New Materiality in Intimate Care

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Textiles have a long history of supporting personal health and wellbeing, and textile innovations concerned with the body abound. This paper delves into the biology of the body and brings to the fore its materiality as embodiment to reimagine modes of knowing in intimate care through textiles. It introduces two designerly studies of intimate care in women to advance that material engagement enables knowing and that the fabric of the body is a material of care in itself. In this paper, I embrace an epistemic practice that entwines a feminine sociocultural imaginary that challenges traditional approaches to health and care and, nonetheless, the design of textiles.

Additional Key Words and Phrases: Intimate care, critical textile, new materialisms, women's health, biology of the body

1 INTRODUCTION

New approaches that deem the body a (ever changing) living organism explore how processes involved in the materiality of the body, e.g. in its anatomy and physiology, matter. Matter, in this sense, is multiple, i.e. it includes a myriad of e.g. artefacts and bodies. This paper approaches such materiality from a feminist design research perspective while being attentive to what textiles can *do* when intersecting bodily materialism. In doing so, it addresses the dynamism that, while exploring e.g. the tactility of the human body or the application of wearable biosensors, includes the processes and activities that happen within the intimate body and bodily functions. It is such processes and activities that are employed in ways that lead to the production of knowledge. The paper starts by outlining the significance and contribution of textiles to health and wellbeing to highlight materiality and matter. It continues by introducing a conceptualization of intimate care with a focus on the female body, and expanding previous work that focused on designing for women's intimate health more broadly. While centring on textiles as catalysts for discussions and explorations, I will introduce a set of case studies that use woman-centred design approaches and designerly tools to explore notions of the scientific body in its relation to biology and entanglements with technology. These include 1) a textile-based toolkit that is playful yet disruptive, and which involves electronic textiles that are used as catalyst for conversations in a public workshop setting; 2) a DIY toolkit that speculates the possibility for an alternative biological practice that embraces domesticity and is supportive of intimate self-care. Both enquire into the central role played by the body in the process of (self-) caring, and the potential of textiles as catalyst for interdisciplinary explorations in women's health. Lastly, I argue that material engagement enables knowing and that the fabric of the body is a material of care in itself. This paper contributes to discussions on bodily materialism, thoughtful textile technologies, and the dynamic nature of engaging with and in intimate care.

2 BACKGROUND

2.1 Textiles in Health and Wellbeing

Certainly, textiles have a long history of supporting personal health and wellbeing [19]. Moreover, textile innovations concerned with the body abound as much as advances in textile medical applications contribute to ameliorate healthcare. E.g. diagnostic textiles, which embed sensors on or within the body to monitor and observe, through antimicrobial compounds in fabric-based products to prevent e.g the transmission of a bacterial infection. Many exemplars have been discussed in relation to design e.g. in [21], or researched from a materials science perspective, e.g. [22].

The intimacy of textiles may be undisputed more generally, i.e. in their close proximity to the body. Furthermore, expressions that entwine textiles and technology have included inquiries into the use and application of electronic textiles (eTextiles) in playful interactions [8], through education on the body [18]. While the proximity of these technologies to the body might make research in topics that are sensitive – health and wellbeing that speak to e.g. personal and intimate care - more challenging, I contend that it is worthwhile considering textiles as mediums for explorations on and within sensitive topics of the

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body. In this paper, I explore the potential for methods that include textiles in creating critical awareness and producing knowledge in (self-)care. Previously, I have investigated the application of intimate wearable textiles in women's health and how these could evoke playful embodied interactions and therefore promote wellness routines [1]; and I have explored non-traditional approaches to clothing underwear and mobile applications as mediums to break barriers of taboo and embrace self-discovery in intimacy [6]. In these two examples, textiles have been employed in relation to health and wellbeing to highlight ways in which everyday lifestyle items, such as clothing, could contribute to promote wellness and education about hidden and taboo parts of the body.

Material matters in design, and with the rapid advancements in technology we see e.g radical and sustainable use and application of raw or organic materials that give form to countless tools and devices [16]. In line with this, this paper addresses the biology of the body and emphasises its materiality, such that it explores biological knowledge and embodiment in ways that are useful for reimagining modes of knowing in intimate care through textiles.

