doubled in four major urban sites and the Torres Strait. People were excluded if they were less than 18 years old, were not usual residents of the area, were staff of the ACCHS, or were deemed unable to consent or complete the survey.

In each site, different locally determined methods were used to collect a representative, albeit non-random, sample. The baseline sample closely matched the sample distribution of the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) by age, sex, jurisdiction and remoteness, and number of cigarettes smoked per day (for current daily smokers). However, there were inconsistent differences in some socioeconomic indicators: our sample had higher proportions of unemployed people, but also higher proportions who had completed Year 12 and who lived in more advantaged areas.[17]

Interviews were conducted face to face by trained interviewers, almost all of whom were members of the local Aboriginal and Torres Strait Islander community. The survey, entered directly onto a computer tablet, took 30–60 minutes to complete. A single survey of health service activities was also completed for each site.

The project was approved by three Aboriginal human research ethics committees (HRECs) and two HRECs with Aboriginal subcommittees: Aboriginal Health & Medical Research Council Ethics Committee, Sydney; Aboriginal Health Research Ethics Committee, Adelaide; Central Australian HREC, Alice Springs; HREC for the Northern Territory Department of Health and Menzies School of Health Research, Darwin; and the Western Australian Aboriginal Health Ethics Committee, Perth.

ITC Project comparison sample

The TATS project is part of the International Tobacco Control Policy Evaluation Project (ITC Project) collaboration. Comparisons were made with smokers in the general Australian population using data from the Australian ITC project, which surveyed 1010 daily smokers between September 2011 and February 2012 (Wave 8.5). Participants of the Australian ITC project were recruited by random digit telephone dialling from within strata defined by jurisdiction and remoteness.[19] While baseline surveys were completed over the telephone, follow-up surveys could be completed online. Our comparisons are for daily smokers only, due to slightly different definitions of non-daily smokers between the TATS project and ITC Project surveys.

Outcome measures

Survey questions were based on previous Australian ITC Project surveys, but with added questions about specific concerns and in language better reflecting Aboriginal and Torres Strait Islander colloquial speech. Eight questions assessed normative beliefs, all of which used a five-point scale ranging from "strongly agree" to "strongly disagree" (plus a "don't know" response, which was later merged with "neither agree nor disagree", and a "refused" option, which was excluded from analysis).

Two quit-related outcomes were used: wanting to quit, and having attempted to quit in the past year, which was derived from questions on ever having tried to quit and how long ago the most recent quit attempt occurred. The exact survey questions are presented in Appendix 1.

Statistical analyses

We calculated percentages and frequencies for all normative belief items. ITC Project data were summarised using percentages and 95% confidence intervals, directly standardised to match the age and sex profile of Aboriginal and Torres Strait Islander smokers according to the 2008 NATSISS.

For TATS project outcomes, variation by smoking status was investigated with simple logistic regression. Multivariable logistic regression was used to assess the association of each normative belief with wanting and attempting to quit, adjusted for daily smoking status and key sociodemographic variables. Stata 13 (StataCorp) survey [SVY] commands were used to adjust for the TATS Project sampling design, identifying the 35 project sites as clusters and the age–sex quotas as strata.[20]

For questions about normative beliefs, data were excluded for less than 1% of participants due to missing or refused responses. For associations with wanting to quit, we excluded a further 79 smokers (4.8%) who did not know if they wanted to quit; and for associations with quitting in the past year, we excluded 21 (1.3%) who did not know when their last quit attempt occurred (if ever).

Results

Normative beliefs

Aboriginal and Torres Strait Islander daily smokers were less likely than those in the general Australian population to perceive that mainstream society disapproves of smoking (62% v 78.5%) (Box 1). Among all Aboriginal and Torres Strait Islander respondents, higher proportions agreed that society disapproves of smoking than agreed that Aboriginal and Torres Strait Islander community leaders where they live disapprove of smoking (62% v 41%).

While similar proportions of daily and non-daily smokers agreed that mainstream society disapproves of smoking, non-daily smokers were more likely to agree that Aboriginal and Torres Strait Islander community leaders where they live disapprove (odds ratio [OR], 1.50; 95% CI, 1.10–2.05; $P = 0.01$). Close to two-thirds of smokers and recent quitters agreed there are now fewer places where they feel comfortable smoking, with little variation by smoking status. Although a minority of respondents said non-smokers miss out on all the gossip, this belief was more common among non-daily smokers (OR, 1.46; 95% CI, 1.01–2.10; $P = 0.04$) than daily smokers. Most Aboriginal and Torres Strait Islander respondents (90% or more) reported that being a non-smoker sets a good example to children,

1 Social normative beliefs about smoking among daily smokers in the Australian population and among a national sample of Aboriginal and Torres Strait Islander people, by smoking status*

Normative belief[ϟ]	Australian ITC Project†	Talking About The Smokes project‡			
	Daily smokers (*n* = 1010)	Daily smokers (*n* = 1392)	Non-daily smokers (*n* = 251)	Ex-smokers (*n* = 311)	Never-smokers (*n* = 568)
[Mainstream] society disapproves of smoking					
Strongly agree or agree	78.5% (73.3%–82.9%)	62% (851)	65% (164)	62% (190)	62% (351)
Neither agree nor disagree, or don't know	10.6% (7.9%–13.9%)	24% (336)	22% (56)	22% (67)	24% (138)
Disagree or strongly disagree	11.0% (7.4%–15.9%)	14% (196)	12% (31)	17% (52)	14% (78)
Aboriginal and/or Torres Strait Islander community leaders where you live disapprove of smoking					
Strongly agree or agree	—	40% (547)	50% (124)	43% (133)	38% (218)
Neither agree nor disagree, or don't know	—	33% (453)	24% (60)	29% (88)	36% (205)
Disagree or strongly disagree	—	28% (380)	26% (66)	28% (87)	26% (145)
There are fewer and fewer places you (would) feel comfortable smoking[¶]					
Strongly agree or agree	—	70% (970)	65% (163)	65% (51)	—
Neither agree nor disagree, or don't know	—	14% (192)	14% (35)	13% (10)	—
Disagree or strongly disagree	—	16% (220)	21% (52)	22% (17)	—
Non-smokers miss out on all the good gossip/yarning					
Strongly agree or agree	—	27% (379)	36% (89)	29% (89)	23% (131)
Neither agree or disagree, or don't know	—	18% (246)	16% (41)	8% (26)	14% (81)
Disagree or strongly disagree	—	55% (758)	48% (121)	63% (194)	63% (356)
Being a non-smoker sets a good example to children					
Strongly agree or agree	—	90% (1246)	94% (236)	95% (292)	95% (541)
Neither agree nor disagree, or don't know	—	5% (70)	2% (5)	2% (6)	3% (15)
Disagree or strongly disagree	—	5% (67)	4% (10)	4% (11)	2% (11)
The government should do more to tackle the harm [done to Aboriginal and Torres Strait Islander people] that is caused by smoking					
Strongly agree or agree	47.2% (41.6%–52.8%)	80% (1108)	86% (215)	89% (270)	84% (465)
Neither agree nor disagree, or don't know	21.6% (17.5%–26.3%)	13% (173)	9% (23)	6% (17)	12% (65)
Disagree or strongly disagree	31.3% (25.8%–37.3%)	7% (101)	5% (12)	6% (18)	4% (24)

ITC Project = International Tobacco Control Policy Evaluation Project. * Percentages and frequencies exclude refused responses. † Results are percentages (95% confidence intervals) for daily smokers from Wave 8.5 (September 2011 – February 2012) of the Australian ITC Project, directly standardised to the age and sex of Aboriginal and Torres Strait Islander smokers surveyed in the 2008 National Aboriginal and Torres Strait Islander Social Survey. ‡ Results are percentages (frequencies) for the baseline sample of Aboriginal and Torres Strait Islander people in the Talking About The Smokes project (April 2012–October 2013). ϟ Text in square brackets was not included in Australian ITC Project survey questions. ¶ Asked of smokers and recent quitters only. ◆

with no clear difference by smoking status. Finally, there was overwhelming support (80% or higher) for the government doing more to tackle the harm to Aboriginal and Torres Strait Islander peoples caused by smoking. This was significantly higher than the level of support for government action among the general Australian population (47.2%).

Few non-smokers said they were excluded by smokers or pressured by smokers to take up smoking (Box 2). Ex-smokers who had stopped smoking within the past year (but not those who had been quit for more than 1 year) were more likely to say they were pressured to smoke (OR, 1.99; 95% CI, 1.09–3.61; $P = 0.04$) than those who had never smoked.

Relationship between normative beliefs and quitting

Among smokers, all five anti-smoking beliefs were associated with wanting to quit, and all except perceived societal disapproval of smoking were also associated with having attempted to quit in the past year (Box 3). The only pro-smoking belief, that non-smokers miss out on all the gossip or yarning, was not associated with either wanting or attempting to quit.

Discussion

We found that Aboriginal and Torres Strait Islander smokers are less likely than smokers in the broader Australian population to believe that society views smoking as socially unacceptable. This difference is likely to be a product of higher smoking prevalence, but it may also reinforce it — lower perceived social acceptability of smoking was associated with wanting and attempting to quit, as has been found in other settings.[21-24] In contrast, personal attitudes towards smoking (regretting starting to smoke, perceiving it to be too expensive, enjoying it, seeing it as an important part of life and smoking for stress management) do not appear to be driving differences in quitting.[25]

One possible interpretation of this pattern of results is that social norms are more influential in collectivist societies, in which behaviour is shaped to a greater degree by societal than

2 Social normative beliefs about smoking in a national sample of Aboriginal and Torres Strait Islander non-smokers*

Normative belief	Ex-smokers quit ≤1 year (*n* = 78)	Ex-smokers quit >1 year (*n* = 233)	Never-smokers (*n* = 568)
You are excluded from things because you are a non-smoker (now)			
Strongly agree or agree	27% (21)	25% (58)	24% (137)
Neither agree nor disagree	8% (6)	6% (14)	13% (73)
Disagree or strongly disagree	65% (51)	69% (159)	63% (358)
You are pressured by smokers to take up smoking (again)			
Strongly agree or agree	26% (20)	13% (29)	15% (84)
Neither agree nor disagree	3% (2)	4% (10)	8% (43)
Disagree or strongly disagree	72% (56)	83% (192)	78% (441)

* Results are percentages (frequencies) for the baseline sample in the Talking About The Smokes project (April 2012–October 2013) and exclude refused responses. ◆

personal needs.[24,26,27] There is a growing body of evidence that protecting others provides strong motivation for Aboriginal and Torres Strait Islander peoples to quit,[7,13,14,28] reflected here in the particular salience and influence of believing non-smokers set a good example to children. Similar findings were reported for Maori and Pacific peoples in the New Zealand ITC Project,[26] which recommended greater emphasis on social reasons to quit, such as setting an example to children. For those who work in comprehensive primary health care settings, messages framed in ways that emphasise protecting others are likely to motivate quitting for Aboriginal and Torres Strait Islander peoples who smoke.

However, while this may be a more effective means of motivating people to quit, the implications for sustaining quit attempts are unclear. Current behaviour change theory suggests that quitting may be more difficult to sustain when motivated by social influences (including concern for others), given the likely challenges by internal needs such as biological or psychological dependence.[2] General practitioners and others who provide cessation help should not discount the possibility that more dependent smokers may require support to manage cravings or urges to smoke upon quitting. Sustaining a quit attempt in the face of additional challenges, some of which are specific to the context of quitting for Aboriginal and Torres Strait Islander smokers, is an important area for future research.[29]

Our finding that quitting among Aboriginal and Torres Strait Islander smokers appears to be more influenced by their perceptions that local community leaders disapprove of smoking than by disapproval by mainstream society is important. In other settings, norms from significant others are more influential on cigarette consumption and motivation to quit than are mainstream societal norms.[24] In this context, significant others may include distant relatives and respected community leaders, who have been described as influential in decisions about starting to smoke among Aboriginal and Torres Strait Islander youth.[7-9] This offers one explanation for the motivational effect of local Aboriginal and Torres Strait Islander leaders, although we were unable to assess whether these constructs overlap.

Further, while the survey measured *perceptions about* disapproval of smoking by local leaders, our findings nonetheless have implications for tobacco control leadership, and the importance of community leadership in particular. We can draw from examples of indigenous leadership and participation across all areas of tobacco control in New Zealand,[30] where strong national and local Maori leadership, targeted messages and Maori approaches are seen as critical for Maori tobacco-free advances.[31] There are also an increasing number of examples of community leadership in Aboriginal and Torres Strait Islander tobacco control. A 2012–2013 survey of 47 Australian organisations involved in the development of tobacco control messages for Aboriginal and Torres Strait Islander peoples showed that 32% targeted elders in these messages.[32] Social marketing and other strategies that directly involve local community leaders, or shift perceptions about the beliefs of community leaders, offer a means of reinforcing beliefs that smoking is socially unacceptable and therefore strengthening motivation to quit.

We found strong support for government action to tackle the harm caused by smoking. Resistance to tobacco control is therefore not a plausible explanation for differences in quitting between Aboriginal and Torres Strait Islander peoples and other Australians. There have been similar findings for other high-prevalence populations.[33]

Further, while smoking may be considered somewhat more normal among Aboriginal and Torres Strait Islander smokers, we found no evidence of social norms that indicate smoking is strongly socially valued or desirable. In contrast to previous evidence that suggests social isolation of non-smokers contributes to the high smoking prevalence among Aboriginal and Torres Strait Islander peoples,[7,9,12,13,16] we found that most non-smokers did not feel excluded by smokers or pressured to smoke, or that they missed out on gossip. Further, even among smokers who believed that non-smokers missed out, we found no evidence that this presents a major barrier to quitting activity.

Strengths and limitations

The TATS project dataset provides the first national, broadly representative record of normative beliefs about smoking among Aboriginal and Torres Strait Islander smokers and non-smokers.

However, this study has some limitations. Analyses of associations between normative beliefs and quitting excluded 4.8% of smokers who did not know if they wanted to quit and 1.3% who could not recall how long ago their most recent quit attempt occurred. While this removes

3 Association of social normative beliefs about smoking with wanting and attempting to quit in a national sample of Aboriginal and Torres Strait Islander smokers*

	Want to quit			Attempted to quit in the past year		
Normative belief	% (frequency)†	Adjusted OR (95% CI)‡	*P*§	% (frequency)†	Adjusted OR (95% CI)‡	*P*§
Mainstream society disapproves of smoking						
Neutral or disagree	65% (374)	1.0	0.01	46% (279)	1.0	0.05
Agree	73% (709)	1.49 (1.10–2.01)		51% (514)	1.26 (1.00–1.60)	
Aboriginal and/or Torres Strait Islander community leaders where you live disapprove of smoking						
Neutral or disagree	64% (578)	1.0	< 0.001	46% (431)	1.0	0.001
Agree	77% (504)	1.94 (1.50–2.52)		54% (360)	1.43 (1.16–1.77)	
There are fewer and fewer places you feel comfortable smoking						
Neutral or disagree	64% (302)	1.0	0.01	46% (224)	1.0	0.03
Agree	72% (781)	1.45 (1.09–1.93)		51% (569)	1.33 (1.03–1.71)	
Non-smokers miss out on all the good gossip/yarning						
Neutral or disagree	70% (769)	1.0	0.95	49% (564)	1.0	0.70
Agree	70% (314)	1.01 (0.75–1.36)		50% (229)	1.05 (0.82–1.34)	
Being a non-smoker sets a good example to children						
Neutral or disagree	37% (54)	1.0	< 0.001	33% (50)	1.0	0.001
Agree	73% (1029)	4.92 (2.98–8.12)		51% (743)	2.11 (1.37–3.24)	
The government should do more to tackle the harm done to Aboriginal and Torres Strait Islander people that is caused by smoking						
Neutral or disagree	51% (149)	1.0	< 0.001	42% (129)	1.0	0.009
Agree	74% (934)	3.03 (2.17–4.23)		51% (663)	1.48 (1.10–1.98)	

OR = odds ratio. * Results are based on the baseline sample of current smokers (n = 1643) in the Talking About The Smokes project. † Percentages and frequencies exclude refused responses (for all variables) and "don't know" responses (for quitting outcomes only). ‡ ORs are adjusted for daily smoking status and key sociodemographic variables (age, sex, identification as Aboriginal and/or Torres Strait Islander, labour force status, highest level of education, remoteness and area-level disadvantage). § *P* values are reported for overall variable significance, using adjusted Wald tests. ◆

uncertainties regarding the categorisation of "don't know" responses into yes/no outcomes, it also excludes a small proportion of Aboriginal and Torres Strait Islander people who may differ from included participants.

