

Co-design and user validation of the MedFit App: A focus group analysis



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Introduction

Cardiovascular disease (CVD) is the leading cause of premature death and disability in Europe, accounting for four million deaths annually [1]. Exercise-based Cardiac Rehabilitation (CR) can reduce the impact of CVD by lowering mortality and morbidity rates and promoting healthy active lifestyles. Yet adherence within CR is low [2]. Common adherence issues relate to accessibility/parking at local hospitals, a dislike of group environments and work/domestic commitments [2]. Mobile health (mHealth) is an emerging area of healthcare, defined as “*medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants and other wireless devices*” [3]. Research suggests that mHealth interventions can be useful in supporting the self-management of chronic disease [4]. The purpose of this research is to report on the development of an mHealth intervention.

Focus groups are a key part of the development phase of formative research, aiding the co-design and user validation of the MedFit App. Focus groups are group interviews led by a moderator who guides the interview while a small group (usually 6-8 participants) discusses the topics raised by the moderator [5]. The focus group script and content used during these focus groups was developed and informed using a questionnaire based on the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2). A questionnaire [adapted from a questionnaire developed by Venkatesh et al. (2012)] [6] entitled the ‘Acceptability of mobile phone applications among adults with chronic illness’ was completed by participants (N=119) of MedEx Wellness in Dublin City University. This questionnaire data identified constructs that were primary concerns for end-users. Specifically, these constructs were performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation and behavioural intention.

Methods

Participants in the focus groups were recruited from the HeartSmart programme in MedEx. MedEx is an exercise rehabilitation programme for people with chronic illness run in DCU. Participants indicated in the questionnaire that they would be willing to participate in the focus groups. In total 26 people took part in the groups (65% male; mean age 64 ± 8.2 years). There were five focus groups: one pilot group and four subsequent groups. Each focus group lasted approximately 1.5-2 hours in duration with a max. of six people per group. The focus group had two main strands. The first focused on the usability of the MedFit app where the researcher presented the different functions of the app and the participants could follow along using a Samsung Galaxy S5 Neo on which the app was downloaded. Participants were asked to give their feedback and opinions on the prototype app components. The second strand of the focus group concentrated on the acceptability of the app. Questions were asked relating to the main constructs identified in the questionnaire which impacted participant’s acceptance and use of apps. The data was analysed using content analysis [7].

Results

Table 1: Summary of focus group feedback

App component	Focus group feedback
Login	<ul style="list-style-type: none"> Keep simple Need to see password on screen Retrieve password function
Home screen	<ul style="list-style-type: none"> Confusion about the ‘burger’ menu Use the word ‘menu’ instead
Exercise programme	<ul style="list-style-type: none"> Play the video continuously under the timer Music with a beat
Visualisation of exercise progress	<ul style="list-style-type: none"> Separate the weekly and daily results tabs Make clear distinction between each block of information Ability to log different activities
Notifications	<ul style="list-style-type: none"> No more that 4 per week
My Healthy lifestyle	<ul style="list-style-type: none"> Remove the ‘My’ from the title as the section contains generic information Happy with the content
My MedFit group	<ul style="list-style-type: none"> Liked the idea of an events page and chat function Majority were against the leaderboard
Contact us/Help	<ul style="list-style-type: none"> Video tutorial FAQ section Technical support contact



Figure 1: MedFit App screens based on focus group feedback

Conclusion

User validation through the focus groups is a crucial part of the user-led formative research and design process. The feedback is then translated into feasible technical improvements through close collaboration with the technical design team (see figure 1).

References

- [1] Nichols M, Townsend N, Luengo-Fernandez R, Leal J, Gray A, Scarborough P, Rayner M (2012). *European Cardiovascular Disease Statistics 2012*. European Heart Network, Brussels, European Society of Cardiology, Sophia Antipolis
- [2] Dalal, H., Zawada, A., Jolly, K., Moxham, T., & Taylor, R. (2010). Home based versus centre based cardiac rehabilitation: Cochrane systematic review and meta-analysis. *British Medical Journal*, pp.1-15.
- [3] World Health Organisation. (2011). *mHealth: New horizons for health through mobile technologies. Global Observatory for eHealth Series (Vol.3)*. Geneva: WHO.
- [4] Fanning, J., Mullen, S.P. and McAuley, E. (2012). Increasing physical activity with mobile devices: A meta-analysis. *Journal of Medical Internet Research*, 14(6), pp.61-71.
- [5] Morgan D.L. (1998) *The Focus Group Guidebook*. Los Angeles, California: SAGE publications
- [6] Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157-178.
- [7] Neuendorf K.A. (2002) *The Content Analysis Guidebook*. Los Angeles, California: SAGE Publications