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Behavioural mHealth in developing countries: what about culture?

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Non-communicable diseases in developing countries: the giant problem

Non-communicable diseases (NCDs) such as diabetes and cardio-vascular diseases are a serious global health problem of modern times. The burden is especially high in developing countries which account for more than 80% of NCD-related deaths (Lozano et al., 2012). With this NCDs are slowly but surely outgrowing infectious diseases in terms of its impacts on morbidity and mortality in developing countries. These are grim facts, but fortunately the answer to the question of how to deal with the NCD epidemic is already well established in the research literature and beyond: Live a healthy life – which most commonly translates to get active and eat healthily (Sallis et al., 2016; World Health Organization, 2014). And this is where the problem lies. Rapid urbanisation and development made many forms of work- and travel-related physical activity unnecessary for many people living in developing countries (Lachat et al., 2013). Additionally, healthy local foods are increasingly replaced by processed foods high in salt, sugar and fat (Baker & Friel, 2014). In light of the struggles of fragmented and under resourced health-care systems that cannot cope with the increasing burden of NCDs, interventions that promote healthy lifestyles are urgently needed.

Behavioural mHealth in developing countries: search for culture

In the absence of political action to address behavioural health in many developing countries (Lachat et al., 2013) one could suggest to simply make use of infrastructure that is already available – the mobile technology infrastructure. This seems sensible considering that modern mobile technology has reached almost every person on our planet. Additionally, the digital divide between developed and developing countries is closing and in 2016 95% of the global population has access to a mobile phone network while the number of mobile broadband subscriptions grows rapidly especially in developing countries (International Telecommunication Union, 2016). Mobile technology ownership is also not limited to any specific demographic because it is increasingly affordable and hence, there is potential to utilise behavioural mHealth approaches to successfully deal with NCDs in developing countries (Beratarrechea et al., 2014; Stephani, Opoku, & Quentin, 2016).

This makes all perfect sense but unfortunately it doesn't mean that the inherent potential of mHealth to combat NCDs in developing countries is well explored. In our recent review on e- & mHealth interventions to promote physical activity and healthy eating in developing countries we could only include 15 studies (Müller, Alley, Schoeppe, & Vandelanotte, 2016) – this is very little compared to what evidence base we have from developed countries where only about 20% of the world population lives. And when one looks into

these 15 studies it becomes apparent that the development of the interventions seems to be mainly informed by interventional mHealth research conducted in other regions (mostly Europe, America and Australia). This is not necessarily a problem because the majority of interventions were successful in improving physical activity and/or dietary behaviours – and this is what really counts in the end of the day.

However, there are two related notions that should be of interest to behavioural mHealth researchers: 1) Intervention developers seem to overemphasise the technology and its widespread use in the respective developing countries as the main factor to a successful intervention; 2) mHealth interventions seem to be developed and implemented in a sociocultural vacuum - the template for many mHealth interventions are mainly interventions from developed countries. What is currently lacking is a well-developed approach that would enable us to explore how to best design culturally-informed behavioural mHealth interventions. Such an approach is essential because we cannot assume that mHealth interventions developed in one culture can simply be translated into another culture without consulting the cultural context in which they should operate; this is especially important when the population and its culture is barely studied (Chib, van Velthoven, & Car, 2015). In the realm of behavioural mHealth it is necessary to examine the cultural context and how it shapes (health) behaviour, the interaction with mobile technology, and how user interfaces and intervention content is perceived (Burns, Montague, & Mohr, 2013). For example, individualism is a common characteristic of many developed countries, and in individualist cultures personal choice and freedom, self-actualisation and privacy are highly valued (Oyserman, Coon, & Kemmelmeier, 2002). These values are also reflected in the way behavioural mHealth interventions are designed: interventions are developed based on the assumption that participants own a mobile device which only they use; self-monitoring of behaviour leading to personal goal achievement is a common intervention element. In comparison, many developing countries have a collectivist culture in which the individual and his perceptions, thoughts and behaviours are strongly influenced by the communal environment. Arguably, in such societies sharing of mobile phones is not uncommon, and this has implications for how the mobile technology should be implemented in an mHealth intervention. In addition, it might be worthwhile to examine the acceptability of behaviour change techniques such as goal-setting and self-monitoring that are commonly applied in behavioural mHealth intervention, but for which the evidence base mainly comes from developed countries. With this, it is also necessary to properly examine how far our psychological knowledge and perspectives are valid in other cultures, and to also explore and unveil aspects that are relevant to different cultures (Segall, Lonner, & Berry, 1998). Integrating culture-specific insights related to the technology as intervention delivery modality and related to the behavioural intervention content when designing behavioural mHealth interventions can increase the acceptability of and engagement with these interventions leading to even stronger health behaviour change.

In sum, in addition to a person-based approach that is increasingly embraced by digital health researchers (Yardley, Morrison, Bradbury, & Muller, 2015) a culture-based approach needs to be developed to fruitfully examine individual as well as cultural characteristics of intervention users to inform the development of behavioural mHealth interventions.

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