It is possible that we missed important normative beliefs that have additional influences. In particular, we did not ask specific questions about beliefs of family. This was because the diversity of family structures and a varying tendency to include distant relatives requires more extensive questioning than we had capacity for.

While it is possible that some of the differences found may be due to culturally moderated social desirability biases, we attempted to minimise the potential for this by engaging local interviewers.[34] Tobacco control research in other settings suggests that survey responses about wanting to quit are not subject to greater social desirability biases when collected face to face.[35]

We also stress that the associations presented should not be interpreted as being causal. We cannot determine from these results alone whether negative beliefs about the social acceptability and desirability of smoking motivate quitting, or whether those motivated to quit are more likely to express negative views. While these limitations complicate our interpretations, the hypothesised causal links are strengthened by prospective research in other settings.[21-24]

Finally, comparisons with ITC Project data must be made with a degree of caution, given differences in methods and timing of recruitment and data collection. However, the differences we report here are too large to be accounted for by these factors.

In conclusion, tobacco control strategies that involve the leadership and participation of local Aboriginal and Torres Strait Islander community leaders, particularly strategies that emphasise protection of others, may be an important means of reinforcing beliefs that smoking is socially unacceptable, thus boosting motivation to quit.

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Tobacco control policies and activities in Aboriginal community-controlled health services

Abstract

Objectives: To describe tobacco control policies and activities at a nationally representative sample of Aboriginal community-controlled health services (ACCHSs).

Design, setting and participants: The Talking About The Smokes (TATS) project used a quota sampling design to recruit 34 ACCHSs around Australia. Between April 2012 and October 2013, a representative at each ACCHS completed a survey about the service's tobacco control policies and activities. Questions about support for smoke-free policies were also included in the TATS project survey of 2435 Aboriginal and Torres Strait Islander members of the communities served by the ACCHSs.

Main outcome measures: ACCHS tobacco control policies and activities.

Results: Thirty-two surveys were completed, covering 34 sites. Most ACCHSs (24/32) prioritised tobacco control "a great deal" or "a fair amount", and all services had smoke-free workplace policies. Most had staff working on tobacco control and had provided tobacco control training within the past year. A range of quit-smoking information and activities had been provided for clients and the community, as well as extra smoking cessation support for staff. There was strong support for smoke-free ACCHSs from within the Aboriginal communities, with 87% of non-smokers, 85% of ex-smokers and 77% of daily smokers supporting a complete ban on smoking inside and around ACCHS buildings.

Conclusions: The high level of commitment and experience within ACCHSs provides a strong base to sustain further tobacco control measures to reduce the very high smoking prevalence in Aboriginal and Torres Strait Islander populations.

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Aboriginal community-controlled health services (ACCHSs) have long recognised tobacco use as an important contributor to poor health outcomes in their communities,[1] and have worked to reduce this burden with a range of tobacco control initiatives. The ACCHS sector includes about 150 health services across Australia, each governed and managed by its local Aboriginal community, as well as representative state or territory organisations (Affiliates) and the National Aboriginal Community Controlled Health Organisation (NACCHO).

In 2001, NACCHO surveyed 67 staff from Aboriginal health services, 124 Aboriginal and Torres Strait Islander community members from 13 locations, and 76 health services with predominantly Aboriginal and Torres Strait Islander clients.[2] The survey identified high levels of knowledge about the harmful health effects of tobacco, a lack of specific tobacco control programs and the need for more information on effective stop-smoking interventions. The report recommended that governments prioritise and fund tobacco control through policies that deal with social determinants of smoking, workforce training, comprehensive long-term programs to reduce smoking, and ongoing evaluation. For ACCHSs, the report recommended making tobacco control a specific priority and integrating it into health service programs.

Since 2001, specific tobacco control programs have been widely implemented in ACCHSs, informed by evidence from individual evaluations and randomised controlled trials of Aboriginal tobacco control interventions,[3-5] and literature reviews.[6-9] ACCHSs have also learnt from each other by sharing examples of what has (or has not) worked well.[10-12]

In 2008, the federal government increased support through the $14.5 million Indigenous Tobacco Control Initiative over 3 years, followed in 2009 by a $100.6 million commitment over 4 years to the Council of Australian Governments' Tackling Indigenous Smoking measure.[13,14] These funded social marketing, quit support and other programs, with the goal of halving smoking rates in Aboriginal and Torres Strait Islander communities by 2018. Forty ACCHSs and three NACCHO Affiliates received funds for tobacco control activities under these initiatives. Smoke-free workplace policies for ACCHSs and other organisations delivering Aboriginal primary health care were mandated in funding contracts with the Australian Government from July 2012.[15]

These tobacco control activities occurred in the wider Australian context of expanding smoke-free legislation, increases in tobacco taxation, plain packaging of cigarettes and ongoing social marketing campaigns.

The Talking About the Smokes (TATS) project, part of the International Tobacco Control Policy Evaluation Project, aims to assess the impact of tobacco control policies on the Aboriginal and Torres Strait Islander population. Here, we describe the tobacco control policies, activities and programs reported by the ACCHSs participating in the TATS project.

Methods

The TATS project involved 35 communities served by 34 ACCHSs and one community in the Torres Strait where there is no ACCHS and health services are provided by Queensland Health. ACCHSs were selected to reflect the distribution of the Aboriginal and Torres Strait Islander population by state or territory and remoteness. The methods are described in detail elsewhere.[16,17]

Briefly, at 30 sites, we aimed to survey up to 50 smokers or ex-smokers who had quit ⩽12 months before and 25 non-smokers, with equal numbers of men and women and those aged 18–34 years and ⩾35 years. In four large city sites and the Torres Strait

1 Smoke-free policies at health services ($n = 32$)

Policy details	Health services
Policy content	
No smoking indoors	32
Designated outdoor smoking area	12
No smoking indoors or outdoors within the boundary/fence of health service	28
No smoking in work vehicles	32
No smoking in health service uniform	18
No smoking in work time	9
Other*	5
How the policy was communicated	
Written policy	32
Signs	28
Staff meetings and/or newsletters	25
How many staff and clients follow all elements of the policy	
Almost all	17
Most	11
Some	3
Only a few	1

*Such as no staff smoking with clients or other staff, when offsite in an official capacity or outside designated meal breaks. ◆

community, the sample sizes were doubled. Between April 2012 and October 2013, trained local interviewers completed the 30–60 minute community surveys face to face using a computer tablet. The community sample closely matched the distribution of age, sex, jurisdiction, remoteness and number of cigarettes smoked per day reported in the 2008 National Aboriginal and Torres Strait Islander Social Survey. However, there were inconsistent differences in some socioeconomic indicators: our sample had higher proportions of unemployed people, but also higher proportions who had completed Year 12 and who lived in more advantaged areas.[17]

The TATS project also invited representatives at each site to complete a single policy monitoring survey, including questions about health service size and location; tobacco control funding, resources and policies; cessation support; and advocacy. The policy monitoring surveys were paper-based, designed to take less than 10 minutes, and were completed by staff members selected by the ACCHS. Policy monitoring surveys were completed while community surveys were being conducted at that site. Questions from the policy monitoring and community surveys analysed here are listed in Appendix 1.

The project was approved by three Aboriginal human research ethics committees (HRECs) and two HRECs with Aboriginal subcommittees: Aboriginal Health & Medical Research Council Ethics Committee, Sydney; Aboriginal Health Research Ethics Committee, Adelaide; Central Australian HREC, Alice Springs; HREC for the Northern Territory Department of Health and Menzies School of Health Research, Darwin; and the Western Australian Aboriginal Health Ethics Committee, Perth.

Statistical analyses

We report the numbers of ACCHSs with different levels of tobacco control resourcing, activities and smoke-free policies; and the percentage and frequency of community members supporting smoking bans. Using the χ^2 test, we assessed variation between services by size of service (< 50 or ≥ 50 staff); whether the service had received dedicated tobacco control funding in the past year; and its reported prioritisation of tobacco control in the past year ("not at all", "just a little", "a fair amount" or "a great deal").

At the first project site, the question about prioritisation of tobacco control was not asked, and two questions about dispensing and prescribing free nicotine replacement therapy were asked as a single question. Less than 0.5% of respondents to the community survey did not answer the questions about smoking bans. These missing values were excluded from our analyses. We also excluded results from the Torres Strait community without an ACCHS.

Results

The 32 completed policy monitoring surveys describe tobacco control activities at 34 sites, as a single survey was completed by the umbrella ACCHS for three participating sites in one area. Nineteen services had 50 or more staff and 13 had fewer than 50.

Tobacco control resourcing and activities at ACCHSs

Nineteen of 32 ACCHSs reported receiving specific funding for tobacco control programs in the past 12 months. Another three used untied funds for tobacco control programs. Dedicated tobacco control funding was not associated with the size of the ACCHS ($P = 0.84$) or its reported prioritisation of tobacco control ($P = 0.19$). Thirteen ACCHSs reported prioritising tobacco control a great deal, 11 a fair amount and seven just a little. Eighteen ACCHSs had a staff position with a major focus on tobacco control.

Staff of 27 services had attended tobacco control training in the past year. There was no association between staff attending training and the size of the service ($P = 0.31$) or dedicated tobacco control funding ($P = 0.34$). However, there was an association with the prioritisation of tobacco control ($P = 0.04$), with some staff attending training at all 13 ACCHSs that had prioritised it a great deal. The training had been provided by a range of organisations, including NACCHO Affiliates, the Centre for Excellence in Indigenous Tobacco Control, cancer councils, quit organisations and state health departments.

2 Aboriginal and Torres Strait Islander community support for smoke-free environments ($n = 2435$)*

Smoking ban	Daily smokers ($n = 1342$)	Non-daily smokers ($n = 233$)	Ex-smokers ($n = 299$)	Never-smokers ($n = 561$)
Smoking should be banned everywhere at ACCHSs	77% (1030)	85% (197)	85% (255)	87% (487)
Smoking should be banned indoors at other Aboriginal organisations	93% (1242)	93% (217)	95% (284)	97% (544)
Smoking should be banned at outdoor festivals and sporting events	51% (687)	70% (163)	65% (194)	71% (398)

ACCHSs = Aboriginal community controlled health services. *Results are based on the respondents who "agree" or "strongly agree" with each statement and exclude those who did not answer. ◆

In the past 12 months, 17 of 32 services had run programs to help people quit smoking. These included Aboriginal-specific tobacco control and healthy lifestyle programs, as well as mainstream quit programs. In all but one of these services, Aboriginal health workers or tobacco action workers were involved in running the program. Programs had been evaluated in nine services, some with internal surveys and others with the assistance of NACCHO Affiliates or universities.

Free nicotine replacement therapy was prescribed or dispensed by 25 of the 32 services. Most ACCHSs (21/34) supported staff who smoked by providing them with extra smoking cessation support, either by facilitating access to programs available to clients or through specific programs for staff.

Smoke-free workplace policies

All ACCHSs reported having a formal smoke-free policy in place. The features of these policies and the reported levels of adherence are described in Box 1. In contrast, only 18 of 32 services reported that most or all other Aboriginal and Torres Strait Islander organisations in their community were smoke-free; 10 reported that some were smoke-free and four that none were.

Community survey respondents ($n = 2435$) reported a high level of support for smoking bans everywhere at ACCHSs and indoors at other Aboriginal organisations, with less (but still majority) support for bans at outdoor community events (Box 2). Among the daily smokers who did not support total bans at ACCHSs, 82% (251/306) supported indoor bans. Daily smokers were least likely to support any of the bans.

Health promotion

All 32 ACCHSs provided locally or externally produced quit-smoking information to their communities, most commonly using posters, pamphlets and displays at information days or other community events, but also using newer media such as the internet and social media (Box 3). Health services with dedicated tobacco control funding were more likely to use locally developed posters ($P = 0.03$) and pamphlets ($P = 0.02$) in the clinic, and to give pamphlets to other organisations ($P = 0.02$), but there were no significant associations with funding when these locally developed items were considered together with externally developed information, or for other types of information. Ten services reported smoking or quitting stories featuring someone from their health service in mainstream or Aboriginal and Torres Strait Islander television, radio or newspaper news.

Nineteen ACCHSs reported discussing tobacco control policy at meetings with government and non-government organisations in the previous year, with 11 reporting that they had influenced local, regional or national tobacco control policy.

3 Health services using different media to disseminate quit-smoking information ($n = 32$)

Quit-smoking information	Health services
Posters in clinic	31
Pamphlets in clinic	29
Health information days and events	28
Displays at other community events	26
Posters in other community locations	23
Pamphlets given to other organisations	21
Newsletters	18
Website	14
Social media	12
Newspaper or community magazine	11
Local radio advertisement	11
CD/DVD	11
Local television advertisement	2
Mobile phone messages	2

Discussion

We found that tobacco control initiatives are a priority in ACCHSs, with all reporting smoke-free workplace policies to reduce smoking and exposure to second-hand smoke. Staff with specific tobacco control training are providing a range of evidence-informed quit-smoking programs in health services and in the wider Aboriginal and Torres Strait Islander community. This increased tobacco control activity was not just found in health services with dedicated Aboriginal and Torres Strait Islander tobacco control funding.

Elsewhere in this supplement, we show that more community members from sites with dedicated tobacco control resources had been advised to quit,[18] recalled noticing cigarette pack warning labels,[19] made quit attempts[20] and used stop-smoking medicines[21] than those from sites without dedicated resources. However, there were no such significant differences for wanting to quit,[22] smoke-free homes,[23] recalling advertising and news stories about smoking and quitting,[19] and personal attitudes towards smoking.[24]

A limitation to our study is that although the selected ACCHSs are geographically representative of the Aboriginal and Torres Strait Islander population, the ACCHSs that responded to the call for participation are likely to be biased towards those that were more interested and active in tobacco control. Further, the people completing the policy survey may have been unaware of all services and policies or may have overstated what was being provided. It was difficult to categorise services by their level of tobacco control activity because of the differences in the range of activities offered. Consequently, it was not possible to detect a relationship between dedicated funding and level of tobacco control activity. Furthermore, the small number of health services in our study did not allow identification of enablers and barriers to services prioritising tobacco control work, a useful area to explore in future research.

