

Use of mobile technologies for smoking cessation: a systematic review

Meret Lakeberg, Falk Hoffmann, Jannik Ohmes, Birte Berger-Höger, Jasmin Helbach

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Table of Contents

Original Manuscript 5

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Abstract

Background: Tobacco use remains a leading preventable cause of morbidity and mortality worldwide. Mobile health technologies offer promising, scalable tools for smoking cessation, but little is known about their actual or intended use among smokers.

Objective: To assess the prevalence of mobile technology use for smoking cessation among smokers and former smokers and to examine their intention to use.

Methods: MEDLINE via PubMed, Embase and PsycInfo were searched from inception to February 13, 2025. Studies were eligible if they reported prevalences of the use of mobile technologies for smoking cessation of (former) smokers in high-income countries. Study quality was assessed using the Joanna Briggs Institute tool for prevalence studies. Data synthesis was conducted narratively. A study protocol was registered in PROSPERO (CRD42025647875).

Results: A total of 27 studies with 117 to 27323 participants from high-income countries were included. All studies used a cross-sectional design. Reported lifetime prevalence of mobile technology use for smoking cessation ranged from 2.5% to 35.9%, depending on the technology type and population. Point and period prevalence were generally lower, with internet and app use during the most recent quit attempt ranging from 0% to 10.9%. The use was more common among younger individuals, with mixed findings regarding sex differences. Intention to use mobile technologies was generally higher than actual use, with up to 46.7% expressing willingness to use websites or apps to quit smoking.

Conclusions: Despite the widespread availability and demonstrated effectiveness of mobile technologies for smoking cessation, their actual use remains limited. The results indicate that greater emphasis should be placed on implementation strategies to bridge the gap between availability and actual use.

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Keywords: mHealth; digital health; quitting smoking; tobacco

Introduction

Tobacco consumption remains the leading preventable cause of disease, disability, and death worldwide, placing a substantial burden on public health systems [1]. Despite decades of prevention efforts, smoking - and vaping - tobacco continues to claim millions of lives each year. The *Global Burden of Disease Study 2019* reported 7.69 million smoking-attributable deaths and over 200 million disability-adjusted life years (DALYs), with 86.9% of these deaths occurring among current smokers [2]. According to the *WHO Tobacco Trends Report 2024*, approximately one in five adults globally still uses tobacco [3]. While smoking prevalence has steadily declined since the 1960s, particularly in high-income countries [4,5], the absolute number of smokers remains high. In Europe, the recent smoking prevalence ranges from 7% in Sweden up to 42% in Greece [6].

Smoking cessation interventions play a key role in prevention of smoking-related diseases. In 2022, approximately two-thirds of smokers in the US expressed an intention to quit, and about half of all smokers had made at least one quit attempt [7]. Unaided quit attempts result in long-term abstinence (6–12 months) in approximately 3–5% of cases, whereas the use of evidence-based support—such as behavioral counseling combined with nicotine replacement therapy, bupropion, or varenicline—can increase success rates by an additional 7–9% [8]. In Germany, data from the DEBRA study shows that smoking cessation attempts are common, but only 13.0% of individuals trying to quit in 2016–2019 used at least one evidence-based method [9]. This underlines a persistent gap between available evidence-based interventions and their real-world uptake.

Digital technologies, especially mobile health (mHealth) tools, offer new opportunities for delivering scalable, user-friendly, and cost-effective smoking cessation support [10]. These tools—such as mobile apps, text-messaging services, or other web-based interventions—are increasingly integrated into public health strategies and are recognized as digital public health interventions [11]. Studies have shown their effectiveness in promoting smoking abstinence [12–14], and their general use in health contexts is steadily increasing [15]. Although the number of apps and other tools for quitting smoking is growing, comparatively little is known about how frequently smokers actually use mobile technologies to support quit attempts, or about the intention to use such tools in the future. Data on actual usage patterns and user intentions are critical for understanding the public health impact of these tools, identifying disparities in access or engagement, and guiding future implementation and policy efforts.

Therefore, the primary aim of this systematic review is to provide information on the prevalence of the use of mobile technologies for smoking cessation of smokers and former smokers in high-income countries. A secondary aim is to examine the intention to use these technologies.

Methods

This systematic review was conducted in accordance to the Joanna Briggs Institute (JBI) guideline for systematic reviews of prevalence and incidence [16]. The reporting follows the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement [17]. A study protocol was registered in advance in the Prospective Register of Systematic Reviews (PROSPERO) (CRD42025647875).

Literature search

MEDLINE (via PubMed), Embase (via Elsevier), PsycInfo (via EBSCO) were searched from inception to February 13, 2025. The search strategy can be found in Supplementary material table S1. To complement the database searches, a forward (citing) and backward (cited) citation analysis of the included studies was performed on May 05, 2025, using Web of Science Core Collection following the TARCiS statement [18]. This analysis was repeated on newly included references until no additional studies could be identified, resulting in a second iteration on May 20, 2025 and a third iteration on May 22, 2025.

Eligibility criteria

We included published observational studies, including cross-sectional studies and cohort studies with data analyzed in a cross-sectional manner. We excluded PhD theses and conference abstracts as well as interventional studies, including randomized controlled trials (RCT). Exceptions were made for reports of RCTs with a cross-sectional analysis of baseline data. No language restrictions were applied.

The study eligibility criteria were defined using the CoCoPop (condition, context, population) approach, which is recommended for reviews of prevalence and incidence data [19].

Condition

To be included, studies had to report the use of mobile technologies for smoking cessation, addressing smoking of any tobacco product, such as cigarettes, or the use of vaporizers/ e-cigarettes. We included mobile technologies that function as standalone tools. The types of mobile technologies assessed in this review included mobile phone applications, SMS-based text messaging interventions, websites, web-based programs and social media platforms accessed via mobile devices, that provide informational or motivational content related to smoking cessation. Studies that referred to internet use as a smoking cessation resource, without specifying the access device, were included under the category of mobile technologies, acknowledging that a substantial proportion of internet use now occurs via mobile devices.

Studies examining the use of interventions that relied exclusively on videoconferencing, telephone calls, or online forums and social media used solely for direct interaction between individuals were excluded.

Context

For inclusion the studies had to be conducted in high-income countries according to the OECD-Development Assistance Committee's (DAC), to ensure greater transferability to the German context [20].

Population

Studies were required to include data on smokers and/or former smokers as defined by the study authors, with at least 100 individuals in these categories. Studies focusing on specific populations, such as patients with multiple sclerosis or students, were also considered if relevant. To minimize the risk of selection bias, studies exclusively involving individuals who had previously used a specific cessation technology were excluded.

Study selection

The search results were imported into EndNote (Version 20, Clarivate, Philadelphia, PA, USA), where duplicates were removed. For screening, the results were transferred to Rayyan (Qatar Computing Research Institute). To calibrate, all reviewers (ML, JH and JO) independently screened 100 articles based on title and abstract for inclusion or exclusion. After consensus on these records, ML and one other reviewer (JH or JO) independently screened all remaining titles/abstracts. The full texts of all articles that met the inclusion criteria were also assessed independently by ML and one other reviewer (JH or JO). Any discrepancies were resolved by consensus or, if necessary, by consultation with the third reviewer.

Data extraction

The data was extracted directly into the results tables by ML and were subsequently verified by a second reviewer (JO). Discrepancies were resolved through discussion or by a third reviewer (JH). The following items were extracted: study characteristics, characteristics of the study population, definition of smokers, prevalences of mobile technology use for smoking cessation, age- and sex-stratified prevalences of mobile technology use for smoking cessation, types of mobile technology and prevalences of the intention to use mobile technologies.

Quality assessment

The quality of the included studies was independently assessed by two reviewers (ML, JO) using the Joanna Briggs Institutes critical appraisal checklist for studies reporting prevalence data, which was adapted for our research question [21]. The quality assessment was piloted to calibrate the reviewers

using two studies. Any disagreement were resolved by discussion or by a third reviewer (JH).

Data synthesis

The data was summarized descriptively. Given the expected heterogeneity between studies, a meta-analysis was not conducted. Subgroup analyses were performed by sex and age. For studies reporting multiple time points, only the most recent data were included to reflect the most current usage patterns. If multiple articles based on the same study population were included, the most recent publication was selected for inclusion. The quality assessment was done for each report.

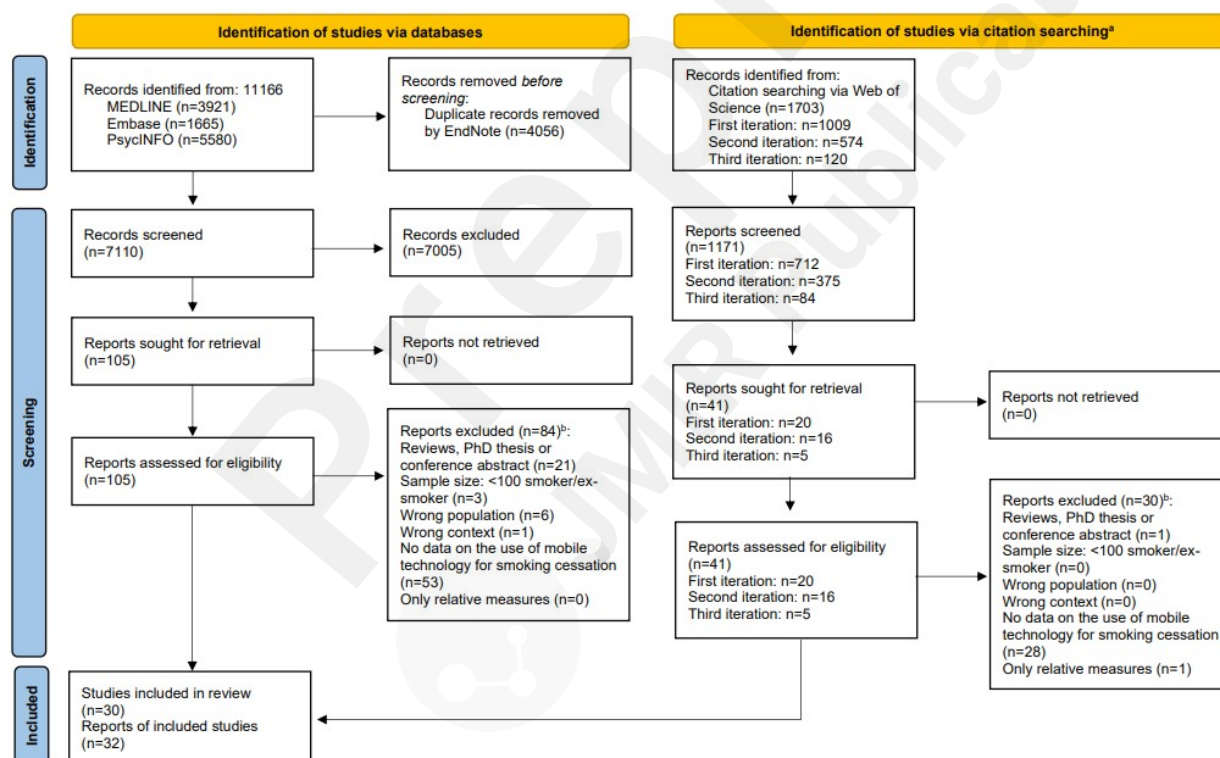
Ethical approval and informed consent

Ethical approval and informed consent were not applicable.

3. Results

3.1 Study selection

The database search identified 7110 records (Fig. 1). After the title/abstract screening, 105 were read, and 21 articles reporting on 20 studies were included. A forward-backward citation search was performed on those articles, resulting in the inclusion of eight additional articles. Based on those eight articles, a second round of citation analysis was conducted, resulting in three additional reports for inclusion. The last round of citation analysis conducted with those three reports could not identify any new articles. Overall, 27 studies documented in 32 reports were included in this review. All articles were written in English. The excluded articles are listed in the Supplementary material, with reasons for exclusion.



^a Citation searching was conducted and reported following the TARCIS Statement

^b The assignment of the reasons for exclusion was done hierarchically in the order presented.

