Smoke Free: Reviewer's guide

The stop smoking app built by science and loved by users

Summary and product highlights

Smoke Free incorporates the best available evidence about smoking cessation into an app designed with the user experience uppermost in mind. Our key features include: daily missions to help people cope with the difficult first month of their quit; an advanced cravings feature that provides tips on dealing with cravings and insight into the situations that may trigger them; a dashboard that helps users see the gains they've made from giving up smoking; and progress bars that demonstrate how their health is improving.

These features and the way they are implemented revolve around the core principle of helping people understand the benefits of staying smoke free. This approach draws upon Rothman's theory of behaviour maintenance, which proposes that we initiate a new behaviour when we are optimistic about the benefits of change but we maintain the behaviour only when satisfied with the changes that have been brought [1].

Our app is designed to help people understand in as many ways as possible that staying smoke free is much more advantageous than giving in to the craving to smoke.
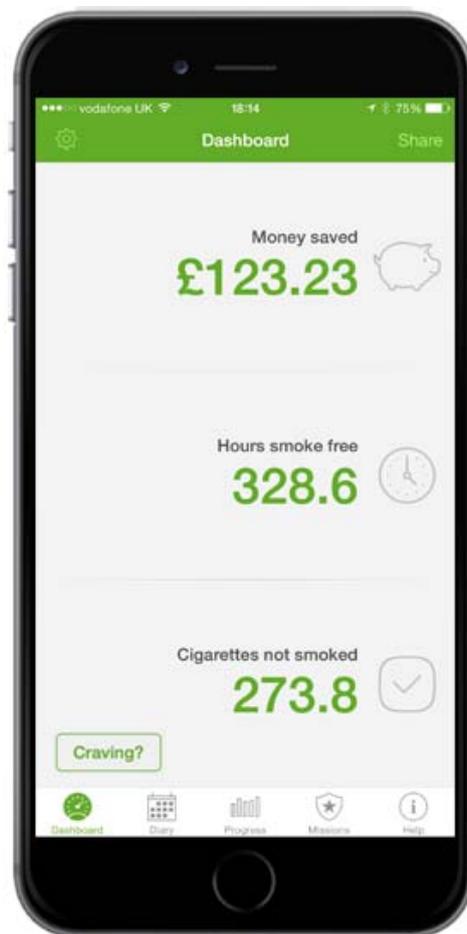
The dashboard shows key smoking achievements, such as time smoke free

Our audience

Smoke Free is used by people making an attempt to stop smoking. Our users are evenly split across men and women. Their average age is 31 and they've come from 207 countries, despite the app only being available in English.

The app has been downloaded over a million times since it was launched in February 2013, half of whom have come in the last six months. Twenty thousand people use the app each day for an average of two minutes each time, and we record 1.8m user sessions each month. Nearly 150,000 unique users have used the app in the past 30 days, a considerable number not just because of the high abandonment rate of apps, but also because more than 50% of our users are likely to have returned to smoking within that time.
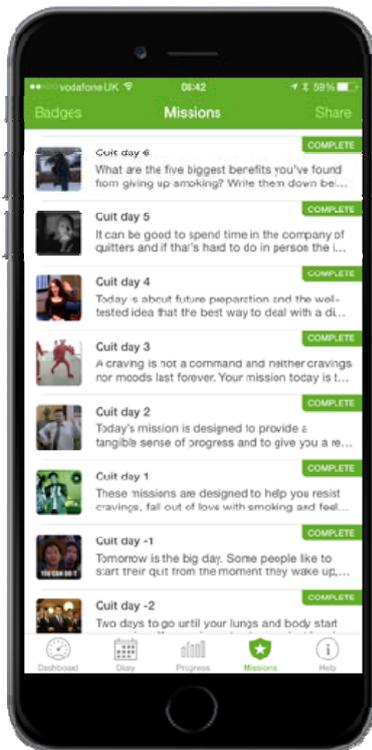

Our users have come from 207 different countries

Key features
The daily missions

At 8am each morning users are notified of a new mission, a stop smoking task they're asked to complete. Each mission incorporates one or more established behaviour change techniques used in smoking cessation [2]. There are seven missions counting down to the quit date, a new mission each day for the next 31 days, and a reprise of favourite missions for the month that follows. The time of the mission alert can be changed on the app's settings screen.

