

# A digital health intervention for adolescent mothers in the Dominican Republic

Adolescent mothers and their babies are vulnerable to poor health outcomes. For this reason, it is vital to provide them adequate support and information to ensure optimal health. Dr Samantha Stonbraker and her research team undertook a study to identify the health information needs of young mothers living in the Dominican Republic and design a digital intervention using WhatsApp Messenger to meet those needs. They then tested the effectiveness of the intervention. The results show promise for the use of mobile health technologies to support adolescent mothers in this and other similar settings which can lead to better health outcomes.



Improving maternal health has been identified as a key goal in both the UN's Millennium Development Goals and Sustainable Development Goals. To achieve these goals, health care providers and organisations must be able to support mothers and their babies who are vulnerable to poor health outcomes.

Adolescent mothers and their babies are known to be at high risk of sub-optimal health outcomes such as preterm delivery, anaemia, and postpartum haemorrhage for mothers and low birth weight for babies. Additionally, childbirth in adolescence can have profound lifetime effects on the mother and baby, as it can interrupt the mother's education and ultimately, lifetime earnings which can in turn impact the development of her child as well as wider society. Notably, the postpartum period (the six weeks after a mother gives birth) is particularly challenging for new mothers as they adapt to taking care of both their baby and themselves. Therefore, young mothers have specific and highly important health information needs that must be met during this period. Consistent informational and social support during this adaptation to motherhood can reduce the risk of postpartum depression for young mothers, and improve other health outcomes.

To reach adolescent mothers living in and around La Romana, Dominican Republic, Dr Samantha Stonbraker and her colleagues at Planned Parenthood of the Great Northwest and the Hawaiian Islands and Clínica de Familia La Romana designed an intervention delivered through a digital platform, WhatsApp Messenger (WhatsApp). This intervention builds on the fact that mobile health

technologies have developed rapidly over the past decade, are available worldwide, and are particularly relevant for adolescents who tend to use mobile phones as a key communication tool. In addition, mobile technologies can be widely beneficial in reaching people who live in spaces with limited access to health resources, such as those living in rural settings or developing countries, such as the Dominican Republic.

## STRENGTHENING THE SELF-DETERMINATION OF ADOLESCENT MOTHERS

The intervention Dr Stonbraker and her team designed is called FAMA (Fortaleciendo la Autodeterminación de Madres Adolescentes), which can be translated as 'Strengthening the Self-Determination of Adolescent Mothers'. This project was designed as an intervention study to support adolescent mothers who receive services at Clínica de Familia La Romana in the Dominican Republic. The Dominican Republic has one of the highest rates of teenage pregnancy in the world, as 22% of 15–19-year-olds either are, or have been, pregnant.

Dr Stonbraker says there is limited knowledge about the specific health information needs of this group of mothers. Thus, it was important to identify their specific needs so they could design a tailored intervention to meet them.

Adolescent mothers in the Dominican Republic do not always have access to social or family support after they give birth and there is often a deep need for information on how to care for their new baby, and especially on specific topics such as breastfeeding. Having access to the right information at the right time can positively impact the care young mothers



The FAMA intervention was designed to support adolescent mothers who receive services at Clínica de Familia La Romana in the Dominican Republic.

provide to their babies as well as improve their own health outcomes. Dr Stonbraker says that mobile health technologies, such as WhatsApp, can be leveraged to deliver this information, particularly in Latin America and the Caribbean where more than 60% of people use WhatsApp for voice and text messaging.

## IDENTIFYING THE INFORMATION NEEDS OF ADOLESCENT MOTHERS

To understand the information needs of adolescent mothers in this context, Dr Stonbraker and her team adopted a user-centred design approach, wherein a group of young mothers volunteered to share their experiences and identify their health information needs. At the same time, the research team asked participants questions about their current mobile phone and WhatsApp use. Dr Stonbraker explains that this inclusive approach improves the relevance, acceptability, and usefulness of the information included in health interventions and that a thorough understanding of target end users' ability to interact with technology is critical to intervention success.