Figure 1: Flow diagram

3.2 Study and participant characteristics

The characteristics of all the included studies are shown in Table 1. A total of eleven studies were conducted in the USA [22,23,32,24–31], four studies were from the UK [33–36], two each from Norway [37,38], Canada [39,40], and Australia [41,42], and one each from the Netherlands [43] and from Greece [44] (Table 1). Four studies included several countries in their scope [45–48]. All included studies employed a cross-sectional design. In terms of data collection methods, 13 studies

used online surveys, four relied on personal interviews, four applied mixed methods, three utilized paper-pencil surveys, two conducted telephone interviews, and one study did not report its data collection method. The types of mobile technologies investigated included websites or general internet use (n=16), smartphone apps (n=9), text messaging programs (n=3) and social media (n=3). Nine studies asked for the use of several tools without differentiation, which included web-based programs as well.

The number of participants per study ranged from 117 to 27323. Although several studies reported the age distribution of their overall study population or subgroups, only 9 out of 27 provided the mean age specifically for smokers, with values ranging from 16.9 to 50.3 years. The proportion of female participants varied between 0% and 77% (n=20). Over a third of the included studies (n=10) focused exclusively on smokers who had recently made a quit attempt.

Table 1: Characteristics of the included studies

Authors & Year	Country	Data collection	Year of Data	Sample Size	Population
Borrelli et al. 2015	USA / UK	Online survey	2014	n=1.000	Smokers aged 18 years and older
Bottorff et al. 2016	Canada	Online survey	2014	n=117	Smokers, only men *
Caraballo et al. 2017	USA	Online survey	2014-2016	n=15.943	Smokers aged 18 years and older who made a quit attempt in the last 3 months
Chevalking et al. 2018	Netherlands	Online survey	2015-2016	n=802	Smokers and former smokers *
Curry et al. 2007 Companion report: Coups et al. 2009	USA	Personal interview	2005	n=2.747	Smokers aged 18 years and older who made a quit attempt in the past year
Dai et al. 2023	USA	Online survey	2021	n=889	E-cigarette users, school grade 6-12, who made quit attempts in the past year *
Graham et al. 2019	USA	Online survey	2017	n=1.736	Smokers aged 18 years and older
Gravely et al. 2021	Australia, Canada, England, USA	Online survey	2020	n=3.614	Smokers, vapers and former smokers aged 18 years and older who made a quit attempt or quit smoking in the last two years
Hummel et al. 2018	England, Germany, Greece, Hungary, Netherlands, Poland, Romania and Spain	Personal interview or online survey	2016	n=10.683	Smokers aged 18 years and older who made a quit attempt in the past year
Jackson et al. 2020	UK	Personal interview	2006-2018	n=18.929	Smokers aged 16 years and older who made at least one quit attempt in the past year
Jackson et al. 2022	UK	Personal interview	2020-2021	n=1.550	Smokers and former smokers (smoking during preceding year) aged 18 years and older who made at least one quit attempt in the past year
Jackson et al. 2025	UK	Telephone interview	2023-2024	n=1.642	Smokers and former smokers (smoking during preceding year) aged 16 and older who made at least one quit attempt in the past year
Jayakumar et al. 2019	Canada	Online survey	2013-2018	n=2.773	Smokers and former smokers (had quit within last 5 years) aged 18 years and older
Jones et al. 2023	USA	Online survey	N/R	n=185	Vapers and former vapers aged 14 to 19 years
Kostagiolas et al. 2023	Greece	Paper-pencil-survey	2019	n=150	Smokers aged 18 years and older
Li et al. 2025	Australia	Online survey	2017-2020	n=1244	Smokers aged 18 years and older from rural/remote locations
Lund & Lund 2022	Norway	Telephone interview	2017-2020	n=874	Smokers and former smokers aged 20 years and older
Lund & Lund 2023	Norway	Online survey	2020	n=1.111	Smokers and former smokers *
Moon et al. 2020	USA	Paper-pencil-survey	2018-2019	n=227	Smokers with Korean background *
Oliver et al. 2018	USA	Online survey or paper-pencil-survey	2013-2017	n=180	Smokers aged 18 to 65 years
Papadakis et al. 2020	England, Germany, Greece, Hungary, Netherlands, Poland, Romania and Spain	N/R	2017-2018	n=2.699	Smokers *
Patterson et al. 2021	USA	Personal interview and telephone interview	2018-2019	n=659	Smokers aged 18 and older
Perski et al. 2022 Companion reports: Beard et al. 2016 Perski et al. 2019	UK	Personal interview	2014-2020	n=5.892	Smokers aged 16 and older who made a quit attempt in the past year
Ramo et al. 2015	USA	Online survey	2010-2011	n=570	Smokers aged 18 to 25
Thrul et al. 2021 Companion reports: Mojtabai et al. 2020, Soulakou et al. 2016	USA	Personal interview or telephone interview	2010-2011	n=27.323	Smokers aged 18 and older
https://preprints.jmir.org/preprint/83072					[unpublished, non-peer-reviewed preprint]
Tofghi et al. 2019	USA	Paper-pencil-survey	2015	n=157	Smokers enrolled as patients in inpatient detoxification treatment and post-discharge (f



3.3 Prevalence of use of mobile technologies for smoking cessation

The data collection periods span from 2005 to 2024. A noticeable clustering of studies was observed between 2014 and 2020 (Figure 2), most of which focused on the use of apps and internet-based interventions. Reported prevalences of use range predominantly between 0% and 15%. Some studies reported higher values, particularly for lifetime use of websites for smoking cessation, with prevalence exceeding 30%. An increase in reported social media lifetime use can be observed across studies published between 2014 and 2019. After 2021, fewer studies reporting on the use of mobile technologies for smoking cessation were identified.

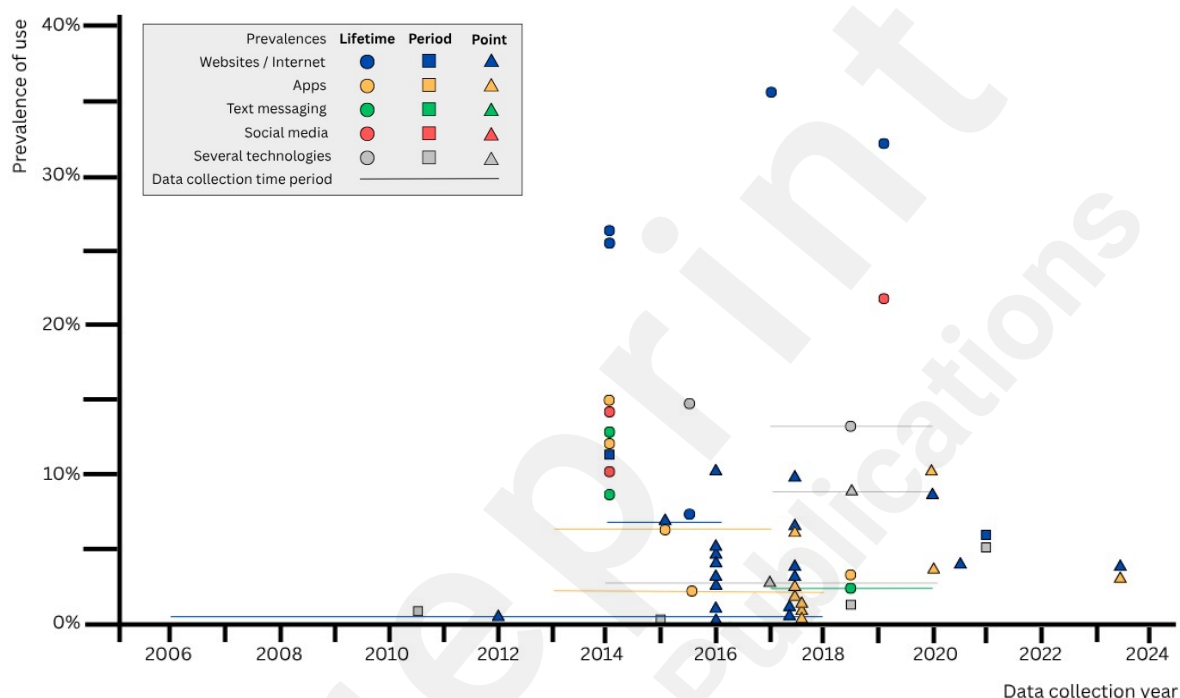


Figure 2: Use of mobile technologies for smoking cessation over time by prevalence type and technology (n=24) (Studies not displayed because no prevalence type was stated, only stratified results or data collection year not reported: Curry et al. 2007, Jones et al. 2023, Ramo et al. 2015)

A total of nine studies have reported lifetime prevalences of mobile technology use for smoking cessation (see Table 2). Four studies examined the usage of websites/internet for smoking cessation, with prevalences ranging from 7.1% up to 35.9%. Mobile app usage ranged from 2.5% to 15.2% (n=5). Text messaging programs showed lifetime prevalences between 2.7% and 17.3% (n=3). The lifetime prevalence of social media use for smoking cessation varied by platform. The highest prevalences were reported for Facebook with 14.8% followed by TikTok (12.4%) and Instagram (11.9%).

Period prevalence, covering usage within the past several months to the last two years, was assessed in five studies. Prevalences of use of several mobile tools in the last year to two years ranged from 0% to 6.3% (n=4). One study found a usage prevalence of websites in the last three months of 12%.

Point prevalence—referring to the use during the most recent quit attempt—was reported in eleven studies. For websites/internet use, the prevalences of use ranged from 1.1% to 10.9% (n=8). Four studies looked at smartphone app use which ranged between 0% and 10.7%.

Two studies reported more than one type of prevalence, and one study did not specify the type of prevalence assessed.

Table 2: Prevalence of mobile technology use for smoking cessation

Authors & Year	Country	Year of Data	Type of mobile technology for smoking cessation	Prevalence of mobile technology use for smoking cessation (% (N))
Lifetime prevalences				
Oliver et al. 2018	USA	2013-2017	Apps	6.1% (N=180)
Jayakumar et al. 2020	Canada	2013-2018	Apps	2.5% (N=2773)
Borrelli et al. 2015	US/UK	2014	Websites Text messaging program Apps Social media (Twitter, Facebook)	<u>US (N=500):</u> Websites: 26.2% Text messaging program: 13.2% Apps: 15.2% Twitter: 12.2% Facebook: 14.8% <u>UK (N=500):</u> Website: 25.6% Text messaging program: 8.8% Apps: 12.8% Twitter: 7.6% Facebook: 10.4%
Chevalking et al. 2018	Netherlands	2015-2016	Web-based program or apps Websites	Web-based program or apps: 15.5% ^a Websites: 7.1% ^b (N=802)
Graham et al. 2019	USA	2017	Websites	35.9% ¹ (N=1736)
Li et al. 2025	Australia	2017-2020	Online services Text messaging program	Online services: 13.5% Text messaging program: 2.7% (N=1244)
Moon et al. 2020	USA	2018- 2019	Apps	3.5% (N=227)
Kostagiolas et al. 2023	Greece	2019	Internet Social media (Facebook, Twitter, Blogs) Public institutions websites Medical websites	Search engines: 33.3% ^c Social media (Facebook, Twitter, Blogs): 22.0% ^d Public institutions websites: 18.7% ^e Medical websites: 23.3% ^f (N=150)
Jones et al. 2023	USA	N/R	Text messaging program Social media (TikTok, Instagram, Youtube, Snapchat, Twitter, Facebook, Pinterest) Apps Online/web-based programs	Text messaging program: 17.3% TikTok: 12.4% ^g Instagram: 11.9% ^h Youtube: 7.0% ⁱ Snapchat: 6.5% ^j Twitter: 2.2% ^k

