

Aboriginal and Torres Strait Islander People Who Smoke and Want to Quit—A Cohort Profile From the Koori Quit Pack study

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Abstract

Introduction: Reducing the prevalence of smoking is a national priority; however, there is limited evidence on what smoking cessation supports are utilized, accessible, and effective among Aboriginal and Torres Strait Islander people. This paper describes a cohort profile of Aboriginal and Torres Strait Islander people who smoke and want to quit to inform tailored smoking cessation interventions.

Aims and Methods: Aboriginal and Torres Strait Islander people residing in New South Wales, Australian Capital Territory (ACT), and Victoria, who were smokers wanting to quit, were recruited through health services and online advertisements from May to October 2022. Descriptive and inferential statistics were used to summarize participant characteristics and explore factors associated with previous use and adherence to Nicotine Replacement Therapy (NRT) and intention to use Quitline services.

Results: One hundred and sixty-five participants were recruited. Almost all (93.9%) had made at least one previous quit attempt, and 40.6% had used behavioral support. The majority believed NRT was safe (80.6%), effective (70.3%), and tried NRT previously (89%). Preferred forms of NRT for current quit attempts were nicotine patches (85.5%) and inhalers (69.7%). Intention to use Quitline was found to be higher among participants aged 31–45 years compared to participants under 30 years (AOR = 3.12, 95% CI: 1.01 to 9.76).

Conclusions: Aboriginal and Torres Strait Islander people are highly motivated to be smoke-free. However, efforts to enhance access and adherence to cessation supports are needed. The rapid recruitment and interest in the mailout cessation support should be scaled up to support Aboriginal and Torres Strait Islander peoples to quit.

Implications: The Australian Government has recently launched a national tobacco strategy which includes targets for reducing smoking prevalence to less than 27% among Aboriginal and Torres Strait Islander peoples. In order to meet these targets Aboriginal and Torres Strait Islander people who smoke and want to quit should have access to culturally safe and responsive support. We found that Aboriginal and Torres Strait Islander people have made quit attempts, accessed evidence-based smoking cessation care, and have positive attitudes towards NRT. However, acknowledging relapse, further evidence is required to understand the factors associated with sustained quitting.

Introduction

Colonization and ongoing systemic discrimination and racism have ingrained tobacco use among Aboriginal and Torres Strait Islander communities, the Indigenous people of Australia who represent the original inhabitants of the land.¹ Tobacco smoking is the leading cause of premature morbidity

and premature mortality.² Despite the continuing impacts of colonization and active targeting by the Tobacco Industry,³ smoking prevalence has declined significantly among Aboriginal and Torres Strait Islander people from 50.0% in 2004–2005 to 40.2% in 2018–2019,¹ showing progress rates comparable to that of the general population in Australia.⁴

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However, more action is required to better empower Aboriginal and Torres Strait Islander self-determination to be free from commercial tobacco and nicotine addiction: fostering and supporting a healthy environment for Aboriginal and Torres Strait Islander people.

The World Health Organization Framework Convention on Tobacco Control (WHO FCTC) includes a guiding principle to “protect present and future generations” of Indigenous peoples from the harms of commercial tobacco use.⁵ In Australia, there are two new national strategies^{6,7} that include priority areas to reduce tobacco use among Aboriginal and Torres Strait Islander people. Firstly, the Aboriginal Health Plan was developed to guide the implementation of the Closing the Gap strategies which emphasize the need to build a strong partnership with Aboriginal and Torres Strait Islander communities in strategies at all levels of the health system and the need to inform programs and services with evidence of what works for Aboriginal and Torres Strait Islander people.⁷ Secondly, the National Tobacco Strategy 2023–2030 (Priority Area Four) details the need for appropriate access to culturally safe cessation supports through strengthening investments to deliver best practice smoking cessation support for Aboriginal and Torres Strait Islander people.⁶ These strategies reflect and acknowledge the WHO FCTC, Indigenous leadership, and the urgent need to generate and implement robust evidence-based effective, and culturally safe smoking cessation strategies. These strategies are urgently required to inform smoking and nicotine cessation and to ultimately protect Australians’ human right to health, meeting national targets and reducing the tobacco burden of disease and death.

Evidence demonstrates the safety and effectiveness of Nicotine Replacement Therapy (NRT) and telephone Quitline⁸ in the general population. However, research suggests that Aboriginal and Torres Strait Islander people are not routinely accessing or being offered such evidence-based cessation support.⁹ Furthermore, only 37% of Aboriginal and Torres Strait Islander people have reported ever using NRT, and those who lived in remote areas were less likely to have reported using NRT compared to those living in urban and regional areas.¹⁰ There is limited evidence on what smoking cessation supports are utilized, accessible, and effective among Aboriginal and Torres Strait Islander people which directly impacts evidence-based policy and practice.

This paper aims to examine and describe the smoking and quitting characteristics, as well as the contemporary use of cessation supports and aids among Aboriginal and Torres Strait Islander people who smoke and want to quit. Furthermore, this paper explores the factors associated with NRT use, adherence to NRT use during previous quit attempts, and intention to use Quitline using baseline data from the *Koori Quit Pack* study.¹¹ Understanding the characteristics of people’s current use of cessation supports and their quitting behaviors can help inform tailored smoking cessation support.

Methods

Research Team

This research is informed by an Indigenous research paradigm.^{12,13} We acknowledge that our worldview influences the ways in which the research was conceptualized, conducted, reported, and disseminated. This Aboriginal-led study is (co)owned with Aboriginal community partners, bringing forward community-led research questions to increase the

generation and dissemination of meaningful tobacco control evidence. The study was conceptualized and led by the first author (MK, Wiradjuri woman), in partnership with Aboriginal communities in New South Wales (NSW) and Victoria. Our team brings Aboriginal lived experience (MK, CC, KC, KRB, and JF), Indigenous lived experience (RM), expertise in Aboriginal health services (BD), and tobacco research (MK, RM, CC, AGM, KB, CS, and BB). Two Aboriginal Research staff (KRB and JF) led the data collection, as well as supported analysis and interpretation of findings.