2.2 Feminist New Materialism

The paper takes inspiration from contemporary new materialism, in particular from the branch of feminist scholarship that is motivated by this theoretical approach. New materialism emerged from the humanities and social sciences with calls for a new understanding of and a renewed emphasis on materiality [11], a re-turn to and readdressing of matter that can act, affect, that has agency. Furthermore, feminist new materialism acknowledges and emphasises the relational engagements of people with technologies as well as with other people, and the dynamic nature of such engagements [7, 16]. In embracing such a perspective, I perceive human subjects not only as just knowing, but also in that they are sensing, embodied, affective assemblages of matter, thought and language [9]. Moreover, in building from perspectives on embodiment that involve the fluidity of the body [14, 22], I look at matter (otherwise understood as things, objects, bodies, spaces and places) as 'an active participant in the world's becoming' [7]. Bodies hurt, bleed, and are made of flesh. Bodies are sensorial and emotional, and respond to and embody given knowledge. New approaches that look at the body as a living organism explore how processes involved in the materiality of the body, e.g in its anatomy and physiology, can actively matter and contribute to social and cultural constructs [13]. Similarly, as I argued before in [3], biological processes and behaviours are shaped by the social and the cultural, but also that of the material.

3 INTIMATE CARE

In the UK, we may find institutional guidelines regarding intimate care specifically for children and young people. Defined as e.g. "care tasks of an intimate nature, associated with bodily functions, bodily products and personal hygiene, which demand direct or indirect contact with, or exposure of, the sexual parts of the body" [26], care as such can include tasks e.g. dressing and undressing, changing continence pads or sanitary wear (ibid). However, as we proceed through adulthood, a formal conceptualization of intimate care is lacking. In my previous research, I aimed to bring visibility to intimate care in women. In this paper, I expand on that previous body of work that discusses what designing for, with, and within this space might entail [2, 4]. Here, I will advance notions that include the materiality of bodily fluids.

3.1 Intimate Care in Women

Intimate care includes care work on the body throughout the lifecourse. It comes into focus when the body's biography is disrupted, and contributes to the construction of the self through 'bodywork'. Nonetheless, the intimacy associated with this type of care aligns with bodily taboos and constructs of sexuality. As mentioned in 3., I have discussed the complexity of designing for intimate care in women elsewhere [2, 4]. At the time, I advanced a series of qualities of intimate care as noteworthy for design. Qualities of intimate care - knowledge, esteem, and reliance on the self and the other– were articulated in relation to the design of medical tools and devices, and illustrated through the example of the vaginal speculum. In doing this, I explored the (in)adequacy of technology and those of bodily materials, materials that touch and intersect the body, the ways bodies' touch and are touched by certain objects or devices, and subsequent effects on the self. Moreover, associations with "negativities of the body", such as dirt or decay, may be explicit when enacting intimate care by the self or the other. A case study of managing incontinence is introduced in [4], which highlights the need to attend to experiences in professional intimacy, i.e. a clinic, but also that of renewing tools and the materials of interaction at both ends of the spectrum (for the purpose of this example, that of woman patient and clinician).

3.2 The Materiality of Bodily Fluids

There is a long tradition in medicine, psychology, philosophy and biology to attempt and understand the functioning of humans in terms of "flowing" [24]. Before the development of Western medical science, it was a classical humoral theory that placed bodily fluids (humors) as "epistemic tools to assist in representation of the communication between different parts of the body" [20]. In current day, if differently, we continue to understand the body as a living material. Moreover, matter that is part and parcel of the contemporary (understanding of the) body is being actively remade by new regimes of pharmaceutics and biotechnologies [24]. It is this dissolution of boundaries between the body and technology - implantable, genetic, biologically enhanced, or contraceptive – that contributes to a shift at the intersection of materiality and technology, and of and for intimate care. Most recently, design research that explores bodily fluids in unconventional or non-traditional ways is emerging. Some examples include a home-shared device in which saliva is used as main indicator to track fertility [15]; a piece of underwear that can recognize inconsistencies in vaginal discharge and help diagnose gynecological conditions [10]. Whether embedded in an everyday context or within everyday practices, such products and devices appropriate existing functions of, e.g. underwear, and re-imagine them to not only collect and contain fluids but to offer renewed meanings and extend potential of what has been overlooked in bodily fluids, existing technologies and interactions.