To this end, design sessions were held with 24 research participants who discussed their experiences as new mothers in the

postpartum period and identified their needs for information about their baby's health and wellbeing, as well as for their own self-care. The participants worked together as a group to prioritise which information was most important, and these priorities were included in a manual produced for intervention implementation. Some of the priorities identified by the group included a need for information on understanding their baby; breastfeeding; child growth and development; common

**Mobile technologies can be widely beneficial in reaching people who live in spaces with limited access to health resources.**

childhood illnesses; child nutrition; and available family planning methods.

Dr Stonbraker says that an unexpected but very important finding from this phase of the study was that despite reports indicating cell phone use is ubiquitous globally, less than half (45%) of the participants had access to a mobile phone and that none of the participants had a data plan so they relied on wi-fi or small data packages for mobile connectivity. Despite less than expected access to mobile phones and connectivity, 70% of this group had experience using WhatsApp.

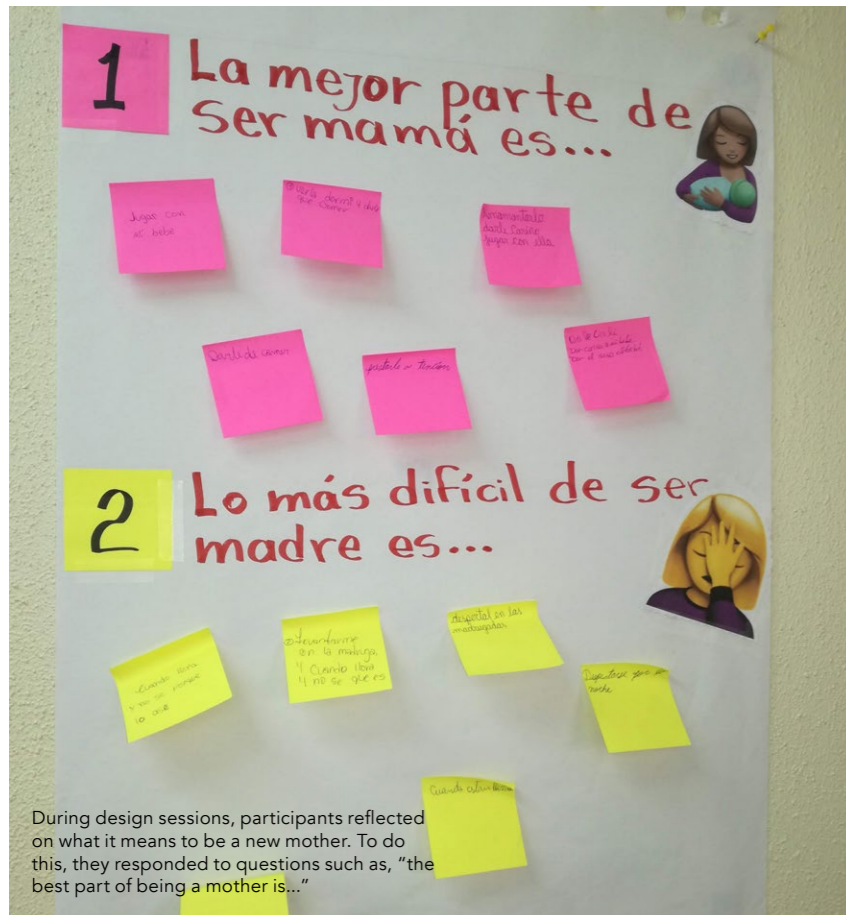
## DIGITAL EDUCATIONAL SUPPORT GROUPS

Once the information needs of the adolescent mothers had been prioritised and the corresponding manual developed, the research team implemented a series of digital educational support groups with 58 new adolescent mothers. The average age of these mothers was 18 years old, with an age range of 15–20 years. Most of these mothers (93%) were first

time mothers and 40% of the group was currently enrolled in school. In total, 97% of the adolescent mothers were unemployed, and 79% were married

or had a domestic partner. Out of those who were married or had a partner, 67% described themselves as being financially dependent on that partner.

