
Designing for the Emotional Pregnancy

Ida Kilius Svenningsen

IT University of Copenhagen
Copenhagen, Denmark
idsv@itu.dk

Teresa Almeida

IxD Lab
IT University of Copenhagen
Copenhagen, Denmark
teal@itu.dk

Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the Owner/Author.

DIS '20 Companion, July 6–10, 2020, Eindhoven, Netherlands
© 2020 Copyright is held by the owner/author(s).
ACM ISBN 978-1-4503-7987-8/20/07.
<https://doi.org/10.1145/3393914.3395897>

Abstract

Pregnancy is a transformational journey towards parenthood. Bodily and mental changes are inevitable for the one who is pregnant, and many find this transformation to be challenging. This paper reimagines the *emotional pregnancy* within the context of a prenatal yoga setting. In doing so, it explores novel approaches to designing interactions in a supportive environment. We introduce an explorative study with three women at different stages in their pregnancy to suggest avenues for design research in support of emotional wellbeing during this time.

Author Keywords

Pregnancy; Women's Health; Prenatal Yoga; Affirmations; Motherhood; Parenthood; HCI.

CSS Concepts

- Human-centered computing ~ Interaction Design

Introduction

Pregnancy is a natural and bodily affair. It can be said that it has moved from people's homes to the hospital, and what used to be the norm, giving birth at home, is now presented as of potential risk. On the one hand, this change emphasizes pregnancy and birthing as a medicalized experience, complex and occasionally risk-laden, and on the other, partially removes the person from a process of self-reflection and bodily connection.

Pregnancy is emotionally overwhelming and a transformation into parenthood. This paper considers the profuse range of emotions that occur in pregnancy, which thus far has gained little attention in HCI. As design researchers within the field, we ask: how can we explore this powerful facet of pregnancy? We aim to design future systems and tools that can support pregnant women¹ in embracing their emotions and empower them in using emotions for personal strength while transitioning into parent/motherhood.

In pregnancy, care has also become digitized. Self-tracking and monitoring are part of what has become integral to controlling or regulating the pregnant body. Tracking can be understood as almost indispensable to many pregnant women's lives, one in which they "are encouraged to view pregnancy as an embodied mode of close monitoring and surveillance, display and performance" [11]. Through monitoring, self-tracking and control pregnant women become more conscious of their responsibility toward their 'unborn child'/fetus [6]. Thus the body, by being intensely tracked through technologies, gains a renewed focus of attention (ibid). Surely, technology has become a substantial part of pregnant women's lives affecting their sense of self and their way of navigating through pregnancy. Moreover, this paper aims to take a holistic approach to empowering pregnant women. Instead of giving technology the control and data, we seek to explore

¹ Ciswomen: For the purpose of this provocation, we introduce preliminary data that includes a small sample and our reflections converge towards this group of women. However, future studies on designing for the emotional pregnancy require expanding the target group and accounting e.g. transgender men and their experiences around pregnancy while identifying as male.

how technology can allow them to take more control by *feeling, knowing and doing* [3] and to "learn about their options in a given context in order to be able to exert control in their environment" [14]. Thus, empowering them throughout the prenatal and labour experience by providing them with tools/knowledge to understand the growing body, when to listen to intuition and when to ask for help.

We position our approach in the situated context of a prenatal yoga class [9]. This setting allows for a safe and supportive environment, and to explore the design of affirmations. Affirmations spring from self-affirmation theory [10], which introduces a responsive practice with regard to threatening information towards one's personal beliefs (ibid). In our study, affirmations are short positive sentences, which are used to empower the pregnant woman's conception of the self. We present the affirmation-driven toolkit deployed with three women at different stages in their pregnancies. This toolkit is embedded in the environment, i.e. through light and sound, plus yoga probs. Through working within this multi-sensorial environment, we enquire about the women's wellbeing in relation to their emotional experiences in pregnancy. This research aims to suggest avenues for design research that account for the impact of emotional wellbeing in pregnancy.

Related Work

An interest in the pregnant body as a site of research is increasing within HCI and interaction design. This is particularly visible in the domains of self-tracking and monitoring applications [11]. These technologies advocate for a healthy pregnancy and fetus by documenting e.g. nutritional behaviours, daily changes, fetus movements, prenatal exercises, and/or

Affirmations

Bodily Changes

"I allow the changes in my body to open up for bodily explorations to connect with my baby"

Responsibility

"I take responsibility for my pregnancy by seeking information when needed (and following my intuition)"

Loneliness

"I deserve and I take the support that I need from the people around me"

Side Bar 1: Affirmations based on themes in pregnant women's lives.