					Facebook: 1.1% ^l Pinterest: 1.1% ^m Apps: 12.4% Online/web-based programs: 9.7% (N=185)
Period prevalences					
Thrul et al. 2021 Companion reports: Mojtabai et al. 2020, Soulakova & Crockett 2016	Period prevalence (past year)	US	2010-2011	Internet/websites/web-based programs	0.8% ¹ (N=27323)
Bottomoff et al. 2016	Period prevalence (last three months)	Canada	2014	Websites	12% (N=117)
Tofighi et al. 2019	Period prevalence (past year)	US	2015	Apps or text messaging tool	0 (N=157)
Patterson et al. 2021	Period prevalence (last two years)	USA	2018-2019	Internet/web-based program Videos	Internet/web-based program: 1.7% ⁿ Videos: 0.8% ^o (N=659)
Dai et al. 2023	Period prevalence (past year)	USA	2021	Internet Apps or text messaging program	Internet: 6.3% ^p Apps or text messaging program: 5.5% ^q (N=889)
Point prevalences (for last quit attempt)					
Curry et al. 2007 Companion report: Coups et al. 2009		USA	2005	Internet	N/R (N=2747)
Jackson et al. 2020		UK	2006-2018	Websites	1.1% (N=18929)
Perski et al. 2022 Companion report: Beard et al. 2016, Perski et al. 2019		UK	2014-2020	Digital aid (websites, smartphone apps and other)	2.5% (N=5892)
Caraballo et al. 2017		USA	2014-2016	Websites	7.1% ¹ (N=15.943)
Hummel et al. 2018		England Germany Greece Hungary Netherlands Poland Romania Spain	2016	Internet	England: 10.9% ¹ (N=3536) Germany: 4.8% ¹ (N=1003) Greece: 0.4% ¹ (N=1000) Hungary: 2.7% ¹ (N=1000) Netherlands: 5.7% ¹ (N=1136) (period prevalence (last 6 months)) Poland: 5.7% ¹ (N=1006) Romania: 3.2% ¹ (N=1001) Spain: 0 ¹ (N=1001)
Papadakis et al. 2020		England	2017-2018	Apps	Apps / Internet:

	Germany Greece Hungary Poland Romania Spain		Internet	England: 6.2% ¹ / 10.2% ¹ (N=1482) Germany: 4.2% ¹ / 6.7% ¹ (N=185) Greece: 0.0% ¹ / 0.7% ¹ (N=157) Hungary: 1.3% ¹ / 2.6% ¹ (N=127) Poland: 0.8% ¹ / 1.8% ¹ (N=179) Romania: 0.4% ¹ / 1.7% ¹ (N=284) Spain: 0.9% ¹ / 0.3% ¹ (N=285)
Lund & Lund 2022	Norway	2017-2020	Web/mobile	9.2% (N=874)
Gravely et al. 2021	Australia Canada England USA	2020	Apps Websites	Apps: 4.6% ¹ Websites: 8.5% ¹ (N=3614)
Lund & Lund 2023	Norway	2020	Apps	10.7% (N=1111)
Jackson et al. 2022	UK	2020-2021	Websites	4.1% (N=1550)
Jackson et al. 2025	UK	2023-2024	Websites Apps	Websites: 4.6% ¹ Apps: 3.6% ¹ (N=1642)
Prevalence type not reported or more than one prevalence type				
Ramo et al. 2015	Prevalence type not reported USA	2010-2011	Internet	2% (N=570)
Twyman et al. 2018	Life-time prevalence in current smokers, Point prevalence in former smokers Australia	2012-2013	Internet	1% (N=646)

Abbreviations: N/R, not reported; USA, United States of America; UK, United Kingdom

¹ Weighted results

^a Own calculation based on the numbers provided by the authors on page 4 (124/802*100 = 15.5%)

^b Own calculation based on the numbers provided by the authors on page 4 (57/802*100 = 7.1%)

^c Own calculation based on the numbers provided by the authors in Appendix 1 ((26+24)/150*100=33.3%)

^d Own calculation based on the numbers provided by the authors in Appendix 1 ((20+13)/150*100=22.0%)

^e Own calculation based on the numbers provided by the authors in Appendix 1 ((13+15)/150*100=18.7%)

^f Own calculation based on the numbers provided by the authors in Appendix 1 ((15+20)/150*100=23.3%)

^g Own calculation based on the numbers provided by the authors in table 2 (23/185*100 = 12.4%)

^h Own calculation based on the numbers provided by the authors in table 2 (22/185*100 = 11.9%)

ⁱ Own calculation based on the numbers provided by the authors in table 2 (13/185*100 = 7.0%)

^j Own calculation based on the numbers provided by the authors in table 2 (12/185*100 = 6.5%)

^k Own calculation based on the numbers provided by the authors in table 2 (4/185*100 = 2.2%)

^l Own calculation based on the numbers provided by the authors in table 2 (2/185*100 = 1.1%)

^m Own calculation based on the numbers provided by the authors in table 2 (2/185*100 = 1.1%)

ⁿ Own calculation based on the numbers provided by the authors in table 2 ((3+8)/659*100 = 1.7%)

^o Own calculation based on the numbers provided by the authors in table 2 ((1+4)/659*100 = 0.8%)

^p Own calculation based on the numbers provided by the authors in table 1 ((56/889)*100 = 6.3%)

^q Own calculation based on the numbers provided by the authors in table 1 ((49/889)*100 = 5.5%)

Prevalences stratified by sex and age

A total of seven studies reported sex-stratified prevalences of mobile technology use (Table 1.) Five studies found comparable usage prevalences between males and females, while the other two identified notable sex differences that varied across countries. While males reported higher internet use for smoking cessation in Germany (6.6% males vs 2.9% females), England (14.4% vs 7.3%), Hungary (5.3% vs 0%), and Poland (7.7% vs 3.3%), the opposite was observed in the Netherlands (5.3% vs 6.3%) and Norway (for app use; 5.9% vs 15.0%) where females reported higher usage. Additionally, five studies reported age-stratified data. With a few exceptions, younger individuals (<35 years) consistently showed higher use of mobile technologies, such as apps, websites and SMS programmes, to support smoking cessation.

Intention to use mobile technology for smoking cessation

Three studies examined the intention to use mobile technologies for smoking cessation (Table 3). One study reported a particularly high intention to use websites (46.7%). In two of the three studies, a moderate proportion of participants reported willingness to use smartphone apps (34.6–42.7%) and text messaging programs (28.5–30.8%). The reported intention to use social media platforms ranged from 19.5% to 31%, depending on the platform. Web-based programs excluding social media were mentioned less frequently (9.7%).

Table 3: Intention to use

Authors & Year	Country	Outcome	Prevalence of intention to use mobile technologies in the future (% (N))
Borrelli et al. 2015	US / UK	Future intentions to use technology to quit smoking	Websites: 46.7% Text message program: 28.5% ^a Smartphone app: 42.7% Twitter: 19.5% ^b Facebook: 28.1% ^c (N=1000)
Jones et al. 2023	USA	Future interest in using method to quit vaping	Text message program: 30.8% Social media (Facebook, Instagram, TikTok, other): 22.8% Mobile apps: 34.6% Online or web-based program (excluding social media): 9.7% (N=185)
Ramo et al. 2015	USA	Intention to use strategies to cut down/quit smoking	Social media: 31% (N=570)

Abbreviations: N/R, not reported; USA, United States of America; UK, United Kingdom

^a Own calculation based on the numbers provided by the authors in table 5 ((157+128)/1000 = 28.5%)

^b Own calculation based on the numbers provided by the authors in table 5 ((113+82)/1000 = 19.5%)

^c Own calculation based on the numbers provided by the authors in table 5 ((152+129)/1000 = 28.1%)

3.4 Quality assessment

Approximately half of the studies employed an appropriate sampling frame to address the target population (12/27) and included all participants or used systematic sampling methods (13/27). A suitable sample size was reported in 78% of the studies (21/27), while 41% (11/27) provided sufficient detail on study methodology. All studies relied on self-reported data. The outcome was measured in a standard and reliable manner for all participants in 89% of the studies (24/27), and 81% (22/27) applied appropriate statistical analyses. 70% of the studies (19/27) did not report the response rate.

4. Discussion

This systematic review of 27 studies revealed a wide range in the reported prevalences of mobile technology use for smoking cessation, ranging from 0% to 35.9% within the data collection period spanning from 2005 to 2024. This variation was influenced by the type of prevalence measured, the specific mobile technology examined, the year of data collection, and the population under study. In some countries, sex differences were observed, with males usually showing higher prevalences than females. In addition, younger people consistently showed a higher usage of mobile tools. The intention to use was much higher than the actual usage, with prevalences up to 46.7% for websites.

Our results indicate a peak in research activity between 2014 and 2020, which may be influenced by the digital transformation of healthcare and the growing number of smoking cessation apps and other digital tools, which are often described as promising [10,14]. Digital tools are increasingly incorporated into public health strategies, and there is a discernible social shift in the popularity of digital platforms. Nevertheless, in two of the included studies, which were based on data from the Europe-wide EUREST-PLUS ITC Study on smoking behaviour, significant differences between countries were identified. In both studies, the lowest reported use of mobile cessation technologies was found in Greece, where smoking prevalence remains the highest among European countries at 42%. Conversely, higher prevalence of use was observed in countries with lower smoking prevalence, such as the United Kingdom and the Netherlands (both 12%) [6]. This finding suggests that variations in national smoking norms and tobacco control policies, digital infrastructure, access to healthcare, and cultural norms may influence both the demand for and the implementation of digital tools. Since 2021, there has been a noticeable decline in available data, which may be due to delays in publication, shifting research priorities, or the disruptive impact of the COVID-19 pandemic on data collection and health research more broadly.

Overall, the prevalences of use ranging from 0% to 35.9%. However, the majority of studies ranging between 0% and 15% and the existing studies are highly heterogeneous, making direct comparison challenging. Further, some studies grouped different digital tools (e.g., websites, apps, and social media) under broad terms without clear differentiation, which may limit the interpretability of specific usage patterns. Internet in general, including search engines and websites, is the most frequently used mobile technology, with lifetime prevalences varying from 7.1% to 35.9%. However, in many studies "internet use" for smoking cessation was poorly defined and could include a variety of digital services, ranging from static information websites to interactive platforms with the uncertainty if the access occurred via mobile devices or desktop computers. Surprisingly, the use of apps to support smoking cessation remains relatively low (lifetime prevalences 2.5%-15.2%), despite widespread smartphone adoption for health [49]. Overall, a large number of apps for smoking cessation are available [50], but among the 50 most downloaded smoking cessation apps, only two were found to have any scientific support [51]. Thus, identification of appropriate tools may be challenging for users [52].

Besides those apps, social media platforms represent another promising approach, with a lifetime prevalence of use for smoking cessation reaching up to 22.0% in 2019, demonstrating considerable potential reach. On a global scale, the number of users has exceeded five billion, with notably high penetration rates observed in Europe, ranging from 70.4% in Eastern Europe to 81.7% in Northern Europe [53]. Reviews have emphasized the feasibility, acceptability, and preliminary effectiveness of social media-based interventions for smoking cessation [54,55]. Furthermore, they indicate that social media provides an opportunity to overcome barriers to smoking cessation, including cost, geographic distance, and stigma [54,55]. However, only three studies were identified that explicitly addressed the use of social media for smoking cessation. This may be due to the frequent utilization of social media as a complement to existing personal smoking cessation programs, rather than as an independent

tool [55]. This emphasizes the importance for future research on the use of mobile technologies for smoking cessation to comprehensively assess the full range of potential digital tools available, in order to also assess combinations.

Younger persons <40 years showed, compared to older people, a consistently higher use of apps, social media, and text messaging programs [23,31,36,37,47]—likely due to their high digital affinity [56]. These patterns may be linked to differences in digital literacy, and especially digital health literacy [57,58], which has been described as a fundamental factor for enabling a successful digital transformation of healthcare systems and supporting informed decision-making in health contexts [59]. This is particularly relevant for older populations, in which levels of digital competence tend to be lower [60]. Besides age as an influencing factor, other diversity dimensions, like socioeconomic status, seem to be relevant. Particularly low use was observed in vulnerable populations such as financially disadvantaged groups (1%) or people with substance use disorders (0%) [32,41] — possibly reflecting lower motivation to quit or additional barriers to accessing support. Overall, the intention to use mobile technologies for smoking cessation was up to 46.7%, which is somewhat higher than the actual use. Therefore, efforts should focus less on developing new technologies and more on effectively delivering existing evidence-based tools to populations in need. Addressing disparities in access and engagement is essential to ensure equitable benefits and avoid reinforcing health inequalities. Continuous evaluation of user needs across diverse groups will help guide targeted strategies to enhance uptake and impact.