There are missions to help people manage cravings, missions to help change their views towards smoking and missions to help people see themselves as a proud non-smoker. These categories are based on evidence and driven by behaviour change theory. Less than 5% of all the people who make a quit attempt keep it going for a year [3]. The challenge, therefore, is to help people maintain their quit. The single most important task in maintaining a quit is never giving in to a craving. Quits are also maintained when people understand the benefits of not smoking and come to see smoking as something not part of their identity. Our missions are designed to help users in all three areas.

For example: on day 4 users are asked to think about the trigger situations that might tempt them to smoke again and to make a plan for dealing with these situa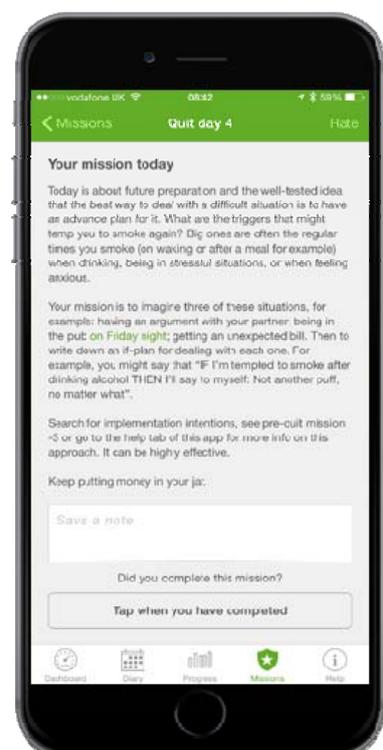tions. Examples are given (e.g. being in the pub on Friday night) and details of how to create the plan are provided (You might say 'IF I'm tempted to smoke after drinking alcohol THEN I'll say to myself: Not another puff, no matter what'). The If/Then structure of these plans is based on a behaviour change technique called Implementation Intentions [4]. This technique has been found highly effective in health behaviour change [5], perhaps because having a concrete plan for when in a specific situation means the plan can be performed automatically and without conscious effort. This reduces dependence on willpower, a resource whose strength is known to fluctuate over the course of a day. In addition, the mantra: Not another puff, no matter what, is a rule proven effective in smoking cessation [6].

Users can mark each mission as complete and are given a congratulatory and often funny video to reward their accomplishment. Some missions ask people to make notes, for example "What are the biggest benefits you've found from giving up smoking?" (Improved sense of smell and taste are two people frequently report). These notes can be made on the app and retrieved at will. Users can rate each mission out of 10 and comment on what they liked or disliked about it. In time we will use the ratings to tailor missions to individual tastes.


Each mission is clearly described and presented as an achievable challenge

Record cravings, get help managing them

A button on the dashboard allows users to log their cravings. When tapped a modal window opens prompting them to indicate the strength of their craving, make notes about it and/or record its location. All fields are optional.

When the user taps save we provide tips to help them manage the craving. Tips are divided into a number of categories: Do something; Eat something; Relax; Reward yourself; Benefits; Mantras and Our suggestions. Each has been sourced from reputable stop smoking web sites and/or is backed up by evidence. Cravings can be added to or removed from favourites and the order of favourites can be changed. Users can add their own tips or edit any of the ones we've provided.
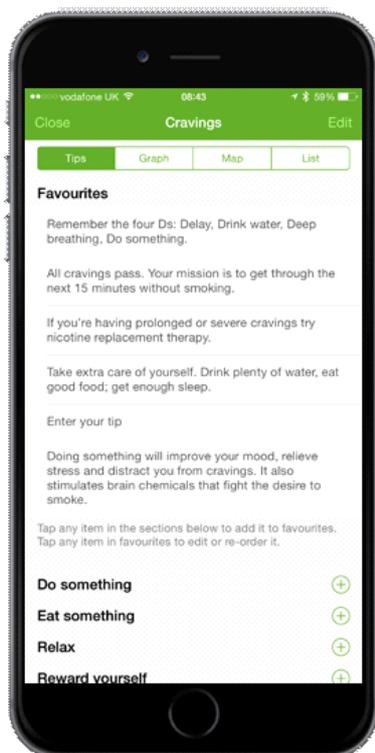
Cravings tips can be edited and added to or removed from favourites. The order of favourites can be changed