Figure 1: Journals and prototype (lamp).

community sharing [e.g. 4,12,13]. These applications provide features that have been proven to be supportive toward pregnant women's feeling of confidence during pregnancy [5]. However, the use of technologies for tracking, monitoring and self-surveillance, can also be argued to be a way of distancing oneself from the body [7]. We understand this detachment can be detrimental to health and wellbeing and instead aspire to reimagine interactions that fully account for the situated and material body. Designerly approaches that advocate for the materiality of the body include e.g. [1] in which intimate bodily knowledge can be argued to support childbirth. Moreover, a different line of research (mHealth) has explored how digital technologies can be problematic as they, in many cases, present gaps between the data and the pregnant woman's actual experience [8]. E.g., research on mHealth suggests promoting wellbeing on a psychological level [2]. Nonetheless, and while becoming subjects of digitisation, seeing how "(d)igital devices are incorporated into our everyday routines, entangled with our sense of self, our experience of embodiment, our acquisition of knowledge and meaning making and our social relations" [7], in our work we strive to include the pregnant woman and embodied knowledge in the design process. In taking a participatory approach to the latter, and that designing for the emotional pregnancy has at its core active participation, we seek to enable novel and meaningful interactions that support the individual woman in her pregnancy. To do this, we include the digital but also that of the subjective and physical wellbeing.

Exploring Prenatal Yoga & Affirmations

Prenatal yoga comprehends physical and mental exercise in preparation for labour and motherhood.

Based on yoga postures suitable for the growing pregnant body and research on prenatal psychology, prenatal yoga teachers are trained to support and prepare the pregnant woman for emotional and bodily challenges throughout her pregnancy.

Prenatal Yoga Workshop and Toolkit

The workshop was structured as a two-hours yoga class. It was divided into three parts with three themes and guided by three affirmations (see affirmations in Side Bar 1). The session took place at HÉLT yoga studio situated in central Copenhagen, Denmark. The space provided yoga props such as bolsters, mats, blankets, and eye pillows. The toolkit included the following: i) an in situ design prototype in the form of a lamp with a hue light bulb and a built-in recording device and speaker, the design of affirmations and related yoga postures; ii) individual journals and writing materials available for each participant to use during the session (figure 1). These worked in tandem to explore the women's thoughts and experiences throughout the session and concerning their pregnancy.

Bodily Changes, Responsibility, Loneliness

The three initial themes are informed by semi-structured interviews conducted with three midwives and five pregnant women. These were the starting point for this research and helped structure the session (see Side Bar 2 for overview). *Bodily Changes* refers to the challenge of accepting the changes in the body when pregnant. *Responsibility* refers to the lack of responsibility the midwives experienced the pregnant women taking, such as preparing for labour and motherhood mindfully. *Loneliness* refers to the loneliness the pregnant women experienced during pregnancy and the challenges they experienced when

Workshop Overview

Firstly, a grounding exercise continuing into a yoga practice of selected postures, which related to each theme was introduced; this was followed by reciting the affirmation six-nine times as a group and audio recording. Afterwards, each participant was asked to partake in a free writing exercise, using the individual journals. Similarly, they listened to the recordings of the recited affirmations in the group and were asked to write in their journals about their experiences.

Side Bar 2: Description of the workshop.

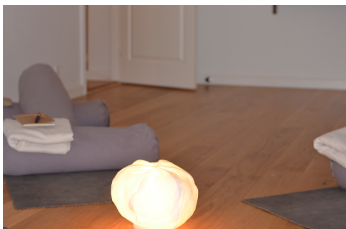


Figure 3: The setting of the workshop with the lamp in the centre.

asking for help. We used the yoga postures to explore how e.g. they could support a connection with each affirmation (figure 2). The illustration shows three opening postures with intuitive movements connected to the words in the affirmation.



Figure 2: Example of yoga postures based on the *Bodily Changes* affirmation.

Affirmations were explored in order to change something connoting as negative, such as *I feel alone and overwhelmed* into *I deserve and take the support that I need from the people around me*. The affirmations, which were based on topics surfacing in our preliminary research, were used to promote a sense of empowerment, in both body through the yoga postures and movements, and mind through reciting and reflective writing. Moreover, as light affects our nervous system and its alertness, we used the light to support the various themes and affirmations (figure 3). In the illustration showed in Figure 2, the light was dimmed, to support the awareness within the body. However, in the affirmation referring to *Loneliness*, the light was further dimmed and during the affirmation referring to *Responsibility* it was slightly brighter, to support a sense of strength.

Conclusion & Future Work

The workshop suggests how a supportive environment, such as the prenatal yoga class, assisted by our toolkit, can support and generate knowledge about pregnant women, and empower them in the process and experience of pregnancy. The affirmations triggered

different thoughts for the participants. They stressed that they felt in touch with their body and emotions when the affirmation confirmed what they were already doing, e.g. one participant mentioned that she was good at asking for help and was assured of this when reciting the affirmation linked to *Loneliness*. If the affirmation moved them, they found that they had something to work with and reflect upon. The outcome lead to personal and collective reflection, and encouraged confidence and trust in themselves.

We consider the impact of pregnancy at an individual, collective, and societal level. Thus, there are several future directions for this research. We start by suggesting that we take all aspects of a pregnancy in support of the emotional perspective. Moreover, we do recognise that this is a small sample and that pregnant women have different needs, e.g. based on socio-cultural or economic backgrounds. While this provocation may be a critique of current Western norms and cultures in pregnancy, it suggests that the field moves to design meaningful interactions that account for the emotional pregnancy in its diversity.