4.1 Strengths and limitations

To our knowledge, this is the first systematic review to examine the prevalence of mobile technology use for smoking cessation. While some studies may have been missed because their titles and abstracts did not explicitly indicate the inclusion of mobile technologies, the comprehensive search strategy—supplemented by repeated forward and backward citation analyses—proved highly effective in identifying additional relevant studies. This underscores both the value of such complementary methods and the potential impact of incomplete abstract reporting. For comparability, the review focused on high-income countries, which share broadly similar digital infrastructure, access to technology, tobacco control policies, and social norms around smoking; as a result, countries outside this category—such as China, which has a high research output—were not included. Furthermore, we exclusively extracted stratified prevalences on age and sex, yet other diversity dimensions may also be important. No meta-analysis was conducted due to substantial heterogeneity across studies, yet the findings provide a broad and current overview of existing prevalence data. In some cases, general internet use was classified as mobile technology use, based on the assumption that a large share of internet access now occurs via smartphones or other mobile devices—a decision that may have led to a slight overestimation but reflects prevailing usage patterns.

4.2 Conclusion

The prevalence of mobile technology use for smoking cessation is relatively low, despite their widespread availability. However, the included studies demonstrated considerable heterogeneity in the definition and measurement of the specific technologies, which limited the comparability. Future research should therefore employ more standardised definitions. Overall, the intention to use mobile technologies for smoking cessation is relatively high, indicating a general openness towards such tools. However, there appears to be disparities in access and engagement to mobile technologies, with older and socially disadvantaged groups showing lower prevalences of use. Consequently, efforts should concentrate more on evaluating user needs and delivering existing evidence-based tools to populations in need instead of developing new technologies.

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Authors' Contributions

Conceptualization: ML (lead), FH (supporting), BBH (supporting), JH (supporting)
Methodology: JH (lead), FH (equal), ML (supporting)
Formal analysis: ML (lead), JH (supporting)
Data curation: ML (lead), JO (supporting)
Investigation: ML (lead), JO (supporting), JH (supporting)
Writing – original draft: ML (lead), FH (supporting), JH (supporting)
Writing – review & editing: ML (lead), FH (supporting), JH (supporting), BBH (supporting), JO (supporting)

Conflicts of Interest

None.

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Supplementary

Table S1 – Search strategy for MEDLINE (via PubMed)

Mobile technologies
("mobile technolog*" [tiab] OR "mobile device*" [tiab] OR "mobile tool*" [tiab] OR "mobile phone" [tiab] OR "mobile application*" [tiab] OR "cell* phone" [tiab] OR "smartphone*" [tiab] OR "smart phone" [tiab] OR "smart phone app*" [tiab] OR "smartphone app*" [tiab] OR "health app*" [tiab] OR "mobile app*" [tiab] OR "phone-based" [tiab] OR "digital technolog*" [tiab] OR "digital aid*" [tiab] OR "digital health" [tiab] OR "mobile health" [tiab] OR "m-health" [tiab] OR "mhealth" [tiab] OR "digital intervention*" [tiab] OR "digital" [tiab] OR "website*" [tiab] OR "web-based" [tiab] OR "online intervention" [tiab] OR "internet intervention" [tiab] OR "virtual" [tiab] OR "email*" [tiab] OR "e-mail*" [tiab] OR "electronic mail" [tiab] OR "text messag*" [tiab] OR "SMS" [tiab] OR "social media" [tiab] OR "social network*" [tiab] OR "video-based" [tiab] OR "video*" [tiab] OR "smartwatch" [tiab] OR "fitbit" [tiab] OR "wearable" [tiab] OR "Mobile Applications" [mh] OR "Cell Phone" [mh] OR "Fitness Trackers" [mh] OR "Digital Technology" [mh] OR "Internet-Based Intervention" [mh] OR "Text Messaging" [mh] OR "Social Media" [mh] OR "Internet" [mh])
Smoking Cessation
("smok* cessation" [tiab] OR "quit* smok*" [tiab] OR "stop* smok*" [tiab] OR "ceas* smok*" [tiab] OR "abstain* smok*" [tiab] OR "smok* abstin*" [tiab] OR "smok* reduc*" [tiab] OR "quit* tobacco" [tiab] OR "stop* tobacco" [tiab] OR "tobacco abstin*" [tiab] OR "tobacco cessation" [tiab] OR "tobacco use cessation" [tiab] OR "tobacco reduc*" [tiab] OR "vaping cessation" [tiab] OR "quit* vaping" [tiab] OR "stop* vaping" [tiab] OR "vaping abstin*" [tiab] OR "nicotine cessation" [tiab] OR "nicotine abstin*" [tiab] OR "nicotine reduc*" [tiab] OR "cigar* cessation" [tiab] OR "cigar* abstin*" [tiab] OR "cigar* reduc*" [tiab] OR "stop* cigar*" [tiab] OR "quit* cigar*" [tiab] OR "Smoking Cessation" [mh] OR "Smoking Reduction" [mh] OR "tobacco use cessation" [mh])

Table S2: Prevalence of mobile technology use for smoking cessation, stratified by sex/age

Authors & Year	Country	Prevalence type (point, period, lifetime)	Year of Data	Type of mobile technology for smoking cessation	Stratified prevalence by sex (% (N))	Stratified prevalence by age
Beard et al. 2016	UK	Point prevalence (for most recent serious quit attempt)	2014 / 2015	Website or apps	Female: 1.3% (N=819) Male: 1.5% ^a (N=781)	N/R
Curry et al. 2007 Companion report: Coups et al.	USA	Point prevalence (for last quit attempt)	2005	Internet	N/R	18-24 years old (n=387): 3.6% ¹ >25 years old (n=2360): 2.9% ¹
Hummel et al. 2018	England Germany Greece Hungary Netherlands Poland Romania Spain	England, Germany, Greece, Hungary, Poland, Romania, Spain: point prevalence (last quit attempt) Netherlands: period prevalence (last 6 months)	2016	Internet	England: Female: 7.3% ¹ Male: 14.4% ¹ Germany: Female: 2.9% ¹ Male: 6.6% ¹ Greece: Female: 0.8% ¹ Male: 0 ¹ Hungary: Female: 0 ¹ Male: 5.3% ¹ Netherlands: Female: 6.3% ¹ Male: 5.3% ¹ Poland: Female: 3.3% ¹ Male: 7.7% ¹ Romania: Female: 3.0% ¹ Male: 3.3% ¹ Spain: Female: 0 ¹ Male: 0 ¹	England: 18-24 years: 20.7% ¹ 25-39 years: 13.5% ¹ 40-54 years: 7.3% ¹ 55+ years: 1.6% ¹ Germany: 18-24 years: 0 ¹ 25-39 years: 7.1% ¹ 40-54 years: 5.5% ¹ 55+ years: 3.0% ¹ Greece: 18-24 years: 0 ¹ 25-39 years: 0 ¹ 40-54 years: 1.2% ¹ 55+ years: 0 ¹ Hungary: 18-24 years: 0 ¹ 25-39 years: 0 ¹ 40-54 years: 0 ¹ 55+ years: 12.3% ¹ Netherlands: 18-24 years: 3.0% ¹ 25-39 years: 9.2% ¹ 40-54 years: 6.6% ¹ 55+ years: 3.3% ¹ Poland: 18-24 years: 12.1% ¹ 25-39 years: 8.3% ¹ 40-54 years: 2.8% ¹ 55+ years: 0 ¹ Romania: 18-24 years: 12.1% ¹ 25-39 years: 0.6% ¹ 40-54 years: 3.7% ¹ 55+ years: 0 ¹

							Spain: 18-24 years: 0 ¹ 25-39 years: 0 ¹ 40-54 years: 0 ¹ 55+ years: 0 ¹
Jackson et al. 2020	UK; Smokers and former smokers aged 16 and older who made at least one quit attempt in the past year (n=18929)	Point prevalence (for most recent quit attempt)	2006- 2018	Websites	Female (n=9845): 96 (1.0%) ^b Male (n=9084): 108 (1.2%) ^c		16-24 years (n=3862): 52 (1.3%) ^d 25-34 years (n=4403): 64 (1.5%) ^e 35-44 years (n=3815): 41 (1.1%) ^f 45-54 year (n=2994): 26 (0.9%) ^g 55-64 years (n=2207): 16 (0.7%) ^h 65+ years (n=1648): 5 (0.3%) ⁱ
Jayakumar et al. 2020	Canada; Smokers and former smokers aged 18 years and older; (n=2773)	Life-time prevalence	2013-2018	Apps	Female (n=1765): 47 (2.7%) Male (n=1008): 22 (2.2%)		N/R
Lund & Lund 2023	Norway; Smokers and former smokers aged (n=1111)	Point prevalence (last quit attempt)	2020	Apps	Female (n=587): 88 ^j (15.0%) Male (n=524): 31 ^k (5.9%)		18-34 years (n=250): 50 ^l (20.0%) >35 years (n=861): 69 ^m (8.0%)
Patterson et al. 2021	USA; Smokers aged 18 and older (n=659)	Period prevalence (last two years)	2018-2019	Internet/web-based program Videos	Female (n=280): Internet/ web-based program: 4 (1.4%) Videos: 3 (1.1%) Male (n=379): Internet/ web-based program: 7 (1.8%) Videos: 2 (0.5%)		N/R
Thrul et al. 2021 Companion reports: Mojtabai et al. 2020, Soulakova & Crockett 2016	US; Smokers aged 18 and older (n=27323)	Period prevalence (in the past-year)	2010 / 2011	Internet/websites/ web-based programs	Female (n=13785): 148 (1.1%) male (n= 13538): 88 (0.6%)		18-29 years (n=5309): 64 (1.2%) 30-49 years (n=11242): 96 (0.7%) 50-64 years (n=8080): 63 (0.7%) 65+ (n=2696): 13 (0.5%)

Abbreviations: N/R, not reported; USA, United States of America; UK, United Kingdom
¹ Weighted results
^a Own calculation based on the numbers provided by the authors in table 1 and 2 (12/781*100=1.5%)
^b Own calculation based on the numbers provided by the authors in table 1 and 2 (204/100*47.1=96, 96/9845=1.0%)
^c Own calculation based on the numbers provided by the authors in table 1 and 2 (100%-47.1%=52.9%, (204*0.529)/(18929-9845)*100=1.2%)

^d Own calculation based on the numbers provided by the authors in table 1 and 2 ($204/100 \cdot 25.5=52$, $52/3862=1.3\%$)
^e Own calculation based on the numbers provided by the authors in table 1 and 2 ($204/100 \cdot 31.4=64$, $64/4403=1.5\%$)
^f Own calculation based on the numbers provided by the authors in table 1 and 2 ($204/100 \cdot 20.1=41$, $41/3815=1.1\%$)
^g Own calculation based on the numbers provided by the authors in table 1 and 2 ($204/100 \cdot 12.7=26$, $26/2994=0.9\%$)
^h Own calculation based on the numbers provided by the authors in table 1 and 2 ($204/100 \cdot 7.8=16$, $16/2207=0.7\%$)
ⁱ Own calculation based on the numbers provided by the authors in table 1 and 2 ($204/100 \cdot 2.5=5$, $5/1648=0.3\%$)
^j Own calculation based on the numbers provided by the authors in table 2 ($587 \cdot 0.15=88$)
^k Own calculation based on the numbers provided by the authors in table 2 ($524 \cdot 0.059=31$)
^l Own calculation based on the numbers provided by the authors in table 2 ($250 \cdot 0.20=50$)
^m Own calculation based on the numbers provided by the authors in table 2 ($861 \cdot 0.08=69$)