Governance

Aboriginal and Torres Strait Islander people have led and informed all aspects of this study from design to dissemination. The *Koori Quit Pack* study arose from community priorities identified by the Aboriginal Health & Medical Research Council (AH&MRC) Tobacco Advisory Committee. The Aboriginal Health and Medical Research Council (AH&MRC), Victorian Aboriginal Community Controlled Organization (VACCHO), NSW/Australian Capital Territory (ACT), and Victorian Quitline’s led the study design. Partnering organizations have overseen the data collection, analysis, interpretation, and reporting to ensure appropriate community involvement. Preliminary findings were shared with Aboriginal Community Controlled Health Services across NSW and Victoria to assist ensure appropriate interpretation, framing, and contextualization of the findings.

Ethics

Community-based approval and agreements were developed with partnering organizations to uphold data sovereignty principles.¹⁴ The project upholds ethical principles of research with Aboriginal and Torres Strait Islander peoples consistent with the National Health and Medical Research Council’s Guidelines for ethical conduct in Aboriginal and Torres Strait Islander health research, the Aboriginal Health and Medical Research Council’s AH&MRC ethical guidelines: key principles (2020) V2.0. Ethical approvals were obtained from the Aboriginal Health & Medical Research Council Ethics Committee of NSW [1894/21] and the University of Newcastle [H-2022-0174]. All participants provided informed consent. The study is registered with the Australian New Zealand Clinical Trials Registry (ANZCTR 12622000654752). The reporting of the project has been conducted in line with the CONSIDER statement¹⁵ and ethical publishing practices.¹⁶

The Koori Quit Pack Study

The *Koori Quit Pack* is an Aboriginal-led study that assesses the feasibility and acceptability of a mailout smoking cessation support for Aboriginal and Torres Strait Islander people. The *Koori Quit Pack* provided Aboriginal and Torres Strait Islander people who smoke and want to quit in NSW, ACT, and Victoria with a mailout smoking cessation pack that included readily available quitting resources. This included pamphlets, information on government-provided mobile apps, Aboriginal and Torres Strait Islander-specific supports such as the Aboriginal Quitline webpage (culturally safe smoking cessation service provider run by Aboriginal and Torres Strait Islander people), health promotion and Aboriginal merchandise as well as optional free mailout combination NRT (patch plus oral form), multiple check-in telephone calls from researchers, and a proactive Quitline referral. Further details on the mail-out support offered have been reported elsewhere.^{11,17}

Eligibility Criteria

Individuals were eligible to participate if they met the following criteria: (1) self-identified as Aboriginal and/or Torres Strait Islander; (2) aged 16 years and above; (3) lived in NSW, ACT, or Victoria; (4) were smoking daily; and (5) had intentions to make a quit attempt within 30 days of enrollment to the program. Potential participants were provided with an information sheet and gave consent online before progressing to the eligibility survey. Those who did not meet eligibility were automatically advised and redirected to available cessation supports, and the survey ended. After screening, all eligible participants were asked to provide contact details to schedule baseline data collection.

Procedures

Participant recruitment was conducted using the following two strategies:

- (1) Face-to-face through partnering with Aboriginal Community Controlled Health Services (ACCHS) (in line with annual health checks, visits to the doctor, and community events), potential participants were provided with a recruitment card with a QR code for the program; and
- (2) Self-referral through service-targeted online social media recruitment using Facebook advertising and posts shared by ACCHS and Quitlines.

Baseline Data Collection

The baseline survey was administered by two Aboriginal research staff (one female [JF] and one male [KRB]). Acknowledging cultural safety, cultural practices, and the importance of self-determination, participants selected the Aboriginal research staff member of their choice for data collection and support. Data were collected between May 31, 2022, and October 07, 2022, via ~10-minute telephone interview and entered manually into the secure REDCap system.

Measures

Sociodemographic Characteristics

Age, gender, postcode, level of education, and frequency of anyone smoking inside their home. Participants' postcode was used to derive remoteness and area-level socioeconomic disadvantage (SEIFA). A score of lower than 1000 was used to indicate relatively greater socioeconomic disadvantage and a score of >1000 was categorized as "nil/no" socioeconomic disadvantage.¹⁸

Smoking, Cigarette, and Nicotine Behaviors

Type of products the participant usually used (participants were asked to select one or more of the products they usually used, including cigarettes, roll-your-own cigarettes, e-cigarettes, cigars, and water pipes), and the level of nicotine dependence using the Heaviness of Smoking Index (HSI). The HSI was categorized as low addiction (a score of 0–2), moderate addiction (a score of 3–4), and high addiction (a score of 5–6).¹⁹ The frequency of the urge to smoke in the last 24 hours (FUTS) was categorized as Low (not at all, a little of the time, some of the time) and High (a lot of the time, almost all the time, all the time). The strength of urges to smoke (SUTS) was categorized into Low (no, slight, moderate) and High (strong, very strong, extremely strong) This

tool has been used successfully among Aboriginal and Torres Strait Islander People.^{20,21}

Motivation and Confidence in Quitting Smoking

The level of motivation to quit smoking out of 10 (1 being "very low" and 10 being "very high") and confidence to quit smoking ("not at all," "slightly," "moderately," "very," or "extremely" confident).²¹ The level of confidence to quit smoking was categorized as low (Not at all, slightly, moderately confident, don't know) and high (very or extremely confident). Motivation to give up smoking was also categorized as low (rated 1 to 5) and high (rated 6 to 10).

Quitting—History and Intention

The number of quit attempts; methods of quit attempts (abrupt or cutting down); use of any support(s) such as Quitline; use of NRT; perceived safety and efficacy of NRT, duration and frequency of medication use; intention to use NRT; and the preferred NRT for current quit attempt. Adherence to NRT use in quit attempt(s) was assessed using the self-reported duration and weekly consumption pattern of NRT during participants' most recent quit attempts. Participants were deemed adherent if they used NRT for at least 4 weeks and on average 5 or more days per week.^{22,23} Participants were asked if they wanted to be referred to the Aboriginal Quitline service.

Mental Health and Well-Being

The adapted patient health questionnaire (aPHQ-9) for use by Aboriginal and Torres Strait Islander peoples was used to explore symptoms of depression.²⁴ The scoring ranges from 0 to 27 and a cut point of 10 was used to classify as reporting depressive symptoms. Participants with a score of 10 (moderate to severe depressive symptoms) were encouraged to contact their local General Practitioner and provided with the phone numbers for immediate online support (Lifeline or Mental Health Line).

