

## **Collective, unruly, and becoming Bodies in and through TTC communication**

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### **Abstract**

*Online contexts offer an important source of information and emotional support for those facing involuntary childlessness. This article reports the results from an ethnographic exploration of TTC (trying-to-conceive) communication on Instagram. Through a new materialist approach that pays attention to the web of intra-acting agencies in online communication, this article explores the question of what material-discursive bodies (constructs of embodiment and medical information) emerge in TTC communication as the result of shared images and narratives of bodies, symptoms, fertility treatments, and reproductive technologies. Drawing on a lengthy ethnographic immersion, observations of 394 Instagram accounts, and the close analysis of 100 posts, the study found that TTC communication produces collective, unruly, and becoming bodies. Collective bodies reflect collectively acquired, solidified, and contested medical knowledge and bodies produced in TTC communication. Unruly bodies are bodies that do not conform to standard medical narratives. Becoming bodies are marked by their shifting agency, such as pregnant or fetal bodies.*

### **Keywords**

*TTC communication, Instagram, material-discursive practices, involuntary childlessness*

## Introduction

Many of those experiencing involuntary childlessness (IC) turn online to exchange emotional support and experiences about fertility and fertility treatments with others (Blakemore et al., 2020; Haas, 2009; Johnson et al., 2019; Orr et al., 2017; Stenström, 2020; Stenström & Cerratto Pargman, 2021; Strif, 2005). Participants often refer to online practices that focus on fertility and pregnancy attempts as TTC (trying-to-conceive) communication or communities; thus, the abbreviation is widely acknowledged among TTC participants. While TTC practices involve a variety of platforms and forums, such as blogs and Facebook groups, this article explores TTC practices on Instagram in particular. Due to the topic at hand, corporeal dimensions are central to TTC communication through descriptions and images of (women's) bodies, treatments, and symptoms. Inspired by Haraway (1988, p. 596), who argues that bodies and their boundaries materialize in social interaction as "biological bodies emerge at the intersection of biological research and writing, medical and business practices, and technology, such as (the) visualization technologies", we imagine TTC communication to represent an "apparatus of bodily production". Through TTC communication, new actors and practices, such as platforms, algorithms, and participants, become involved in the intra-active emergence of bodies in relation to involuntary childlessness and fertility treatments. Grounded in a new materialist perspective (Barad, 1998, 2003; Johnson, 2020) that assumes the entanglement of material and discursive forces, this paper analyzes the enactment and becoming of bodies in Swedish TTC communication.

While not all of those who are involuntarily childless are infertile, involuntary childlessness has been socially produced as a disease through the notion of infertility and the related dominant biomedical discourses surrounding assisted reproduction (Becker & Nachtigall, 1992; Bell, 2013). This particularly involves and targets bodies that carry pregnancies. These bodies are also subject to most of the medical procedures and interventions performed during fertility treatments (van der Ploeg, 1995). Previous works have questioned and problematized the possibility of objective medical knowledge and have pointed to how knowledge/bodies are produced through, for instance, medical imaging techniques that open the body up to gaze inside of it, and how technologies such as these cannot be understood as "objective observers" (Barad, 1998; Prasad, 2005; van der Ploeg, 1995). Instead, cultural understandings, norms, and knowledge are continuously carried out and reenacted through intra-action, thus making it impossible to separate the body from those discourses and material artifacts of technology and science that are put in place to "measure" or "investigate" it. The entrance of digital technologies and platforms into this relationship – or rather, the entrance of such relationships to digital arenas – make them even more complex.

van Doorn (2011, p. 542) draws our attention to how Internet applications in particular are part of the "porosity of the boundaries between bodies, culture and technology", thus allowing for what he calls the "virtual becoming" of gender and, we argue, bodies.

Digital technologies and social media are not only affected by norms in relation to bodies and gender, but also active in their material-discursive re-shaping and co-construction (Leach & Turner, 2015, p. 2); indeed, they function as “apparatuses of bodily production”. Extending beyond representing technological outlets in themselves, Instagram accounts dedicated to involuntary childlessness also engage, share, and deliberate knowledge and feelings about reproductive technologies. We pay attention to how material features of the Instagram application are tied to practices and meaning-making in TTC communication by enabling and constraining particular practices (McVeigh-Schultz & Baym, 2015). We also consider how application features, such as buttons or comment sections, have “performative and productive capacities”, as they can both confirm and contest messages and thus form and direct communication (Lindén, 2020). This paper explores *what material-discursive bodies (constructs of embodiment and medical information) emerge in TTC communication as the result of shared images and narratives of bodies, symptoms, fertility treatments, and reproductive technologies.*