Table S3: Definition smokers

Authors & Year	Country	Definition smokers / smoking
Borrelli et al. 2015	US/UK	Smoked at least 100 cigarettes in their lifetime and three cigarettes per day for the past year
Bottorff et al. 2016	Canada	Smoking daily or occasionally
Caraballo et al. 2017	USA	Smoked at least 100 cigarettes in their lifetime and smoke daily or some days
Chevalking et al. 2018	Netherlands	Smokers: Smoking regularly; Ex-smokers: Smoked regularly but have quit; Smokers who are currently attempting to quit were registered as ex-smokers
Curry et al. 2007 Companion report: Coups et al.	USA	Smoked at least 100 cigarettes in their lifetime, smoking every day or some days
Dai et al. 2023	USA	Using e-cigarettes ≥1 day(s) in the past 30 days
Graham et al. 2019	USA	Smoked at least 100 cigarettes in life, smoking every day or some days
Gravelly et al. 2021	Australia, Canada, England, USA	Smoked at least 100 cigarettes in their lifetime, smoking daily, vaping more than weekly or daily smoking in the past
Hummel et al. 2018	England, Germany, Greece, Hungary, Netherlands, Poland, Romania, Spain	Smoked at least 100 cigarettes in their lifetime, currently smoking cigarettes at least monthly
Jackson et al. 2020	UK	Smoking any tobacco product daily or occasionally at the time of the survey or during the preceding 12 months
Jackson et al. 2022	UK	Smoking any tobacco product daily or occasionally at the time of the survey or during the preceding 12 months
Jackson et al. 2025	UK	Smoking any tobacco product daily or occasionally at the time of the survey or during the preceding 12 months
Jayakumar et al. 2020	Canada	Smoking daily or occasionally, or former smoking
Jones et al. 2023	USA	Vaping daily or occasionally
Kostagiolas et al. 2023	Greece	N/R
Li et al. 2025	Australia	Smoking daily
Lund & Lund 2022	Norway	Smoking daily or formerly daily smoking
Lund & Lund 2023	Norway	Smoking daily or occasionally
Moon et al. 2020	USA	N/R
Oliver et al. 2018	USA	Smoking daily (≥5 cigarettes per day)
Papadakis et al. 2020	England, Germany, Greece, Hungary, Poland, Romania, Spain	N/R
Patterson et al. 2021	USA	Smoking daily or some days/week (combustible cigarettes, smokeless tobacco, e-cigarettes or several
Perski et al. 2022 Companion reports: Beard et al. 2016, Perski et al. 2019	UK	N/R
Ramo et al. 2015	USA	Smoked at least once in the past month

Thrul et al. 2021 Companion reports: Mojtabai et al. 2020, Soulakova & Crockett 2016	US	N/R
Tofighi et al, 2019	US	N/R
Twyman et al. 2018	Australia	Smoked at least 100 cigarettes or a similar amount of tobacco in their life and smoking daily, once a week or less often than once a week

Table S4: Quality assessment criteria - JBI Critical Appraisal Checklist for reporting prevalence data

1. Was the sample frame appropriate to address the target population?	
Yes	Study focusing on the total population
No	Study including smokers e.g. only from one clinic or recruited by a market research panel
Unclear	Sample frame not described clearly
N/A	-
2. Were study participants sampled in an appropriate way?	
Yes	All participants considered or systematic sampled
No	Convenience sample
Unclear	Unclear whether all willing participants were considered or how the sampling was conducted
N/A	Administrative data
3. Was the sample size adequate?	
Yes	384+ participants (based on sample size calculation: $(1.96^2 \times 0.5(1-0.5))/0.05^2$)
No	<384 participants
Unclear	Number of included participants not reported and no indication that 384+ participants were included
N/A	-
4. Were the study subjects and the setting described in detail?	
Yes	Number of included (former) smokers, mean/median age, proportion of females and country reported
No	Number of included (former) smokers, mean/median age, proportion of females and country (partially) not reported
Unclear	-
N/A	-
5. Was the data analysis conducted with sufficient coverage of the identified sample?	
Yes	Low attrition, no systematic exclusions or systematic exclusions with clear justification
No	Exclusion of relevant subgroups without justification, exclusion with insufficient justification or high attrition not addressed
Unclear	No information on exclusions
N/A	-
6. Were valid methods used for the identification of the condition?	
Yes	Objective data sources as digital usage data
No	Self-reported data
Unclear	Method of measurement not described
N/A	-
7. Was the condition measured in a standard, reliable way for all participants?	
Yes	Same measurement tool or question used for all participants, administered by e.g. trained interviewers or through automated systems
No	Inconsistent methods within the study, or measurement varies across groups without justification
Unclear	No information on how data were collected or by whom
N/A	-
8. Was there appropriate statistical analysis?	
Yes	Prevalence clearly calculated (point, period, or lifetime) with numerator and denominator, weighted results with confidence intervals
No	Numerator or denominator not reported
Unclear	Analysis not described adequately
N/A	-
9. Was the response rate adequate, and if not, was the low response rate managed appropriately?	
Yes	Response $\geq 60\%$, or $< 60\%$ but addressed appropriately (e.g., with weighting or imputation)

No	Response < 60% with no evidence of management
Unclear	Response rate not reported
N/A	Administrative data

Abbreviation: N/A, not applicable
Reference: Munn, Z., Moola, S., Lisy, K., Riitano, D., & Tufanaru, C. (2015). Methodological guidance for systematic reviews of observational epidemiological studies reporting prevalence and cumulative incidence data. *International journal of evidence-based healthcare*, 13(3), 147–153.

Table S5 – Quality Assessment

	1. Was the sample frame appropriate to address the target population?	2. Were study participants sampled in an appropriate way?	3. Was the sample size adequate?	4. Were the study subjects and the setting described in detail?	5. Was the data analysis conducted with sufficient coverage of the identified sample?	6. Were valid methods used for the identification of the condition?	7. Was the condition measured in a standard, reliable way for all participants?	8. Was there appropriate statistical analysis?	9. Was the response rate adequate, and if not, was the low response rate managed appropriately?
Beard et al. 2016	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Unclear
Borrelli et al. 2015	No	No	Yes	Yes	No	No	Yes	Yes	Unclear
Bottorff et al. 2016	No	No	No	Yes	Unclear	No	Yes	Yes	Unclear
Caraballo et al. 2017	Yes	Yes	Yes	No	Unclear	No	Yes	No	Yes
Chevalking et al. 2018	No	No	Yes	Yes	Unclear	No	Yes	Yes	Unclear
Coups et al. 2009	Yes	Yes	No	Yes	Yes	No	Yes	No	Yes
Curry et al. 2007	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes
Dai et al. 2023	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes
Graham et al. 2019	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Unclear
Gravely et al. 2021	No	No	Yes	No	Yes	No	Yes	Yes	Unclear
Hummel et al. 2018	Yes	Yes	Yes	No	Unclear	No	No	Yes	Yes
Jackson et al. 2020	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Unclear
Jackson et al. 2022	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Unclear
Jackson et al. 2025	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Unclear
Jayakumar et al. 2019	No	No	Yes	No	Unclear	No	Yes	Yes	Unclear
Jones et al. 2023	No	No	No	Yes	Yes	No	Yes	Yes	Unclear
Kostagiolas et al. 2023	Unclear	Unclear	No	No	Yes	No	Yes	Yes	Yes
Li et al. 2025	No	No	Yes	Yes	Unclear	No	Yes	Yes	Unclear
Lund & Lund 2022	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No
Lund & Lund 2023	No	No	Yes	No	Unclear	No	Yes	No	Unclear
Mojtabai et al. 2020	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Unclear
Moon et al. 2020	No	No	No	No	Yes	No	Yes	Yes	Unclear
Oliver et al. 2018	No	No	No	Yes	Yes	No	No	No	Unclear

Papadakis et al. 2020	Yes	Yes	Yes	No	Unclear	No	Yes	Yes	Yes
Patterson et al. 2021	No	Yes	Yes	No	Unclear	No	Yes	Yes	Unclear
Perski et al. 2019	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Unclear
Perski et al. 2022	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Unclear
Ramo et al. 2015	No	No	Yes	Yes	Yes	No	Yes	No	Unclear
Soulakova & Crockett 2016	Yes	Yes	Yes	No	Yes	No	No	Yes	Unclear
Thrul et al. 2021	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Unclear
Tofighi et al, 2019	No	No	No	Yes	Unclear	No	Yes	Yes	Unclear
Twyman et al. 2018	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes

Table S6 – Excluded articles with reason for exclusion

Articles	Reason for exclusion
Adams, K., Paasse, G., & Clinch, D. (2011). Peer-support preferences and readiness-to-change behaviour for chronic disease prevention in an urban indigenous population. <i>Australian Social Work</i> , 64(1), 55-67. https://doi.org/doi:10.1080/0312407X.2010.541269	Sample size (<100 smokers)
Ajay, V. S., Praveen, P. A., Millett, C., Kinra, S., & Prabhakaran, D. (2012). Role of mobile phone technology in tobacco cessation interventions. <i>Global Heart</i> , 7(2), 167-174. https://doi.org/doi:10.1016/j.gheart.2012.03.004	Review, editorials, PhD theses, conference abstracts
Akiyama, O., Nakamura, M., & Tabuchi, T. (2018). Awareness of harm to others from secondhand smoke and smokers' interest in smoking cessation. <i>[Nihon koshu eisei zasshi] Japanese journal of public health</i> , 65(11), 655-665. https://doi.org/doi:10.11236/jph.65.11_655	No data on the use of mobile technology for smoking cessation
Al Shahrani, A. S., Almudaiheem, N. R., Bakhsh, E. M., Sarhan, N. T., Aldossari, F. S., & Bin Huzeim, B. A. (2021). Understanding Smoking Behavior among Physicians in Riyadh, Saudi Arabia: A Cross-Sectional Study. <i>Tob Use Insights</i> , 14, 1179173x211006652. https://doi.org/doi:10.1177/1179173x211006652	No data on the use of mobile technology for smoking cessation
Al-Hamdani, M., Davidson, M., Bird, D., Hopkins, D. B., & Smith, S. (2023). Learning from their experiences: Strategies used by youth and young adult ex-vapers. <i>Journal of Substance Use and Addiction Treatment</i> , 149. https://doi.org/doi:10.1016/j.josat.2023.209038	No data on the use of mobile technology for smoking cessation
Al-Khadher, M. A. (2023). Assessment of the use and awareness of health applications among the public in Najran City, Saudi Arabia: A cross sectional study. <i>Rawal Medical Journal</i> , 48(4), 1039-1044. https://doi.org/doi:10.5455/RMJ.20230914102028	Wrong population (e.g. pre-selected by app use)
Al-Tabakha, M. M., Alomar, M. J., Awad, M. N. G., & Faehelebom, K. M. S. (2019). Smoking Patterns and Willingness to Quit: A Cross-sectional Study in Al Ain City, UAE. <i>J Pharm Bioallied Sci</i> , 11(3), 276-283. https://doi.org/doi:10.4103/jpbs.JPBS_30_19	No data on the use of mobile technology for smoking cessation
Alqahtani, A. S. (2022). Awareness of current mobile apps for smoking cessation among the dental and medical practitioners in Saudi Arabia. <i>European Review for Medical and Pharmacological Sciences</i> , 26(18), 6561-6568. https://doi.org/doi:10.26355/eurrev_202209_29754	No data on the use of mobile technology for smoking cessation
Aminorroaya, A., Dhingra, L. S., Nargesi, A. A., Oikonomou, E. K., Krumholz, H. M., & Khera, R. (2023). Use of Smart Devices to Track Cardiovascular Health Goals in the United States. <i>JACC Adv</i> , 2(7). https://doi.org/doi:10.1016/j.jacadv.2023.100544	No data on the use of mobile technology for smoking cessation
Aminorroaya, A., Dhingra, L. S., Oikonomou, E., Nargesi, A. A., & Khera, R. (2022). A Nationally Representative Evaluation of Patients With Established Cardiovascular Disease and Cardiovascular Risk Factors Achieving Health Goals With Electronic Devices in the United States. <i>Circulation</i> , 146. https://doi.org/doi:10.1161/circ.146.suppl_1.15516	Review, editorials, PhD theses, conference abstracts
Andrews, L., Cacho-Elizondo, S., Drennan, J., & Tossan, V. (2013). Consumer Acceptance of an SMS-Assisted Smoking Cessation Intervention: A Multicountry Study. <i>Health Marketing Quarterly</i> , 30(1), 47-62. https://doi.org/doi:10.1080/07359683.2013.758015	No data on the use of mobile technology for smoking cessation
Bachmann, M. S., Znoj, H., & Brodbeck, J. (2012). Smoking behaviour, former quit attempts and intention to quit in urban adolescents and young adults: A five-year longitudinal study. <i>PUBLIC HEALTH</i> , 126(12), 1044-1050. https://doi.org/doi:10.1016/j.puhe.2012.08.006	No data on the use of mobile technology for smoking cessation
Barrera, A. Z., Pérez-Stable, E. J., Delucchi, K. L., & Muñoz, R. F. (2009). Global reach of an Internet smoking cessation intervention among Spanish- and English-speaking smokers from 157 countries. <i>Int J Environ Res Public Health</i> , 6(3), 927-940. https://doi.org/doi:10.3390/ijerph6030927	No data on the use of mobile technology for smoking cessation

