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Digital interventions to address maternal and child health challenges

Some of the world's leading scientists representing universities in South Africa and the United Kingdom have joined forces to address key maternal and child health (MCH) challenges.

The scientists are working to help under-resourced communities develop information and communication technology (ICT) interventions geared towards breaking down barriers and exploring solutions to some of South Africa's critical MCH challenges.

The Co-designing Community-based ICTs Interventions for Maternal and Child Health (CoMaCH) network in South Africa is a cross-collaboration involving inter- and transdisciplinary research, led by Dr Nervo Verdezoto from the School of Computer Science and Informatics at Cardiff University in the United Kingdom (UK) and Dr Melissa Densmore, a senior lecturer in computer science at the University of Cape Town (UCT).

The project draws on experts in the fields of medicine, public health, geography, anthropology, psychology, communication, design and social sciences.

The UCT co-investigators include Associate Professor Simone Honikman (Perinatal Mental Health Project), Dr Yaseen Joolay (Department of Paediatrics and Child Health) and Professor Fiona Ross (Department of Anthropology). Other participating institutions include the University of Nottingham, Loughborough University and the University of Leicester in the UK, the University of Limpopo, the University of the Witwatersrand and the Human Sciences Research Council.

CoMaCH places parents, caregivers and children in marginalised communities at the centre of its work and uses a network of stakeholders to explore the role digital media can play to help address key MCH challenges. These include pregnancy and childbirth complications, perinatal and postnatal disorders, new-born illnesses, childhood illnesses, HIV/AIDS and malnutrition as a result of extreme poverty and inequality, which hamper access to healthcare.

The project takes a "for the community and by the community" approach and engages stakeholders at all levels, including parents and community leaders, to identify key challenges and co-design modern day tech solutions to address these challenges.

"We are still in the infancy stages of this project. We are specifically not defining what the interventions will be because we want community members – parents and other caregivers – to set the priorities and scope for our work. We want to give communities the opportunity to design their own MCH interventions, based on their needs and context," Densmore said.

The project currently operates in Limpopo, Gauteng, KwaZulu-Natal and the Western Cape.

According to Densmore, researchers will work with approximately 10-12 participants per site to identify their needs, refine the research agenda and develop parameters for engaging in further research. Participants include parents, children and caregivers from pregnancy until the child's second birthday. Other key stakeholders, including health workers, healthcare providers and non-governmental organisations (NGOs), will also be roped in for information, based on their experiences working with parents, children and caregivers.

The goal, she explained, is to use this project to understand participants' needs and challenges when it comes to MCH. Phase one comprises interactions via telephone and text message, and conversations will centre around the digital technologies currently in place. This phase will also explore new technologies that participants find useful to aid this process.

Phase two, she said, involves more generative activities – actively working with community members to co-create sketches and prototypes of possible interventions. Exploring how to achieve this work remotely during the COVID-19 pandemic has been a key challenge.

Densmore said that the team will request that participants photograph objects from their homes to trigger discussions and help them convey their ideas. This process will help participants explore design requirements to build their MCH interventions. The team will also provide participants with a resource toolkit to brainstorm and inspire new ideas.

The project, Densmore said, seeks to actively engage with community members and provides them with the opportunity to reflect and evaluate their MCH challenges and develop potential solutions. Further, it foregrounds the value of co-design in developing context-appropriate digital interventions and includes parents' and caregivers' knowledge, based on their experiences in their communities.

"Communities are rarely empowered to voice their own priorities and actively participate in the design of interventions intended to benefit them," she said.

But the co-design approach aims to change this way of thinking and doing.

She commented: "We argue for a co-design approach to radically include community members in the design of not only new approaches to digital MCH, but the design of research intended to innovate these new approaches."

The project started in May this year and is expected to conclude in March 2021.

Dr Melissa Densmore co-leads the international CoMaCH network.

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