Our findings on smoke-free policies are not surprising, given implementing smoke-free work environments became a condition of funding for ACCHSs at the same time this study was conducted.[15] However, it is likely that some aspects of these policies predated the funding requirement, given that all 76 Aboriginal health services surveyed in 2001 reported indoor smoking bans, with the policies of 32% of services including broader measures.[2] Our results provide evidence that many ACCHSs have more comprehensive policies, such as banning staff from smoking with clients and other staff or where they can be seen or while in uniform, and the provision of cessation support for staff. The incremental approach of ACCHSs in developing and strengthening policy content and implementation has common ground with government approaches to tobacco control, where

success with indoor smoking bans was followed by an emphasis on initial exceptions, such as pubs and prisons, and on outdoor areas such as outdoor dining areas and street malls.[25]

The high level of community support for smoking bans that we found may reflect the wider tobacco control environment and the active involvement of ACCHS managers, staff and the community in tobacco control over the preceding decade. ACCHSs reported that policies relating to smoking behaviour of Aboriginal staff and the community have evolved over time, as the measures have been contested and negotiated in various Aboriginal community forums. This has included discussions about the right to smoke and the right to be protected from second-hand smoke, the social inclusion of sharing cigarettes and the significance of denormalising smoking and modelling healthier behaviour to children.[11,26]

The relatively small size of many ACCHSs provides an environment to test out policy measures that can then be either discarded as unacceptable or ineffective, or promoted as successful measures to other Aboriginal, community and health organisations. A key characteristic of ACCHSs is that a community with a high prevalence of smoking is involved in making and implementing decisions in areas they can control, such as workplaces and community events, thus providing Aboriginal leadership and contributing to shifts in social norms in their community. Aboriginal health services are well placed to influence social norms because of the large number of Aboriginal and Torres Strait Islander people who work there and use their services — 3618 full-time equivalent staff and 314 000 clients in 2012–13.[27] There is an opportunity for ACCHSs to influence other Aboriginal and Torres Strait Islander organisations in their communities that do not have smoke-free policies.

It would be useful to monitor the diffusion of the successful and innovative tobacco control work both within and beyond the ACCHS sector, and to look to ACCHSs for new ideas in the future. The high level of commitment and experience in ACCHSs provides a strong base for sustainable interest and activity to further reduce smoking levels and smoking-related harm.

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Recall of anti-tobacco advertising and information, warning labels and news stories in a national sample of Aboriginal and Torres Strait Islander smokers

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Abstract

Objectives: To describe recall of anti-tobacco advertising (mainstream and targeted), pack warning labels, and news stories among a national sample of Aboriginal and Torres Strait Islander smokers, and to assess the association of these messages with attitudes that support quitting, including wanting to quit.

Design, setting and participants: A quota sampling design was used to recruit participants from communities served by 34 Aboriginal community-controlled health services and one community in the Torres Strait. We surveyed 1643 Aboriginal and Torres Strait Islander smokers from April 2012 to October 2013.

Main outcome measures: Frequency of recall of advertising and information, warning labels and news stories; recall of targeted and local advertising; attitudes about smoking and wanting to quit.

Results: More smokers recalled often noticing warning labels in the past month (65%) than recalled advertising and information (45%) or news stories (24%) in the past 6 months. When prompted, most (82%) recalled seeing a television advertisement. Just under half (48%) recalled advertising that featured an Aboriginal or Torres Strait Islander person or artwork (targeted advertising), and 16% recalled targeted advertising from their community (local advertising). Frequent recall of warning labels, news stories and advertising was associated with worry about health and wanting to quit, but only frequent advertising recall was associated with believing that society disapproves of smoking. The magnitude of association with relevant attitudes and wanting to quit increased for targeted and local advertising.

Conclusions: Strategies to tackle Aboriginal and Torres Strait Islander smoking should sustain high levels of exposure to anti-tobacco advertising, news stories and warning labels. More targeted and local information may be particularly effective to influence relevant beliefs and subsequently increase quitting.

Television advertisements and warning labels on tobacco products are the most commonly cited sources of information on the dangers of smoking.[1,2] There is good evidence that messages about the harms of smoking increase knowledge, worry about health risks, attempts to quit, and even quit success.[3-7] These messages aim to either change pro-smoking attitudes and intentions or strengthen those that support quitting.[8]

Smoking is the leading cause of sickness and death among Aboriginal and Torres Strait Islander peoples.[9] To tackle this, funding was established in 2009 for community-led programs that raise awareness, provide education and challenge norms about smoking.[10] Australia also launched its first national Indigenous Anti-Smoking Campaign ("Break the Chain") in March 2011.[11] These targeted programs ran alongside the National Tobacco Campaign, state and territory campaigns, and other sources of information, such as news media. In addition, plain packaging of tobacco products, with new and larger warning labels, was mandated from 1 December 2012.[12]

Some experts doubt the effectiveness of mainstream messages in reducing smoking among Aboriginal and Torres Strait Islander peoples.[13] While culturally relevant messages are preferred,[14] mainstream media campaigns achieve high recall,[15-17] including in remote areas.[17,18] Here, we describe recall of anti-tobacco advertising and information (mainstream and targeted), pack warning labels and news stories among Aboriginal and Torres Strait Islander smokers, and assess the association of these messages with attitudes that support quitting.

Methods

Survey design and participants

The Talking About The Smokes (TATS) project surveyed 1643 current smokers from April 2012 to October 2013 (Wave 1, or baseline), and has been described in detail elsewhere.[19,20] Briefly, we used a quota sampling design to recruit participants from communities served by 34 Aboriginal community-controlled health services (ACCHSs) and one community in the Torres Strait (project sites), which were selected based on the population distribution of Aboriginal and Torres Strait Islander people by state or territory and remoteness. In most sites (30/35), we aimed to interview a sample of 50 smokers or recent quitters (ex-smokers who had quit ⩽12 months previously), with even numbers of men and women, and people aged 18–34 and ⩾35 years. The sample size was doubled in four large city sites and in the Torres Strait community. People were excluded if they did not identify as Aboriginal or Torres Strait Islander, were under 18 years of age, were not usual residents of the area, were staff of the ACCHS, were unable to complete the survey in English if there was no interpreter available, or if the quota for the relevant age–sex–smoking category had been filled. In each site, different locally determined methods were used

to collect a representative, albeit non-random, sample.

Interviews were conducted face to face by trained interviewers, almost all of whom were members of the local Aboriginal and Torres Strait Islander community. The survey, entered directly onto a computer tablet, took 30–60 minutes to complete. A single survey of health service activities was also completed for each project site.

The baseline sample closely matched the sample distribution of the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) by age, sex, jurisdiction and remoteness, and by number of cigarettes smoked per day for current daily smokers. However, there were inconsistent differences in some socioeconomic indicators: our sample had higher proportions of unemployed people, but also higher proportions who had completed Year 12 and who lived in more advantaged areas.[19]

The project was approved by three Aboriginal human research ethics committees (HRECs) and two HRECs with Aboriginal subcommittees: Aboriginal Health & Medical Research Council Ethics Committee, Sydney; Aboriginal Health Research Ethics Committee, Adelaide; Central Australian HREC, Alice Springs; HREC for the Northern Territory Department of Health and Menzies School of Health Research, Darwin; and the Western Australian Aboriginal Health Ethics Committee, Perth.

Questions on health information exposure

As the TATS project is part of the International Tobacco Control Policy Evaluation Project (ITC Project), survey questions were based on ITC Project survey questions and are presented in Appendix 1. How often respondents noticed warning labels (in the past month), anti-tobacco news stories (in the past 6 months) and anti-tobacco advertising or information (in the past 6 months) was assessed on a five-point scale ranging from "never" to "very often", which was later collapsed to three categories (never, sometimes, often).

Smokers who said they had never noticed advertising or information (hereafter collectively referred to as advertising) in the past 6 months were not asked further related questions. Smokers who had noticed advertising were asked whether it was on: television, radio, the internet, outdoor billboards, newspapers or magazines, shops or stores, pamphlets, and posters in various locations (yes or no). Those who recalled noticing advertising in the past 6 months were also asked whether any had featured an Aboriginal or Torres Strait Islander person or artwork ("targeted advertising") and, if so, whether any featured an Aboriginal or Torres Strait Islander person or artwork from the local community ("local advertising"). We combined these responses to create the variable "type of advertising", which categorised smokers as having: never noticed any advertising, noticed mainstream (but no targeted) advertising, noticed some targeted (but no local) advertising, or noticed some local advertising.

Main outcome measures and covariates

There were four main outcomes: believing smoking is dangerous to others ("agree" or "strongly agree" that cigarette smoke is dangerous to both non-smokers and children), being very worried that smoking will damage the smoker's own health in the future, agreeing that mainstream society disapproves of smoking, and wanting to quit. Additional analyses were conducted on forgoing cigarettes because of warning labels.

Covariates included daily or non-daily smoking status and key sociodemographic indicators (sex, age, identification as Aboriginal and/or Torres Strait Islander, labour force status, education, remoteness and area-level disadvantage). We also assessed for variation according to tobacco control activity that had occurred at the project site over the previous year (whether there were dedicated tobacco control resources, and the number of media used to communicate anti-tobacco advertising), which was determined in the project site survey.

We also assessed differences in warning label recall before and after plain packaging was mandated (1 December 2012), treating the 3-month phase-in period as "before".

Statistical analyses

Logistic regression was used to assess: (i) variation in health information recall (often v sometimes or never) by daily smoking status, sociodemographic variables, and tobacco control activity at the project site; (ii) the association between health information recall and the four main outcome measures; and (iii) variation in warning label recall and outcomes before and after plain packaging was mandated. Stata 13 (StataCorp) survey [SVY] commands were used to adjust for the sampling design, identifying the 35 project sites as clusters and the quotas (based on age, sex and smoking status) as strata.[21]

Data for health information recall were excluded for less than 2% of participants due to missing or refused responses, and for less than 2% due to "don't know" responses. Questions about recall of warning labels were not asked of those who had not smoked in the past month ($n = 44$), nor those surveyed at the first project site ($n = 26$), after which questions were modified. These participants were therefore excluded from logistic regression analyses, which controlled for recall of each other type of health information, survey month (collapsed into 2-month blocks), daily smoking status and other sociodemographic covariates. Regression analyses for wanting to quit excluded a further 4.8% of smokers who responded "don't know" to this question.

Results

Recall of health information

Of smokers who were asked about warning labels, 65% (1015/1557) said they had often noticed warning labels in the past month (Box 1). This was higher than the proportion of all smokers who recalled often noticing anti-tobacco advertising (45%; 730/1606) or news stories (24%; 386/1601) in the past 6 months.

Frequent recall of health information was similar for daily and non-daily smokers (Appendix 2). Fewer men than women reported often noticing warning labels (odds ratio [OR], 0.68; 95% CI, 0.51–0.90) and news stories (OR, 0.71; 95% CI, 0.51–1.00). While smokers from remote areas were less likely than those in major cities to recall often noticing advertising (OR, 0.56; 95% CI, 0.37–0.84), they were more likely to recall often noticing news stories (OR, 1.81; 95% CI, 1.18–2.79) and did not differ for recall of warning labels. Being from an area where the health service used a greater range of advertising media was associated with noticing it more often, with ORs increasing from 2.02 (95% CI, 1.15–3.57) for 5–8 media to 3.17 (95% CI, 1.84–5.46) for 9–12 media, compared with areas that used four or fewer media.

Associations with attitudes and wanting to quit

Recall of warning labels, advertising and news stories was positively associated with being very worried about future health and wanting to quit (Box 2). Only advertising recall was positively associated with believing society disapproves of smoking. For each outcome, the magnitude of ORs increased for those who recalled more targeted and local advertising, although this association was only significant for believing cigarette smoke is dangerous to others and wanting to quit.

Outcomes for warning labels before and after plain packaging

Compared with smokers surveyed in the period before plain packaging, those surveyed after its introduction were similarly likely to recall noticing warning labels but had higher odds for believing the labels made them more likely to quit (OR, 1.37; 95% CI 1.02–1.82) (Appendix 3). Smokers who had noticed warning labels in the past month were more likely to say these labels led them to forgo at least one cigarette after plain packaging compared with before it (OR, 1.54; 95% CI, 1.14–2.09). Further, those who said warning labels led them to forgo at least one cigarette were more likely to want to quit (OR, 3.73; 95% CI, 2.63–5.29) (data not shown).

1 Exposure to health information in a national sample of Aboriginal and Torres Strait Islander smokers*

Health information exposure variables	% (frequency)†
Warning labels (in past month)	
How often have you noticed the warning labels on packs your smokes are sold in?	
Never	11% (164)
Almost never or sometimes	24% (378)
Often or very often	65% (1015)
Have the warning labels stopped you from having a smoke when about to?	
Never noticed warning labels	10% (164)
Noticed warning labels but never stopped	55% (887)
Noticed warning labels and stopped at least once	34% (550)
News stories (in past 6 months)	
How often have you seen or heard a news story about smoking or quitting?	
Never	30% (477)
Almost never or sometimes	46% (738)
Often or very often	24% (386)
Advertising and information (in past 6 months)	
How often have you noticed anti-tobacco advertising or information?	
Never	15% (241)
Almost never or sometimes	40% (635)
Often or very often	45% (730)
Noticed any targeted advertising	
Yes	48% (783)
No or never noticed advertising	46% (745)
Don't know	6% (96)
Noticed any local advertising	
Yes	16% (258)
No or never noticed mainstream or targeted advertising	74% (1195)
Don't know	11% (171)
Did you notice advertising or information:‡	
On television	82% (1327)
On the radio	43% (690)
On the internet, including social media sites	25% (390)
On outdoor billboards	45% (706)
In newspapers or magazines	47% (751)
On shop windows or in shops where tobacco is sold (at point of sale)	43% (679)
In leaflets or pamphlets	55% (877)
Posters or displays at local health service	74% (1186)
Posters or displays at other Aboriginal or Torres Strait Islander organisation	67% (1051)
Posters or displays at local festival or community event	59% (921)

*Results are from the Talking About The Smokes baseline sample of current smokers ($n = 1643$, or $n = 1573$ for questions regarding recall of warning labels). †Except where specified (for targeted and local advertising), percentages and frequencies exclude refused and "don't know" responses, which accounts for differences in the total. ‡Results are percentages of all smokers, including those who had never seen advertising or information in the past 6 months. ◆

Discussion

Advertising and information

We found high levels of recall of anti-tobacco advertising and information, particularly for television campaigns and local health promotion materials, which is likely to have been boosted by the community-led tobacco control activity that occurred over the survey period. However, even with this heightened activity, smokers from remote areas were less likely to say they often noticed advertising, consistent with trends for national mass media exposure.[22] Recall of mass media advertising has been shown to increase

2 Association of health information exposure with attitudes in a national sample of Aboriginal and Torres Strait Islander smokers*