Berg, C. J., Romm, K. F., Patterson, B., Wysota, C., & Abrams, L. C. (2021). Appeal of novel cessation intervention approaches among young-adult users of traditional and alternative tobacco products. <i>Tob Use Insights</i> , 14, 1179173x211041123. https://doi.org/doi:10.1177/1179173x211041123	No data on the use of mobile technology for smoking cessation
Bold, K. W., Deng, Y., Dziura, J., Porter, E., Sigel, K. M., Yager, J. E., Ledgerwood, D. M., Bernstein, S. L., & Edelman, E. J. (2022). Practices, attitudes, and confidence related to tobacco treatment interventions in HIV clinics: a multisite cross-sectional survey. <i>Transl Behav Med</i> , 12(6), 726-733. https://doi.org/doi:10.1093/tbm/ibac022	Wrong population (e.g. pre-selected by app use)
Borland, R., Li, L., Driezen, P., Wilson, N., Hammond, D., Thompson, M. E., Fong, G. T., Mons, U., Willemsen, M. C., McNeill, A., Thrasher, J. F., & Cummings, K. M. (2012). Cessation assistance reported by smokers in 15 countries participating in the International Tobacco Control (ITC) policy evaluation surveys. <i>Addiction</i> , 107(1), 197-205. https://doi.org/doi:10.1111/j.1360-0443.2011.03636.x	No data on the use of mobile technology for smoking cessation
Borrelli, B., Busch, A. M., & Trotter, D. R. M. (2013). Methods Used to Quit Smoking by People With Physical Disabilities. <i>REHABILITATION PSYCHOLOGY</i> , 58(2), 117-123. https://doi.org/doi:10.1037/a0031577	No data on the use of mobile technology for smoking cessation
Brown, J., Michie, S., Raupach, T., & West, R. (2013). Prevalence and characteristics of smokers interested in internet-based smoking cessation interventions: cross-sectional findings from a national household survey. <i>J Med Internet Res</i> , 15(3), e50. https://doi.org/doi:10.2196/jmir.2342	No data on the use of mobile technology for smoking cessation
Brown-Johnson, C. G., Boeckman, L. M., White, A. H., Burbank, A. D., Paulson, S., & Beebe, L. A. (2018). Trust in Health Information Sources: Survey Analysis of Variation by Sociodemographic and Tobacco Use Status in Oklahoma. <i>JMIR Public Health Surveill</i> , 4(1), e8. https://doi.org/doi:10.2196/publichealth.6260	No data on the use of mobile technology for smoking cessation
Centers for Disease, C., & Prevention. (2006). Use of cessation methods among smokers aged 16-24 years--United States, 2003. <i>MMWR. Morbidity and mortality weekly report</i> , 55(50), 1351-1354. https://doi.org/doi:	Review, editorials, PhD theses, conference abstracts
Centers for Disease, C., & Prevention. (2011). Quitting smoking among adults--United States, 2001-2010. <i>MMWR. Morbidity and mortality weekly report</i> , 60(44), 1513-1519. https://doi.org/doi:	No data on the use of mobile technology for smoking cessation
Chen, P. C., Chang, L. C., Hsu, C., & Lee, Y. C. (2019). Electronic Cigarette Use and Attempts to Quit Smoking Cigarettes Among Adolescents in Taiwan. <i>Journal of Adolescent Health</i> , 64(1), 99-106. https://doi.org/doi:10.1016/j.jadohealth.2018.07.008	No data on the use of mobile technology for smoking cessation
Cobb, C. O., & Graham, A. L. (2014). Use of non-assigned interventions in a randomized trial of internet and telephone treatment for smoking cessation. <i>Nicotine Tob Res</i> , 16(10), 1289-1297. https://doi.org/doi:10.1093/ntr/ntu066	No data on the use of mobile technology for smoking cessation
Cokkinides, V. E., Halpern, M. T., Barbeau, E. M., Ward, E., & Thun, M. J. (2008). Racial and ethnic disparities in smoking-cessation interventions - Analysis of the 2005 National Health Interview Survey. <i>AMERICAN JOURNAL OF PREVENTIVE MEDICINE</i> , 34(5), 404-412. https://doi.org/doi:10.1016/j.amepre.2008.02.003	No data on the use of mobile technology for smoking cessation
Cunningham, J. A. (2008). Access and interest: two important issues in considering the feasibility of web-assisted tobacco interventions. <i>J Med Internet Res</i> , 10(5), e37. https://doi.org/doi:10.2196/jmir.1000	No data on the use of mobile technology for smoking cessation
Dahne, J., Wahlquist, A. E., Garrett-Mayer, E., Heckman, B. W., Cummings, K. M., & Carpenter, M. J. (2018). State Tobacco Policies as Predictors of Evidence-Based Cessation Method Usage: Results From a Large, Nationally Representative Dataset. <i>NICOTINE & TOBACCO RESEARCH</i> , 20(11), 1336-1343. https://doi.org/doi:10.1093/ntr/ntx192	No data on the use of mobile technology for smoking cessation
de Moor, J. S., Puleo, E., Ford, J. S., Greenberg, M., Hodgson, D. C., Tyc, V. L., Ostroff, J., Diller, L. R., Levy, A. G., Sprunck-Harrild, K., & Emmons, K. M. (2011). Disseminating a smoking cessation intervention to childhood and young adult cancer survivors: baseline characteristics and study design of the partnership for health-2 study. <i>BMC Cancer</i> , 11, 165. https://doi.org/doi:10.1186/1471-2407-11-165	No data on the use of mobile technology for smoking cessation
Dono, J., Martin, K., Bowden, J., & Miller, C. (2022). A population-level analysis of changes in Australian smokers' preferences for smoking cessation support over two decades - from 1998 to 2017. <i>LANCET REGIONAL HEALTH-WESTERN PACIFIC</i> , 19. https://doi.org/doi:10.1016/j.lanwpc.2021.100342	Only relative measures (e.g. Odds Ratios)
El Asmar, M. L., Laverty, A. A., Vardavas, C. I., & Filippidis, F. T. (2022). How do Europeans quit using tobacco, e-cigarettes and heated tobacco products? A cross-sectional analysis in 28 European countries. <i>BMJ OPEN</i> , 12(4).	No data on the use of mobile technology for smoking cessation

https://doi.org/doi:10.1136/bmjopen-2021-059068	
Ernsting, C., Dombrowski, S. U., Oedekoven, M., JL, O. S., Kanzler, M., Kuhlmeier, A., & Gellert, P. (2017). Using Smartphones and Health Apps to Change and Manage Health Behaviors: A Population-Based Survey. <i>J Med Internet Res</i> , 19(4), e101. https://doi.org/doi:10.2196/jmir.6838	Wrong population (e.g. pre-selected by app use)
Etter, J. F. (2019). Are long-term vapers interested in vaping cessation support? <i>Addiction</i> , 114(8), 1473-1477. https://doi.org/doi:10.1111/add.14595	No data on the use of mobile technology for smoking cessation
Foxon, F., & Niaura, R. (2025). Use of nicotine products, prescription drug products, and other methods to stop smoking by US adults in the 2022 National Health Interview Survey. <i>INTERNAL AND EMERGENCY MEDICINE</i> , 20(3), 691-700. https://doi.org/doi:10.1007/s11739-024-03847-6	No data on the use of mobile technology for smoking cessation
Fujisawa, D., Umezawa, S., Basaki-Tange, A., Fujimori, M., & Miyashita, M. (2014). Smoking status, service use and associated factors among Japanese cancer survivors--a web-based survey. <i>Support Care Cancer</i> , 22(12), 3125-3134. https://doi.org/doi:10.1007/s00520-014-2284-2	No data on the use of mobile technology for smoking cessation
Gallaway, M. S., Glover-Kudon, R., Momin, B., Puckett, M., Lunsford, N. B., Ragan, K. R., Rohan, E. A., & Babb, S. (2019). Smoking cessation attitudes and practices among cancer survivors - United States, 2015. <i>JOURNAL OF CANCER SURVIVORSHIP</i> , 13(1), 66-74. https://doi.org/doi:10.1007/s11764-018-0728-2	No data on the use of mobile technology for smoking cessation
Gallaway, M. S., Huang, B., Chen, Q., Tucker, T. C., McDowell, J. K., Durbin, E., Stewart, S. L., & Tai, E. (2019). Smoking and Smoking Cessation Among Persons with Tobacco- and Non-tobacco-Associated Cancers. <i>JOURNAL OF COMMUNITY HEALTH</i> , 44(3), 552-560. https://doi.org/doi:10.1007/s10900-019-00622-z	No data on the use of mobile technology for smoking cessation
Gambaryan, M., Kalinina, A., Popovich, M., Starovoytov, M., & Drapkina, O. (2019). Smoking cessation services in Russia: Do we meet the demand? results from Russian tobacco control policy evaluation survey. <i>European Respiratory Journal</i> , 54. https://doi.org/doi:10.1183/13993003.congress-2019.OA5138	Review, editorials, PhD theses, conference abstracts
Gambaryan, M., Kalinina, A. M., Popovich, M. V., Starovoytov, M. L., Drapkina, O. M., & Boytsov, S. A. (2019). Electronic cigarettes in Russia: Time for an action. Results from Russian Tobacco Control policy evaluation survey. <i>European Journal of Preventive Cardiology</i> , 26, S113. https://doi.org/doi:10.1177/2047487319860053	Review, editorials, PhD theses, conference abstracts
Gambaryan, M. G., Kalinina, A. M., Popovich, M. V., Starovoytov, M. L., Drapkina, O. M., Boytsov, S. A., & Salagay, O. O. (2019). The whole truth of electronic cigarettes: The russian reality. Part II. Use of electronic cigarettes in russia: Associations with demographic factors, advertisement and promotion, tobacco smoking and quit smoking attempts. Results from adult population representative survey EPOCHA-RF. <i>Profilakticheskaya Meditsina</i> , 22(6), 14-27. https://doi.org/doi:10.17116/profmed20192206214	No data on the use of mobile technology for smoking cessation
Gambaryan, M. H., Kalinina, A. M., Popovich, M. V., Starovoytov, M. L., Drapkina, O. M., & Boytsov, S. A. (2019). Demands for and implementation of smoking cessation support in health care: Results from Russian Tobacco Control Policy Evaluation Survey. <i>European Journal of Preventive Cardiology</i> , 26, S114-S115. https://doi.org/doi:10.1177/2047487319860053	Review, editorials, PhD theses, conference abstracts
Garey, L., Scott-Sheldon, L. A. J., Olofsson, H., Nelson, K. M., & Japuntich, S. J. (2021). Electronic cigarette cessation among adolescents and young adults. <i>Substance Use & Misuse</i> , 56(12), 1900-1903. https://doi.org/doi:10.1080/10826084.2021.1958850	No data on the use of mobile technology for smoking cessation
George, S., Becher, D., Zapor, M., & Hartzell, J. (2011). Smoking habits and cessation efforts among deployed soldiers. <i>Journal of General Internal Medicine</i> , 26, S232. https://doi.org/doi:10.1007/s11606-011-1730-9	Review, editorials, PhD theses, conference abstracts
Gifford, H., Wilson, D., Boulton, A., Walker, L., & Shepherd-Sinclair, W. (2013). Maori nurses and smoking: what do we know? <i>N Z Med J</i> , 126(1384), 53-63. https://doi.org/doi:	No data on the use of mobile technology for smoking cessation
Gobarani, R. K., Zwar, N. A., Russell, G., Abramson, M. J., Bonevski, B., Holland, A. E., Paul, E., Cox, N. S., Wilson, S., & George, J. (2021). Smoking cessation intervention in Australian general practice: a secondary analysis of a duster randomised controlled trial. <i>BRITISH JOURNAL OF GENERAL PRACTICE</i> , 71(707), E458-E464. https://doi.org/doi:10.3399/BJGP.2020.0906	No data on the use of mobile technology for smoking cessation