## Materiality and the production of reality

Classical work within Science and Technology Studies (STS) has shown how knowledge is consequently situated, collected, relational, or co-produced in social settings and practices (Harding, 1991; Haraway, 1988; Jasanoff, 2004; Knorr-Cetina, 1981; Latour & Woolgar, 1979). Moreover, Karen Barad (1998, 2003) argues that we need to pay more attention to the materiality of meaning-making, as the material and the discursive are engaged in constant constitutive entanglements. For instance, norms become imbued in technologies during design, manufacturing, and use, while, in turn, technologies co-create and materialize norms (Wajcman, 2007, p. 293), which is something that applies both to reproductive technologies and social media platforms, e.g., in terms of gender performances.

For Barad (1998), the unit of analysis is the *phenomenon*, whereby the process of separating entities within the phenomenon happens via *agential cuts*, which are momentary stabilizations of phenomena, through the separation of what is “inside” or “outside”. Phenomena should be understood as in intra-action rather than interaction, thereby underlining that entities cannot be meaningfully separated, but rather constantly create each other. Barad (2003, p. 814) stresses the “inseparability of ‘observed objects’ and ‘agencies of observation’”. When using an apparatus to measure, investigate, or observe a body, the apparatus will offer a particular set of variables that in turn will determine what is measurable and what is not. Barad (1998) uses ultrasonographic technology as an example of intra-action, as the object or body will inevitably be produced through the “agencies of observation” that are embodied in the apparatus. In this sense, ultrasounds cannot be used to “innocently peer” at a fetus, as the observational instrument itself is part of the construction of the fetus. In the current study, we will add yet another dimension – the digital TTC community on Instagram – to further explore how bodies, particularly female

reproductive bodies, are produced through intra-active practices. Material-discursive approaches are relevant for the analysis of how digital practices also affect and are affected by material conditions.

In their take on new media studies, Kember and Zylinska (2012) argue for a shift in attention from particular and isolated *media objects* to the process of *mediation*. They argue that mediation is to be understood as a temporal phenomenon that encompasses “the performative relationship, the ‘intra-active’ relationality [...] between entities held separate by our dominant habits of mind” (Kember & Zylinska, 2012, p. 64). Thus, in their take, mediation is not a transmission from one entity to another, but rather a process involving human and technological agencies that form a hybrid productive process. Mediation is vital in that it does not represent but rather *produces* the real. Thus, mediation can be understood as “being-in and emerging-with the world” (ibid., p. 23). Similarly, van Doorn (2011, p. 535) underlines the inseparability of the materiality of everyday life and digital practices by arguing that both belong to “hybrid assemblages of embodied users, cultural discourses and new media technologies”. He argues that digital spaces are filled with “material traces” of embodiment through texts and images that are used to articulate and perform gender, sexuality, and embodiment. These material traces are further constitutive of the *materialization* of gender, sexuality, and embodiment in both digital and physical spaces. More specifically, digital spaces involve users, bodies, devices, platforms, and affordances that form material-discursive entanglements (Reade, 2021; Warfield, 2016) that “weave together the material and symbolic” (Paré et al., 2014, p. 519). We further understand the material features of Instagram that allow for particular forms of communication while restricting others, along with algorithms fueled by users’ clicks and likes and then returning information that shape an “algorithmically entangled social media environment” (Bucher & Helmond, 2018, p. 248). This allows users and platforms to co-evolve, for instance, through collaboration between users and software in organizing information through tagging (Langlois, 2014, p. 68) or hashtagging, and, in so doing, producing particular TTC bodies.

According to Lindén (2020), the relationality between user and platform holds a particular affective potential, from which intensified feelings can emerge. Intensified feelings do not emanate from the platform itself but rather from the meeting of human and platform agencies. She includes numbers that the platform generates, such as the number of likes or shares, and she argues, drawing on Gerlitz and Helmond (2013), that they have “performative and productive capacities” as they evoke users’ affects and enact activities. Likes and critical comments are likewise performative, as they confirm or contest messages. Lindén (2020) argues that platform affordances, such as sharing and buttons, transform communication on the site, as “likes” encourage communication in certain directions.

We will return to a discussion about how material conditions – i.e., the specific devices and platforms that are part of TTC communication – are entangled in intra-active

processes, but first, we engage in a closer discussion about the entangled relationship(s) between bodies and reproductive and digital technologies that pave the way for our argument.