	Believe smoking is dangerous to others		Very worried smoking will damage own health		Believe mainstream society disapproves of smoking		Want to quit smoking	
	% (frequency)†	AOR (95% CI)‡	% (frequency)†	AOR (95% CI)‡	% (frequency)†	AOR (95% CI)‡	% (frequency)†	AOR (95% CI)‡
Noticed warning labels (in past month)		$P < 0.001$		$P < 0.001$		$P = 0.45$		$P < 0.001$
Never	77% (126)	1.0	14% (22)	1.0	58% (95)	1.0	45% (71)	1.0
Sometimes	86% (325)	1.54 (0.93–2.56)	20% (75)	1.41 (0.81–2.44)	55% (209)	1.01 (0.67–1.54)	58% (204)	1.31 (0.82–2.07)
Often	94% (953)	3.56 (2.16–5.86)	44% (442)	3.44 (2.14–5.53)	64% (650)	1.21 (0.80–1.81)	78% (755)	2.90 (1.85–4.52)
Noticed news stories (in past 6 months)		$P = 0.12$		$P = 0.002$		$P = 0.12$		$P = 0.03$
Never	90% (427)	1.0	25% (118)	1.0	64% (306)	1.0	59% (271)	1.0
Sometimes	91% (668)	0.58 (0.35–0.97)	34% (250)	1.56 (1.16–2.08)	59% (438)	0.75 (0.56–1.00)	71% (491)	1.40 (1.07–1.82)
Often	93% (359)	0.67 (0.37–1.24)	49% (187)	1.84 (1.30–2.61)	66% (254)	0.73 (0.51–1.05)	81% (297)	1.61 (1.05–2.47)
Noticed advertising (in past 6 months)		$P = 0.004$		$P < 0.001$		$P < 0.001$		$P = 0.002$
Never	82% (197)	1.0	18% (42)	1.0	58% (139)	1.0	48% (112)	1.0
Sometimes	91% (580)	2.26 (1.31–3.88)	29% (179)	1.10 (0.70–1.73)	56% (356)	1.08 (0.74–1.57)	68% (403)	1.57 (1.12–2.18)
Often	94% (684)	2.78 (1.47–5.26)	47% (342)	2.02 (1.29–3.17)	70% (510)	2.07 (1.31–3.27)	79% (548)	2.17 (1.42–3.31)
Type of advertising (in past 6 months)§		$P = 0.006$		$P = 0.25$		$P = 0.60$		$P < 0.001$
Never noticed any advertising	82% (197)	1.0	18% (42)	1.0	58% (139)	1.0	48% (112)	1.0
Noticed mainstream (but no targeted) advertising	91% (522)	1.94 (1.09–3.46)	32% (181)	1.00 (0.62–1.60)	60% (345)	1.00 (0.67–1.48)	65% (354)	1.27 (0.91–1.78)
Noticed some targeted (but no local) advertising	93% (489)	2.58 (1.39–4.80)	43% (224)	1.15 (0.72–1.83)	66% (347)	1.13 (0.74–1.74)	77% (388)	1.99 (1.30–3.04)
Noticed some local advertising	95% (245)	3.63 (1.58–8.38)	44% (112)	1.34 (0.79–2.27)	66% (170)	1.24 (0.79–1.97)	84% (202)	2.88 (1.76–4.72)

AOR = adjusted odds ratio. * Results are based on the Talking About The Smokes project baseline sample of current smokers who had smoked in the past month ($n = 1573$). † Percentages and frequencies exclude refused and "don't know" responses. ‡ AORs are adjusted for daily smoking status, key sociodemographic variables (age, sex, Indigenous status, labour force status, highest level of education, remoteness and area-level disadvantage), noticing other types of health information, and survey month (in 2-month blocks). *P* values are reported for overall variable significance, using adjusted Wald tests. § In addition to other covariates, analyses for type of advertising are also adjusted for frequency of advertising recall (often v sometimes or never). ◆

with broadcast intensity,[23-25] which is fundamental to achieving good reach among smokers of low socioeconomic status.[6,25-27] Broadcast intensity is also important for influencing quitting activity and success.[5,6,22,25,28,29]

It is notable that targeted and local advertising was associated with higher levels of motivation to quit, a novel finding as far as we are aware. In part, targeted campaigns may be more memorable purely because of the interest in their targeted or local nature,[30] which could be expected to weaken the observed relationship with wanting to quit. On the contrary, our results show the association increased in magnitude for recall of more targeted and local information, which suggests it is more potent than mainstream advertising. This finding is supported by analyses presented elsewhere in this supplement.[31] While it is possible that the observed relationship could be due to higher exposure to all types of advertising, it remained significant irrespective of how often advertising was noticed.

Aboriginal and Torres Strait Islander peoples perceive targeted messages to be more relevant and effective,[14,15,30] which may affect the influence of these messages on relevant attitudes. Among Maori people in New Zealand, culturally relevant campaigns have been shown to prompt discussions about smoking[32] — an indirect effect of advertising that increases interest in quitting.[33] While there is clear justification for targeted messages, together with emerging evidence regarding their benefit, consideration must also be given to whether this strategy is an effective use of scarce resources.[34]

Elsewhere, attitudes and intentions have been found to be most strongly influenced by advertising that evokes an emotional response, such as graphic or story-based messages.[6,25,35] Such messages are rated

highly by Aboriginal and Torres Strait Islander people and non-Indigenous Australians alike,[14] and may also be an effective way to reduce disparities in quitting.[36] How to best balance mainstream and targeted (including locally led) advertising will be an important area for future research.

Warning labels

We found that forgoing cigarettes was strongly associated with wanting to quit, as has been found in other settings,[37,38] and that smokers were more likely to forgo cigarettes in the period after plain packaging was mandated than before. Although our before and after samples were not in any way random, the evidence is supportive of health warnings and plain packaging playing a role in maintaining concern about smoking. This is one of the aims of Australia's plain packaging legislation, which increased the size of graphic warning labels, stripped all branding and regulated a drab brown pack colour.[12]

There is recent evidence that plain packaging increases the salience and effectiveness of health warnings.[39-41] Our findings confirm these findings in a minority population with a high smoking prevalence. Further, our finding that warning label recall was not socially patterned adds to scarce evidence on the socioeconomic impacts of graphic pack warning labels, which has been identified as an international priority for tobacco control research.[6,42]

News stories

Frequent recall of news stories was related to higher levels of worry about health and interest in quitting, which supports previous findings that news items can complement paid sources of communication.[6,43] We found no evidence of a social gradient in recall of news stories; in fact, they were more likely to be noticed often by smokers from remote areas. Online platforms to share and discuss news could play an important role here, and have been used effectively for Aboriginal tobacco control news and advocacy efforts.[44] Local stories and those about leaders and other role models may be particularly influential.[45,46]

Strengths and limitations

This article draws on data from a broadly representative national sample of Aboriginal and Torres Strait Islander smokers. The size of the sample has enabled us to consider subgroup analyses based on socioeconomic indicators and other participant characteristics, including remoteness of residence. The frequency at which health promotional materials were recalled is likely to have been inflated by biased recruitment of project sites that prioritised tobacco control and of participants who were more connected to the health service. Although this means we cannot generalise results about how often different types of advertising and information were recalled, it does not compromise the findings on whether more frequent recall is associated with relevant attitudes and intentions.

The main limitation of our study is its reliance on self-report of awareness. It does not incorporate more objective media market data, as these would not capture some of the local activity and would therefore have been a limited source of information beyond the main media markets. Awareness can be affected by opportunity for exposure, the potency of the material, and the openness of the individual to the message. While it is impossible to separate these entirely, it is possible to infer likely relative contributions. For example, warning labels on packs are roughly equally available (albeit affected by levels of consumption) and are of largely fixed (standardised) potency. Thus, differences in recall and reactions can be largely attributed to the openness of the individual to the label's message. When assessing associations with attitudes or intentions, we adjusted for noticing other types of health information (to control for variability due to openness) and for socioeconomic indicators (to control for variability due to opportunity for exposure), with the rationale that associations independent of these influences were a better assessment of potency. However, campaign effects are difficult to disentangle from other tobacco control efforts and contextual factors,[3] particularly when using cross-sectional data. As such, a multivariable model that considers these factors has been reported in detail elsewhere for the outcome of wanting to quit.[31]

Finally, we report adjusted analyses, which necessarily exclude a small proportion of smokers who declined to answer questions, answered "don't know", had not smoked in the past month or were surveyed at the first project site. While it is possible that the excluded participants differ from those who were included, the same pattern of results was observed for unadjusted associations (where there were fewer exclusions) and where outcomes with a high percentage of "don't know" responses (eg, wanting to quit) were repeated with "don't know" recoded as "no".

With these limitations in mind, we found a clear link between more frequent recall of health information and attitudes that support quitting, including wanting to quit. Further research is required to assess whether more targeted information is better able to tap into relevant beliefs and subsequently increase quitting.

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Smoking cessation advice and non-pharmacological support in a national sample of Aboriginal and Torres Strait Islander smokers and ex-smokers

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Abstract

Objectives: To describe recall among a national sample of Aboriginal and Torres Strait Islander smokers and recent ex-smokers of having received advice to quit smoking and referral to non-pharmacological cessation support from health professionals, and their association with quit attempts.

Design, setting and participants: The Talking About The Smokes project used a quota sampling design to recruit 1721 smokers and ex-smokers who had quit ⩽12 months previously from communities served by 34 Aboriginal community-controlled health services and one community in the Torres Strait. Baseline surveys were conducted from April 2012 to October 2013. Results for daily smokers were compared with 1412 Australian daily smokers surveyed by the International Tobacco Control Policy Evaluation Project between 2006 and 2011.

Main outcome measures: Participants' recall of having been: seen by a health professional in the past year, asked if they smoke, advised to quit, and referred to other cessation support services; and having made a quit attempt in the past year.

Results: Compared with other Australian daily smokers, higher proportions of Aboriginal and Torres Strait Islander daily smokers saw a health professional in the past year (76% v 68.1%) and were advised to quit smoking (75% v 56.2% of those seen). Most Aboriginal and Torres Strait daily smokers who saw a health professional recalled being asked if they smoke (93%). Aboriginal and Torres Strait Islander daily smokers who had been advised to quit were more likely to have made a quit attempt in the past year than those who had not (odds ratio, 2.00; 95% CI, 1.58–2.52). Among all Aboriginal and Torres Strait Islander smokers and recent ex-smokers who had been advised to quit, 49% were given a pamphlet or brochure on how to quit, but fewer were referred to the telephone Quitline (28%), a quit-smoking website (27%) or a local quit course, group or clinic (16%).

Conclusion: Most Aboriginal and Torres Strait Islander daily smokers recalled being recently advised by a health professional to quit, which was associated with making a quit attempt.

Quitting smoking reduces the risk of smoking-related death, with greater benefits from quitting at a younger age.[1] Receiving brief advice to quit from health professionals and more intensive support from specialist clinics and courses, stop-smoking medicines, telephone quitlines, websites and printed materials have been shown to increase successful quitting.[2-8] In Australia, just over half of smokers have been recently advised to quit, and a similar proportion of those who have tried to quit have used stop-smoking medicines.[9,10] Fewer smokers are referred to or use other cessation support services.[9-11]

In 2012–2013, Aboriginal and Torres Strait Islander adults had 2.5 times the smoking prevalence of other Australian adults, and those who had ever smoked were less likely to have successfully quit (37% v 63%).[12] There is a long history of widespread training in how to give brief advice for health professionals working with Aboriginal and Torres Strait Islander peoples.[13] In recent years, the national Tackling Indigenous Smoking program has increased funding to support this training, enhancement of the telephone Quitline service to be more culturally appropriate, and other local cessation support activities.[14]

Here, we describe recall among a national sample of Aboriginal and Torres Strait Islander smokers and recent ex-smokers of having received advice to quit smoking and referral to non-pharmacological cessation support from health professionals, and examine the association of advice and referrals with making a quit attempt. We examine the use of stop-smoking medicines elsewhere in this supplement.[15]

Methods

The Talking About The Smokes (TATS) project surveyed 1643 Aboriginal and Torres Strait Islander smokers and 78 recent ex-smokers (who had quit ⩽12 months before), using a quota sampling design based on the communities served by 34 Aboriginal community-controlled health services (ACCHSs) and one community in the Torres Strait. It has been described in detail elsewhere.[16,17] Briefly, the 35 sites were selected based on the distribution of the Aboriginal and Torres Strait Islander population by state or territory and remoteness. In 30 sites, we aimed to interview 50 smokers or recent ex-smokers and 25 non-smokers, with equal numbers of women and men, and those aged 18–34 and ⩾35 years. In four large city sites and the Torres Strait community, the sample sizes were doubled. People were excluded if they were aged under 18 years, not usual residents of the area, staff of the ACCHS or deemed unable to complete the survey. In each site, different locally determined methods were used to collect a representative, although not random, sample.

Baseline data were collected from April 2012 to October 2013. Interviews

were conducted face to face by trained interviewers, almost all of whom were members of the local Aboriginal and Torres Strait Islander community. The survey was completed on a computer tablet and took 30–60 minutes. A single survey of health service activities was also completed at each site. The baseline sample closely matched the distribution of age, sex, jurisdiction, remoteness, quit attempts in the past year and number of daily cigarettes smoked reported in the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS). However, there were inconsistent differences in some socioeconomic indicators: our sample had higher proportions of unemployed people, but also higher proportions who had completed Year 12 and who lived in more advantaged areas.[16]

We asked all smokers and recent ex-smokers whether they had seen a health professional in the past year and, if so, whether they had been asked if they smoke and, if so, whether they had been encouraged to quit. We asked those who had been encouraged to quit about pamphlets or referrals to the Quitline, quit-smoking websites, or quit courses or clinics they had received. We also asked all smokers and recent ex-smokers whether they had sought out these services themselves, and about quit attempts and sociodemographic factors. At each site, we asked questions about tobacco control funding and staff positions to determine if the health service had resources dedicated to tobacco control. The questions reported here are described in detail in Appendix 1.

The TATS project is part of the International Tobacco Control Policy Evaluation Project (ITC Project) collaboration. Interview questions were closely based on those in ITC Project surveys, especially the Australian surveys.[18] TATS project results were compared with those of 1412 daily smokers newly recruited to Waves 5–8 (2006–2011) of the Australian ITC Project. The ITC Project survey was conducted by random digit telephone dialling. We only used data from the newly recruited participants as questions for recontacted participants referred to advice received since the previous survey rather than in the past year. Slightly different definitions of smokers between the TATS project and ITC Project surveys meant that only daily and weekly smoker categories were directly comparable. We concentrated our comparisons on daily smokers. We have also concentrated our other descriptions of recall of advice and associations between variables within the TATS sample on daily smokers.

The project was approved by three Aboriginal human research ethics committees (HRECs) and two HRECs with Aboriginal subcommittees: Aboriginal Health & Medical Research Council Ethics Committee, Sydney; Aboriginal Health Research Ethics Committee, Adelaide; Central Australian HREC, Alice Springs; HREC for the Northern Territory Department of Health and Menzies School of Health Research, Darwin; and the Western Australian Aboriginal Health Ethics Committee, Perth.

Statistical analyses

We calculated the percentages and frequencies of responses to the TATS project questions, but did not include confidence intervals for these as it is not considered statistically acceptable to estimate sampling error in non-probabilistic samples. We compared results for daily smokers with those in the Australian ITC Project surveys, which were directly standardised to the distribution of age and sex of Aboriginal and Torres Strait Islander smokers reported in the 2008 NATSISS.

Within the TATS project sample, we assessed the association between variables using simple logistic regression, with confidence intervals adjusted for the sampling design, using the 35 sites as clusters and the age–sex quotas as strata in Stata 13 (StataCorp) survey [SVY] commands.[19] *P* values were calculated using adjusted Wald tests.