Data Analysis

Descriptive statistics were calculated for sociodemographic characteristics, mental health status, smoking, quitting, NRT use, type of support in quit attempt(s), and intention to use and preferred NRT and perceived safety and effectiveness of NRT.

Cross-tabulation with Pearson's chi-square test with a p -value < .05 indicating a statistically significant association was used to evaluate the relationship between the following variables: age of participants, none versus any depressive symptoms, level of nicotine addiction, adherence to NRT use in previous quit, socioeconomic index, remoteness, strength, and frequency of urges to smoke, level of motivation and confidence to quit smoking.

Logistic regression was used to evaluate the factors associated with previous use of NRT, adherent use of NRT during quit attempt(s), and intention to use Quitline services. Factors that were found to be relevant to the outcomes and that illustrated a p -value of $\leq .2$ in the univariate logistic regression were included in the multivariable logistic regression. To identify significant associations a p -value of .05 was used as a cutoff point and results were expressed by using odds ratio (OR) with 95% confidence interval (CI). All analysis was undertaken using SPSS statistical software version 27.0.

Results

Participant Characteristics

A total of 165 participants met all eligibility criteria and consented to the study, demographic characteristics are presented in Table 1. Participants were predominantly female (79.4%; $n = 131$), the mean age was 41.1 years, 50.9% ($n = 84$) residing in metropolitan areas, and 49.1% ($n = 81$) in rural and remote areas. More than half of the participants (57%; $n = 94$) were from areas with sociodemographic disadvantages (SEIFA score < 1000; Table 1).

Smoking, Cigarette, and Nicotine Characteristics

The most commonly used products were regular cigarettes (84.8%; $n = 140$) and roll-your-own cigarettes (26.7%; $n = 44$). One in ten participants (10.3%; $n = 17$) reported using e-cigarettes. The mean duration of smoking was found to be 24.73 years (SD=11.88). Based on the HSI score, the majority of participants had moderate to high levels of nicotine

addiction (60.6% [$n = 100$] had moderate addiction and 21.2% [$n = 35$] had high addiction). More than half (62.2%; $n = 102$) reported the urge to smoke cigarettes most to all the time. Six in ten participants (63.6%; $n = 105$) reported strong urges to smoke (Table 2).

The chi-squared test indicated a significant ($p < .05$) association of the level of nicotine addiction with age category, level of motivation, frequency (FUTS), and strength of urge to smoke (SUTS).

The majority of participants with higher levels of nicotine addiction (68.6%; $n = 24$) were in the age group between 31 and 45 years ($p = .010$). Older age groups were more likely to report stronger urges to smoke. Respectively, 67.1% ($n = 57$) and 70.4% ($n = 38$) participants in the age group of 31–45 and above 45 years reported experiencing strong urges to smoke, as compared to 38.5% ($n = 10$) in the age group below 30 years ($p = .014$). The vast majority of participants with high levels of nicotine addiction reported frequent urges to smoke (82.4%; $n = 28$; $p = .001$) and stronger urges (82.9%; $n = 29$; $p = .009$; Table S1).

Quitting—History and Intention

Almost all participants believed quitting could improve their health (99.4%; $n = 164$). The vast majority (93.9%; $n = 155$) had made at least one previous quit attempt. Just over half of the participants (56.1%; $n = 87$) had tried to quit by cutting down the number of cigarettes smoked per day before completely stopping smoking. When asked about their longest quit attempt, 43.2% ($n = 67$), 21.3% ($n = 33$), and 14.2% ($n = 22$) of participants, respectively, had remained smoke-free for weeks, months, and years before experiencing a relapse. A third of the participants (33.1%; $n = 51$) had made at least five previous quit attempts. During participants' previous quit attempt, under half of the participants (40.6%; $n = 67$) used behavioral support: 8.5% ($n = 14$) used Quitline, 26.7% ($n = 44$) used mobile phone apps, and 9.6% ($n = 16$) used some other type of support such as reading cessation literature in a pamphlet or on the internet. The mean motivation score to quit smoking was found to be 8.03 ± 1.66 out of a maximum score of 10, with 92.7% ($n = 153$) of participants rating their level of motivation above 6. Approximately half (46.7%; $n = 77$) of the participants were confident they could quit smoking in their current attempt (Table 3).

All participants with low levels of nicotine addiction reported having a higher motivation to quit smoking as compared to 94% ($n = 94$) and 82.9% ($n = 29$) of participants in the category of moderate and high levels of nicotine addiction respectively ($p = .022$; Table S1).

Attitude and Previous Use of NRT

The majority of participants believed NRT to be safe (80.6%; $n = 133$) and effective (70.3%; $n = 116$) in supporting quit attempts. Most participants (89%; $n = 138$) had tried one or more forms of NRT during their previous quit attempts. Nearly four in ten (37.8%; $n = 51$) participants used the NRT five or more times per week for at least 4 weeks during their previous NRT use to support their quit attempt. The majority of participants (92.2%; $n = 47$) who reported adherent NRT use in previous quit attempts did not report depressive symptoms ($p = .036$; Table S1).

Among participants who had previous quit attempts and never tried NRT ($n = 17$), the most common reasons were the cost of NRT (41.2%; $n = 7$), wanting to quit without medical

Table 1. Sociodemographic Characteristics

Sociodemographic characteristics	Frequency (n)	Percent (%)
Age (Mean $\pm$ SD)	41.13 $\pm$ 10.69 years	
16–30 years	26	15.8
31–45 years	85	51.5
46 years and over	54	32.7
Gender		
Men	34	20.6
Women	131	79.4
Indigenous origin		
Aboriginal	161	97.6
Torres Strait Islander	2	1.2
Aboriginal and Torres Strait Islander	2	1.2
Highest level of education		
Primary school, or up to year 9	20	12.2
Year 10–11	33	20.1
Year 12	14	8.5
Current student at university/TAFE/apprentice	9	5.5
Trade certificate	61	37.2
University degree	27	16.5
Remoteness		
Metropolitan area	84	50.9
Remote and rural areas	81	49.1
Socioeconomic disadvantage (SEIFA)		
No socioeconomic disadvantage (1000 and above)	71	43
Greater socioeconomic disadvantage (Less than 1000)	94	57
State or territory		
New South Wales	137	83
Australian Capital Territory	4	2.4
Victoria	24	14.5
Have children		
No	40	24.2
Yes	125	75.8