## **Bodies and reproductive and digital technologies**

Several studies have argued that the female body is subjected to surveillance and fragmentation, especially during pregnancy or infertility treatments, stemming from technological intervention for monitoring (or even detecting) fertility or pregnancy. Balsamo (1997, p. 98) argues that reproductive technologies literally objectify and fragment the female body by isolating stages, such as the menstrual cycle, in the process to achieve pregnancy and thus subjecting the body to control and breaking it down into components. van der Ploeg (1995, p. 461) claims that practices of reproductive technologies presume boundaries of women's bodies to be particularly permeable. Several studies have problematized the abundant use of ultrasound technology during pregnancy, arguing that it, beyond subjecting the female body to surveillance, figuratively separates the uterus and a possible fetus from the female body as if they were independent. In this way, agency is focused on the fetus rather than the pregnant woman (Frost & Haas, 2017; Layne, 2003; Pollack Petchesky, 1987; Seiber, 2016), thereby creating what Pollack Petchesky (1987, p. 268) has called "fetal personhood" and Linda L. Layne (2003, p. 16) refers to as "the fetal patient".

This type of medical imagery has further penetrated mass culture and created a "public" presentation of the fetus (Pollack Petchesky, 1987, p. 281), thereby reducing the female to a "site" for the fetus (Seiber, 2016). Beyond sonograms and other medical imagery, other public presentations of pregnant bodies often consist of cropped images focusing on the stomach area (*ibid.*), presenting a literally fragmented female figure. Pregnancy is also performed in particular ways (Neiterman, 2012), particularly in social media communication about pregnancy (Cino & Formenti, 2021; Tiidenberg & Baym, 2017). Another way that fertility and pregnancy are performed in the digital landscape is through digital practices in which individuals collect information about their bodies and habits through digital devices and software, which is often referred to as "self-tracking" or "quantifying self". Mobile applications targeting fertility and reproduction have also become central for many involuntarily childless individuals (Johnson, 2014; Lupton, 2016; Thomas & Lupton, 2016).

Mobile digital applications are often framed as "assisting" and "making life easier" and are often promoted as providing richer and more accurate information about the female body and the menstrual cycle, thus helping women get to know themselves and their bodies better than they could without application use. It is also indicated that applications can "impose order on otherwise disorderly or chaotic female bodies" (Lupton, 2015, pp. 446–447) and that quantified calculations would be more reliable than other experi-

ences or interpretations of one's own body, which also leads users to trust devices and quantifications more than their own experiences and memories (Rettberg, 2018, p. 29). The practice of self-tracking is often portrayed as a chance to improve the self through knowledge (Lupton, 2015, p. 442), and data are made shareable in social media outlets that may function as "social venues" to represent self-tracking practices (Kent, 2018, p. 73). In the context of involuntary childlessness, users' digital applications and social media co-create understandings of what should (and could) be measured and communicated, which further shapes what kind of bodies are produced, both in regard to female corporeality and medical "knowledge". The data that tracking produces have also been theorized socio-materially. Lupton (2018) refers to "human-data assemblages" in her description of the continuous co-evolution between data and humans. Data become matter that affects human lives, which leads us to "become with data". This is a process, however, that is always reductive and normative. Some data materializations are deemed important and worthwhile, while some aspects of bodies and selves are left out altogether in digitized practices. As with medical imagery, applications that track fertility and pregnancy are oriented to protect and optimize conditions for the unborn fetus rather than the pregnant user of the application, Lupton (2016) claims.

In relation to childlessness and infertility, Harrison (2014) points to how knowledge production is carried out in infertility blogs. Here, Harrison argues that traditional medical discourses concerning fertility are challenged and renegotiated, which results in the reframing of medical information and terms and the "reintroduction of bodies". Although we analyze communication about involuntary childlessness and *attempts* to conceive, it has become evident that pregnant bodies can also become central to this communication, as participants continue to update their accounts after becoming pregnant or even after having children.

## Approach

Calls have been made to rethink representationalism in media studies (Reade, 2021; Warfield, 2016) in attempts to bring "material, discursive and affective forces into relation, enlarging the canvas for empirical exploration" (Reade, 2021, p. 551). This article responds to this call through the analytical choice to draw on material from Swedish TTC communication on Instagram as an example of intra-action practices. This allows for the exploration of material-discursive bodies and a broader understanding of agency acknowledged by both human and non-human actors, as well as an inseparability of such actors (Barad, 1998, 2003; Johnson, 2020). Moreover, we see such practices as opportunities to explore how bodily production and knowledge production are affected by and constituted in intra-action. Specifically, this means that the material does not only involve actors in terms of users; rather, the platform itself and its functions, such as emojis, posts, stories, comments, etc., are also actors. For example, this approach offers a way to analyze how

material features of the Instagram application enable and constrain practices and meaning-making (McVeigh-Schultz & Baym, 2015) through the interaction of agency.