Reported percentages and frequencies exclude those refusing to answer or answering "don't know", leading to minor variations in denominators between questions. Less than 2% of daily smokers answered "don't know" or refused to answer each of the questions analysed here.

Results

Three-quarters of Aboriginal and Torres Strait Islander daily smokers (76%) reported having seen a health professional in the past year (Box 1). Of these, 93% said they were asked if they smoked, and 75% also reported being advised to quit. These proportions are higher than those among Australian daily smokers in the ITC Project.

Within the TATS project sample, Aboriginal and Torres Strait Islander daily smokers who had been advised to quit by a health professional had twice the odds of having made a quit attempt in the past year, compared with those who did not recall being advised to quit (Box 2).

The proportion of Aboriginal and Torres Strait Islander daily smokers who had been advised to quit increased with age and was higher among women, those with post-school qualifications and those whose local health service had dedicated tobacco control resources; the

1 Daily smokers' recall of receiving advice to quit when seeing a health professional in the past year*

	Australian ITC Project, % (95% CI)†	TATS project, % (frequency)‡
Seen a health professional	68.1% (64.8%–71.1%)	76% (1047)
Of those seen		
Asked if he/she smokes§	—	93% (968)
Advised to quit	56.2% (52.3%–59.9%)	75% (782)

ITC Project = International Tobacco Control Policy Evaluation Project. TATS = Talking About The Smokes. * Percentages and frequencies exclude refused responses and "don't know" responses. † Results are for daily smokers (n = 1412) newly recruited to Waves 5–8 of the Australian ITC Project (2006–2011) and were age- and sex-standardised to smokers in the 2008 National Aboriginal and Torres Strait Islander Social Survey. ‡ Results are for Aboriginal and Torres Strait Islander daily smokers (n = 1377) in the baseline sample of the TATS project (April 2012 – October 2013). § Not asked in the Australian ITC Project. ◆

proportion was lower among the unemployed (Box 3). There was more sociodemographic variation in having seen a health professional than in recalling being advised to quit (Appendix 2).

Among all Aboriginal and Torres Strait Islander smokers and ex-smokers who were advised to quit, 49% were given a pamphlet or brochure on how to quit, and lower proportions were referred to the telephone Quitline (28%), a quit-smoking website (27%) or a local quit course, group or clinic (16%) (Box 4). Most of those who received pamphlets said they read them (70%, 321/457), but lower proportions reported following up on other referrals. Daily smokers who were referred to each resource were non-significantly more likely to have made a quit attempt in the past year than those who had been advised to quit but not referred (Box 2). We also found that 13% of smokers and recent ex-smokers (215/1696) had sought out quit information or services themselves, and that 62% (1047/1692) had been encouraged by family or friends to quit or to maintain a quit attempt.

A higher proportion of the Aboriginal and Torres Strait Islander daily smokers who had been advised to quit by a health professional in the past year had been given a pamphlet, compared with other Australian daily smokers in the ITC Project (50% [390/778] v 29.6% [95% CI, 25.4%–34.3%]).

2 Aboriginal and Torres Strait Islander daily smokers who made a quit attempt in the past year, by recall of being advised to quit and referred to cessation support

	Attempted to quit in the past year		
	% (frequency)*	Odds ratio (95% CI)†	P‡
All daily smokers (*n* = 1354)			
Advised to quit by a health professional in the past year			< 0.001
No	39% (223)	1.0	
Yes	56% (433)	2.00 (1.58–2.52)	
If advised to quit by a health professional in the past year (*n* = 777)§			
Given a pamphlet			0.053
No	52% (203)	1.0	
Yes	60% (230)	1.34 (1.00–1.79)	
Referred to telephone Quitline			0.15
No	55% (306)	1.0	
Yes	60% (125)	1.25 (0.92–1.68)	
Referred to quit-smoking website			0.48
No	55% (305)	1.0	
Yes	58% (121)	1.13 (0.80–1.6)	
Referred to quit course, group or clinic			0.19
No	55% (357)	1.0	
Yes	61% (73)	1.30 (0.88–1.92)	

*Percentages and frequencies exclude those answering "don't know" or refusing to answer. †Odds ratios calculated using simple logistic regression adjusted for the sampling design. ‡*P* values calculated using adjusted Wald tests. §Only participants who recalled being advised to quit by a health professional were asked about referral to cessation support resources. ◆

Discussion

Daily smokers in our Aboriginal and Torres Strait Islander sample were more likely than those in the broader Australian ITC Project sample to recall having been advised to quit by a health professional in the past year. This was in part due to being more likely to have been seen by a health professional, but mainly due to a greater proportion of those seen being advised to quit.

Strengths and limitations

The main strength of this study is its large, nationally representative sample of Aboriginal and Torres Strait Islander smokers and ex-smokers. However, the sample was not random and there were some sociodemographic differences compared with a random sample of the population.[16]

Our survey was conducted face to face, whereas the comparison Australian ITC Project surveys were conducted by telephone, potentially leading to differential social desirability bias. Further, some ITC Project surveys were conducted much earlier than the TATS project survey, and although many questions were identical on both surveys, the order and structure of the comparison ITC Project questionnaire was different. While we are confident that the large difference in recall of health professional advice between the TATS project and ITC Project samples is real, we have not described the differences in referral to cessation support as, except for the question about pamphlets, the questions were not directly comparable.

The main limitation of our study is that partnering with ACCHSs to recruit participants may have led to a selection bias towards people with closer connections to the health services, inflating the percentage who recalled being seen by a health professional. However, this percentage was similar to that reported in the 2004–2005 National Aboriginal and Torres Strait Islander Health Survey.[16] We also report a higher prevalence of having received advice among only those who had seen a health professional, which would be less affected by this bias. Our results are also based on patient recall, not clinical records. Australian general practice research has found that clinical records poorly record health advice and poorly agree with patient recall of referrals to other cessation services.[10] Some patients will have misremembered or forgotten advice and referrals they received, but we would expect that advice and referrals that were useful for quitting would be more likely to be remembered.

Comparisons with other studies

The proportion of smokers who had seen a health professional and recalled being asked if they smoke was similar to that among a sample of pregnant Aboriginal and Torres

3 Aboriginal and Torres Strait Islander daily smokers who recalled being advised to quit by a health professional in the past year, by sociodemographic factors ($n = 1366$)

Characteristic	Advised to quit by a health professional		
	% (frequency)*	Odds ratio (95% CI)†	*P*‡
Total	57% (782)		
Age (years)			0.001
18–24	48% (136)	1.0	
25–34	55% (203)	1.29 (0.93–1.79)	
35–44	58% (188)	1.47 (1.01–2.16)	
45–54	62% (145)	1.72 (1.15–2.57)	
⩾55	71% (110)	2.61 (1.67–4.06)	
Sex			0.003
Male	52% (342)	1.0	
Female	62% (440)	1.50 (1.15–1.95)	
Indigenous status			0.74
Aboriginal	57% (694)	1.0	
Torres Strait Islander or both	59% (88)	1.07 (0.73–1.56)	
Labour force status			< 0.001
Unemployed	48% (226)	1.0	
Not in labour force	65% (273)	2.00 (1.47–2.71)	
Employed	59% (282)	1.57 (1.20–2.05)	
Highest education attained			0.007
Less than Year 12	54% (380)	1.0	
Finished Year 12	57% (206)	1.17 (0.91–1.51)	
Post-school qualification	66% (194)	1.72 (1.23–2.41)	
Treated unfairly because Indigenous in past year			0.72
No	58% (342)	1.0	
Yes	57% (423)	0.96 (0.75–1.22)	
Remoteness			0.33
Major cities	54% (194)	1.0	
Inner and outer regional	60% (430)	1.25 (0.86–1.81)	
Remote and very remote	54% (158)	0.98 (0.64–1.52)	
Area-level disadvantage			0.18
1st quintile (most disadvantaged)	55% (285)	1.0	
2nd and 3rd quintiles	61% (357)	1.28 (0.94–1.74)	
4th and 5th quintiles	54% (140)	0.97 (0.68–1.38)	
Local health service has dedicated tobacco control resources			0.05
No	52% (207)	1.0	
Yes	60% (575)	1.38 (1.00–1.91)	

* Percentages and frequencies exclude those answering "don't know" or refusing to answer. † Odds ratios calculated using simple logistic regression adjusted for the sampling design. ‡ *P* values calculated for the entire variable, using adjusted Wald tests. ◆

Strait Islander women who smoked, who were only slightly more likely to be advised to quit (81% of pregnant smokers v 75% of daily smokers in our sample).[20]

SmokeCheck, a commonly used training program to increase health professionals' skills in giving brief quit-smoking advice to Aboriginal and Torres Strait Islander patients, has been shown to improve participants' confidence in regularly providing brief advice.[21,22] The long history of such training programs, along with support for and promotion of brief interventions in ACCHSs, may have contributed to advice being given more often to Aboriginal and Torres Strait Islander smokers than other smokers.

We found that the likelihood of receiving advice to quit from health professionals increased with participant age, as in earlier Australian ITC Project research.[9] Most of the focus of chronic disease prevention is on older patients, but there is an opportunity to increase the provision of advice about smoking to younger patients.

Our finding that a high proportion of Aboriginal and Torres Strait Islander daily smokers recalled receiving this advice is encouraging, as even brief advice from a doctor increases cessation, with minimal additional benefit from more extensive advice or follow-up.[2] Provision of brief advice is achievable even in very busy primary care settings and, as we found, can reach most of the population. In both urban and remote settings, Aboriginal and Torres Strait Islander interviewees in qualitative research have emphasised that advice and support from health professionals was a significant factor in their quit attempts.[23-25] Consistent with this, we found that recalling advice from a health professional to quit was associated with making a quit attempt. While it is possible that making an attempt may increase the likelihood of advice being recalled, or may have led to making a visit to a health professional, it seems reasonable to conclude that advice from health professionals is contributing to Aboriginal and Torres Strait Islander smokers' motivation to try to quit.

The frequent use of pamphlets by Aboriginal and Torres Strait Islander smokers is positive but not likely to have much impact on cessation, as the additional effect of such printed material is only modest.[6] In contrast, Cochrane reviews show a greater effect on cessation of telephone quitlines, more intensive individual counselling outside primary care, and quit groups.[4,7,8] Currently, evidence for internet-based quit support is inconsistent but promising.[5]

A meta-analysis of two randomised controlled trials showed intensive cessation counselling programs for Aboriginal and Torres Strait Islander smokers were effective in increasing cessation.[26] We found that most people who attended special cessation programs said they were

specifically designed for Aboriginal and Torres Strait Islander peoples.

Quitlines can be a cost-effective element in cessation support, but there has been a perception of distrust and low usage of quitlines by Aboriginal and Torres Strait Islander people.[13] In 2010, Aboriginal and Torres Strait Islander callers to the Quitline in South Australia received fewer calls back and were less likely to have successfully quit than non-Indigenous callers.[27] Since then, the Tackling Indigenous Smoking program has funded activity to improve the appropriateness and accessibility of the Quitline.

These non-pharmacological cessation support options benefit smokers who use them, but we found that most do not, as has been found in other contexts.[9-11] Indigenous and non-Indigenous Australian research has shown that many smokers see using cessation support as a sign of weakness and lack of willpower, which is a challenge in promoting these evidence-based services.[24,28]

4 Aboriginal and Torres Strait Islander smokers and recent ex-smokers who recalled receiving or being referred to cessation support resources when advised to quit by a health professional (n = 960)*

	Pamphlet	Quit-smoking website	Telephone Quitline	Quit course, group or clinic
Received information or a referral	49% (460)	27% (252)	28% (266)	16% (149)
If so, read, used or attended it	70% (321)	22% (54)	16% (43)	44% (65)
If so, it was specifically for Aboriginal and Torres Strait Islander peoples	52% (168)	48% (26)	44% (18)	88% (56)

*Data only include smokers and recent ex-smokers who recalled being advised by a health professional to quit. Percentages and frequencies exclude those answering "don't know" or refusing to answer. ◆

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Use of nicotine replacement therapy and stop-smoking medicines in a national sample of Aboriginal and Torres Strait Islander smokers and ex-smokers

Abstract

Objective: To examine the use of nicotine replacement therapy (NRT) and the stop-smoking medicines (SSMs) varenicline and bupropion in a national sample of Aboriginal and Torres Strait Islander smokers and recent ex-smokers.

Design, settings and participants: The Talking About The Smokes (TATS) project used a quota sampling design to recruit a nationally representative sample of 1721 smokers and ex-smokers who had quit ⩽12 months before from communities served by 34 Aboriginal community-controlled health services and one community in the Torres Strait. Baseline surveys were conducted from April 2012 to October 2013. These were compared with 1017 daily smokers from the general Australian population surveyed by the International Tobacco Control Policy Evaluation Project (ITC Project) from July 2010 to May 2011.

Main outcome measures: Past and intended use of NRT and SSMs, duration of use, and whether participants thought NRT and SSMs help smokers to quit.

Results: Compared with other daily Australian smokers, lower proportions of Aboriginal and Torres Strait Islander daily smokers had ever used any NRT or SSMs (TATS, 37% v ITC, 58.5%) or used them in the past year (TATS, 23% v ITC, 42.1%). Nicotine patches were most commonly used by Aboriginal and Torres Strait Islander smokers and recent ex-smokers (24%), followed by varenicline (11%) and nicotine gum (10%); most (74%) had got their last NRT at no cost. Among dependent Aboriginal and Torres Strait Islander daily smokers, those who were more socioeconomically advantaged were more likely than the disadvantaged to have used NRT or SSMs. Similar proportions of Aboriginal and Torres Strait Islander daily smokers and other Australian daily smokers said that NRT or SSMs help smokers to quit (TATS, 70% v ITC, 74.2%). Dependent Aboriginal and Torres Strait Islander smokers who had previously used NRT or SSMs were more likely to believe they help in quitting and to intend to use them in the future.

Conclusion: Aboriginal and Torres Strait Islander daily smokers, particularly those who are most disadvantaged, are less likely to have used NRT or SSMs than other Australian daily smokers. Some of the barriers to use, including cost, are being overcome, but further improvements are possible.

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In 2012–2013, 44% of Aboriginal and Torres Strait Islander adults smoked, 2.5 times the age-standardised prevalence among other Australian adults, and 26% were ex-smokers.[1] Although the proportion of those who had ever smoked and had successfully quit was only 37%, compared with 63% of other Australians, this had increased from 24% in 2002.[1,2] Several types of nicotine replacement therapy (NRT; gum, patches, lozenges, sublingual tablets and inhalers) and two prescription-only stop-smoking medicines (SSMs; bupropion and varenicline) are available in Australia to assist cessation.[3] All have been shown to increase the chance of successfully quitting, with varenicline and combinations of NRT being the most effective.[4]

Nicotine gum became available in Australia in the 1980s, followed by patches in the 1990s and other forms of NRT in the past decade.[3] Over-the-counter availability of NRT occurred first in pharmacies, then supermarkets. Subsidised availability by prescription for patches followed listing with the Pharmaceutical Benefits Scheme (PBS) for veterans from 1994, Aboriginal and Torres Strait Islander people from 2009, and all others from 2011. Bupropion was listed on the PBS in 2001, and varenicline in 2008.[3] Since 1999, Aboriginal health services in remote areas have been able to dispense these PBS items at no cost through Section 100 of the *National Health Act 1953*.[5] In addition, since July 2010, many non-remote Aboriginal health services and general practices participating in the Indigenous Health Incentive of the Practice Incentives Program have been able to reduce or eliminate the copayment for all PBS medicines, including SSMs, for their Aboriginal and Torres Strait Islander patients.[6]

Clinical guidelines suggest that NRT, bupropion or varenicline be recommended to all dependent smokers who are interested in quitting.[7-9] Here, we explore the use of these medicines and beliefs about them among a national sample of Aboriginal and Torres Strait Islander smokers and ex-smokers. We also explore variation in their use among dependent smokers in this population, and make comparisons with smokers in the general Australian population.