Table 2. Smoking Cigarette and Nicotine Behavior Characteristics

Smoking cigarette and nicotine behavior characteristics	Frequency (n)	Percent (%)
Types of tobacco products (multiple response)		
Cigarettes	140	84.8
Roll-your-own cigarettes from commercial tobacco	44	26.7
Roll-your-own cigarettes from chop-shop or other cheap sources	2	1.2
E-cigarette/Vape with nicotine	15	9.1
E-cigarette/Vape without nicotine	2	1.2
Cigars	0	0
Shisha or pipe or hookah (water pipe)	1	0.6
Years of smoking (Mean $\pm$ SD)	24.73 $\pm$ 11.88	
10 years and less	18	10.9
11 to 20 years	54	32.7
21 years and more	93	56.4
Time to first cigarette after waking up		
Within 5 minutes (3)	64	38.8
6–30 minutes (2)	77	46.7
31–60 minutes (1)	14	8.5
After 60 minutes (0)	10	6.1
Number of cigarettes smoked per day		
10 or fewer (0)	19	11.5
11–20 (1)	79	47.9
21–30 (2)	54	32.7
31 or more (3)	13	7.9
Heaviness of smoking index (HSI)		
Low addiction (0–2)	30	18.2
Moderate addiction (3–4)	100	60.6
High addiction (5–6)	35	21.2
Frequency of urge to smoke in the last 24 hours (FUTS)		
A little of the time	8	4.9
Some of the time	54	32.9
A lot of the time	61	37.2
Almost all the time	21	12.8
All the time	20	12.2
Frequency of urge (FUTS)		
Low (Not at all, a little of the time, some of the time)	62	37.8
High (a lot of the time, almost all the time, all the time)	102	62.2
Strength of urges to smoke (SUTS)		
No urges	0	0
Slight	10	6.1
Moderate	50	30.3
Strong	57	34.5
Very strong	36	21.8
Extremely strong	12	7.3
Strength of urges to smoke (SUTS)		
Low (No, Slight, Moderate)	60	36.4
High (strong, very strong, extremely strong)	105	63.6
Frequency of people who smokes at home		
Daily	25	15.2
Weekly	4	2.4
Less than monthly	1	0.6
Never	135	81.8

treatment (41.2%; $n = 7$), and concerns about side-effects (23.5%; $n = 4$).

Almost all participants (99.4%; $n = 164$) were interested in receiving NRT for free and delivered to their homes. The majority of participants preferred to use nicotine patches (85.5%; $n = 141$) and NRT inhalers (69.7%; $n = 115$) to support their current quit attempt (Table 4).

Factors Associated With Previous NRT Use, Adherence, and Intention to Use Quitline

Adherence to NRT use during previous quit attempts was more than three-fold higher among participants who did not report depressive symptoms (AOR = 3.47, 95% CI: 1.04 to 11.54, $P = .042$). Intention to use Quitline in the current quit attempt was three-fold higher among participants in the age group 31–45 years as compared to participants in the age group of less than 31 years (AOR = 3.12, 95% CI: 1.01 to 9.76, p -value .050). No factors were associated with NRT use during participants' previous quit attempts (Table S2).

Mental Health and Well-Being

Approximately one in five (18.2%; $n = 30$) participants scored 10 and above on the aPHQ-9, indicating (moderate to severe) level of depressive symptoms, and were offered links and contact numbers of mental health support.

The chi-squared test indicated a significant positive association between reporting (moderate and/or severe) levels of depressive symptoms with frequency and SUTS. The vast majority of participants with depressive symptoms reported frequent urges to smoke (82.8%; $n = 24$; $p = .011$) and stronger urges (83.3%; $n = 25$; $p = .012$). Nearly half of the participants (42%; $n = 47$) who had no depressive symptoms were found to be adherent to NRT during previous quit attempts. Whereas the majority of participants who reported symptoms of moderate to severe depression (81.8%; $n = 18$) were not adherent to NRT during their previous quit attempt ($p = .036$; Table S1).

Discussion

The *Koori Quit Pack* study recruited 165 Aboriginal and Torres Strait Islander people who smoked and wanted to quit in just three months, including a balance between urban and rural/remote areas and those from areas with the most socio-economic disadvantage. We found that Aboriginal and Torres Strait Islander people enrolling in the study were highly motivated to quit, believed that quitting would improve their health, are making ongoing attempts to be smoke-free, and reported having smoke-free homes. Use of behavioral supports during previous quit attempts was also high and the majority of participants believed that NRT is safe and effective, with most previously using NRT.

These research findings are consistent with other studies that report that Aboriginal and Torres Strait Islander people want to quit, and wish they never took up smoking.^{20,21} The study found a high use of behavioral supports during previous quit attempts among participants as compared to evidence in the general Australian population who smoke.²⁵ While this study reported lower interest in Quitline service utilization in previous and current quit attempts compared to NRT and phone apps, this was still higher than reported in previous research.²⁶ While previous studies have reported low rates of health provider referral to Quitline, it is likely that a higher

Table 3. Quitting History, Perception About Quitting, Confidence, and Motivation to Quit

Quitting characteristics	Frequency (n)	Percent (%)
Quitting smoking improves my health		
Strongly agree	136	82.4
Agree	28	17
Neutral	1	0.6
Disagree	0	0
Strongly disagree	0	0
Motivation to quit smoking (1 = very low motivation and 10 = very high motivation) (Mean $\pm$ SD)	8.03 $\pm$ 1.66	
Low (1 to 5)	12	7.3
High (6 to 10)	153	92.7
Confidence to quit smoking		
Not at all confident	4	2.4
Slightly confident	13	7.9
Moderately confident	67	40.6
Very confident	55	33.3
Extremely confident	22	13.3
Don't know	4	2.4
Level of confidence		
Low (not at all, slightly, moderate, don't know)	88	53.3
High (very, extremely)	77	46.7
Ever tried to quit in the past		
No	10	6.1
Yes	155	93.9
Cut down before quitting		
No	68	43.9
Yes	87	56.1
Number of quit attempts		
1 time	18	11.7
2–3 times	63	40.9
4–5 times	22	14.3
5 and above times	51	33.1
The longest smoke-free time		
For hours	9	5.8
For days	24	15.5
For weeks	67	43.2
For months	33	21.3
For years	22	14.2
Ever used the following		
Quitline	14	8.5
Website	4	2.4
Mobile phone apps	44	26.7
Pamphlet	6	3.6
Others	6	3.6
None	98	59.4
Want to contact Quitline		
No	133	80.6
Yes	32	19.4

