MatHealthXB: Designing Across Borders for Global Maternal Health

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ABSTRACT

The proliferation of digital technologies has facilitated the adoption of innovative approaches to addressing global maternal health challenges. Worldwide, Human-Computer Interaction (HCI) researchers - from both resource-constrained and resource-rich countries are actively engaged in developing novel responses to an ever-evolving maternal health landscape. However, opportunities for these researchers to interact and engage in sustained dialogue and collaboration are limited. The

SIG Goals And Outcomes

The objective of the SIG is to focus specifically on the cross-cultural needs and values of motherhood, and how these might be better understood through and by HCI. We will explore the best ways to document and build on our shared knowledge as a community through discussion amongst researchers with a shared interest in the relationship between technology and motherhood. Our focus is on the pragmatic challenges of prioritizing, conducting and translating good practice across borders in order to develop confidence, networks and research strategies amongst those working in the field. This SIG targets the growing international need to synthesize successful methods and strategies used in individual research projects exploring digital solutions to maternal health and wellbeing challenges. In doing so, we expect to collate a directory of resources so that the learning from different projects can be harnessed to build expertise within the community.

This SIG will build directly on previous work, including CHI2013 workshop 'Motherhood and HCI [4], the CHI2017 workshop 'Hacking Women's Health' [3], and the CHI2017 SIG 'HCI and Health: learning from interdisciplinary interactions' [14]. Researchers will share knowledge and insights into methods and experiences through discussion of questions of interest, such as: 1) Key barriers, challenges and opportunities as perceived through our diverse cultural, cross-disciplinary and geopolitical lenses; 2) Critical evaluation of the group's knowledge and experiences of developing, evaluating and deploying technologies for maternal health; and 3) Identification of key areas for collaboration going forward.

purpose of this Special Interest Group (SIG) is to bring these professionals together to support an active global network of maternal health researchers and facilitate collaboration across borders.

CCS CONCEPTS

• **Social and professional topics** → **Geographic characteristics**; • **Human-centered computing** → *Collaborative content creation*.

KEYWORDS

Women's health; motherhood; pregnancy; HCI; interdisciplinarity; collaboration; digital health.

MOTIVATION

In recent years, a nascent body of research has emerged, exploring technology in relation to women's health and wellbeing. The experience of pregnancy and motherhood is the particular focus of this proposed special interest group (SIG). The transition to motherhood is physically and emotionally challenging and is intimately bound up within cultural constraints and norms. A rich and diverse global group of multidisciplinary researchers is active in developing and deploying digital solutions to meet the holistic needs of pregnant women and new mothers. The purpose of this SIG is to bring these professionals together to share expertise and experiences in developing socio-technical systems to address maternal health challenges.

Previous CHI work has explored the relationship between technology and motherhood, covering various angles within HCI, including healthcare, social support, life disruption and Information and Communication Technology for Development (ICT4D). Multiple socio-technical resources have been investigated and developed by a growing group of international researchers, united by their shared aim of connecting, and empowering women as they transition from pregnancy to motherhood. Resources include mobile applications to encourage healthy behaviours [6, 10],web-based support forums, messaging and notification platforms, memory-making and audio-visual applications [15]. For example, BabySteps developed by Kientz et al., helps mothers track their children's health by recording medical information and developmental milestones [5]. Sajjad et al., developed Baby+, a localized mobile application that helps pregnant women in Pakistan track their pregnancies [13]. Feedfinder developed by Balaam et al., provides a platform for women to share their lived experiences of breastfeeding in public [2]. Newhouse et al., designed bump2bump, an online peer-to-peer support

Audience
The audience of this SIG is researchers and practitioners with an interest in designing and developing socio-technical systems for maternal health. We expect this work to be relevant to a highly cross-disciplinary audience from diverse fields such as software engineering, health informatics, AI, social network analysis, user-centered design, participatory design, design thinking, public health and policies, nursing, medicine, physiology and sociology.

Organizers This SIG is organised by an international group of researchers working in HCI for maternal health and wellbeing who have extensive experience in working with mothers, families and relevant healthcare providers. In addition, the organisers have experience of SIG and workshop organisation, as well as extensive publication histories in top-tier conferences (e.g. CHI, Medicine 2.0), journals (e.g. HCI, BMJ Open, JMIR), books and special issues. The organising team truly represents the multidisciplinary and international nature of the SIG.

Next Steps
- Compile a summary of the SIG activities and outcomes and distribute them to the participants and relevant HCI communities.
- Establish a collaborative platform such as an interactive website or Facebook group for continued collaborations. Preference of the platform for sharing will be decided among attendees.
- Include identified challenges and opportunities areas as key topics in future workshops and events on maternal health research and design.
- Collaborate on publications on global maternal health.
- Plan for future group gatherings including proposing a workshop on Global Maternal Health for CHI2020.

resource for first-time pregnant women in the UK [8]. Prabhakar et al. designed Mom's Circle to connect new mothers with their circle of supporters [12]. Text4Baby, a free mobile service, sends timely health information via SMS text messages to pregnant women and new mothers [9].

Crucially, ICT4D researchers have taken active steps to specifically engage pregnant women and mothers from resource-constrained regions in their development of socio-technical systems. For example, Talhouk et al explored opportunities for improving antenatal care among Syrian refugees in Lebanon [16]. Abid and Shahid developed an Interactive Voice Response (IVR) system to support the mother-doctor relationship in rural Pakistan [1]. Kumar et al. deployed Projecting Health, a public health initiative developed in Uttar Pradesh, India, to disseminate health information for mothers and newborns [7].

HCI researchers globally face methodological challenges in conducting research with pregnant women and new mothers where fundamental support and health infrastructure may be absent. In addition, traditional qualitative research methods such as interviews and focus groups may not be feasible for conducting research with this population who often face time, mobility, or availability constraints. Some HCI researchers have investigated various research methods and their effectiveness while others have developed innovative methods to overcome these limitations. While developing a mobile App - Milk Matters - to motivate women to donate their surplus breast milk to the local milk bank in Cape Town, South Africa, Wardle et al. looked at the importance of different approaches to understanding the mothers' needs and choices, by comparing workshops, surveys, and cultural probes [17]. The Asynchronous Remote Community (ARC) method which unitizes closed Facebook group as an online focus group was used in a study to understand new mothers, support needs and structures [11]. Such methodological challenges would benefit from coordinated effort by researchers across borders in order to generate user-centred, culturally appropriate solutions. A group of researchers working coherently can explore ways to collaborate and share. In this SIG, we will discuss the challenges in conducting research for maternal health while aiming to share and document examples of good practice.

To achieve the stated goals of this SIG (see side box), we have planned an interactive agenda (details provided in the supplementary document) to accommodate an anticipated 25 participants.

- SIG introduction (10 mins)
- Group Activity1 - Who are we? (15 mins): 'Lightning introductions'.
- Group Activity2 - Barriers & opportunities (15 mins).
- Group Activity3 - Identifying priorities (15 mins).
- Group Activity4 - The way forward (15 mins).
- Conclusion: Closing remarks and next steps (10 mins).

To build on the discussions and insights from the SIG, we will consider the next steps (see side box).

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