Methods

The Talking About The Smokes (TATS) project surveyed 1643 Aboriginal and Torres Strait Islander smokers and 78 recent ex-smokers (who had quit ⩽12 months before), using a quota sampling design based on the communities served by 34 Aboriginal community-controlled health services (ACCHSs) and one community in the Torres Strait. It has been described in detail elsewhere.[10,11] Briefly, the 35 sites were selected based on the distribution of the Aboriginal and Torres Strait Islander population by state or territory and remoteness. In 30 sites, we aimed to interview 50 smokers or recent

1 Aboriginal and Torres Strait Islander use of nicotine replacement therapy (NRT) or stop-smoking medicines (SSMs)

Smoking characteristic	Ever used NRT or SSMs			Used NRT or SSMs in the past year		
	% (frequency)*	Odds ratio (95% CI)†	*P*‡	% (frequency)*	Odds ratio (95% CI)†	*P*‡
Smokers and recent ex-smokers (*n* = 1721)						
Smoking status						
Daily smokers	37% (515)	1.0	< 0.001	23% (318)	1.0	0.001
Non-daily smokers	17% (43)	0.35 (0.24–0.51)		12% (30)	0.46 (0.29–0.73)	
Recent ex-smokers§	36% (28)	0.94 (0.57–1.55)		32% (25)	1.59 (0.95–2.66)	
Daily smokers only (*n* = 1369)						
Heaviness of Smoking Index score						
Low (0–1)	30% (69)	1.0	< 0.001	18% (42)	1.0	0.06
Moderate (2–3)	36% (284)	1.34 (1.00–1.81)		23% (184)	1.39 (0.92–2.08)	
Heavy (4–6)	45% (148)	1.98 (1.42–2.76)		27% (86)	1.65 (1.08–2.51)	
RACGP criteria for dependence¶						
None	24% (38)	1.0	< 0.001	13% (20)	1.0	< 0.001
One	27% (91)	1.23 (0.78–1.92)		17% (55)	1.38 (0.84–2.28)	
Two	35% (192)	1.71 (1.12–2.61)		21% (118)	1.89 (1.11–3.22)	
All three	59% (193)	4.66 (2.99–7.27)		39% (125)	4.39 (2.56–7.51)	

RACGP = Royal Australian College of General Practitioners. * Percentages and frequencies exclude those answering "don't know" or refusing to answer. † Odds ratios calculated using simple logistic regression adjusted for the sampling design. ‡ *P* values for the entire variable, using adjusted Wald tests. § Those who had quit ≤ 12 months before. ¶ Time to first cigarette ≤ 30 min, > 10 cigarettes per day, and withdrawal symptoms on previous quit attempts (strong cravings during most recent quit attempt).

ex-smokers and 25 non-smokers, with equal numbers of women and men, and those aged 18–34 and ≥ 35 years. In four large city sites and the Torres Strait community, the sample sizes were doubled. People were excluded if they were aged under 18 years, not usual residents of the area, staff of the ACCHS or deemed unable to complete the survey. In each site, different locally determined methods were used to collect a representative, although not random, sample.

Baseline data were collected from April 2012 to October 2013. Interviews were conducted face to face by trained interviewers, almost all of whom were members of the local Aboriginal and Torres Strait Islander community. The survey was completed on a computer tablet and took 30–60 minutes. A single survey of health service activities was also completed at each site. The baseline sample closely matched the distribution of age, sex, jurisdiction, remoteness, quit attempts in the past year and number of daily cigarettes smoked reported in the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS). However, there were inconsistent differences in some socioeconomic indicators: our sample had higher proportions of unemployed people, but also higher proportions who had completed Year 12 and who lived in more advantaged areas.[10]

The TATS project is part of the International Tobacco Control Policy Evaluation Project (ITC Project) collaboration. Interview questions were closely based on those in ITC Project surveys, especially the Australian surveys.[12] We asked all smokers and recent ex-smokers whether they had ever used NRT or SSMs, and which they had used. For those who had used NRT, we asked if they were currently using it, when and for how long they last used it, where they got it and if it was free, and whether they would use it again in the future. We asked similar questions of those who had used SSMs. We asked all smokers and recent ex-smokers whether they thought NRT and SSMs help smokers to quit, and about their quit attempts and sociodemographic factors. The questions are described in detail in Appendix 1.

We used the Heaviness of Smoking Index (HSI) to assess dependence among daily smokers. The HSI was coded 0 to 6 based on the sum of the responses to two questions: cigarettes per day (CPD) and time to first cigarette (TTFC). These items were each coded as 0 (0–10 CPD; TTFC, ≥ 61 min), 1 (11–20 CPD; TTFC, 31–60 min), 2 (21–30 CPD; TTFC, 6–30 min) or 3 (≥ 31 CPD; TTFC, ≤ 5 min).[13] We categorised HSI as low (0–1), moderate (2–3) or high (4–6).[14,15] We also assessed the three criteria for dependence in the Royal Australian College of General Practitioners (RACGP) cessation guidelines: TTFC ≤ 30 min, > 10 CPD, and withdrawal symptoms on previous quit attempts (defined in our sample as strong cravings during the most recent quit attempt).[7]

TATS project results were compared with those of 1017 daily smokers surveyed in Wave 8 of the Australian ITC Project between July 2010 and May 2011. The ITC Project survey was completed by random digit telephone dialling or on the internet, and included smokers contacted for the first time and those who were recontacted after completing surveys in previous waves. For respondents who had completed surveys in previous waves, the ITC Project questions about use of NRT or SSMs were different to the TATS project questions, so for these comparisons we included only the 189 daily smokers who were newly recruited to the ITC Project.

The project was approved by three Aboriginal human research

2 Use of nicotine replacement therapy (NRT) or stop-smoking medicines (SSMs) by dependent Aboriginal and Torres Strait Islander smokers,* by sociodemographic factors ($n = 1124$)

	Ever used NRT or SSMs			Used NRT or SSMs in the past year		
Sociodemographic factor	**% (frequency)†**	**Odds ratio (95% CI)‡**	***P*§**	**% (frequency)†**	**Odds ratio (95% CI)‡**	***P*§**
All dependent smokers	39% (432)			24% (270)		
Age (years)			0.002			0.08
18–24	28% (59)	1.0		18% (39)	1.0	
25–34	35% (102)	1.43 (0.98–2.08)		23% (67)	1.35 (0.91–2.02)	
35–44	40% (112)	1.78 (1.12–2.83)		24% (65)	1.37 (0.85–2.23)	
45–54	44% (86)	2.07 (1.29–3.33)		29% (55)	1.78 (1.12–2.83)	
⩾ 55	53% (73)	3.00 (1.79–5.01)		32% (44)	2.13 (1.25–3.64)	
Sex			0.18			0.11
Female	41% (233)	1.0		27% (150)	1.0	
Male	36% (199)	0.80 (0.58–1.11)		22% (120)	0.77 (0.55–1.07)	
Indigenous status			0.14			0.76
Aboriginal	40% (398)	1.0		25% (245)	1.0	
Torres Strait Islander or both	31% (34)	0.70 (0.44–1.12)		23% (25)	0.93 (0.56–1.52)	
Labour force status			< 0.001			0.02
Employed	45% (166)	1.0		29% (105)	1.0	
Unemployed	30% (113)	0.51 (0.38–0.70)		20% (76)	0.62 (0.45–0.86)	
Not in labour force	41% (151)	0.85 (0.64–1.14)		24% (88)	0.80 (0.56–1.14)	
Highest education attained			0.001			0.03
Less than Year 12	35% (206)	1.0		21% (127)	1.0	
Finished Year 12	38% (109)	1.18 (0.88–1.58)		26% (73)	1.28 (0.92–1.78)	
Post-school qualification	50% (115)	1.90 (1.36–2.67)		30% (68)	1.58 (1.12–2.23)	
Treated unfairly because Indigenous in past year			0.01			0.02
No	43% (207)	1.0		28% (135)	1.0	
Yes	35% (214)	0.71 (0.54–0.92)		21% (129)	0.68 (0.50–0.93)	
Remoteness			0.002			0.03
Major cities	43% (127)	1.0		29% (85)	1.0	
Inner and outer regional	41% (239)	0.94 (0.60–1.47)		25% (141)	0.80 (0.53–1.20)	
Remote and very remote	27% (66)	0.50 (0.31–0.80)		18% (44)	0.54 (0.34–0.86)	
Area-level disadvantage			0.03			0.02
1st quintile (most disadvantaged)	33% (141)	1.0		19% (81)	1.0	
2nd and 3rd quintiles	41% (189)	1.40 (1.01–1.94)		27% (122)	1.54 (1.09–2.17)	
4th and 5th quintiles	45% (102)	1.64 (1.07–2.51)		30% (67)	1.78 (1.10–2.87)	
Local health service has dedicated tobacco control resources			0.006			0.003
No	31% (97)	1.0		18% (57)	1.0	
Yes	42% (335)	1.66 (1.16–2.37)		27% (213)	1.70 (1.20–2.39)	

* Daily smokers with Heaviness of Smoking Index scores ⩾ 2. † Percentages and frequencies exclude those answering "don't know" or refusing to answer. ‡ Odds ratios calculated using simple logistic regression adjusted for the sampling design. § *P* values for the entire variable, using adjusted Wald tests. ◆

ethics committees (HRECs) and two HRECs with Aboriginal subcommittees: Aboriginal Health & Medical Research Council Ethics Committee, Sydney; Aboriginal Health Research Ethics Committee, Adelaide; Central Australian HREC, Alice Springs; HREC for the Northern Territory Department of Health and Menzies School of Health Research, Darwin; and the Western Australian Aboriginal Health Ethics Committee, Perth.

Statistical analyses

We calculated the percentages and frequencies of responses to the TATS project questions, but did not include confidence intervals for these as it is not considered statistically acceptable to estimate sampling error in non-probabilistic samples. We compared results for daily smokers with those from the Australian ITC Project, which were directly standardised to the distribution of age and sex of Aboriginal and Torres Strait Islander smokers reported in the 2008 NATSISS.

Within the TATS project sample, we assessed the association between variables using logistic regression, with confidence intervals adjusted

3 Aboriginal and Torres Strait Islander smokers and recent ex-smokers' beliefs about whether nicotine replacement therapy (NRT) and stop-smoking medicines (SSMs) help smokers to quit*

	Do you think NRT and SSMs help smokers to quit?				
Smoker characteristics	Very much	Somewhat	Not at all	Don't know or haven't heard of them	*P*†
Smokers and recent ex-smokers (*n* = 1721)	20% (337)	51% (867)	16% (274)	14% (234)‡	
Ever used NRT or SSMs					< 0.001
Yes	31% (179)	55% (324)	9% (50)	5% (32)	
No	14% (158)	48% (541)	20% (223)	18% (196)	
Used NRT or SSMs in the past year					< 0.001
Yes	35% (132)	53% (197)	7% (27)	5% (17)	
No	15% (203)	50% (659)	19% (245)	16% (211)	
Smoking status					0.2
Daily smokers	19% (268)	51% (700)	16% (218)	14% (197)	
Non-daily smokers	18% (45)	53% (132)	18% (44)	12% (30)	
Recent ex-smokers§	31% (24)	45% (35)	15% (12)	9% (7)	
Daily smokers only (*n* = 1383)					
Heaviness of Smoking Index score					0.007
Low (0–1)	17% (39)	49% (115)	14% (33)	20% (46)	
Moderate (2–3)	20% (161)	53% (416)	14% (112)	13% (103)	
Heavy (4–6)	19% (61)	46% (149)	22% (70)	14% (45)	

* Percentages and frequencies exclude those answering "don't know" or refusing to answer, except for whether NRT and SSMs help, which do include those answering "don't know". † *P* values were calculated using the χ^2 test adjusted for sampling design. ‡ Comprises 19 smokers and recent ex-smokers who had not heard of NRT and SSMs, and 215 who did not know if they helped smokers to quit. § Those who had quit ≤ 12 months before. ◆

for the sampling design, using the 35 sites as clusters and the age–sex quotas as strata in Stata 13 (StataCorp) survey [SVY] commands).[16] *P* values were calculated for each variable using adjusted Wald tests. However, we used χ^2 tests to assess the association of variables with beliefs about whether NRT and SSMs help in quitting, and the association of past use with reasons for not intending to use them in the future. Median durations of NRT use are reported with interquartile ranges (IQRs) and were compared using the non-parametric equality of medians test.

Reported percentages and frequencies exclude those refusing to answer or answering "don't know", except for questions on future interest in NRT or SSM use and whether they help in quitting, which include those answering "don't know". Less than 2% of smokers and recent ex-smokers answered "don't know" or refused to answer each of the questions analysed here.

Results

Compared with other daily Australian smokers in the ITC Project, lower proportions of Aboriginal and Torres Strait Islander daily smokers reported ever using any NRT or SSMs (37% [515/1379] v 58.5% [95% CI, 42.8%–72.6%]) and having used them in the past year (23% [318/1369] v 42.1% [95% CI, 29.4%–56.0%]).

Among all Aboriginal and Torres Strait Islander smokers and recent ex-smokers in the TATS project sample, 29% (501/1700) had ever used NRT and 11% (193/1700) had used SSMs. Nicotine patches were the most commonly used, by 24% (415/1699), followed by varenicline (11%; 183/1699), nicotine gum (10%; 174/1699), lozenges (3%; 50/1699), and inhalers (3%; 50/1699). Only 1% (17/1699) had used bupropion.

Of the Aboriginal and Torres Strait Islander smokers and recent ex-smokers who had used NRT within the past year, most had last got it from an Aboriginal medical service (46%; 99/216), pharmacy (31%; 66/216) or another local health service (15%; 32/216), with only 3% (6/216) getting it from an ordinary store. Three-quarters (74%; 161/217) got their NRT at no cost, including almost all who got it from an Aboriginal medical service (93%; 92/99) or another local health service (91%; 29/32).

Of the Aboriginal and Torres Strait Islander smokers and recent ex-smokers who had used NRT within the past year but were currently not using it, only 9% (16/174) had used it for the recommended period of more than 2 months;[7-9] 49% (85/174) used it for a week or less and 79% (138/174) for a month or less. The median duration of NRT use was 14 days (IQR, 3–30 days), with no significant differences by HSI score or whether it was free.

Aboriginal and Torres Strait Islander daily smokers who were more dependent, according to the HSI and RACGP criteria, were more likely to have ever used NRT or SSMs than those who were less dependent (Box 1). Fewer non-daily smokers than daily smokers or recent ex-smokers had ever used them. These associations were similar but less marked for use in the past year.