The digital educational support groups were implemented using WhatsApp, with an intent to concurrently provide peer and professional support as well as needed health information to participants. The intervention was evaluated by establishing whether intervention participation resulted in improved health outcomes and health behaviours. Measures of interest included health knowledge; modern contraception use; attendance



During design sessions, participants reflected on what it means to be a new mother. To do this, they responded to questions such as, "the best part of being a mother is..."

## Intervention participants showed an improvement in health knowledge and were more likely to attend scheduled well-baby appointments than non-participants.

at scheduled well-baby appointments; levels of perceived social support, and self-reported autonomous functioning.

This mixed-method evaluation included three data collection components. The first entailed the administration of a questionnaire to participants at baseline (before the intervention) and at follow-up (after the intervention) time points. These questionnaires included a health literacy screener, questions to ascertain health-related knowledge, and assessments of autonomy and social support. This data was analysed using relevant statistical methods to identify differences between the baseline and follow-up assessments. Second, a medical record review was undertaken so that attendance at scheduled

well-baby appointments and modern contraceptive use could be compared between participants and paired controls as well as a national sample of adolescent mothers. Third, the research team conducted in-depth interviews with the research participants to determine their perspective on the intervention and how they believed it might be improved. This interview data was analysed using content analysis.

### IMPROVING HEALTH OUTCOMES FOR ADOLESCENT MOTHERS

Participants were exceptionally active in the WhatsApp support group during intervention implementation, with nearly 20,000 messages, over 10,000 emojis and 1,582 pictures exchanged. This content, moderated by the research

team, included information about health topics and shared personal experiences. Dr Stonbraker says their analysis showed statistically significant findings with important implications for improving adolescent mothers' health. This included that participants showed an improvement in their health knowledge following intervention participation, were much more likely to attend scheduled well-baby appointments than similar mothers who did not receive the intervention, and demonstrated much higher levels of modern contraceptive use than a national sample of adolescents.

In addition, most of the group reported an increased sense of social connection and support, both emotionally and informationally, following intervention participation, although those results were not statistically significant. More than 60% of participants expressed that they valued learning and understanding more about their baby. Many of the mothers in the study reported that they felt more capable of autonomous functioning after intervention participation, with 78% valuing their learnings about family planning methods. The research participants also reported feeling positive about the intervention and expressed that they had found it useful as new mothers.

The results of this study are important for numerous reasons. Dr Stonbraker highlights that the success of the intervention demonstrates it is possible to get health information to adolescent mothers through mobile technologies, which can support them to better manage their health. The success of this intervention also indicates that affordable and accessible health programmes can be implemented using mobile health technologies to reach people in remote locations, who may otherwise face prohibitive barriers to accessing health information. This has important implications for achieving previously established health goals, and most importantly, improving health, within rural settings and developing countries. One of the challenges highlighted in this study was that not all the adolescent mothers had access to mobile phones and the data required for consistent connectivity, and that the success of these interventions may, therefore, rely on ensuring digital access for the targeted groups.



# Behind the Research

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### Detail

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#### Bio

Samantha Stonbraker PhD, MPH, RN is an Assistant Professor at the University of Colorado College of Nursing in Aurora Colorado, USA. Her work focuses on using information visualisations and mobile technologies to improve health among populations experiencing vulnerability both nationally and internationally.

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### Research Objectives

Samantha Stonbraker and her research team designed an intervention study to support new adolescent mothers in the Dominican Republic, using WhatsApp Messenger to facilitate this support.

### References

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### Personal Response

#### What are some of the future priorities if we aim to improve health outcomes of adolescent mothers?

// To improve health outcomes of young adolescent mothers in diverse settings globally, it is important to understand the specific challenges and needs experienced by the mothers in each unique context so interventions can be tailored accordingly. Once the specific needs and challenges of young mothers in each context are well understood, digital platforms provide a tremendous resource and opportunity to meet those needs in settings where access to support or information may otherwise be difficult or prohibitive. //