proportion of Aboriginal and Torres Strait Islander people are self-referring to Quitline services.²⁷ Furthermore, this study found that participants aged 31–45 years were three times more likely to use Quitline than those 30 years and under. This increase in access may reflect this age group's needs, including reporting higher levels of nicotine addiction, more frequent (FUTS), and stronger urges to smoke (SUTS) coupled with lower levels of motivation to quit smoking than those 30 years and under. These findings highlight opportunities for increased efforts to engage and promote Quitline to youth, elderly, and elders. Promoting the increased channel options for communicating with Quitline (eg, webchat, SMS, and some social media channels) may increase youth and young people's engagement with Quitline. Promotion and resourcing, including funding and continuity for Aboriginal Quitline services that are run by and for Aboriginal and Torres Strait Islander people, could also increase Quitline uptake and improve health outcomes. Services led and staffed by individuals who share the cultural background of the Aboriginal and Torres Strait Islander communities increase trust and understanding, breaking down barriers to accessing support.^{6,17,21,28} This cultural congruence boosts engagement and effectiveness. Tailored Quitline services for Aboriginal and Torres Strait Islander communities address unique cultural, social, and environmental factors, enhancing smoking cessation efforts.

Depressive symptoms impose a significant moderating effect on the success of smoking cessation attempts.^{9,29} This study found that one in five participants met the screening criteria for moderate to severe depressive symptoms, which may impact quit attempts. Participants reporting depressive symptoms also reported more intense and frequent urges to smoke compared to those who did not have major depressive symptoms. Depressive symptoms can reduce quit attempts by diminishing motivation, exacerbating cravings and withdrawal symptoms, reducing social support, and fostering negative self-perception. Addressing depression concurrently with smoking cessation efforts can be essential for improving the likelihood of successful quitting.²⁹ This study further highlights the importance of service providers offering comprehensive screening and support to Aboriginal and Torres Strait Islander people who smoke and want to quit, ultimately improving health outcomes.

This study found higher than previously reported quit attempts among Aboriginal and Torres Strait Islander people, perhaps due to our sample being interested in joining a smoking cessation study.³⁰ Previous research reporting quit attempts (2012–2013) found that 69% of current smokers and recent quitters have ever made a quit attempt.³⁰ However, over nine in ten participants in this study reported attempting to quit smoking at least once, with three in ten making five or more attempts. Our findings coincide with evidence that Aboriginal and Torres Strait Islander people are more likely to have ever made a quit attempt than non-Indigenous Australians but are less likely to succeed.³¹ Use of cessation supports including Quitline and NRT in the study was also higher than previously reported.³⁰ In addition, nine in ten participants reported trying one or more forms of NRT during previous quit attempts. Healthcare providers should recognize the encouraging attitudes of Aboriginal and Torres Strait Islander peoples towards NRT and provide tailored education and support on the appropriate use of NRT to achieve maximum effect. This ensures cultural appropriateness, enhances resource

Table 4. Attitude, Previous Use, and Intention to Use Nicotine Replacement Therapy

NRT characteristics	Frequency (n)	Percent (%)
Ever used NRT		
No	17	11.0
Yes	138	89.0
Frequency of NRT use on previous quit attempt		
Used it occasionally, 1–2 times a week	12	8.8
Used it 3–4 times a week but not all doses	6	4.4
Occasionally missed a dose	14	10.2
Used most doses, every day	105	76.6
Frequency of NRT use binary		
Adherent to weekly use (occasionally missed a dose and used most doses, every day)	119	86.9
Not Adherent to weekly use (used it occasionally, 1–2 times a week; and used it 3–4 times a week but not all doses)	18	13.1
Duration of NRT use		
For less than 1 week	18	13.3
For 1–2 weeks	29	21.5
For 2–4 weeks	34	25.2
For 4–6 weeks	33	24.4
For longer than 4–6 weeks	21	15.6
Duration of NRT use binary		
Adherent based on duration (For 4–6 weeks and For longer than 4–6 weeks)	54	40
Non-adherent based on duration (for less than 1 week; For 1–2 weeks; and For 2–4 weeks)	81	60
Adherence using both frequency and duration		
Yes	51	37.8
No	84	62.2
Believe NRT is safe		
Strongly agree	54	32.7
Agree	79	47.9
Neutral	32	19.4
Disagree	0	0
Strongly disagree	0	0
Believe NRT is effective		
Strongly agree	46	27.9
Agree	70	42.4
Neutral	49	29.7
Disagree	0	0
Strongly disagree	0	0
Reason for not using NRT on previous quit attempt (N = 17)		
Haven't heard of stop smoking medications, or don't know much about them	1	5.9
Not interested in quitting, or not ready to quit	1	5.9
Don't think it will work	2	11.8
Availability	1	5.9
Concerns about side-effects	4	23.5
Cost of NRT	7	41.2
Medical advice not to use them	0	0

Table 4. Continued

NRT characteristics	Frequency (n)	Percent (%)
Prefer not to use medicines	1	5.9
Wanting to quit on my own, without help	7	41.2
Worried about getting addicted to them	0	0
Inconvenience of going to fill a prescription	0	0
Other reason	1	5.9
NRT provider		
Doctor's prescription	92	66.7
Bought by my self	27	19.6
Aboriginal health workers	4	2.9
Chemists	2	1.4
Other	13	9.4
Currently using NRT		
No	154	93.3
Yes	11	6.7
Interested in receiving NRT for free		
No	1	0.6
Yes	164	99.4
Interested in receiving NRT to my mail address		
No	1	0.6
Yes	164	99.4
Type of preferred NRT		
Nicotine patch	141	85.5
Nicotine gum	22	13.3
Lozenge	45	27.3
Mouth spray	47	28.5
Inhalers	115	69.7

NRT = Nicotine Replacement Therapy

accessibility, and optimizes effectiveness. This, narrows the discrepancy in smoking rates and quitting attempts, ultimately fostering improved health outcomes and lessening disparities between Indigenous and non-Indigenous communities.