Gore, E., Johnson, G., Nguyen, M. T. T., France, A., Perez-Colon, A. L., Bittner, K., Marino, D., & Kothari, S. (2022). PROMOTION OF SMOKING CESSATION FOR PATIENTS WITH CHRONIC PANCREATITIS: A QUALITY IMPROVEMENT INITIATIVE. <i>Gastroenterology</i> , 162(7), S-862. https://doi.org/doi:10.1016/S0016-5085(22)62039-0	Review, editorials, PhD theses, conference abstracts
Gorini, G., Carreras, G., Minardi, V., Masocco, M., Ferrante, G., Coppo, A., Gallus, S., Faggiano, F., Galeone, D., Spizzichino, L., Pacifici, R., & Vasselli, S. (2019). [Socioeconomic and regional inequalities in smoking cessation in Italy, 2014-2017]. <i>Epidemiol Prev</i> , 43(4), 275-285. https://doi.org/doi:10.19191/ep19.4.P275.078	No data on the use of mobile technology for smoking cessation
Graham, A. L., Milner, P., Saul, J. E., & Pfaff, L. (2008). Online advertising as a public health and recruitment tool: comparison of different media campaigns to increase demand for smoking cessation interventions. <i>J Med Internet Res</i> , 10(5), e50. https://doi.org/doi:10.2196/jmir.1001	No data on the use of mobile technology for smoking cessation
Guignard, R., Gallopel-Morvan, K., Mons, U., Hummel, K., & Nguyen-Thanh, V. (2018). Impact of a negative emotional antitobacco mass media campaign on French smokers: a longitudinal study. <i>Tob Control</i> , 27(6), 670-676. https://doi.org/doi:10.1136/tobaccocontrol-2017-053936	No data on the use of mobile technology for smoking cessation
Gutiérrez-Torres, D. S., Reyes-Guzman, C., Mayer, M., Prutzman, Y. M., & Freedman, N. D. (2025). Quit Attempts and Use of Cessation Aids Among U.S. Adults Who Smoke Nondaily. <i>AMERICAN JOURNAL OF PREVENTIVE MEDICINE</i> , 68(3), 622-626. https://doi.org/doi:10.1016/j.amepre.2024.11.004	No data on the use of mobile technology for smoking cessation
Henley, S. J., Asman, K., Momin, B., Gallaway, M. S., Culp, M. B., Ragan, K. R., Richards, T. B., & Babb, S. (2019). Smoking cessation behaviors among older US adults. <i>PREVENTIVE MEDICINE REPORTS</i> , 16. https://doi.org/doi:10.1016/j.pmedr.2019.100978	No data on the use of mobile technology for smoking cessation
Igarashi, A., Negishi, S., Goto, R., & Suwa, K. (2014). Web-based survey on smoking cessation behaviors of current and former smokers in Japan. <i>Curr Med Res Opin</i> , 30(10), 1911-1921. https://doi.org/doi:10.1185/03007995.2014.938149	No data on the use of mobile technology for smoking cessation
Jackson, S. E., Brown, J., & Beard, E. (2024). Associations of Prevalence of E-cigarette Use With Quit Attempts, Quit Success, Use of Smoking Cessation Medication, and the Overall Quit Rate Among Smokers in England: A Time-Series Analysis of Population Trends 2007-2022. <i>NICOTINE & TOBACCO RESEARCH</i> , 26(7), 826-834. https://doi.org/doi:10.1093/ntr/ntae007	No data on the use of mobile technology for smoking cessation
Jackson, S. E., Farrow, E., Brown, J., & Shahab, L. (2020). Is dual use of nicotine products and cigarettes associated with smoking reduction and cessation behaviours? A prospective study in England. <i>BMJ OPEN</i> , 10(3). https://doi.org/doi:10.1136/bmjopen-2019-036055	No data on the use of mobile technology for smoking cessation
Jackson, S. E., Garnett, C., Shahab, L., Oldham, M., & Brown, J. (2021). Association of the COVID-19 lockdown with smoking, drinking and attempts to quit in England: an analysis of 2019-20 data. <i>Addiction</i> , 116(5), 1233-1244. https://doi.org/doi:10.1111/add.15295	No data on the use of mobile technology for smoking cessation
Jackson, S. E., Kock, L., Kotz, D., & Brown, J. (2022). Real-world effectiveness of smoking cessation aids: A population survey in England with 12-month follow-up, 2015-2020. <i>ADDICTIVE BEHAVIORS</i> , 135. https://doi.org/doi:10.1016/j.addbeh.2022.107442	No data on the use of mobile technology for smoking cessation
Jeong, B. Y., Lim, M. K., Yun, E. H., & Oh, J. K. (2019). User characteristics of national smoking cessation services in Korea: who chooses each type of tobacco cessation program? <i>BMC Health Serv Res</i> , 19(1), 14. https://doi.org/doi:10.1186/s12913-018-3817-z	Wrong population (e.g. pre-selected by app use)
Jeong, W., Kim, Y. K., Joo, J. H., Jang, S. I., & Park, E. C. (2020). The Association of Smoking Exposure at Home with Attempts to Quit Smoking and Cessation Success: A Survey of South Korean Adolescents Who Smoke. <i>Int J Environ Res Public Health</i> , 17(11). https://doi.org/doi:10.3390/ijerph17114129	No data on the use of mobile technology for smoking cessation
Kalkhoran, S., Kruse, G. R., Chang, Y. C., & Rigotti, N. A. (2018). Smoking-Cessation Efforts by US Adult Smokers with Medical Comorbidities. <i>AMERICAN JOURNAL OF MEDICINE</i> , 131(3). https://doi.org/doi:10.1016/j.amjmed.2017.09.025	No data on the use of mobile technology for smoking cessation
Kim, D. B., Park, Y. S., Yun, I., Park, E.-C., & Jang, S.-I. (2023). Association between anti-smoking campaign types and smoking cessation attempts. <i>SSM - Population Health</i> , 24. https://doi.org/doi:10.1016/j.ssmph.2023.101505	No data on the use of mobile technology for smoking cessation

Kim, D. J., Choo, E. K., & Ranney, M. L. (2013). Impact of gender on patient preferences for technology-based behavioral interventions. <i>Academic Emergency Medicine</i> , 20(5), S180. https://doi.org/doi:10.1111/acem.12115	No data on the use of mobile technology for smoking cessation
Klemperer, E. M., & Villanti, A. C. (2021). Why and how do dual users quit vaping? Survey findings from adults who use electronic and combustible cigarettes. <i>Tob Induc Dis</i> , 19, 12. https://doi.org/doi:10.18332/tid/132547	Sample size (<100 smokers)
Kulak, J. A., & LaValley, S. (2018). Cigarette use and smoking beliefs among older Americans: findings from a nationally representative survey. <i>J Addict Dis</i> , 37(1), 46-54. https://doi.org/doi:10.1080/10550887.2018.1521255	No data on the use of mobile technology for smoking cessation
Kumar, P., Gareen, I. F., Lathan, C., Sicks, J. D., Perez, G. K., Hyland, K. A., & Park, E. R. (2016). Racial Differences in Tobacco Cessation and Treatment Usage After Lung Screening: An Examination of the National Lung Screening Trial. <i>ONCOLOGIST</i> , 21(1), 40-49. https://doi.org/doi:10.1634/theoncologist.2015-0325	No data on the use of mobile technology for smoking cessation
Lawrance, K. G. (2001). Adolescent smokers' preferred smoking cessation methods. <i>Can J Public Health</i> , 92(6), 423-426. https://doi.org/doi:10.1007/bf03404532	No data on the use of mobile technology for smoking cessation
Leatherdale, S. T., & McDonald, P. W. (2005). What smoking cessation approaches will young smokers use? <i>ADDICTIVE BEHAVIORS</i> , 30(8), 1614-1618. https://doi.org/doi:10.1016/j.addbeh.2005.02.004	No data on the use of mobile technology for smoking cessation
Leatherdale, S. T., & Shields, M. (2009). Smoking cessation: intentions, attempts and techniques. <i>HEALTH REPORTS</i> , 20(3). https://doi.org/doi:	No data on the use of mobile technology for smoking cessation
Lee, Y. S., Kim, H.-S., Kim, H.-D., Yoo, K.-B., Jang, S.-I., & Park, E.-C. (2016). Is a price increase policy enough for adolescent smokers?: Factors affecting the effectiveness of increasing cigarette prices among Korean adolescent smokers. <i>NICOTINE & TOBACCO RESEARCH</i> , 18(10), 2013-2019. https://doi.org/doi:10.1093/ntr/ntw122	No data on the use of mobile technology for smoking cessation
Liu, B., Zhan, S., Wilson, K. M., Mazumdar, M., & Li, L. H. (2021). The Influence of Increasing Levels of Provider-Patient Discussion on Quit Behavior: An Instrumental Variable Analysis of a National Survey. <i>INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH</i> , 18(9). https://doi.org/doi:10.3390/ijerph18094593	No data on the use of mobile technology for smoking cessation
Lopez-Olivo, M. A., Michaud, K., Schumacher, R., Minnix, J., Cinciripini, P., & Suarez-Almazor, M. E. (2023). Smoking cessation patterns, usefulness of quitting methods, and tobacco cessation motivators and barriers to quit in patients with rheumatoid arthritis. <i>CLINICAL RHEUMATOLOGY</i> , 42(8), 2053-2068. https://doi.org/doi:10.1007/s10067-023-06593-w	No data on the use of mobile technology for smoking cessation
Lund, M., & Kvaavik, E. (2021). Methods Used in Smoking Cessation and Reduction Attempts: Findings from Help-Seeking Smokers. <i>J Smok Cessat</i> , 2021, 6670628. https://doi.org/doi:10.1155/2021/6670628	Wrong population (e.g. pre-selected by app use)
Mai, Y., & Soulakova, J. N. (2018). Retrospective reports of former smokers: Receiving doctor's advice to quit smoking and using behavioral interventions for smoking cessation in the United States. <i>Prev Med Rep</i> , 11, 290-296. https://doi.org/doi:10.1016/j.pmedr.2018.07.012	No data on the use of mobile technology for smoking cessation
Maxwell, A. E., Garcia, G. M., & Berman, B. A. (2007). Understanding tobacco use among Filipino American men. <i>Nicotine and Tobacco Research</i> , 9(7), 769-776. https://doi.org/doi:10.1080/14622200701397890	No data on the use of mobile technology for smoking cessation
Michell, C., & Oakeshott, P. (2014). Text messaging to promote health. <i>Br J Gen Pract</i> , 64(619), 72-73. https://doi.org/doi:10.3399/bjgp14X677086	Review, editorials, PhD theses, conference abstracts
Muñoz, R. F., Chen, K., Bunge, E. L., Bravin, J. I., Shaughnessy, E. A., & Pérez-Stable, E. J. (2014). Reaching Spanish-speaking smokers online: a 10-year worldwide research program. <i>Rev Panam Salud Publica</i> , 35(5), 407-414. https://doi.org/doi:	Wrong context (no high-income country)
Neumann, M. F., Murphy, N. J., & Seetharamu, N. (2022). Smoking cessation after cancer diagnosis: Relationships matter. <i>Journal of Clinical Oncology</i> , 40(16). https://doi.org/doi:10.1200/JCO.2022.40.16_suppl.e24039	Review, editorials, PhD theses, conference abstracts
Onyeaka, H. K., Chido-Amajuoyi, O. G., Daskalakis, E., Deary, E. C., Boardman, A. C., Basiru, T., Muoghalu, C., Uwandu, Q., Baiden, P., Nkemjika, S., Aneni, K., & Amonoo, H. L. (2024). Associations between Health-Related Use of Social Media and Positive Lifestyle Behaviors: Findings from a Representative Sample of US Adult Smokers. <i>Subst Use Misuse</i> , 59(4), 527-535. https://doi.org/doi:10.1080/10826084.2023.2287199	No data on the use of mobile technology for smoking cessation
Onyeaka, H. K., Zambrano, J., Longley, R. M., Celano, C. M., Naslund, J. A., & Amonoo, H. L. (2021). Use of digital health tools for	No data on the use of mobile technology for smoking