The prenatal yoga and affirmations workshop is a holistic take on digitality, and what we propose is entwined in embodied experience while distancing itself from commercial intentions. By shedding light on the emotional significance of pregnancy we hope to be able to affect micro, meso and macro levels. We challenge views on pregnancy e.g. that of an 'illness' or superhuman, but strive for understanding pregnancy for all it is: an individual journey towards becoming a parent, a transformation of body and mind. We aim for systemic change while opening the design space for the emotional pregnancy.

References

- [1] Teresa Almeida, Ko-Le Chen, Rob Comber, and Madeline Balaam. Dismantling Feminist Biology through the Design of eTextiles. In *Proceedings of the 4th Biennial Research Through Design Conference (RTD2019)*, Article 26, 1-15. DOI:<https://doi.org/10.6084/m9.figshare.7855805.v2>
- [2] Marguerite Barry, Kevin Doherty, Jose Marciano Bellisario, Josip Car, Cecily Morrison, and Gavin Doherty. 2017. mHealth for Maternal Mental Health: Everyday Wisdom in Ethical Design. In *Proceedings of the 2017 ACM annual conference on Human Factors in Computing Systems - CHI '17*, 2708–2720. DOI: <https://doi.org/10.1145/3025453.3025918>
- [3] Ana-Paula Correia and Farrah D. Yusop. 2008. "I Don't Want to be Empowered": The Challenge of Involving Real-world Clients in Instructional Design Experiences. In *Proceedings of the Tenth Anniversary Conference on Participatory Design 2008 (PDC '08)*, 214–216. DOI: <https://doi.org/10.1145/1795234.1795278>
- [4] Yuan Gao, Xinying Li, Yu-Hsuan Lin, Xin Liu, and Lin Pang. 2014. Nuwa: Enhancing the Pregnancy Experience for Expectant Parents. In *Proceedings of the 2014 CHI Extended Abstracts on Human Factors in Computing Systems- CHI EA'14*, 257–262. DOI:<https://doi.org/10.1145/2559206.2580928>
- [5] Briege M. Lagan, Marlene Sinclair, and George Kernohan. 2010. Internet Use in Pregnancy Informs Women's Decision Making: A Web-Based Survey. *BIRTH Issues Perinat. Care* 37, 2 (2010), 106–115. DOI:<https://doi.org/10.1111/j.1523-536X.2010.00390.x>
- [6] Deborah Lupton. 2012. M-health and health promotion: The digital cyborg and surveillance society. *Soc. Theory Heal.* 10, (2012), 229–244. DOI:<https://doi.org/10.1057/sth.2012.6>
- [7] Deborah Lupton. 2016. *The Quantified Self*. Polity Press, Cambridge, UK.
- [8] Tamara Peyton, Erika Poole, Madhu Reddy, Jennifer Kraschnewski, and Cynthia Chuang. 2014. "Every pregnancy is different": Designing mHealth interventions for the pregnancy ecology. In *Proceedings of the 2014 Conference on Designing Interactive Systems (DIS '14)*, 577–586. DOI: <https://doi.org/10.1145/2598510.2598572>
- [9] Pamela J. Reis and Martha R. Alligood. 2014. Prenatal Yoga in Late Pregnancy and Optimism, Power, and Well-Being. *Nurs. Sci. Quartely* 27, 1 (2014), 30–36. DOI:<https://doi.org/10.1177/0894318413509706>
- [10] David K. Sherman and Geoffrey L. Cohen. 2006. The psychology of self-defense: Self-affirmation theory. In *Advances in Experimental Social Psychology*, M. P. Zanna (ed.). Elsevier Academic Press, San Diego, CA, 183–242. DOI:[https://doi.org/10.1016/S0065-2601\(06\)38004-5](https://doi.org/10.1016/S0065-2601(06)38004-5)
- [11] Gareth M. Thomas and Deborah Lupton. 2016. Threats and thrills: pregnancy apps, risk and consumption. *Health. Risk Soc.* 17, 7–8 (2016), 495–509. DOI:<https://doi.org/10.1080/13698575.2015.1127333>
- [12] Max S. Wenger, Jarad Bell, Peter McEvoy, Cherie Yamaguchi, and Auriana Shokrpour. 2014. Bloom: Fostering Healthy and Peaceful Pregnancies with Personal Analytics. In *Proceedings of the 2014 CHI Extended Abstracts on Human Factors in Computing Systems- CHI EA '14*, 245–250. DOI:<https://doi.org/10.1145/2559206.2580935>
- [13] Anouk Wierckx, Suleman Shahid, and Abdullah Al Mahmud. 2014. Babywijzer: An Application to Support Women During their Pregnancy. In

Proceedings of the CHI '14 Extended Abstracts on Human Factors in Computing Systems (CHI EA '14), 1333–1338.
DOI:<https://doi.org/10.1145/2559206.2581179>

[14] Marc A. Zimmerman. 1995. Psychological Empowerment: Issues and Illustrations. *Am. J. Community Psychol.* 23, 5 (1995), 581–599. DOI: <https://doi.org/10.1007/BF02506983>