

The use of a mobile app to motivate evidence-based oral hygiene behaviour

B. Underwood,*¹ J. Birdsall² and E. Kay³

FULL PAPER DETAILS

¹General Dental Practitioner and NHS Innovation Accelerator fellow, York; ²Consultant Orthodontist, The Rotherham NHS Foundation Trust, Moorgate Road, Rotherham, S60 2UD; ³Foundation Dean, Peninsula Dental School, Plymouth, Devon, PL4 8AA
Correspondence to: Ben Underwood
Email: bfuunderwood@btopenworld.com

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Introduction Mobile apps are software programmes that run on smartphones and other mobile devices. Mobile health apps can help people manage their own health and wellness, promote healthy living and gain access to useful information when and where they need it. The Brush DJ oral health app was developed to use the opportunity mobile apps offer to motivate an evidence-based oral hygiene routine. A literature review has found no research investigating the use of a mobile app to motivate evidence-based oral hygiene behaviour. **Objective** The objective of this preliminary investigation was to assess user perception of an oral health app to give a basis for future research and development of app technology in relation to oral health. **Method** A cross-sectional qualitative user perception questionnaire. **Results** One hundred and eighty-nine people responded to the questionnaire. Seventy percent (n = 113) of respondents reported that their teeth felt cleaner since using the app. Eighty-eight percent (n = 133) reported the app motivated them to brush their teeth for longer and 92.3% (n = 144) would recommend the app to their friends and family. Four broad themes relating to how the app helped toothbrushing were reported. These themes were motivation, education, compliance and perceived benefits. **Conclusion** A mobile app is a promising tool to motivate an evidence-based oral hygiene routine.

EDITOR'S SUMMARY

21 October 2015. This is the day in the 'future' that Marty and Doc travelled to in *Back to the Future II*. So the future (as devised for us in the 1980s) is now! Where are our hoverboards I hear you say. Much of the imagined future in the film involved automation, such as automatic dog walkers and power lacing shoes. There was also a fixation with anti-gravity and video technology, the latter is very prevalent today in advertising and on our mobile devices. It also correctly predicted the use of thumb prints as an unlocking device. However, it didn't quite predict the revolution in mobile technology we have seen over the last ten years or so. Even *Star Trek* didn't envision this, and that was supposedly looking thousands of years into the future.

In healthcare, one feels that the revolution is yet to come. Mobile healthcare, or mHealth as it is sometimes called, is yet to reach a critical mass. But in these early stages of development it is still important to monitor and learn about the

effects of mHealth so that it can continue to grow for the benefit of patients and clinicians.

This paper looks at Brush DJ – an app developed using mobile phones as a gateway to motivating an evidence-based oral hygiene routine. It uses music to encourage users to brush for longer. Funnily enough, this is based on 1980s research which showed that music played on audiotapes (remember those?) motivated people to brush for longer.¹ The app, however, is 'mobile' and so can easily be taken into the bathroom, and also allows users to set reminders, to use mouthwash and to change toothbrush. It also links to videos which show users how to effectively brush their teeth and to use floss. In a way I suppose it's like being able to go to your patients' homes and bathrooms to help them to follow the advice you provide in your practice; obviously without the awkwardness of actually turning up at your patients' home each morning and the impossibility of reaching them all every day!

The authors (who include the app

developer, Ben Underwood) used a questionnaire to examine the experiences and beliefs of people using the Brush DJ app. Results are promising – 88% of respondents reported that the app motivated them to brush their teeth for longer. More research is required to ensure its efficacy and cost-efficiency but, as the authors state, it could be that 'prescribing an app in the same way fluoride toothpastes are currently prescribed in the UK, would be reasonable' in the future.

Now, where did I put that hoverboard?

1. Clemens C, Taylor S. Toothbrushing to music. *Dent Hyg (Chic)* 1980; **54**: 125-126.

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IN BRIEF

- Reviews the latest developments in mobile devices, mobile apps and health apps.
- Raises awareness of the potential of a mobile app to motivate and inform patients.
- Highlights the use of music to motivate toothbrushing for longer.
- Innovative tool to raise awareness of Delivering Better Oral Health toolkit information to the public.

COMMENTARY

Everyone is walking around with a mobile phone, trying to find the latest and up-to-date ways to use it. We are constantly 'in touch' with the world and one of the ways that mobile phones have revolutionised this fashion is through providing a platform for mobile apps. There has been an incredible growth in the use of apps over the recent years and I often hear myself repeating the words 'there's an app for that'. However to what extent can we say the same about using apps for health management? The authors of this article have set out to answer this question. The results from a cross-sectional qualitative questionnaire revealed users' experiences and beliefs regarding the use of the Brush DJ mobile health app.

Dental practitioners often tell their patients that they are not brushing their teeth for long enough. My response to this is that brushing teeth is just boring. This article is for those who want to learn the way to use a smart phone to help overcome such bad habits. How about a little bit of music whilst brushing? The authors were able to obtain results which helped show that the Brush DJ oral app motivated users to brush their teeth for longer. Respondents felt that since using the app, their teeth felt much cleaner and that they would encourage their loved ones to download the app. The app would help users through motivating and educating them. The perceived positive consequences on the health or their teeth would inspire users to use the app.

The demographic revealed a high proportion of female participants and the average age was between 7 and

12. The author acknowledges that it is more likely for females to respond to surveys than males. Although the study did not cover a wide age range, the results reveal a promising future for evidence-based mobile apps. This paper discusses the change in technology and how it has rapidly entered into our everyday lives.

The use of pop-up notifications in the app to invite respondents to complete the questionnaire is itself showcasing the sophistication of mobile technology. The authors have taken a simple yet novel approach in understanding the use of such mobile tools in managing health and wellness.

Mobile apps have become embedded in popular culture. This paper provides excellent evidence of how such tools can be used to make healthcare a genuinely enjoyable experience.

Binish Khatoon
Research Fellow,
University of Birmingham

AUTHOR QUESTIONS AND ANSWERS**1. Why did you undertake this research?**

Millions of people around the world have downloaded dental apps on to their mobile devices. However, we could find no evidence in the literature that these apps improved the user's oral health.

Theoretically apps running on mobile devices are a useful means to deliver health interventions and motivate self-care. Research into the use of apps in healthcare is starting to emerge except in the area of oral health.

Before oral health apps can be recommended to patients and employed as a public health measure, research investigating their effectiveness and cost effectiveness should be conducted.

Oral health apps must demonstrate they are comparable or better than existing methods used to motivate an evidence-based oral health routine. We hope this preliminary investigation to assess user perception of the Brush DJ app will help give a basis for future research in this area.

2. What would you like to do next in this area to follow on from this work?

We would like to investigate why 20% of respondents reported only brushing their teeth once a day and how the app could motivate twice-a-day toothbrushing. Seven percent of respondents would not recommend the app to friends and family and we would like to ask these respondents to elaborate on why they would not.

We wish to investigate the cost-effectiveness of using an app compared to current methods used to motivate an evidence-based daily self-care oral hygiene routine. We would also like to investigate whether users of the app actually have reduced caries and periodontal disease. A pilot study followed by a multi-centred RCT to investigate this is the next step in our research.