Among study participants 37.8% self-reported to be adherent to NRT use during their recent quit attempt. This rate is higher than a recent self-reported national study conducted among the general Australian population that found an adherence rate of 28.4%.²² This study found that depressive symptoms were negatively associated with self-reported adherence rate to NRT. Previous studies among the general population have reported a significant association between adherence to NRT and success of smoking cessation.^{23,32} Participants in the Koori Quit Pack study who did not meet the diagnostic threshold for having depressive symptoms were more than three times adherent to NRT during their previous quit attempt than participants who reported depressive symptoms. This coincides with evidence in the general population^{22,33} and should be acknowledged by health providers when providing brief interventions, referrals, and medications to support quit attempts. People with depressive symptoms may face challenges during their quit attempts, experiencing intense and frequent cravings leading to relapse and non-adherence.³³ Depression can also impact motivation to quit and follow a quit plan, impacting non-adherence.³³

The connections between depression, well-being, and tobacco use are complex,³⁴ necessitating further research to comprehend the underlying mechanisms. It is possible that there are shared pathways, wherein smoking increases the risk of depression, and vice versa, where depression raises the likelihood of smoking. These observed links may be partly influenced by reverse causality, as Aboriginal and Torres Strait Islander peoples, due to factors like colonization, racism, and associated social determinants (eg, low socioeconomic status, exclusion from healthcare), are more prone to experiencing depression. Engaging in certain health behaviors, such as smoking, may exacerbate their health and well-being challenges. These associations likely involve bidirectional influences and may reinforce one another. However, regardless of the exact cause-and-effect relationships, the crucial focus should be on enhancing well-being and accelerating efforts to reduce tobacco use within this population.

This study found that Aboriginal and Torres Strait Islander people want support to quit smoking, which has been previously reported qualitatively.³⁵ Furthermore, participants of this study reported high acceptability of NRT with nicotine patches and/or inhalers as most commonly requested. There are barriers to accessing NRT inhalers, noting that NRT inhalers are not subsidized on the pharmaceutical benefits scheme.³⁶ This study found the cost of NRT was the main barrier to the use of NRT during their previous quit attempts. We urge governments to help ensure evidence-based NRT, including oral forms of NRT, are accessible.

Use of mobile phone apps during their previous quit attempt to support smoking cessation support was reported by one in four participants. This finding coincides with recent evidence of high interest in online and mobile phone support among Aboriginal and Torres Strait Islander women of reproductive age.³⁷ To date, there has only been one pilot study of a mobile phone app to support smoking cessation among Aboriginal and Torres Strait Islander people.³⁸ Evidence suggests further development and implementation of culturally appropriate mobile phone apps and online programs are warranted to support Aboriginal and Torres Strait Islander people quitting smoking.

These findings provide valuable insights into the ongoing opportunities for Australian governments and healthcare providers to enhance support to quit smoking. These findings highlight the acceptability of a range of smoking cessation supports and room for improvement to increase access and adherence. This evidence suggests that greater investment is required for culturally responsive smoking cessation supports developed and implemented for and by Aboriginal and Torres Strait Islander people and communities, consistent with the National Tobacco Strategy and Aboriginal Health Plan and the associated targets to accelerate reduction in tobacco use and the associated health harms.

Strengths and Limitations

This study adds to the growing body of evidence in tobacco control that has been developed for and by Indigenous peoples. This study is not a representative sample but offers useful insights for Aboriginal and Torres Strait Islander people who smoke and want to quit. While past Aboriginal and Torres Strait Islander research indicates a similar response rate between men and women,³⁹ we acknowledge higher rates of women participated in our study which may be attributed to

the online recruitment method⁴⁰ and warrants further investigation. Participants were asked to recall their experiences of smoking cessation, use of smoking cessation behavioral supports, and NRT use. Therefore, recall bias may have impacted the interpretation of study results in several ways: participants may not accurately remember or report their past behaviors, and participants may selectively recall certain experiences over others, depending on factors such as the perceived importance of the support.

Conclusion

We found that Aboriginal and Torres Strait Islander people are highly motivated to quit smoking and are making ongoing quit attempts. We also found that Aboriginal and Torres Strait Islander people are accessing available smoking cessation supports more than the general Australian population. However, there are key areas of improvement to enhance access and adherence to smoking cessation supports including health providers' proactive offer of support in conjunction with screening for depressive symptoms, subsidizing oral forms of NRT under the pharmaceutical benefits scheme, and development and implementation of online and mobile phone programs that embed behavioral support. This study offers crucial insights into the support required by Aboriginal and Torres Strait Islander peoples to quit smoking. By doing so, it contributes to designing effective smoking cessation interventions, essential for achieving the national tobacco strategy's goal of reducing smoking prevalence among Aboriginal and Torres Strait Islander people to below 27%. The rapid recruitment to the mailout trial also suggests that demand for mailout cessation support should also be assessed for potential scale-up nationally.

Supplementary material

Supplementary material is available at *Nicotine and Tobacco Research* online.

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Declaration of Interest

None declared.

Author Contributions

Amanual Mersha (Conceptualization [equal], Data curation [equal], Formal analysis [equal], Methodology [equal], Writing—original draft [equal], Writing—review & editing [equal]), Billie Bonevski (Conceptualization [equal], Methodology [equal], Writing—review & editing [equal]), Raglan Maddox (Conceptualization [equal], Methodology [equal], Writing—review & editing [equal]), Cath Chamberlaine (Conceptualization [equal], Writing—review & editing [equal]), Kerindy Clarke (Conceptualization [equal], Writing—review & editing [equal]), Joley Forster (Conceptualization [equal], Data curation [equal], Formal analysis [equal], Writing—review & editing [equal]), Kayden Roberts-Barker (Conceptualization [equal], Data curation [equal], Formal analysis [equal], Writing—review & editing [equal]), Kade Booth (Conceptualization [equal], Writing—review & editing [equal]), Cathy Segan (Conceptualization [equal], Writing—review & editing [equal]), and Michelle Kennedy (Conceptualization [equal], Data curation [equal], Formal analysis [equal], Funding acquisition [lead], Investigation [lead], Methodology [equal], Resources [lead], Supervision [lead], Writing—original draft [equal], Writing—review & editing [equal])

Data Availability

All relevant materials and data supporting the findings are included in the manuscript.

Patient and Public Involvement

The data collection, analysis, and reporting of this study is overseen by the Aboriginal Health & Medical Research Council Tobacco Advisory Committee to ensure appropriate community involvement.