4 CASE STUDIES

In this section, I introduce two case studies. Firstly, an *eTextile Toolkit*, a research study that involved a textile-based toolkit to explore the materiality of the body in its anatomy, physiology and morphology. In doing this, the research aimed to bring to the fore the bodily disruption of urinary incontinence in women; and secondly, *Future Flora*, a designerly exploration that involved the raw material of the body itself to explore possibilities for future DIY bio practices in the context of the home. In so doing, it aimed to bring to the foreground renewed, do-it-yourself approaches to treating and preventing vaginal infections. I use a feminist new materialism theoretical approach to analyse these studies, and to discuss them in relation to what I deem (re)newed approaches in intimate care, those of i) enabling knowledge through material engagement and ii) the fabric of the body as a material of care.

4.1 An eTextile Toolkit

I introduce an eTextile toolkit (figure 1) which was part of a study that aimed to tackle continence care in women. Continence care is a topic in health and wellbeing that is misunderstood and underrepresented not only in research but also in the everyday life, e.g. conjectures in popular knowledge that incontinence is exclusive to life events such as childbirth or ageing. The body disruption of urinary incontinence entails a lack of control over bodily fluids, i.e. urine. The study focused on preventative care and action, i.e. pelvic floor muscle exercise and training (the goal of pelvic floor muscle exercises is to strengthen and gain control over the pelvic muscles).

Figure 1. eTextile Toolkit: Detail of pelvic floor muscles screenprint; assembling eTextile activities during a workshop.

Figure 2. Body mapping exercise: on and off the body.

This approach employed clothing underwear as embodied experience to invite women in a workshop setting to express knowledge of the body and to facilitate a conversation(s) around these intimate and private parts. We engaged women with a piece of underwear (knickers) to centre the focus on the anatomy of the pelvis and perineum. The workshop started with a body mapping activity in which women

recalled knowledge of the reproductive system (figure 2). The workshop proceeded with a making activity that included eTextiles. The rationale for this comprehended an exploration that supported women in visualizing the morphology of the pelvic floor, the critical topic area in health education that the toolkit focus was on. This work has been discussed elsewhere [3, 5], in which [3] draws from a conceptualization of feminist biology to situate the work and further explore engagement with materials at hand (a toolkit). Furthermore, and to my knowledge, all participants in this study identified as cisgender women.

4.1.1 Enabling Knowledge Through Material Engagement

For the purpose of this paper, I discuss textiles as an experience and interactive material to learn with. The textile in this study serves to making tangible unseen parts of the body, and the e-component to deliver such an interactive experience of 'body organs'. At the same time, the eTextile is an aesthetic object which I use in order to explore engagement and learning with technology to stimulate knowledge of organs that 'are invisible and untouchable'. In taking a feminist new materialist approach, I see this textile to make tangible the unseen but also giving visibility to intimate parts of the body that are primarily problematized by touch.

Furthermore, (de)constructing these body organs served as catalyst for discussions around bodily fluids, e.g. urine, that are implicated in the normal functioning of the body but also in its disruption, i.e. incontinence. In the case of this toolkit, it accomplished this by emphasizing learning of the body through making, and while exploring the material landscape of electronic textiles. From this standpoint, conversations evolved around education on the body and the design of technologies that have the potential to promote practice routines and encourage motivation around preventative care practices (e.g. 'kegels'). It also highlights the need to innovate in methods for dynamic engagement and to design in ways that destigmatise and demystify bodily functions and fluids while promoting situated knowledge.

4.2 Future Flora

Future Flora is a harvesting kit designed for women to treat and to prevent vaginal infections (figure 3). This kit is composed of an inoculation loop, a spreader, a pipette with freeze-dried bacterial compound and the nutrient agar-agar recipe, plus an instruction leaflet providing the necessary steps to grow and harvest one's own pad at home [25]. These tools - once institutionalised and only accessible to experts in a lab - are easy to obtain and are widely used by communities interested in e.g. DIYbio or citizen science. On the one hand, the delicate interaction of nurturing microorganisms at home invites women to become participants in the