Within TTC communication, users share information and communicate about their involuntary childlessness through their Instagram accounts. The accounts included are thematically focused on involuntary childlessness, which more specifically means that presentation texts and/or contents of shared posts focus on communication about involuntary childlessness and possible fertility treatments, while other aspects of participants' lives are excluded or have a minor role. Since many of the users are actively trying to become pregnant, some accounts will turn into accounts on pregnancy processes, meaning that the users will potentially continue their activities but not necessarily have the same followers as they did before their pregnancy was announced. The current study focuses specifically on TTC practices, although pregnancies are also inevitably part of these practices.

The analysis draws on an online ethnography conducted in a TTC setting where the first author has followed communication practices for nearly two years. Ethnography was initiated through the creation of an Instagram account for research purposes. The account's presentation text presented the research interests behind the account and the first author's full name, university affiliation, and contact information. TTC accounts communicating in Swedish were initially added in terms of being "followed" by the researcher's account, whereafter additional accounts were added continuously during the research period through Instagram's algorithmically created suggestions. The research account also followed hashtags related to involuntary childlessness. As almost all TTC accounts are private and require the Instagrammer to accept each follower individually, informed consent was collected from participants through the information given in the presentation text of the research account. The total number of accounts followed when the data collection for this study was done was 394.

Following Pink et al. (2016, p. 50), the ethnographic approach sought to integrate "understandings of technical, social and cultural patterns". The first author therefore spent much time in the field to obtain a thorough impression of local practices, algorithmic ties between her account and other accounts, and assumptions about place, platform, and subject matter. The ethnographic practice involved daily visits, taking fieldnotes, and saving screenshots. This approach also acknowledges the producing effect of the activities brought about by the researcher's entrance on the platform. As Gruwell (2018) puts it, researchers need to be "mindful of the identities" they create on social media. The authors' interaction with the field was therefore mainly passive and/or invisible, while the informed consent necessarily articulated our presence and the observational features of our research.

Instagram posts involve visual and textual activities that draw on actors and activities which expand matters of time and space, interact with different user accounts, and are connected to structures through hashtags that entangle them in a web of content and

connections. Particular to Instagram is the liveness of the feed and the fact that the feed can mean different things to different people. Based on algorithmic decision-making by the platform and participant choices regarding which accounts they follow and who they allow as followers, feeds can differ considerably between participants, although they share certain founding premises, such as following specific accounts or using the same hashtags. Moreover, the analyzed screenshots are snapshots in time, which reflect posts that are multimodal and potentially changing. Beyond being altered or deleted by the original poster, the multimodal nature of posts allows others to alter them through comments or likes. For us, this means that we have analyzed posts and practices that are potentially still unfolding. Instagram, however, accentuates recent content, and although older posts are still available, they are less likely to change or attract attention from other users. During our analysis, we returned to chosen posts to include possible changes, which were limited.

While the dimensions of practices, pictures, and platforms cannot be meaningfully separated – as they are inevitably entangled in communication and meaning-making – they serve as analytical “cuts”. For example, platform affordances such as the “story” function are a way to share images and invite answers and experiences about symptoms and treatments through the participation of other participants, thus causing the feature to become entangled in all the dimensions mentioned above.

The study is based on online observations (fieldnotes and screenshots) from observations of 394 accounts, and 100 posts were chosen for detailed analysis in the current study. These 100 posts were chosen on the basis that they represented dominant themes relating to bodies identified within the entire online material. The software program NVivo was used for coding the data. The coding process was inspired by Schreiber’s (2017) focus on *practices*, *pictures*, and *platforms* to enable an analysis that considers both the visual and material character of meaning-making processes in online communication. We followed Schreiber’s advice to both “go big” through a lengthy ethnographic immersion and “go small” through the analyses of small amounts of data (individual multimodal posts). The coding process focused on the content as well as the actions involved. Simultaneously, detailed and broad coding was performed to allow both theoretically informed coding and more inductively captured meaning (initial coding, Charmaz, 2006) within the material. We also focused on contradictions, hinderances, and boundaries of intra-action, i.e., what, who, or when was not intra-acted? Codes were eventually attributed to different levels in a hierarchy of themes and subthemes. For instance, the code *interpretation of pregnancy tests* belongs to the subtheme *collective interpretation*, which ultimately forms the main theme *collective bodies*; the code *unexpected bodily reactions* belongs to the subtheme *conflicting experiences*, which in turn forms the main theme *unruly bodies*; and the code *waiting for results* belongs to the subtheme *digital practices relating to imagined futures* (posting images from ultrasounds, naming embryos), which belongs to the main theme *becoming bodies*.