Ethics Approval

Ethics approval was obtained from the Aboriginal Health & Medical Research Council Ethics Committee of NSW with approval number 1894/21 and the University of Newcastle with approval number of H-2022-0174. Informed consent was obtained from all participants.

References

- Maddox R, Thurber KA, Calma T, Banks E, Lovett R. Deadly news: the downward trend continues in Aboriginal and Torres Strait Islander smoking 2004–2019. *Aust N Z J Public Health*. 2020;44(6):449–450.
- Australian Institute of Health and Welfare (AIHW). *Alcohol, Tobacco & Other Drugs in Australia*. Canberra: Australian Institute of Health and Welfare; 2023. <https://www.aihw.gov.au/reports/alcohol/alcohol-tobacco-other-drugs-australia>. Accessed March 04, 2024.
- Waa A, Maddox R, Henderson PN. Big tobacco using Trojan horse tactics to exploit Indigenous peoples. *Tob Control*. 2020;29(e1):e132–e133. doi: [10.1136/tobaccocontrol-2020-055766](https://doi.org/10.1136/tobaccocontrol-2020-055766)
- Lovett R, Thurber K, Wright A, Maddox R, Banks E. 2017. Deadly Progress: changes in Australian Aboriginal and Torres Strait Islander adult daily smoking, 2004–2015. *Public Health Res Pract*. 2017;27(5):e2751742. doi: [10.17061/phrp2751742](https://doi.org/10.17061/phrp2751742)
- World Health Organisation (WHO). WHO Framework Convention on Tobacco Control. <https://fctc.who.int/who-fctc/overview>. Accessed August 08, 2022.
- Australian Government Department of Health. The National Preventive Health Strategy <https://www.health.gov.au/resources/publications/national-preventive-health-strategy-2021-2030?language=en>. Accessed April 26, 2023.
- New South Wales Government. NSW Aboriginal Health Plan 2013–2023. <https://www.health.gov.au/resources/publications/national-aboriginal-and-torres-strait-islander-health-plan-2013-2023?language=en>. Accessed May 17, 2023.
- Hartmann-Boyce J, Chepkin SC, Ye W, Bullen C, Lancaster T. Nicotine replacement therapy versus control for smoking cessation. *Cochrane Database Syst Rev*. 2018;5(5):CD000146. doi: [10.1002/14651858.CD000146.pub5](https://doi.org/10.1002/14651858.CD000146.pub5)
- Thomas DP, Bennet PT, Briggs VL, et al. Smoking cessation advice and non-pharmacological support in a national sample of Aboriginal and Torres Strait Islander smokers and ex-smokers. *Med J Aust*. 2015;202(S10):S73–S77. doi: [10.5694/mja15.00293](https://doi.org/10.5694/mja15.00293)
- Thomas DP, Briggs VL, Couzos S, et al. Use of nicotine replacement therapy and stop-smoking medicines in a national sample of Aboriginal and Torres Strait Islander smokers and ex-smokers. *Med J Aust*. 2015;202(S10):S78–S84.
- Kennedy M, Mersha AG, Maddox R, et al. Koori quit pack mailout smoking cessation support for Aboriginal and Torres Strait Islander people who smoke: a feasibility study protocol. *BMJ Open*. 2022;12(10):e065316. doi: [10.1136/bmjopen-2022-065316](https://doi.org/10.1136/bmjopen-2022-065316)
- Wilson S. *Research is Ceremony: Indigenous Research Methods*. Canada: Hignell Book Publishing; 2008.
- Moreton-Robinson A. *Relationality: A Key Presupposition of an Indigenous Social Research Paradigm*. United Kingdom: Sources and Methods in Indigenous Studies. United Kingdom: Routledge; 2017, 69–77.
- Lovett R, Lee V, Kukutai T, Cormack D, Rainie S, Walker J. Good data practices for indigenous data sovereignty and governance. Australia. In: Daly A, Devitt SK, Mann M, eds. *Good Data*. Amsterdam, Netherlands: Amsterdam Institute of Network Cultures; 2019, 26–36.
- Huria T, Palmer SC, Pitama S, et al. Consolidated criteria for strengthening reporting of health research involving indigenous peoples: the CONSIDER statement. *BMC Med Res Methodol*. 2019;19(1):173. doi: [10.1186/s12874-019-0815-8](https://doi.org/10.1186/s12874-019-0815-8)
- Maddox R, Drummond A, Kennedy M, et al. Ethical publishing in ‘Indigenous’ contexts. *Tob Control*. 2023;32(e1):tc–2022. doi: [10.1136/tc-2022-057702](https://doi.org/10.1136/tc-2022-057702)
- Kennedy M, Maddox R, Getnet Mersha A, et al. Koori Quit Pack: a feasibility study of mailout smoking cessation support for Aboriginal and Torres Strait Islander people: “I would recommend it to anybody. It’s just so much easier.” *Nicotine Tob Res*. 2024.
- Ghosh A, Charlton KE, Batterham MJ. Socioeconomic disadvantage and its implications for population health planning of obesity and overweight, using cross-sectional data from general practices from a regional catchment in Australia. *BMJ Open*. 2016;6:e010405. doi: [10.1136/bmjopen-2015-010405](https://doi.org/10.1136/bmjopen-2015-010405)
- Heatherton TF, Kozlowski LT, Frecker RC, Rickert W, Robinson J. Measuring the heaviness of smoking: using self-reported time to the first cigarette of the day and number of cigarettes smoked per day. *Br J Addict*. 1989;84(7):791–799. doi: [10.1111/j.1360-0443.1989.tb03059.x](https://doi.org/10.1111/j.1360-0443.1989.tb03059.x)
- Fidler JA, Shahab L, West R. Strength of urges to smoke as a measure of severity of cigarette dependence: comparison with the Fagerström test for nicotine dependence and its components. *Addiction*. 2011;106(3):631–638. doi: [10.1111/j.1360-0443.2010.03226.x](https://doi.org/10.1111/j.1360-0443.2010.03226.x)
- Kennedy M, Barrett E, Heris C, et al. Smoking and quitting characteristics of Aboriginal and Torres Strait Islander women of reproductive age: findings from the Which Way? study. *Med J Aust*. 2022;217(S2):S6–S18. doi: [10.5694/mja2.51630](https://doi.org/10.5694/mja2.51630)
- Mersha AG, Kennedy M, Eftekhari P, Gould GS. Predictors of adherence to smoking cessation medications among current and ex-smokers in Australia: findings from a National Cross-Sectional