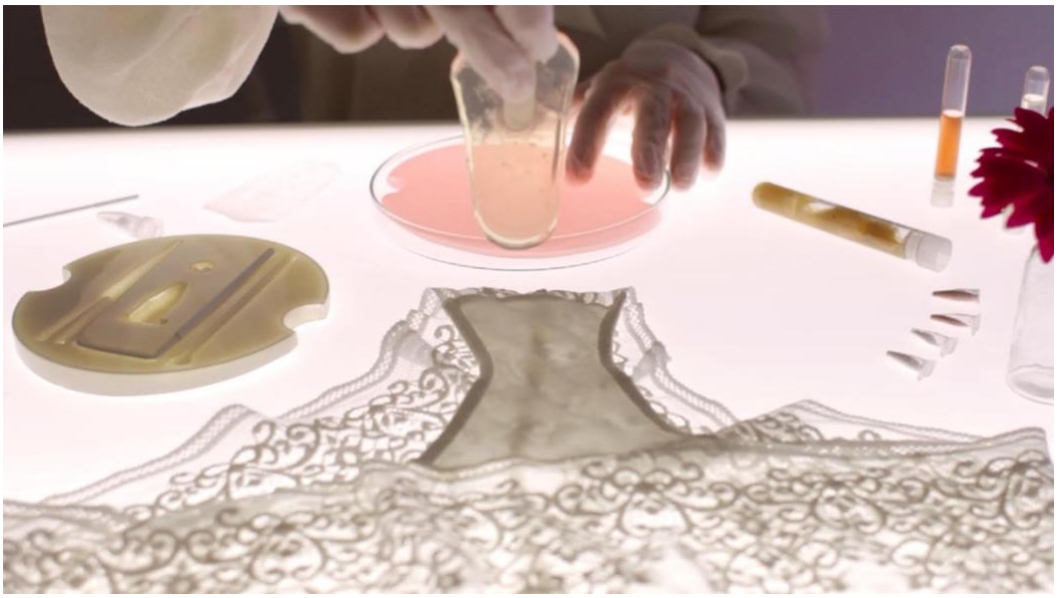

Figure 3. Future Flora.

culture and knowledge of science [25]. On the other hand, what does such participation mean as an intimate practice of self-care? As discussed in [12], this design project attends to the role of the microbiome in human health. The microbiome has seen a wealth of research in the past few years, e.g. explorations that include how gut health is interlinked with mental health through products that tracks a person's disgestion. Moreover, Future Flora goes beyond traditional self-medication methods, e.g the yogurt tampon or vaginal seeding, or is it aligned with the feminine hygiene trend of late. Instead, the proposal consists of a vaginal microbiota-based kit that is "as discrete in size as it is disruptive in terms of social and cultural impact" [12].

4.2.1 The Fabric of the Body as a Material of Care

Granted the opportunity by the already existing symbiotic relationship between bacteria and the human body, i.e. the living organism, Future Flora provides women with an alternative way to become active participants in making their own wellbeing. It is the intertwining of materiality and biology, understood here from a feminist biology standpoint and thereafter removed from gender bias, that is 'highlighted' if a disruption on the intimate body occurs. The body is an ecosystem, and the biological is as significant as the social, cultural, environmental frameworks entangled in our living with a microbial body. It is the fluidity of the bodily material that opens avenues to renewed ways of thinking about matter. The processes through which our bodily functions are managed, including 'fluids with no potential', can contribute to change paradigms in women's health more broadly. I contend that it is this bodily material, integral to the lived body, that could have an impact on the design of future tools and devices. As suggested with this work, practices that traverse fluid boundaries could benefit from, e.g. exploring everyday clothing items such as knickers. Traditionally, these protect and maintain intimate body parts, or contain any leakiness. Novel products already promise to rethink the experience of e.g. menstruation, such as with absorbent and leak-resistant period-proof underwear. Proposals such as Future Flora embrace a similar fluidity of the body by actively *addressing matter;* providing an intimate wearable for a preventative health care practice that includes to naturally 'remedy' an (re)occurrence such as a vaginal infection.

5 CONCLUSION

In this paper, I explored a conceptualisation of the body as a living organism and the materiality of bodily fluids to advance new approaches in intimate care. Intimate care, as I see it, is well positioned to explore new proposals that include practices and materials. I approach this from a feminist new materialist perspective to engage care and the body with the materiality of fluids that partake in material experiences of living, e.g bodily processes involved in matter such as anatomy and physiology. I introduced a set of designs to demonstrate how new approaches to technology and the female body are in alignment with the fluidity and the non-fixity of said body. These new approaches consider enabling knowledge through material engagement and the fabric of the body as a material of care.

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