## Results

TTC communication functions as an intra-active arena for human, non-human digital (e.g., Instagram as a platform, mobile applications for self-tracking and pregnancy), and non-digital (e.g., ovulation and pregnancy tests) agencies. We have found that these agencies, along with images of bodies and descriptions of bodily symptoms, enact the emergence of multiple intersecting bodies: 1) *Collective bodies*: The (un)fertile body is placed within a biomedical framework, where collectively acquired medical information and data from individual practices such as tracking and testing (fertility and pregnancy) function both to *solidify* medical knowledge and collectively and continuously *contest* it. Knowledge about bodies and fertility thus emerges anew through agencies of recognition between participants and platforms. 2) *Unruly bodies*: TTC communication presents bodies that are waiting to be included in biomedical narratives as they wait for specific days in their cycles but still insist on existing in TTC communication. The body can also be unruly by refusing to conform to or comply with treatments. This body leaks, through bleeding, tears, intense emotions, and affects. The unruly body is in conflict with and refuses to conform to protocols or to be contained by digital graphs or calculations. 3) *Becoming bodies*: All bodies produced in TTC communication are, in a sense, becoming, but in relation to pregnant and fetal bodies, becoming is produced as a bodily trait – a trait that is articulated in the interaction of visual imagination and imaging technology.

## Collective bodies

### *Medical knowledge: Collective confirmation and contestation*

Today, I got a question from a girl who is about to start IVF treatments. She asked if I, who have done this for a long time, had any advice to give her. I answered her: Don't blindly trust your physicians, do YOUR OWN RESEARCH. My biggest mistake during the last three years was to trust my treating physician, without questioning [...]. If a treatment does not work the first time the likelihood that it will work the second or third time around is pretty weak. If I had done my homework right, I would have realized there are other ways to go [...]. Therefore, don't make the same mistake I did. Do research, ask and question. Hug [heart-shaped emoji].

As participants in TTC communication engage in and share experiences in relation to efforts to conceive and related fertility treatments, they regularly give others advice on what tests and treatments to ask for, what to ask, and what to keep in mind. Posts also discuss medical advice that participants have been given by their physicians, and participants engage in discussions about differences in treatment protocols and possible reasons behind them. The example above collected 45 likes and 19 comments. The likes affectively confirm the validity of the message and express engagement from other participants. Likes also fuel algorithmic decision-making and thus provide a concrete example of

human and platform agencies in a “hybrid productive process” (Kember & Zylinska, 2012, p. 64), as likes will steer which posts are presented to users themselves and other participants. Thus, liking practices ultimately partake in the formation of TTC bodies, as they steer what images, posts, feeds, and participants form collectives. The practices of following and unfollowing accounts also affect how and what bodies are produced in the feeds of each participant. As each participant chooses which accounts to follow, each participant will have a different feed. For instance, participants described choosing to follow the accounts of others who share similar circumstances (such as diagnoses, length of period as IC, etc.), while often avoiding accounts that announce pregnancies or post about child-related issues. As Reade (2021, p. 547) notes, these practices cause connections (following) and disconnections (unfollowing) in communication feeds and between participants and ultimately in regard to what bodies are produced in each feed. Choices about who to follow or whose posts to notice and react to are, however, partly made in cooperation with platform algorithms (Kotliar, 2021). Collectively produced knowledge and bodies may thus differ considerably between users, even if they follow some or several of the same accounts.

The comments solidify the importance of patients taking an active role during treatments to ensure that the right choices are made in their cases and that physicians are up to date with recent developments in treatment protocols. Engaged comments further potentially fuel affect among other participants. The post itself is constructed through what Lindén (2020) calls “digitalized literary devices”. The author uses upper-case lettering, which intensifies and underlines the message of “DO YOUR OWN RESEARCH”, while the concluding “hug” and heart-shaped emoji add a tonality that tells the reader that the message comes from a place of consideration and care. In the commentary section, this message is confirmed when followers share their own and similar experiences.

The different articulations of various actors and their physical bodies, experiences, and shared Instagram content form a collective body of experiences that both relates to and contests standard medical knowledge. This recognition is further explored in one post describing the frustration experienced by a participant over standardized treatment protocols:

Our 11th transfer didn't work either; I am very sure that I need more personalized and individual help from more competent doctors abroad [...] I am sick of having to be the one to think extra, to think BEYOND what the doctors are saying, in a world of fertility treatments that are “one size fits all”.