Among Aboriginal and Torres Strait Islander smokers who were at least moderately dependant (HSI score ≥ 2), the group for whom NRT and SSMs are recommended, those who were socioeconomically advantaged were more likely than the disadvantaged to have ever used NRT or SSMs and to have used them in the past

4 Interest in using nicotine replacement therapy (NRT) or stop-smoking medicines (SSMs) to help quit smoking in the future among dependent Aboriginal and Torres Strait Islander smokers* (*n* = 1124)

	Interested in using NRT in the future					Interested in using SSMs in the future				
	% (frequency)†			Odds ratio		% (frequency)†			Odds ratio	
Variable	Yes	No	Don't know	(95% CI)‡	*P*§	Yes	No	Don't know	(95% CI)‡	*P*§
All dependent smokers	54% (608)	41% (462)	4% (47)			51% (575)	42% (470)	7% (73)		
Think NRT and SSMs help smokers to quit					< 0.001					< 0.001
Not at all	24% (43)	73% (132)	4% (7)	1.0		23% (42)	74% (134)	3% (6)	1.0	
Somewhat	59% (335)	37% (211)	3% (19)	4.87 (3.19–7.45)		58% (325)	37% (209)	5% (31)	4.96 (3.18–7.73)	
Very much	80% (177)	18% (40)	2% (4)	13.58 (8.29–22.26)		74% (164)	23% (51)	3% (7)	10.26 (6.3–16.7)	
Don't know or haven't heard of them	36% (53)	53% (78)	11% (17)			30% (44)	51% (75)	20% (29)		
Ever used NRT or SSMs					< 0.001					< 0.001
No	48% (352)	48% (354)	5% (34)	1.0		48% (461)	46% (438)	6% (62)	1.0	
Yes	69% (255)	29% (106)	2% (8)	2.42 (1.82–3.22)		75% (112)	21% (31)	4% (6)	3.43 (2.22–5.31)	
Used NRT or SSMs in the past year					< 0.001					< 0.001
No	49% (427)	46% (401)	5% (41)	1.0		49% (499)	45% (454)	6% (65)	1.0	
Yes	74% (176)	25% (60)	1% (2)	2.75 (1.95–3.90)		78% (72)	17% (16)	4% (4)	4.09 (2.21–7.57)	
Heaviness of Smoking Index score					0.05					< 0.001
Moderate (2–3)	56% (446)	39% (311)	4% (34)	1.0		53% (418)	41% (323)	6% (51)	1.0	
Heavy (4–6)	50% (162)	46% (151)	4% (13)	0.75 (0.56–0.99)		48% (157)	45% (147)	7% (22)	0.83 (0.62–1.09)	

* Daily smokers with Heaviness of Smoking Index scores ⩾ 2. † Percentages and frequencies exclude those answering "don't know" or refusing to answer, except for questions on future interest in NRT or SSM use and whether they help in quitting, which include those answering "don't know". ‡ Odds ratios calculated using simple logistic regression adjusted for the sampling design. § *P* values for the entire variable, using adjusted Wald tests. ◆

year (Box 2). Use decreased with increasing remoteness and area-level disadvantage, increased with education, and was lower among those who reported being treated unfairly in the past year because they were Indigenous. Use also increased with age and was higher among smokers whose local health service had dedicated tobacco control resources. Those who were socioeconomically disadvantaged were even less likely to use SSMs than NRT (Appendix 2).

Most Aboriginal and Torres Strait Islander daily smokers said NRT and SSMs help smokers to quit: 70% said they help "very much" or "somewhat", 16% said "not at all" and 14% did not know (Box 3). Similarly, the Australian ITC Project reported that 74.2% (95% CI, 68.9%–78.9%) of Australian daily smokers agreed that NRT and SSMs would make it easier to quit, 11.0% (95% CI, 8.7%–13.8%) disagreed, and 14.8% (95% CI, 10.8%–20.0%) neither agreed nor disagreed or did not know.

Having used NRT or SSMs was strongly associated with Aboriginal and Torres Strait Islander smokers believing that they help in quitting. Heavy smokers were more likely to believe that they would not help at all (Box 3).

Dependent Aboriginal and Torres Strait Islander smokers who believed NRT and SSMs would help in quitting and those who had used them (ever or in the past year) were more likely to be interested in using them in the future (Box 4). Frequency of strong urges to smoke and strong cravings on the most recent quit attempt were not associated with interest in future use of NRT and SSMs (data not shown).

The main reasons given by dependent smokers who were not interested in using NRT and SSMs in future were that they were not ready to quit (NRT, 36% [162/445]; SSMs, 29% [131/449]), because of side effects (19% [85/445]; 25% [114/449]), they did not think they would work (18% [81/445]; 16% [73/449]) and they preferred not to use them (16% [73/445]; 18% [82/449]). Cost was rarely mentioned as a reason (3% [15/445]; 2% [10/449]). There were significant differences between the reasons given by those who had and had not used NRT or SSMs in the past year ($P < 0.001$). Those who had used NRT were more likely than those who had not to say they would not use it in the future because of side effects (45% [26/58] v 15% [59/386]) and were less likely to report not being ready to quit (12% [7/58] v 40% [155/386]).

Discussion

We found lower use of NRT and SSMs among daily smokers in a

large nationally representative Aboriginal and Torres Strait Islander sample than among those in the general Australian population. This is consistent with research in various countries that has found that smokers from more disadvantaged groups are less likely to use these medicines.[17,18] We also found a social gradient of reducing use with increasing disadvantage (including perceived experiences of racism) *within* the Aboriginal and Torres Strait Islander community. Consistent with previous research, we found this gradient was steeper for the use of varenicline (bupropion accounted for very little of the SSM use) than for NRT.[18,19]

In recent years, many ACCHSs and their government funders have increased their focus on, and directed significant resources towards, tobacco control and cessation support. Our finding of greater use of SSMs by smokers whose local ACCHS had dedicated tobacco control resources provides some evidence for the effect of these policy decisions. We explore other non-pharmacological cessation support elsewhere in this supplement.[20]

Early research into Aboriginal and Torres Strait Islander smokers' use of SSMs focused on the disincentive of the cost of NRT, and interventions to subsidise or provide free NRT.[21-24] Covering the costs of treatment has been demonstrated to increase the use of NRT and bupropion in other contexts.[25,26] Following policy changes, we found that nearly three-quarters of participants had got their most recent NRT at no cost, removing this financial impediment to its use. Unlike earlier research, cost was rarely given as a reason in our survey for not intending to use NRT or SSMs in the future.[21,23] While some smokers are still paying a proportion of the cost, it is reassuring that policies to provide access to free NRT seem to be effectively reaching many Aboriginal and Torres Strait Islander smokers.

It is encouraging that a similar proportion of Aboriginal and Torres Strait Islander daily smokers as those in the broader Australian population think these medicines assist cessation. Further, Aboriginal and Torres Strait Islander smokers who were more dependent were more likely than the less dependent to have used them, in accordance with current clinical guidelines. However, there is still opportunity to improve their use. The clinical guidelines can be better promoted during the training and ongoing education of clinicians and tobacco control workers, to enable more frequent discussion about them with smokers. There remains a large proportion of Aboriginal and Torres Strait Islander smokers who have never used these medicines, are less likely to think they help and less likely to use them in the future, who could be informed about their effectiveness in assisting quitting.[27]

The frequent use of NRT for much less than the recommended 8 weeks is similar to earlier reports in this population; likewise, the median duration was similar to those found in other research in Australia and elsewhere, particularly the shorter durations reported when NRT is available over the counter rather than by prescription.[22,28-31] Research into the common reasons for stopping NRT and SSMs (resuming smoking, side effects and the belief that it has already worked) suggests that these are generally legitimate and may not be cause for great concern. For example, data from other ITC Project surveys show that 66% of those who stopped early because they believed that they no longer needed the medication were still abstinent at 6 months.[30]

There has been a significant increase in the use of SSMs in Australia in recent years, especially associated with the release of varenicline in 2008.[32] The release of new varieties of NRT and other SSMs has also been shown to be associated with this increase in the total use of SSMs, often with very little compensatory decline in the use of older medicines.[19,26,32] We found that a variety of types of NRT were used (most commonly patches), as well as varenicline and a small amount of bupropion. The range of NRT formulations and other medicines is likely to increase in the future.[3] The potential impact of e-cigarettes as an aid to cessation remains unclear and contested.[33,34]

Strengths and limitations

The main strength of our study is its large national sample of Aboriginal and Torres Strait Islander smokers, providing the first detailed national information about the use of NRT and SSMs in this population. However, it is a non-random, albeit broadly representative, sample, and caution is needed in interpreting the comparisons with the Australian ITC Project sample and in generalising the results to the whole Aboriginal and Torres Strait Islander population. The use of NRT or SSMs in our sample of Aboriginal and Torres Strait Islander people in communities served by ACCHSs may be different to that in communities without access to an ACCHS, who use private general practices. Our self-reported data are probably limited by incomplete recall of past use of NRT and SSMs and quit attempts. The effect of these biases will be to weaken reported associations, leading to greater confidence in the significant associations but requiring caution in the implications of findings of no association.

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Smoking among a national sample of Aboriginal and Torres Strait Islander health service staff

Abstract

Objective: To examine smoking among Aboriginal and Torres Strait Islander staff of Aboriginal community-controlled health services (ACCHSs).

Design, setting and participants: The Talking About The Smokes (TATS) project surveyed 374 Aboriginal and Torres Strait Islander staff at a national sample of 31 ACCHSs, from April 2012 to October 2013. We made comparisons with adult participants in the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) and with 1643 smokers in a community sample of 2522 Aboriginal and Torres Strait Islander people also surveyed in the TATS project.

Main outcome measures: Smoking status, smoking behaviour at work, quitting behaviour, attitudes and beliefs about smoking and quitting.

Results: Aboriginal and Torres Strait Islander ACCHS staff had a lower smoking prevalence than among all Aboriginal and Torres Strait Islander adults surveyed in the NATSISS (38% v 49.8%), but this difference was smaller when compared with only employed adults (38% v 44.8%). Staff smokers had higher odds than smokers in their communities of ever trying to quit (odds ratio [OR], 2.1; 95% CI, 1.1–3.7), of having often noticed anti-smoking advertising (OR, 2.8; 95% CI, 1.4–5.6), and of having used stop-smoking medications (OR, 3.0; 95% CI, 1.6–5.7), often with the support of their ACCHS. There was a significant association ($P < 0.001$) between the smoking status of Aboriginal and Torres Strait Islander staff and their confidence in talking to others about smoking and quitting; ex-smokers were most likely to report being confident. Most Aboriginal and Torres Strait Islander staff who smoked (74%) agreed that being a non-smoker sets a good example to patients at their health service, and most did not smoke with patients or at work where patients could see them.

Conclusion: Smoking prevalence among Aboriginal and Torres Strait Islander ACCHS staff is only modestly lower than among other employed Aboriginal and Torres Strait Islander people. Given that ex-smokers feel more confident to help others quit than any other group, smoking cessation in ACCHS staff is a useful contributor to reducing community smoking rates.

In 2012–2013, the prevalence of daily smoking among Aboriginal and Torres Strait Islander adults was 42%, although it is falling.[1] For many years it has been suggested that the high smoking prevalence of Aboriginal health workers (AHWs) is a barrier to reducing smoking in the communities they serve.[2,3] AHWs and other Aboriginal and Torres Strait Islander health service staff are role models and advocates for health in their communities, and there is evidence that AHWs who smoke have been less likely than those who do not to assist or promote smoking cessation.[2]

The high prevalences of smoking previously reported among AHWs or other Aboriginal and Torres Strait Islander health service staff do not differ greatly from the high prevalences in their communities, but are based on small samples.[3] Similarly high smoking prevalence among doctors has been reported in some developing countries, raising the same concerns about their roles in supporting cessation and as opinion leaders.[4] In contrast, there has been a steady decline in smoking prevalence among doctors in most developed countries — in Australia, this fell from 27% in 1964 to 3% in 1997, much lower than in the general Australian population.[5,6]

It has been asserted that smoking prevalence starts to fall earlier among doctors than among the general population as doctors are more likely to recognise the health consequences and change normative beliefs, and also become aware of the contradiction between their smoking and their role in improving health.[7] The low smoking prevalence found among doctors is seen as an achievable future for the entire population.[8]

Here, we compare smoking prevalence, quitting activity and beliefs among a national sample of Aboriginal and Torres Strait Islander staff at Aboriginal community-controlled health services (ACCHSs) and among members of their communities who smoke.

Methods

The Talking About The Smokes (TATS) project surveyed 2522 Aboriginal and Torres Strait Islander people in the communities served by 34 ACCHSs and one community in the Torres Strait between April 2012 and October 2013. At the same time, all staff at 31 of these ACCHSs were invited to complete a self-administered survey. Staff surveys were requested but not completed at four of the 35 project sites, owing to other local priorities.

The TATS project has been described elsewhere.[9] Briefly, the 35 sites were selected based on the distribution of the Aboriginal and Torres Strait Islander population by state or territory and remoteness, using a quota sampling design. At each site, we aimed to survey 50 smokers (or ex-smokers who had quit ⩽12 months previously) and 25 non-smokers from the community served by the ACCHS, with equal numbers in the smoking and non-smoking samples of men and women, and of those aged 18–34 and ⩾35 years. In four large city sites and in the Torres Strait community, the sample size was doubled.

Staff surveys were paper-based at 20 ACCHSs and online at seven, with four offering both options. Surveys took 5–10 minutes to complete and included questions from the main community survey about smoking and quitting behaviour and attitudes,

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1 Comparison of smoking status of Aboriginal and Torres Strait Islander staff at ACCHSs with adults in the 2008 NATSISS

		NATSISS participants*	
	ACCHS staff (n = 366)	Employed (n = 3772)	Total (n = 7163)
Status	Standardised % (frequency)†	% (95% CI)	% (95% CI)
Smoker	38% (146)	44.8% (42.1%–47.6%)	49.8% (47.8%–52.5%)
Ex-smoker	24% (88)	22.3% (20.2%–24.4%)	21.4% (19.8%–22.9%)
Never-smoker	38% (132)	32.9% (30.5%–35.5%)	28.8% (26.9%–30.7%)

ACCHS = Aboriginal community-controlled health service. NATSISS = National Aboriginal and Torres Strait Islander Social Survey. * NATSISS results only include those aged ⩾18 years. † Staff survey percentages are directly standardised to the age, sex and remoteness distribution of smokers in the NATSISS. ◆

exposure to advertising, and use of cessation support. These were supplemented by questions about smoking at work, the respondent's role at the ACCHS, and smoking and cessation beliefs related to his or her role. The questions used in this article are listed in Appendix 1.

In contrast to the staff surveys, trained local interviewers completed the 30–60-minute survey of community members face to face using a computer tablet. A single survey of health service policy and activities was also completed by key informants at each site.

We compared the smoking status of Aboriginal and Torres Strait Islander staff with data from the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS). The NATSISS was a national, stratified, multistage, random, face-to-face household survey with 7163 Aboriginal and Torres Strait Islander participants aged 18 years and over conducted by the Australian Bureau of Statistics from August 2008 to April 2009, with an 82% response rate.[10]

We also compared the responses to questions about smoking and cessation practices and attitudes of Aboriginal and Torres Strait Islander staff who smoked with those of smokers in the community survey. We assessed differences in quitting and use of stop-smoking medications between staff who had active support from the health service to quit and those who did not.