The graph helps users see that their cravings are reducing in frequency/intensity
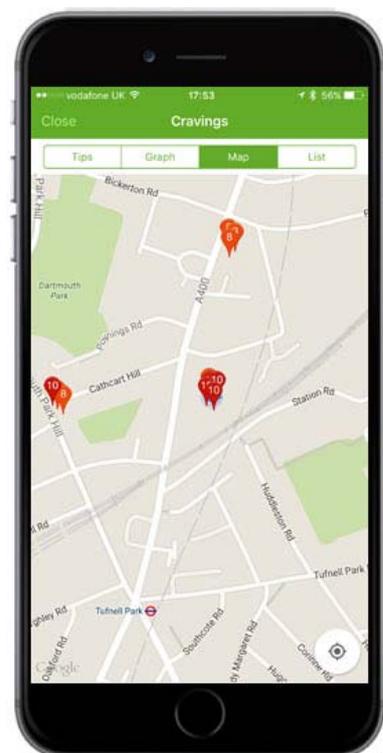
The map shows where cravings congregate in order people can be prepared when next there

The cravings graph shows the progression of cravings over time. Our autobiographical memory is notoriously poor and we often think the way we feel now is the way we've always felt and always will feel. The graph counters this by showing (usually, anyway) that both the severity and number of cravings are decreasing.

The map shows where cravings congregate, users can use this to identify danger spots and prepare themselves for the next time they're there. The notes help users identify situations which trigger cravings (driving, watching TV etc.), situations which often go unnoticed until they're detailed. When users are aware of these situations they can prepare for them.

The Diary

If users don't want to record cravings individually the diary allows them to keep a daily log. They are prompted to complete this log at 7pm each evening, though the time of the reminder can be changed on the app's settings screen.

If users have logged cravings one-by-one the diary automatically totals the number of cravings and averages their severity. This reduces user burden and prevents double counting. Users can adjust these figures if they wish.

Users are asked to indicate if they've smoked since their last entry

If they say yes, they're asked how many and relevant figures on the dashboard are updated. The health progress bars are also adjusted to reflect a lapse

Cravings logged on the dashboard are totalled automatically here – users can adjust these figures if they wish

If users indicate they've smoked a field appears asking if they want to change their quit date

Any spend on NRT or e-cigarettes entered here is deducted from figures on the dashboard

The diary also allows users to log if they've smoked and/or any amount they've spent on nicotine replacement therapy (NRT) or e-cigarettes. If users say they've smoked a field opens asking how many. The total smoked and their equivalent cost is deducted from the figures on the dashboard, as is the spend on NRT or e-cigarettes.

A separate field allows users to reset their quit date. We decided not to automatically reset the quit date if a user indicates they have smoked as we believe it is up to them to decide if this is a small lapse or full blown relapse. The desire to not impose our views on users, but rather to take a non-judgemental and helpful stance, and give users control over their quit, runs throughout the app.