Tonight, I will pray for the embryos that we have lost [11 snowflake emojis representing frozen embryos].

This post was liked 54 times and received 46 comments. A number of comments expressed support and empathy through statements such as “Don't give up, you will

get through this!”, while other comments offered concrete suggestions about where to turn for treatment or what to do next. While previous studies (e.g., Harrison, 2014) have shown that infertile bodies are “reintroduced” through knowledge production in blogs, Instagram opens up possibilities for more interactive exchanges, as well as consequences. Instagram feeds are built on contributions from several participants and are not focused on a single contributor, although certain accounts of course have more followers. In TTC communication, Instagram is used in a way that is reminiscent of blogging.

Participants use their posts to write lengthy texts rather than focusing on images and short captions, and the platform is chosen for TTC communication as it allows for anonymous exchanges (Stenström, 2020). We can see from numerous posts and related communication practices that not only is Instagram a part of the relationships between medical practitioners and individual patients as new information is gathered, but also that these relations are introduced anew and involve a range of patients and their different perspectives on the advice or treatments given by different physicians. In posts concerning treatments and symptoms, individuals often ask for guidance in interpreting or making sense of medical advice, and they question advice given by medical professionals. In addition to experiencing medical advice in relation to the individual body with its specific traits, experiences, treatments, and symptoms, the Instagram platform articulates this body in different visual and textual content that is open for interaction and recognition in terms of likes and comments that allow participants to share their experiences and discuss treatments, symptoms, and results collectively.

### ***Hybrid agencies and collective interpretation***

Beyond medical knowledge, other types of knowledge and information about bodies are collectively produced in TTC communication. For instance, the information output from tools used to achieve or discover pregnancies – such as digital self-tracking applications and ovulation and pregnancy tests – is shared through Instagram posts. As logs and diaries for keeping track of body temperatures or other symptoms have moved on from their analog versions to digital applications that track and log menstruation, fertility, and pregnancy (Lupton, 2016), bodies are described, measured, tracked, and shared through graphs, figures, and numbers in TTC communication on Instagram. Participants regularly invite others to take part in interpreting results and to offer reassurance or share their own experiences. At times, the poster is very explicit concerning what feedback they are looking for through guiding statements such as “Just be honest, I can’t be pregnant with this curve, right?” or “I need to hear some reassuring stories. Someone who has been through this while everything still worked out in the end, tell me”. In this sense, the TTC collective and the bodily experiences and symptoms they have collectively experienced are regarded as meaningful in that they contribute to individual knowledge on what to expect when healthcare providers have no other answers but “wait and see”.

Similarly, collective interpretations of ovulation or pregnancy tests are often invited through posted images of tests. Both ovulation tests and pregnancy tests taken over the course of days or even weeks are often photographed and placed together to show progression over time. Ovulation tests are expected to progress toward two equally strong lines indicating fertility, while positive pregnancy tests with stronger lines function as material indicators of a continuing pregnancy in progression. One post presented an image of a number of ovulation tests placed together, which was taken from a fertility application and included information about cycle days:

Weaker, but still strong! Unsure if it [the egg] was released yesterday. I've experienced some stings, but they stopped yesterday approximately 5 pm! I thought the egg was released then, but now my stomach has been hurting slightly during the night (like I would have gas). Don't know if it is because of Clomid or just regular gas... Maybe I've been slightly overstimulated and released several eggs? [heart-shaped emoji]

The post was liked 23 times and was answered by one other participant who described her own experiences with overstimulation and advised the original poster to obtain a medical opinion if her symptoms worsened or continued for a longer period of time. They continued a conversation consisting of seven exchanges, in which the original poster asked for more detailed information. For the last answer, the replying participant returned to a tracking application to recount her symptoms, including nausea, headaches, and stomach problems. Both add heart-shaped emojis to each of their answers. Here, emojis function to express modality; as Lindén (2020) has shown, symbols such as emojis direct the reader to “hear” how the post would have sounded if spoken. Furthermore, in exchanges that contain emotionally difficult content, heart-shaped emojis in particular are used to express empathy and caring. This post, and the interactive practices that relate to it, illustrate the partial dissolution of individual bodies and experiences in TTC communication.

