

Text messaging interventions increase adherence to ART and smoking cessation

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Context

Promoting the uptake of healthier behaviour either in health promotion or in disease management presents significant challenges, both at the individual and population levels, and calls for new and more innovative strategies and methods. Mobile technologies have advanced exponentially in recent years [1-2] and as such, there is increased scope for low cost health promotion interventions with economy of scale, and for individualized self-management support for healthcare consumers which allows for personal tailored messaging and temporal synchronisation of intervention delivery.

Communication technologies have radically changed how individuals access health information and communicate, and this generates a need to examine the effectiveness of mobile technology-based interventions delivered to health care consumers for health behaviour change and also for the management of diseases.

Methods

This systematic review included studies in which mobile technology was the primary intervention component under evaluation. The primary outcome of included studies was any objective measure of health or health service delivery or use. Secondary outcomes included self-reported health behaviours, disease management, health service delivery or use and cognitive outcomes. Excluded studies were those in which mixed mobile technologies were adopted, or those evaluating non-mobile technology-based interventions in which the treatment and control group both received the technology-based component, or those interventions in which the treatment and control group differed in additional ways besides the use of mobile technology. Two reviewers identified potentially eligible trials and independently extracted data. The authors searched MEDLINE, EMBASE, PsychINFO, Global Health, Web of Science, Cochrane Library, UK NHS HTA (Jan 1990-Sept 2010), applied a taxonomy of behaviour change techniques to classify behaviour change interventions [3] and assessed risk of bias according to criteria outlined by the International Cochrane Collaboration. Risk ratios and standard mean differences were calculated, and the authors used random effects meta-

analysis to give pooled estimates where there were two or more trials using the same technology function (e.g. SMS) and targeting the same disease (e.g. diabetes control) or behaviour (e.g. physical activity) and reporting the same outcome. Heterogeneity was examined visually and statistically, and Funnel plots were included to assess evidence of publication bias.

Findings

There were 75 controlled trials which met the review criteria, and of these, 49 targeted disease management for healthcare consumers (6,832 participants, with sample sizes ranging from 17-5,800), and 26 targeted health behaviour change (10,706 participants with sample sizes ranging from 16-273). Almost all of the trials included were conducted in high income countries and the majority were of low quality; only two trials of disease management, and two trials of health behaviour management had a low risk of bias. The findings suggest that healthcare services should consider the inclusion of text messaging intervention to encourage adherence to antiretroviral therapy (ART) in low-income settings, and also text messaging interventions to promote biochemically verified smoking cessation in high-income settings. However, the authors indicate that these interventions need to be tested in other settings and that cost-effectiveness should be determined prior to implementation. The evidence for other mobile technology based interventions was mixed and highlights the need for more well-designed trials in mHealth.

Commentary

This review contributes to the substantial and growing evidence base concerning what works in technology-based intervention for health behaviour change. mHealth is a rapidly developing field and as such the inclusion of findings from trials published since the systematic review search was completed is a welcome addition to this review. Variability in the reporting of intervention content is common, yet the use of a tool offering criteria for the standardisation of definitions of the techniques included in behavior change interventions is a valuable approach. There is widespread use of mobile phone technology as an adjunctive intervention or single aspect of a multicomponent health promotion programme [4] and these studies will also require review for a thorough understanding of diversity in methods of implementation. Participants often indicate that mobile-technology based interventions are feasible and acceptable in diverse settings and populations, although cost-

effectiveness requires further attention, high attrition rates are a concern and evidence of longer-term outcomes are often lacking. It is clear that more rigorous research is required in this field although the evidence to date shows promise for technology-based approaches to health behaviour change and disease management.

References

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