Configurable dashboard

The dashboard shows important smoking metrics in six different panels: The amount of money saved so far; how much will be saved in a year; the time smoke free; amount of life regained; number of cigarettes not smoked; and number of cravings resisted. The rotation of these panels can be stopped or started on tap, their position on the screen can be altered and users can remove any they find unsuitable.
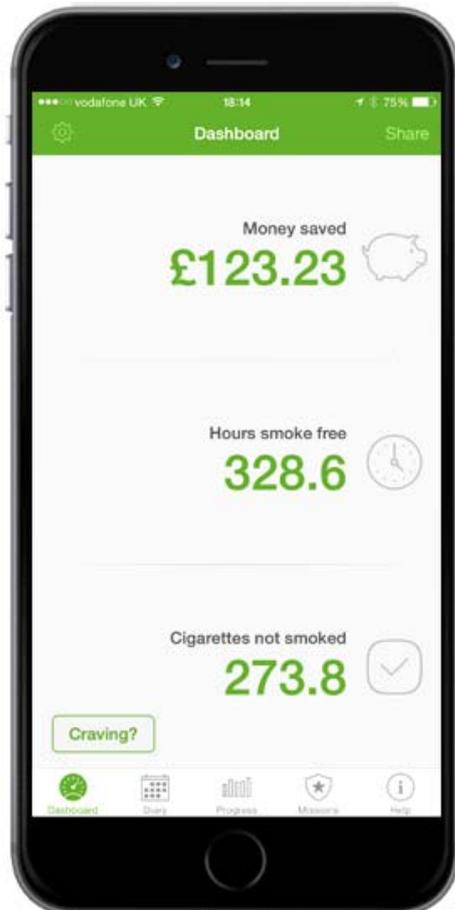
Key figures from the quit are shown in six different panels, three of which are shown at any one time. The other panels rotate into view every two seconds. Rotation can be paused or restarted by tapping a panel.
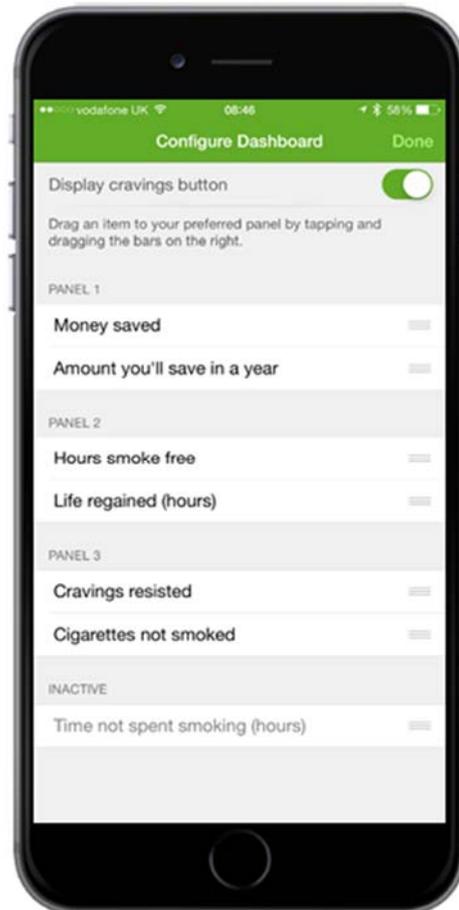
The dashboard is fully configurable. Panels can be moved into different positions or removed entirely. Should users not be experiencing cravings, the cravings button can be turned off entirely for a cleaner looking dashboard

The dashboard is the most popular part of the app and not just because it's the default home screen. Users have told us they love seeing their savings increase and are both shocked and impressed by how many cigarettes they end up not smoking.

The life regained figure is calculated in the following way. On average a smoker who quits at age 35 lives 10 years longer than people who continue to smoke [7]. If 75 is an average lifespan this means someone who quits regains about a quarter of their life, or six hours for every 24 hours not smoked.

Whilst these figures are approximate, many people quit smoking after 35 and they'll need to stay quit to regain this amount of life, the addition of this figure helps bring the health benefits of giving up smoking closer to the present moment. This is important because many people have difficulty comprehending far off harms to their health.

Health progress bars

The health progress bars also help users see that their health is improving. Using figures taken from the NHS Stop Smoking Timeline, users can track improvements in areas such as their pulse rate, breathing, taste and smell, energy levels and risk of heart attack.