The project was approved by three Aboriginal human research ethics committees (HRECs) and two HRECs with Aboriginal subcommittees: Aboriginal Health & Medical Research Council Ethics Committee, Sydney; Aboriginal Health Research Ethics Committee, Adelaide; Central Australian HREC, Alice Springs; HREC for the Northern Territory Department of Health and Menzies School of Health Research, Darwin; and the Western Australian Aboriginal Health Ethics Committee, Perth.

Statistical analyses

All comparisons of staff responses with the responses in the 2008 NATSISS or in the main community survey were directly standardised to the distribution of the age, sex and remoteness of either smokers or the total Aboriginal and Torres Strait Islander population in the 2008 NATSISS. As it not possible to estimate sampling error in non-probabilistic quota samples, we do not report confidence intervals around our prevalence estimates and only report percentages to the nearest integer.

The association between dichotomous variables within our samples was assessed using simple logistic regression to generate odds ratios (ORs) and P values based on Wald tests, and using χ^2 tests for other categorical variables. These results were analysed using Stata 13 (StataCorp) [SVY] commands to adjust for the sampling design (using site clusters in both the staff and community surveys, and age–sex quotas in the community survey as strata). NATSISS data were analysed using replicate and person weights as previously described.[11]

Except for attitude questions, where "don't know" responses were combined with "neither agree nor disagree", reported percentages and frequencies exclude participants not answering, answering "don't know", or for whom the question was not applicable. For the question about levels of confidence in talking to others about their smoking, we reported those who answered "don't know" but excluded 7% who did not answer. Less than 5% of responses were excluded for all other questions analysed in this report, except for those in the staff survey about health service support of quit attempts (7%), whether the last quit attempt was before or after being employed at the health service (8%) and whether a quit attempt had been made in the past year (13%).

Results

Surveys were completed by 645 staff at 31 ACCHSs, covering every state and territory as well as major cities and regional and remote areas (Appendix 2). As it was deemed impractical to precisely estimate total staff numbers, we have no precise response rate. However, it is unlikely to be above 50%, as 215 surveys were completed at 17 services with up to 50 staff (mean, 12.6 surveys per ACCHS) and 430 at 14 services with more than 50 staff (mean, 30.7 per ACCHS).

Fifty-eight per cent of respondents (374/641) were Aboriginal or Torres Strait Islander people (Appendix 2). Of the Aboriginal and Torres Strait Islander staff, 76% (286/374) were women, 48% (173/362) had been at the ACCHS longer than 2 years, 88% (319/362) worked full-time, 49% (181/367) were AHWs or community workers, 5% (18/367) were doctors or nurses, 25% (92/367) were in other roles with direct client contact, 21% (76/367) had no contact with clients, and 17% (63/368) were in managerial roles.

Of the Aboriginal and Torres Strait Islander staff, 146 were smokers. None of those who smoked said they did so indoors at work, and 13% (19/145) said they did not smoke at work. Most (57%, 83/145) said they smoked outside the health service boundary or fence. In the past month, 41% (59/145) had smoked where ACCHS clients could see them. While 77% (111/145)

had smoked with co-workers during work hours in the past month, only 28% (40/145) had smoked with clients of the ACCHS. All ACCHSs had a smoke-free policy or rules. Most Aboriginal and Torres Strait Islander staff who smoked (74%, 107/144) agreed that being a non-smoker sets a good example to patients at their health service.

Comparison of Aboriginal and Torres Strait Islander staff with NATSISS participants

Compared with all Aboriginal and Torres Strait Islander adults in the 2008 NATSISS, a lower standardised proportion of Aboriginal and Torres Strait Islander ACCHS staff smoked (38% v 49.8%), with more having never smoked and a similar proportion of ex-smokers (Box 1). The difference in the proportion of smokers was smaller when ACCHS staff were compared only with employed adults in the NATSISS (38% v 44.8%). Staff who had ever smoked were more likely than their NATSISS counterparts to have successfully quit (38% [88/234] v 30.1% [95% CI, 28.0%–32.1%]). Most of the staff ex-smokers (62%, 50/81) had quit before they started working at the health service.

Comparison of Aboriginal and Torres Strait Islander staff with community members

A greater standardised proportion of Aboriginal and Torres Strait Islander smokers among the staff than among other community members had ever made a quit attempt (83% [118/144] v 70% [1143/1631]; OR, 2.1 [95% CI, 1.1–3.7]; $P = 0.02$). However, the difference in the proportion of smokers who had made a quit attempt in the past year was not statistically significant (staff v community, 58% [67/127] v 50% [796/1609]; OR, 1.4 [95% CI, 0.81–2.4]; $P = 0.24$).

There were significant differences in how many of the respondent's five closest family or friends smoked, with staff smokers having lower odds than community smokers of reporting all five were smokers (OR, 0.56; 95% CI, 0.34–0.94; $P = 0.03$). Staff who smoked had significantly greater odds of having often or very often noticed advertising about the dangers of smoking or that encouraged quitting in the past 6 months, compared with other community members who smoked (OR, 2.8; 95% CI, 1.4–5.6; $P = 0.004$) (Box 2).

Compared with community smokers, a significantly higher proportion of Aboriginal and Torres Strait Islander staff smokers who had ever made a quit attempt had used nicotine replacement therapy (NRT) or other stop-smoking medications, (OR, 3.0; 95% CI, 1.6–5.7; $P = 0.001$). Significantly higher proportions of staff reported use of NRT patches (OR, 2.8; 95% CI, 1.5–5.2; $P = 0.003$), NRT tablets (OR, 3.3; 95% CI, 1.2–9.7; $P = 0.03$), varenicline (OR, 6.1; 95% CI, 2.9–12.8; $P < 0.001$) and bupropion (OR, 6.6; 95% CI, 2.5–17.2; $P < 0.001$) (Box 2).

Nearly half of the staff smokers who had made a quit attempt (47%, 52/111) had at least one of these attempts actively supported by the health service, most commonly through an information session for staff ($n = 20$) or access to free or subsidised NRT ($n = 19$). A higher proportion of staff who had health service support in their quit attempts, compared with those who did not, had ever used NRT or other stop-smoking medications (79% [41/52] v 46% [27/59]; OR, 4.4; 95% CI, 1.9–10.4; $P = 0.001$). However, staff from health services that reported providing additional cessation support for staff did not have significantly greater odds of making a quit attempt in the past year than those whose service did not (56% [46/82] v 47%, [21/45]; OR, 1.5; 95% CI, 0.65–3.3), although statistical power to detect a significant effect was low.

There were significant differences between staff smokers and community smokers in how much they

2 Comparison of smoking and cessation practices of smokers among Aboriginal and Torres Strait Islander ACCHS staff and community members*

Practice	ACCHS staff, % (frequency)	Community members, % (frequency)	*P*
Smoking banned inside home			0.19
Total ban	64% (87)	56% (908)	
Partial ban	22% (40)	22% (359)	
No ban	14% (17)	22% (361)	
Number of five closest family or friends who smoke			0.004
None	7% (14)	7% (120)	
One	8% (14)	7% (119)	
Two	10% (21)	15% (243)	
Three	35% (31)	17% (273)	
Four	12% (23)	12% (204)	
Five	28% (43)	41% (649)	
Noticed anti-smoking advertising in past 6 months			< 0.001
Often or very often	70% (116)	45% (730)	
Sometimes	30% (28)	34% (535)	
Never or almost never	1% (2)	21% (341)	
Smokers who have ever made a quit attempt and have used NRT or stop-smoking medications	120	1155	
Any NRT or medications	69% (71)	43% (505)	0.001
NRT patch	54% (48)	30% (362)	0.003
NRT gum	14% (21)	13% (152)	0.77
NRT lozenges	5% (6)	4% (42)	0.67
NRT tablets	5% (7)	2% (18)	0.03
Varenicline	49% (38)	13% (167)	< 0.001
Bupropion	9% (12)	1% (17)	< 0.001

ACCHS = Aboriginal community-controlled health service. NRT = nicotine replacement therapy. *Results for the baseline sample of Aboriginal and Torres Strait Islander ACCHS staff smokers ($n = 146$) and community smokers ($n = 1643$) in the Talking About The Smokes project, April 2012 – October 2013. Percentages and frequencies exclude those who did not answer or answered "don't know". Percentages are directly standardised to the age, sex and remoteness distribution of smokers in the 2008 National Aboriginal and Torres Strait Islander Social Survey. ◆

3 Comparison of smoking and cessation attitudes of smokers among Aboriginal and Torres Strait Islander ACCHS staff and community members*

Attitude	ACCHS staff, % (frequency)	Community members, % (frequency)	*P*
How much do you think you would benefit from better health and other things if you were to quit smoking permanently in the next 6 months?			0.03
Very much or extremely	75% (113)	61% (988)	
Moderately	20% (20)	21% (323)	
Slightly or not at all	5% (6)	18% (293)	
Smoking is not very risky when you think about all the other things that people do			0.19
Agree	30% (36)	46% (731)	
Neither or don't know	24% (32)	17% (282)	
Disagree	46% (78)	37% (621)	
Being a non-smoker sets a good example to children			0.52
Agree	87% (135)	91% (1482)	
Neither or don't know	4% (8)	4% (75)	
Disagree	9% (3)	5% (77)	
Cigarette smoke is dangerous to non-smokers			0.86
Agree	93% (131)	91% (1489)	
Neither or don't know	5% (13)	6% (99)	
Disagree	2% (2)	3% (46)	

ACCHS = Aboriginal community-controlled health service. * Results for the baseline sample of Aboriginal and Torres Strait Islander ACCHS staff smokers ($n = 146$) and community smokers ($n = 1643$) in the Talking About The Smokes project, April 2012 – October 2013. Percentages and frequencies exclude those who did not answer (all questions) or answered "don't know" (first question). Percentages are directly standardised to the age, sex and remoteness distribution of smokers in the 2008 National Aboriginal and Torres Strait Islander Social Survey. ◆

believed they would benefit if they were to quit smoking in the next 6 months ($P = 0.03$) (Box 3); staff had non-significantly greater odds of reporting they would benefit very much or extremely (OR, 1.95; 95% CI, 0.92–4.2; $P = 0.08$). Smokers' risk-minimising beliefs and beliefs about the dangers of second-hand smoke were similar among staff and other community members (Box 3). Most staff smokers (58%, 85/146) agreed that staff and managers of the health service disapproved of smoking, with only 12% (18/146) disagreeing with this.

For Aboriginal and Torres Strait Islander staff who had direct contact with ACCHS clients, there was a significant association ($P < 0.001$) between their smoking status and whether they felt confident talking to others about smoking and quitting (Box 4). Ex-smokers were significantly more likely than smokers to report being very much or extremely confident (OR, 4.3; 95% CI, 2.2–8.3; $P < 0.001$).

Discussion

Our results suggest that Aboriginal and Torres Strait Islander staff of ACCHSs have a lower smoking prevalence than other Aboriginal and Torres Strait Islander people. However, our estimate of staff smoking may be falsely low, as our response rate was not high and smokers may have been less likely to complete our survey.

Our national estimate of staff smoking prevalence was at the lower end of previous smaller local and regional studies, and much lower than the largest previous study (51%, $n = 85$), which also reported the highest (but still a modest) response rate of 63%.[3,12] However, these studies concentrated on AHWs (variously defined) rather than all Aboriginal and Torres Strait Islander staff. In spite of the supportive environment at the ACCHSs, Aboriginal and Torres Strait Islander staff in our survey were still much more likely to smoke than either Australian doctors or other health professionals in similar countries.[6,13] As in previous research with AHWs, and with other health professionals in other settings, we found that staff who smoked were less confident in talking about quitting. This remains a concern and a rationale for assisting Aboriginal and Torres Strait Islander smokers to quit, and may support preferential employment of non-smokers.[5,14]

The lower smoking prevalence among Aboriginal and Torres Strait Islander staff of ACCHSs was similar to the lower smoking prevalence among other employed Aboriginal and Torres Strait Islander people surveyed in the NATSISS, and was mainly due to more staff having never smoked (rather than more being ex-smokers).

Most of the ACCHS staff who still smoked agreed that being a non-smoker sets a good example to patients. Fewer Aboriginal and Torres Strait Islander staff reported smoking with patients than with co-workers

4 Confidence in talking with others about smoking and quitting among Aboriginal and Torres Strait Islander staff with client contact, by smoking status*

Confident in talking about smoking and quitting	Smokers ($n = 103$)	Ex-smokers ($n = 65$)	Never-smokers ($n = 97$)	Total ($n = 265$)
Very much or extremely	27% (28)	62% (40)	37% (36)	39% (104)
Moderately	25% (26)	26% (17)	30% (29)	27% (72)
Slightly or not at all	38% (39)	6% (4)	27% (26)	26% (69)
Don't know	10% (10)	6% (4)	6% (6)	8% (20)

* Data are % (frequency) and exclude those not answering. χ^2 test of association, $P < 0.001$. ◆

at work, and most did not smoke where they could be seen by patients, suggesting they accept this responsibility as a role model. In contrast, research conducted in 2009–2010 found AHWs reported that patients liked them smoking with them, facilitating connection and patients opening up.[15] The same study reported that an organisational culture that supported smoking undermined quitting. However, we found that smoking was now usually not perceived as acceptable in ACCHSs.

Stress at work and at home has long been reported as the primary obstacle to successful quitting by AHWs.[2,16] Research in other populations has shown that smoking for stress release is associated with relapse.[17] However, successful quitting, for those who are able to do it, has been reported as being associated with reduced stress and, among Aboriginal people, with a general sense of pride and empowerment.[18-20] Therefore, quitting smoking may reduce the stress these staff feel.

It does not appear, as previously reported, that a lack of quit support is a significant cause of relapse.[2,16] Many quit attempts by staff received additional support from the health service, and use of stop-smoking medications was higher among staff than among other Aboriginal and Torres Strait Islander smokers. High smoking prevalence among the Aboriginal and Torres Strait Islander community has previously been suggested as a cause of failed quit attempts. We found high numbers of smokers among the close friends and family of both staff and community smokers, which has also been associated with relapse in other settings.[17]

Strengths and limitations

This is the largest national survey on smoking among ACCHS staff. However, as with our sample of community members, it is not a random sample, with both using similar non-probabilistic quota sampling designs, so caution in interpreting results is required. The staff and other community members in our sample are from the same geographically representative locations, and comparisons are directly standardised to the distribution of the population of smokers in the NATSISS. We have elsewhere shown that the 1643 smokers in our community sample were similar to smokers in the NATSISS, except for some inconsistent socioeconomic differences.[9]

We can compare our sample with 224 organisations providing primary health care services for Aboriginal and Torres Strait Islander people in 2011–12.[21] These organisations included, but were not restricted to, member ACCHSs of the National Aboriginal Community Controlled Health Organisation, and included more services from remote areas (39%) and fewer from major cities (12%) than in our study.[9] Similar proportions of staff were reported to be Aboriginal and Torres Strait Islander (57% of 5543 full-time equivalent staff) and to be doctors (6%) and nurses (14%) as in our sample (58%, 8% and 14%, respectively). Based on these criteria, there was limited response bias in our sample.

Unlike most similar previous research, we have chosen to report on all Aboriginal and Torres Strait Islander ACCHS staff, not just AHWs, as all these staff are health role models in their communities, and the distinction between AHWs and other roles at the ACCHS can vary across the country.

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