Communicating “What’s Not Said”:
Mobile Apps for Psychological Wellbeing

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ABSTRACT
Technologies designed to access our personal worlds have the potential to profoundly influence the way we live and to promote human flourishing. They also require an ethical approach to their design that takes human values into account. Mobile technologies for psychological wellbeing present particular challenges that require a sustainable approach to ethical reflection from early in the design process. This paper offers insights into ethical approaches to design, through projects that explore the potential for using mobile apps for reporting psychological wellbeing. It reports on feedback from a focus group with valuable insights for app design in particular contexts of use that help to inform discourse more generally around designing technologies for wellbeing. The discussion focuses on the practical and cultural issues that arise and explores how technologies can mediate self-knowledge and information in ways that might otherwise remain unsaid, but is crucial for successful outcomes both clinically and in design.

KEYWORDS
Empowerment, Interactivity, M-Health, Mobile Apps, Psychological Wellbeing, Self-Knowledge

INTRODUCTION
Digital technologies for health and wellbeing are growing in use and sophistication, presenting both opportunities and challenges in their design. The increasing use of mobile apps in this context offers the potential to improve public health and a rich source of material for design research. However, their relatively recent arrival and short time frame of adoption means we are still at the early stages of understanding of how and why they work best (Walsh et al., 2016). In order to build a sustainable body of knowledge we need to understand how these apps differ from other digital technologies in terms of context and strategy of communication and examine the ethical implications for design.

Mental health is a major determinant of wellbeing and a concern for society (WHO, 2012). Mobile devices can help identify people who are struggling with depression, by delivering validated psychological health screening surveys, with the benefit of ‘anytime, anywhere’ usage. In addition, smartphones and tablets can support the implementation of data collection techniques, such as the ongoing and remote monitoring of mood and other symptoms (Matthews & Doherty, 2011). A number of commercial smart phone applications have been developed in recent years to support psychological wellbeing among the general population, such as offering mindfulness techniques (Headspace), improving sleep and rest skills (DeepSleep), using CBT therapy (MoodGym) or specific tools to assess anxiety, PTSD and depression (CPT Coach, What’s My M3). Some apps focus on physical and mental health during particular life events such as bereavement (Grief: Support for Young People), illness (CaringBridge) or pregnancy (Baby Bump, Mind The Bump). Others offer tools, planning and
reporting facilities towards healthier lifestyles (e.g. Balanced, Life Charge). Menstruation tracking apps such as ‘Clue’ offer a combination of mood tracking, symptom analysis, fertility awareness and feedback for monitoring physical and psychological aspects of the cycle.

Mobile technologies for psychological wellbeing have also been developed for use in controlled clinical releases, involving individual users whose specifications go beyond standard (UX) research and design requirements for the general user. For example, apps focusing in particular on young people and teenagers have been designed to allow them to record and monitor symptoms of depression and anxiety which therapists can review (Matthews & Doherty, 2011), or for tracking mood and feelings to enhance personal autonomy for young people with chronic health problems in transition from paediatric to adult medicine (van der Velden & Machniak, 2016). Further studies have utilised automatic smartphone sensing to generate passive data for monitoring mood rhythms of individuals with bipolar disorder (Abdullah et al., 2016).

Such mHealth applications operate in a design space that needs to accommodate complex issues involving intimate interactivity with personal information, where offline communications frequently reflect poor communication, strategic or deliberate lack of engagement and mixed outcomes. Therefore, the design process needs to include collaboration with mental health professionals as well as deeper research on potential end-users at a very early stage with a particular focus on encouraging engagement (Doherty et al., 2010b). Where active input and interactivity is required, design also needs to support client-therapist relationships without placing excessive burdens or expectations on either (Doherty, Coyle & Matthews, 2010).

Psychological wellbeing during pregnancy is a particularly serious public health issue due to its impact on women’s lives, birth outcomes and on children’s development. Perinatal depression (PND) is one of the most common psychiatric disorders during pregnancy, affecting up to 15% of women during pregnancy or within one year of giving birth (Bauer et al., 2014, Yazici et al., 2015). However, its frequency is probably higher as it often goes undiagnosed (Ko et al., 2012). Human computer interaction researchers have been examining how technology can benefit pregnancy and motherhood, for example in studies that use social media to identify women at risk of PND (De Choudhury, Counts & Horvitz, 2013) and designing more context-sensitive post partum technologies (D’Ignazio et al., 2016). This paper offers insights from the early stages of design for a research project concerning the use of mobile apps to support psychological wellbeing in pregnancy. It reports on reflections from design feedback sessions and explores the design and structural decisions involved. Through examining the value-sensitive issues that arise, we offer these insights as inputs into a more sustainable ethical reflection process for design (Shilton & Anderson, 2016).

Through analysis of discourses around design in the very early stages, we identify some points in the process where important values relating to wellbeing can become embedded within system designs. We discuss how such projects benefit from interdisciplinary research with an emphasis on diversity and honest critical feedback – both personal and professional – with value for improving our understanding of how mobile technologies can help to promote wellbeing and human flourishing.

**DESIGN FOR SELF-REPORTING**

As users of digital technologies, we are increasingly voluntarily engaged in processes of self-reporting, through social media networks, technologies for behaviour tracking and intervention, apps for wellbeing and more. Such self-report data is a valuable component in psychological therapy and treatment and therefore in mobile health application design (Doherty et al., 2010). The challenge for HCI is to find ways to understand and design for this valuable self-report data both for the human
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