The importance of helping users see progress is central to the use of these bars. The bars at the top go fully green rapidly, so providing quick wins.

Each bar displays progress toward the goal in percentage terms and when it comes to areas such as risk of lung cancer progress is displayed to two decimal points.

In this way users can see an improvement in this far away – but critical health benefit - almost every day.

Clock

Our clock works like an hourglass in reverse, with the figures filling up with green as the minutes, hours, days and months pass.

For example, the minute figure becomes increasingly more green as the seconds tick by. When the 60 second mark is reached the minute figure increases by one, clears itself, and starts filling up again.

Our aim is again to help people feel a sense of progress. Seeing figures fill up with green helps convey a feeling of gain at the passing of more time smoke free.

Minute figure 1/3 green   *Minute figure nearly full*

Goal of the app

Six million people will die in the next twelve-months from a smoking-related disease [8]. Up to half of all smokers (and there are a billion smokers in the world) make an attempt to quit each year [9] but 95% of these attempts will be unsuccessful [10]. The goal of the app is, therefore, to help more people quit smoking for good.

We do this by creating an app that people love using. And then evaluating scientifically which behaviour change techniques work. Our 4,000 new users each day provide a large and willing cohort of participants*. We intend to employ them, the process of constant improvement made possible by technology, and the scientific method, to create an ever more effective app.

We intend to make our findings publicly available by submitting them to peer-reviewed journals. When published, these findings will add to the body of evidence about the best way to help people stop smoking and so may have value beyond our app.

Our secondary goal is more general: we want to understand how technology can be used to help people lead healthier and happier lives. We die of non-communicable diseases these days. The majority of deaths result from poor diet, lack of exercise, excess alcohol and of course, smoking [11]. Many of these deaths can be prevented by changing our behaviour [12]. Lessons learnt from smoking, one of the hardest behaviours to change, will have application in the other behaviour change apps we will create.

* Participants consent to taking part in the experiment when they first use the app. They can opt-out of the experiment at any time and without giving a reason by clicking a button within the app. Anyone who has opted-out can continue to use the app fully. If you don't see an invitation to consent screen when first using the app it means we're not running an experiment at this time.

Competitor analysis

There are other smoking cessation apps built on a scientific foundation, other apps with features that users want and other apps that provide a good user experience. But it's rare for an app to meet two of these criteria. Ours is the only app which meets all three.

Apps that don't provide a good user experience are unlikely to be used long enough to help people change their behaviour. Apps missing features that users want are likely to be discarded in preference for ones containing them. And apps that don't evaluate their behaviour change techniques scientifically aren't able to truly determine their effectiveness.

Our most unique feature is the missions. They are unique not only because they provide regular and ongoing support in the form of theory-driven and evidence-based daily tasks. But also because an experiment found them to help more people remain smoke free for at least three months. Our user focussed implementation of features such as the smoking metrics (time smoke free, amount saved, cigarettes not smoked etc.) and health progress bars also sets us apart.

Our clean and simple design, coupled with our a deep understanding of what users want and what makes an app usable, have given us the highest ratings of any stop smoking app in the iTunes Store, suggesting that the hundreds of thousands of people who have used Smoke Free consider it the best.

Key links

iOS version: http://tinyurl.com/smokefree-ios
Android version: http://tinyurl.com/smokefree-android
Web site: www.smokefreeapp.com
Video walkthrough: https://youtu.be/cedzi73Y9t0

System requirements list

Smartphone running iOS7 and above, Android running KitKat and above.

About Us

Dave and Greg created one of the first web development agencies in the UK in 1995. They've worked on the internet ever since and have built, improved or consulted upon hundreds of web sites for companies large and small. Their recent focus has been on developing apps.

Greg's company Portable Pixels has built a number of popular games and health-related apps, with clients including Wallpaper*, Audi and Imperial University.

Dave is in the third year of a PhD at University College London (UCL), his research focuses on app-delivered behaviour change. Ed is our highly proficient iOS developer.

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