- Survey. *Int J Environ Res Public Health*. 2021;18(22):12225. doi: [10.3390/ijerph182212225](https://doi.org/10.3390/ijerph182212225)
23. Mersha AG, Eftekhari P, Bovill M, Tollosa DN, Gould GS. Evaluating level of adherence to nicotine replacement therapy and its impact on smoking cessation: a systematic review and meta-analysis. *Arch Public Health*. 2021;79(1):26. doi: [10.1186/s13690-021-00550-2](https://doi.org/10.1186/s13690-021-00550-2)
 24. Getting it Right Collaborative Group. Getting it right: validating a culturally specific screening tool for depression (aPHQ-9) in Aboriginal and Torres Strait Islander Australians. *Med J Aust*. 2019;211(1):24. doi: [10.5694/mja2.50212](https://doi.org/10.5694/mja2.50212)
 25. Cooper J, Borland R, Yong HH. Australian smokers increasingly use help to quit, but number of attempts remains stable: findings from the International Tobacco Control Study 2002-09. *Aust N Z J Public Health*. 2011;35(4):368-376. doi: [10.1111/j.1753-6405.2011.00733.x](https://doi.org/10.1111/j.1753-6405.2011.00733.x)
 26. Greenhalgh EM, Stillman S, Ford C. Cessation assistance: telephone- and internet-based interventions. In: Greenhalgh EM, Scollo MM, Winstanley MH, eds. *Tobacco in Australia: Facts and Issues*. Melbourne: Cancer Council Victoria; 2022. <http://www.tobaccoinaustralia.org.au/chapter-7-cessation/7-14-methods-services-and-products-for-quitting-te>. Accessed May 19, 2023.
 27. White S, McCaffrey N, Scollo M. Tobacco dependence treatment in Australia – an untapped opportunity for reducing the smoking burden. *Public Health Res Pract*. 2020;30(3). doi:[10.17061/phrp3032020](https://doi.org/10.17061/phrp3032020)
 28. Booth K, Roberts-Barker K, Foster J, *et al*. "It's changed my life. I'm not smoking anymore. I don't want to smoke anymore": exploring the Acceptability of Mailout Smoking Cessation Support for and by Aboriginal and Torres Strait Islander People. *Nicotine Tob Res*. 2024. doi: [10.1093/ntr/ntae065](https://doi.org/10.1093/ntr/ntae065)
 29. Stepankova L, Kralikova E, Zvolaska K, *et al*. Depression and smoking cessation: evidence from a smoking cessation clinic with 1-year follow-up. *Ann Behav Med*. 2017;51(3):454-463. doi: [10.1007/s12160-016-9869-6](https://doi.org/10.1007/s12160-016-9869-6)
 30. Nicholson AK, Ron B, Davey M, Stevens M, Thomas D. Past quit attempts in a national sample of Aboriginal and Torres Strait Islander smokers. *Med J Aust*. 2015;202(10):92. doi: [10.5694/mja15.00202](https://doi.org/10.5694/mja15.00202)
 31. AIHW. *Tobacco Indicators: Measuring Midpoint Progress—Reporting Under the National Tobacco Strategy 2012–2018*. Canberra: AIHW; 2016.
 32. Mersha AG, Eftekhari P, Kennedy M, Gould GS. Factors associated with quitting among smoking cessation medication-assisted smokers and ex-smokers: a cross-sectional study in Australia. *Prev Med Rep*. 2023;32(102168):102168. doi: [10.1016/j.pmedr.2023.102168](https://doi.org/10.1016/j.pmedr.2023.102168)
 33. Mersha AG, Gould GS, Bovill M, Eftekhari P. Barriers and facilitators of adherence to nicotine replacement therapy: a systematic review and analysis using the capability, opportunity, motivation, and behaviour (COM-B) model. *Int J Environ Res Public Health*. 2020;17(23):8895. doi: [10.3390/ijerph17238895](https://doi.org/10.3390/ijerph17238895)
 34. Fluharty M, Taylor AE, Grabski M, Munafò MR. The association of cigarette smoking with depression and anxiety: a systematic review. *Nicotine Tob Res*. 2017;19(1):3-13. doi: [10.1093/ntr/ntw140](https://doi.org/10.1093/ntr/ntw140)
 35. Bovill M, Gruppeta M, Cadet-James Y, *et al*. Wula (Voices) of Aboriginal women on barriers to accepting smoking cessation support during pregnancy: findings from a qualitative study. Article. *Women Birth*. 2017;31(1):10-16. doi: [10.1016/j.wombi.2017.06.006](https://doi.org/10.1016/j.wombi.2017.06.006)
 36. Australian Department of Health. *Pharmaceutical Benefits Scheme (PBS)*. <https://www.pbs.gov.au/pbs/search?term=nicotine>. Accessed 04 April, 2023.
 37. Kennedy M, Heris C, Barrett E, *et al*. Smoking cessation support strategies for Aboriginal and Torres Strait Islander women of reproductive age: findings from the which way? Study. *Med J Aust*. 2022;217(S2):S19-S26. doi: [10.5694/mja2.51631](https://doi.org/10.5694/mja2.51631)
 38. Peiris D, Wright L, News M, *et al*. A smartphone app to assist smoking cessation among Aboriginal Australians: findings from a pilot randomized controlled trial. *JMIR Mhealth Uhealth*. 2019;7(4):e12745. doi: [10.2196/12745](https://doi.org/10.2196/12745)
 39. Wright A, Thurber KA, Yap M, *et al*. Who responds? An examination of response rates to a national postal survey of Aboriginal and Torres Strait Islander adults, 2018-2019. *BMC Med Res Methodol*. 2020;20(1):149. doi: [10.1186/s12874-020-00970-8](https://doi.org/10.1186/s12874-020-00970-8)
 40. Blumenberg C, Menezes AMB, Gonçalves H, *et al*. How different online recruitment methods impact on recruitment rates for the web-based coortesnaweb project: a randomised trial. *BMC Med Res Methodol*. 2019;19(1):127. doi: [10.1186/s12874-019-0767-z](https://doi.org/10.1186/s12874-019-0767-z)