health promotion in cancer survivors. <i>Psycho-Oncology</i> , 30(8), 1302-1310. https://doi.org/doi:10.1002/pon.5677	cessation
Otachi, J. K., Seng, S., & Okoli, C. T. C. (2020). Factors associated with tobacco cessation attempts among inpatients in a psychiatric hospital. <i>JOURNAL OF SMOKING CESSATION</i> , 15(2), 84-93. https://doi.org/doi:10.1017/jsc.2020.3	No data on the use of mobile technology for smoking cessation
Pettigrew, S., Jun, M., Roberts, I., Bullen, C., Nalliah, K., & Rodgers, A. (2020). Preferences for tobacco cessation information and support during Covid-19. <i>Journal of Addiction Medicine</i> , 14(6), E362-E365. https://doi.org/doi:10.1097/ADM.0000000000000743	No data on the use of mobile technology for smoking cessation
Prochaska, J. J., Reyes, R. S., Schroeder, S. A., Daniels, A. S., Doederlein, A., & Bergeson, B. (2011). An online survey of tobacco use, intentions to quit, and cessation strategies among people living with bipolar disorder. <i>Bipolar Disord</i> , 13(5), 466-473. https://doi.org/doi:10.1111/j.1399-5618.2011.00944.x	No data on the use of mobile technology for smoking cessation
Quinn, M. H., Olonoff, M., Bauer, A. M., Fox, E., Jao, N., Lubitz, S. F., Leone, F., Gollan, J. K., Schnoll, R., & Hitsman, B. (2022). History and Correlates of Smoking Cessation Behaviors Among Individuals With Current or Past Major Depressive Disorder Enrolled in a Smoking Cessation Trial. <i>NICOTINE & TOBACCO RESEARCH</i> , 24(1), 37-43. https://doi.org/doi:10.1093/ntr/ntab147	No data on the use of mobile technology for smoking cessation
Rodu, B., & Plurphanswat, N. (2017). Quit Methods Used by American Smokers, 2013-2014. <i>INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH</i> , 14(11). https://doi.org/doi:10.3390/ijerph14111403	No data on the use of mobile technology for smoking cessation
Ruggiero, K. J., Gros, D. F., McCauley, J., de Arellano, M. A., & Danielson, C. K. (2011). Rural adults' use of health-related information online: data from a 2006 National Online Health Survey. <i>Telemed J E Health</i> , 17(5), 329-334. https://doi.org/doi:10.1089/tmj.2010.0195	Wrong population (e.g. pre-selected by app use)
Rutqvist, L. E. (2012). Population-based survey of cessation aids used by Swedish smokers. <i>HARM REDUCTION JOURNAL</i> , 9. https://doi.org/doi:10.1186/1477-7517-9-38	No data on the use of mobile technology for smoking cessation
Salisbury-Afshar, E., & Fitzgerald, R. M. (2020). Smoking Cessation with Text Messaging and App-Based Interventions. <i>American Family Physician</i> , 102(3), 148-149. https://doi.org/doi:	Review, editorials, PhD theses, conference abstracts
Sazegar, P., Martinez, A. N., & Varallo, M. D. (2023). Smoking cessation in adolescents. <i>American Family Physician</i> , 107(5), 450E-451E. https://doi.org/doi:	Review, editorials, PhD theses, conference abstracts
Shiffman, S., Brockwell, S. E., Pillitteri, J. L., & Gitchell, J. G. (2008). Use of smoking-cessation treatments in the United States. <i>AMERICAN JOURNAL OF PREVENTIVE MEDICINE</i> , 34(2), 102-111. https://doi.org/doi:10.1016/j.amepre.2007.09.033	No data on the use of mobile technology for smoking cessation
Shiffman, S., Brockwell, S. E., Pillitteri, J. L., & Gitchell, J. G. (2008). Individual differences in adoption of treatment for smoking cessation: Demographic and smoking history characteristics. <i>DRUG AND ALCOHOL DEPENDENCE</i> , 93(1), 121-131. https://doi.org/doi:10.1016/j.drugalcdep.2007.09.005	No data on the use of mobile technology for smoking cessation
Smit, E. S., Hoving, C., Cox, V. C., & de Vries, H. (2012). Influence of recruitment strategy on the reach and effect of a web-based multiple tailored smoking cessation intervention among Dutch adult smokers. <i>Health Educ Res</i> , 27(2), 191-199. https://doi.org/doi:10.1093/her/cyr099	No data on the use of mobile technology for smoking cessation
Smit, E. S., Hoving, C., Schelleman-Offermans, K., West, R., & de Vries, H. (2014). Predictors of successful and unsuccessful quit attempts among smokers motivated to quit. <i>Addict Behav</i> , 39(9), 1318-1324. https://doi.org/doi:10.1016/j.addbeh.2014.04.017	No data on the use of mobile technology for smoking cessation
Smith, P., Daniel, R., Murray, R. L., Moore, G., Nelson, A., & Brain, K. (2021). Psychosocial determinants of quit motivation in older smokers from deprived backgrounds: A cross-sectional survey. <i>BMJ OPEN</i> , 11(5). https://doi.org/doi:10.1136/bmjopen-2020-044815	No data on the use of mobile technology for smoking cessation
Solberg, L. I., Boyle, R. G., McCarty, M., Asche, S. E., & Thoele, M. J. (2007). Young adult smokers: Are they different? <i>AMERICAN JOURNAL OF MANAGED CARE</i> , 13(11), 626-632. https://doi.org/doi:	No data on the use of mobile technology for smoking cessation
Sousa, R., & Moreira, C. (2015). Smoking cessation in primary care. The experience of a general practice unit. <i>Journal of Hypertension</i> , 33, e147. https://doi.org/doi:10.1097/01.hjh.0000467770.35090.8b	Review, editorials, PhD theses, conference abstracts

Squiers, L., Brown, D., Parvanta, S., Dolina, S., Kelly, B., Dever, J., Southwell, B. G., Sanders, A., & Augustson, E. (2016). The SmokefreeTXT (SFTXT) Study: Web and Mobile Data Collection to Evaluate Smoking Cessation for Young Adults. <i>JMIR Res Protoc</i> , 5(2), e134. https://doi.org/doi:10.2196/resprot.5653	No data on the use of mobile technology for smoking cessation
Stoddard, J., Delucchi, K., Muñoz, R., Collins, N., Stable, E. P., Augustson, E., & Lenert, L. (2005). Smoking cessation research via the internet: a feasibility study. <i>J Health Commun</i> , 10(1), 27-41. https://doi.org/doi:10.1080/10810730590904562	No data on the use of mobile technology for smoking cessation
Stoddard, J. L., & Augustson, E. M. (2006). Smokers who use Internet and smokers who don't: Data from the Health Information and National Trends Survey (HINTS). <i>NICOTINE & TOBACCO RESEARCH</i> , 8, S77-S85. https://doi.org/doi:10.1080/14622200601039147	No data on the use of mobile technology for smoking cessation
Sweeney, M. M., Holtyn, A. F., Stitzer, M. L., & Gastfriend, D. R. (2022). Practical Technology for Expanding and Improving Substance Use Disorder Treatment: Telehealth, Remote Monitoring, and Digital Health Interventions. <i>Psychiatric Clinics of North America</i> , 45(3), 515-528. https://doi.org/doi:10.1016/j.psc.2022.05.006	Review, editorials, PhD theses, conference abstracts
Tabuchi, T. (2021). ES24.03 Current Status of Smoking Cessation with Heated Tobacco Products Use in Japan. <i>Journal of Thoracic Oncology</i> , 16(3), S91. https://doi.org/doi:10.1016/j.jtho.2021.01.053	Review, editorials, PhD theses, conference abstracts
Takahashi, Y., Satomura, K., Miyagishima, K., Nakahara, T., Higashiyama, A., Iwai, K., & Nakamura, K. (1999). A new smoking cessation programme using the Internet. <i>Tobacco control</i> , 8(1), 109-110. https://doi.org/doi:10.1136/tc.8.1.109-b	Review, editorials, PhD theses, conference abstracts
Tanaka, S., Ihira, H., Tajima, T., Kanehara, R., Inoue, Y., Doi, T., Kobayashi, N., Kato, Y., Nishita, Y., Konishi, M., Nakao, Y. M., Kabe, I., Morioka, C., Dohi, S., Khairan, P., Arafa, A., Narita, Z. C., Morisaki, N., Lu, Y.,...Inoue, M. (2024). <i>Birth Cohort-Specific Smoking Patterns in Japan (1906-2004): Insights from the NC-CCAPH Consortium</i> . https://doi.org/doi:10.2139/ssrn.5070291	No data on the use of mobile technology for smoking cessation
Taylor, D., Bradley, E., Meng, S., Thapa, J., & Goldenberg, E. (2016). Tobacco Cessation for Patients with Coronary Artery Disease. <i>Delaware medical journal</i> , 88(3), 84-88. https://doi.org/doi:	Review, editorials, PhD theses, conference abstracts
Tong, V. T., England, L. J., Dietz, P. M., & Asare, L. A. (2008). Smoking Patterns and Use of Cessation Interventions During Pregnancy. <i>AMERICAN JOURNAL OF PREVENTIVE MEDICINE</i> , 35(4), 327-333. https://doi.org/doi:10.1016/j.amepre.2008.06.033	No data on the use of mobile technology for smoking cessation
Tregobov, N., Poureslami, I., Ip, J., & FitzGerald, M. (2019). Supplementing smoking-cessation practices amongst cantonese and mandarin speaking smokers through the investigation of perceptions, attitudes and beliefs. <i>Canadian Journal of Respiratory, Critical Care, and Sleep Medicine</i> , 3, 48-49. https://doi.org/doi:10.1080/24745332.2019.1623590	Review, editorials, PhD theses, conference abstracts
Tsiouda, T., Zarogoulidis, P., Petridis, D., Pezirkianidis, N., Kioumis, I., Yarmus, L., Huang, H., Li, Q., Hohenforst-Schmidt, W., Porpodis, K., Spyratos, D., Tsakiridis, K., Pitsiou, G., Kontakiotis, T., Argyropoulou, P., Kyriazis, G., & Zarogoulidis, K. (2014). A multifactorial analysis of 1452 patients for smoking sensation. An outpatient lab experience. <i>Journal of Cancer</i> , 5(6), 433-445. https://doi.org/doi:10.7150/jca.9360	No data on the use of mobile technology for smoking cessation
Ustun, G., Söylemez, S. L., Ucar, N., Sancar, M., & Okuyan, B. (2020). E-health literacy and mobile health application utilization among pharmacy students. <i>International Journal of Clinical Pharmacy</i> , 42(1), 291. https://doi.org/doi:10.1007/s11096-019-00945-w	Review, editorials, PhD theses, conference abstracts
Uwandu, Q., Onyeaka, H. K., Akpoviroro, O., Chido-Amajuoyi, O., Nwadukwe, I., Onyeaka, C. N., & Omede, F. F. (2023). Social Media for Smoking Cessation among Adult Smokers in the United States. <i>Journal of Addiction Medicine</i> , 17(5), e343-e344. https://doi.org/doi:	Review, editorials, PhD theses, conference abstracts
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Zhou, X., Nonnemaker, J., Sherrill, B., Gilsean, A. W., Coste, F., & West, R. (2009). Attempts to quit smoking and relapse: Factors associated with success or failure from the ATTEMPTS cohort study. <i>ADDICTIVE BEHAVIORS</i> , 34(4), 365-373. https://doi.org/doi:10.1016/j.addbeh.2008.11.013	No data on the use of mobile technology for smoking cessation
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