Images of pregnancy tests are uploaded either to announce pregnancy or to ask others to help interpret the result. Tests function to materially anchor the existence or nonexistence of pregnancy, and the materiality of the line is imbued with the evidential power of a physical process in the making, i.e., a becoming body. “One line” becomes the material manifestation of the pregnancy that does not exist, or the fetus/child that does not (yet) exist, but that acts within the digital arena as it makes meaning. TTC communication introduces non-digital, non-human actors to the digital domain and otherwise turns individual experiences within individual settings (at home, within a toilet) into highly shared experiences. When posting images such as these, users also regularly refer to the materiality of their own bodies by describing how they feel and what symptoms they are (not) experiencing as a way to ground their own interpretations and to guide others. Posts frequently contain photographs of pregnancy tests that are digitally altered to heighten contrast and thus make them easier to read. Here, sense-making is a distinctly

collective endeavor, where others' experiences and digital affordances, such as filters, take part. Similar to the patient–medical expert relation described above, the relationship between the user and the test is opened up for collective relationships involving those other than the person(s) involved in the “traditional” test setting in bathrooms. Bodies thus become fertile or pregnant through collective interaction with (images of) technology that indicates evidence of inner workings and hormonal shifts, along with platform affordances such as confirming or supporting likes and comments such as “I can see two lines!”

Digital pregnancy tests can only offer the definite answers “pregnant” or “not pregnant”, thus bypassing the possible ambiguity and uncertainty posed by nondigital tests. For obvious reasons, these tests are not photographed to collect interpretations from others, but are posted to announce the existence or nonexistence of pregnancy. As these tests narrow the window of interpretation and create definite, closed knowledge about the tested body, they bring communication back to medical, definite answers. These answers can, however, also be contested, for instance, because of the lack of symptoms or bleeding. Thus, we can see here that the bodies of participants join the process of collective interpretation, even in instances where knowledge of bodies seems uncontestable and anchored in medical testing.

Collective bodies, relating both to medical knowledge and its confirmation/contestation *and* collective practices of interpretation, are intimately tied to other participants and the Instagram platform. They are also enacted through the combination of applications that have information about actual bodies (such as where you log your body temperature to follow your fertility), as well as tentative bodies (such as pregnancy applications that only present preprogrammed information about expected progress without actually having information about the particular bodies of those using the application for information), which results in a body that is truly “assembled”. Such activities involve and introduce additional types of bodies into the relation of medical experts and patients, thus creating a collective approach that rejects the singular relation between patients and experts. Previous studies on the use of social media during involuntary childlessness and fertility treatments have shown that social platforms become part of the relationship between “medical practitioner” and “patient”, as the latter engages in questions about treatments and medications online (Harrison, 2014; Johnson et al., 2019; Stenström, 2020). Harrison (2014, p. 338) argues that blogs about infertility “challenge both the doctor/patient power dynamic and discourses concerning fertility” in their production of situated knowledge.

Participants often expressed that they have been advised “not to Google” for further information about symptoms or protocols and not to discuss them online (see Stenström, 2020). In other words, they reported being told to not question medical decisions or look for second opinions online. TTC communication not only replicates normative medical conceptions and bodies, but also produces other bodies in relation to fertility treatments

and nonpregnancies by including bodies that fall outside the medical narrative by going through failed treatments and miscarriages. Such bodies are included by the presupposition of the community and challenge the patient/expert divide further. We argue that contextual knowledge in TTC communication is regulated in many ways by the Instagram platform, which structures and presents communication and posts in a specific manner, thereby ultimately affecting what and how knowledge, and thus bodies, are produced.

## Unruly bodies

I don't understand my body! Two weeks ago, I was bleeding slightly, called the clinic. They said I should come in next week to leave a new blood sample, so that they could see if I'm still downregulated. In addition, I was! The level was even lower than in the first blood test. Today, I've started to bleed some again?! I get so worried [two emojis with crying faces].

Frequently, posts describe and depict bodies as enemies that refuse to cooperate or conform to treatment regimens or medical interventions. Posts describe the unwanted flow of blood as periods start or when pregnancies are lost: bodies that bleed immensely even though “they aren't supposed to” because they are faulty and need to be battled against. This body will not conform to the medical narrative of fertility treatments, and although medical narratives and understandings acknowledge the risk of lost pregnancies and failed protocols, the body emerging in TTC communications is different, as it marks the breakdown or inadequacy of medical knowledge and normative narratives to account for the full embodied experience of involuntary childlessness and fertility treatments.

When a cycle of medications or a successful medical narrative ends, alternative narratives and bodies emerge. Bleeding and “failing” bodies are presented through hashtags or networks of followers participating in real time. Questions – such as, “What is wrong with my body? Why does my body not work? Why does my body not cooperate? Why can't my body keep a pregnancy? Why does my body not realize it is pregnant? – often follow when participants share their experiences of failed cycles or miscarriages. In these instances, the body is described with disappointment and as foreign, or being in opposition to the individual herself.

