

Person Centred Healthcare: Using Mobile Phones to Deliver Person Centred Population Health Programmes

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Abstract

Mobile phones have many advantages for the delivery of population health programmes. They deliver programmes directly to large numbers of participants regardless of location and socio-economic status. Messages can be timely and on demand as requested by participants. They can be tailored and personalised. They allow the use of observational learning, social support and interactivity. They can also provide long-term cost-effective support for behaviour change.

1. Introduction

The ownership of mobile phones has reached greater than 100% in many countries (that is, more mobile phone accounts than people), probably including New Zealand [1]. Health services are using mobile communications in attempts to increase efficiency and improve existing health services for patients, such as sending reminders of appointments to increase attendance rates [2,3], reporting test results directly to clients [4], texting reminders to improve adherence to medications [5], and supporting self-management of chronic diseases such as diabetes [6,7].

The opportunity to deliver population health or health promotion programmes by mobile phone is yet to be fully realised. These programmes may target risk factors for diseases (such as cardiovascular disease, diabetes and some cancers) by promoting and supporting lifestyle or behavioural change in areas such as smoking, alcohol and drug abuse, sedentary lifestyles, and unhealthy diets. The more successful programmes tend to be multifaceted, working at various levels from the individual to the entire population and its environment (e.g. tobacco control). At the individual level, behaviour change support programmes can be resource intensive requiring high levels of input from trained staff. With the predicted increases in conditions such as diabetes, obesity and depression in the near future, it seems unlikely that the current workforce will be sufficient to provide such one-on-one support for the population in need. At the population level, mass media programmes can have a much greater reach but often smaller effects. Mobile phone programmes, as described here, attempt to combine the benefits of both with a wide reach and a tailored individual level (albeit less intensive than face-to-face) support programme. In this way they provide a less costly programme, leaving people resources free to concentrate on those who require more intensive support.

This paper describes some of the functionality that make mobile phones well-placed to deliver stand-alone patient-centred health programmes and uses examples from three such ground-breaking research projects by the Clinical Trials Research Unit, University of Auckland (STOMP text message smoking cessation programme [8], STUB IT multimedia message smoking cessation programme [9], and ADAPT multimedia message depression prevention programme).

2. Mobile Phones are a good delivery mechanism because...

2.1. ...they are a normal part of everyday lives

Mobile phones are ubiquitous and therefore programmes can reach a large population regardless of location. Communicating by mobile phone is a normal part of daily life for a large proportion of the population, and receiving information via an accepted delivery method may be more acceptable to many than having to attend a clinic, gym or general practice. Young people in particular have embraced mobile communications and appear to appreciate the sense of anonymity and the flexibility in being able to voluntarily participate (or not) that this can provide [10].

2.2. ...there is less of a socio-economic 'digital divide' than with the internet

There is less of a socio-economic gradient in the household access to mobile phones than with internet access in the home [11]. Internationally, higher levels of mobile phone use have been found in socio-economically disadvantaged populations, those with lower levels of health and with health-compromising behaviours [12]. Mobile phones may be a delivery method that actually targets at-risk populations, although more research is required to confirm this.

2.3. ...they are always with people

Mobile phones tend to be always with people and therefore the programme reaches them wherever they are at the 'right' times (e.g. at the time of day when nicotine cravings may be highest). However messages can be left to be viewed at a more convenient time, and viewed again whenever desired. Programmes are also more accessible for those who have difficulty attending a service due to a lack of transport, geographic isolation, caring for family/others, or inability to get time off work.

2.4. ...they allow proactive sending of information, reminders and prompts

Messages are automatically sent out to participants proactively (6 texts/day in STOMP, 2 video messages/day in STUB IT and ADAPT) to provide information about what they are going through (e.g. nicotine withdrawal) and strategies to try (e.g. avoiding cues to smoke). They also act as regular and timely reminders or prompts to undertake or to avoid certain behaviours or triggers. This may be more effective than other self-help programmes where participants are required to initiate the contact themselves (e.g. sit at a computer and open a website).

2.5. ...people can ask for help when they need it

In our smoking cessation programmes (STOMP & STUB IT) participants text a keyword to receive immediate automated messages that aim to assist them through their cravings for cigarettes. In STUB IT these responses are tailored (via different keywords) to particular contexts (e.g. drinking with friends) to further increase their relevance.

2.6. ... they allow role modelling and observational learning

Mobile phone video capability has allowed our programmes to use role models for observational learning. Watching others, similar to themselves, successfully changing their behaviour is thought to increase their own self-efficacy for behaviour change [13]. STUB IT and ADAPT both include video diaries of 'ordinary' people describing their own difficult times and the techniques they used to support their behaviour change. In this way participants pick up ideas for techniques they can try for themselves. This may also help to normalise both the issues and the behaviour change.

2.7. ...they can be used to promote social support

Social support is commonly thought to enhance attempts at behaviour change and this can be supported in a variety of ways with mobile phones (which can be seen as their mobile address book/contacts list). STOMP text messages encourage participants to text all their friends and family on their Quit Day with the hope that they will get many messages of support in return. Also the actual video messages in STUB IT and ADAPT may be seen as providing extra social support from other people like themselves and from celebrities.

2.8. ...they can be easily used to provide long-term support and relapse prevention

Due to their cost-effective delivery messages can continue to be sent (or requested as needed) long after the 'intensive' programme has ceased. ADAPT has a mobile website where participants can access a summary of the programme and contact details. The availability of longer term help on demand may assist in preventing a relapse to the original behaviours.

2.9.they can be used for tailored programmes

A small number of questions at registration allows automated tailoring of messages according to name, interests and ethnicity (STOMP), or self-selection of role model video diaries to follow (STUB IT).

2.10. ...they can provide interactivity

Interactivity can be promoted in a variety of ways including text quizzes and polls (STOMP), submission of user-generated content (STUB IT), and video challenges (ADAPT). All incoming texts from participants in our programmes are reviewed but only responded to if considered appropriate.

3. Summary

The widespread use and functions of mobile phones mean they are well-placed to be utilised as a method of delivery for behaviour change population health programmes. This has been demonstrated in a trial of the STOMP text messaging smoking cessation programme with a doubling of short-term quit rates [8]. STUB IT and ADAPT are still in trial.

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