These bodies also relate to a shared sense of experience of knowing and living through involuntary childlessness; similar to collective bodies, unruly bodies partly *become* through the collective acknowledgment of their existence. Likes, comments, and hashtags add to descriptions of bodies and bodily states and solidify them through a digital presence and shared affective engagement. While the experience of living with and through involuntary childlessness is always already material and real, TTC communication and the Instagram platform provide digital material capacities and offer a way to share them.

The example above was liked by 16 participants and posted along with eight hashtags related to involuntary childlessness, endometriosis, medications, and IVF treatments, but

it did not receive any comments. In cases when posts are not commented on at all, or only commented on with emojis, the performative function of numbers and emoji symbols becomes particularly clear. Likes represent a sense of “being there”, as previously discussed by Lagerkvist and Andersson (2017, p. 557), in relation to online support in difficult times. Platform affordances here enable communication that extends “beyond words” in the face of what may be ineffable but shared (Andersson, 2019).

In contrast to the collective interpretations and experiences that together challenge medical narratives and technology discussed in the previous section, the acknowledgment (e.g., comments such as heart-shaped emojis) of unruly bodies manifests the individual experience of unruliness. The articulation of unruly bodies also lies in the conflicting interactions and relations between individual physical bodies that are in conflict and refuse to behave in a manner that is in line with technology steering symptoms.

TTC communication also produces unruly bodies that transgress the limits of medical narratives by introducing bodies that are “waiting to exist”. This is particularly evident when participants post about bodily states or symptoms between treatments, or between certain parts of treatments, such as bodies that are waiting to become pregnant (or otherwise) after IVF treatments. Whereas the body emerges at specific days or moments during medical fertility treatments – such as the first day of menstruation or when particular hormone treatments start – TTC communication widens the imaginary of bodies beyond standard medical imaginaries through posts and reactions, such as comments that confirm others’ experiences.

I've never gotten that longed-for positive pregnancy test. Even though my body is like a clock and the opportunities for a pregnancy have been so many. It is such a weird feeling after a transfer, because I've never been this close to being pregnant. However, just like with the last transfer, I've had spotting already, on Tuesday unfortunately. No blood, just a warning that it is about to begin soon. I thought I was tougher this time around, but I'm devastated this time, too. Right now, I just feel like my body is fucking with me; just get here period, just get here.

This post contains an image of lightning and dark clouds, which reflects and underlines the emotional experience of the writer. The post was liked four times and has two comments that manifest the condition through expressing the unfairness of life and the impossibility of “toughening up” during fertility treatments. An unruly body is also connected to intense affect and emotionality, seen, for example, in posts that contain photographs of tears streaming down cheeks or faces distorted from crying that leave “material traces” of bodies reacting affectively. As Lindén (2020) found, the relationality between users and platforms holds the potential of intensified feelings. Here, the use of emojis often refers to and enacts bodily/emotional states, such as emojis depicting crying faces or broken hearts or written descriptions such as “hugs”. As Schreiber (2017, p. 47) explains, embodied and facial expressions function as “social cues” in networked communication,

and visual social media in particular, thereby bringing the materiality of bodies into digital spaces through what Lagerkvist and Andersson (2017, p. 552) call “embodied connectivity to the posthuman condition”. Although held together by the format of Instagram, contained within the frame of posts and the Instagram feed, and organized by different functionalities of the platform, the unruly body still underlines the raw emotion of being and having a body. In contrast to the body in medical narratives, which is predictable and held together and reacts according to medical protocols at certain intervals or days in a month, the unruly body overflows with emotion and excess.

### Becoming bodies

All bodies produced in TTC communication are becoming, as they emerge through posts, practices, and platform-specific functionalities. The quality of becoming is, however, produced as a specific trait concerning pregnant and fetal bodies in TTC communication. Microscope and sonogram images are frequently shared in relation to (soon-to-be) pregnant bodies, and TTC communication produces pregnant bodies as two separate bodies: the pregnant body and the fetal body. A reoccurring theme is a selfie (with or without including the face) dressed in a hospital gown at the clinic performing egg retrieval or embryo transfer. This image is often accompanied by another image depicting the embryo that is about to be transferred into the uterus. Often, TTC participants name their retrieved eggs or transferred embryos, which they then go on to address by name while waiting to hear about the results, after miscarriages, or during pregnancies. Although this is done in a tongue-in-cheek manner – where humor is used to deal with the stresses of IVF treatments, for instance, by giving the embryo an “old man’s name” – this practice nevertheless reflects the creation of a fetal subject at an extremely early stage.

If an embryo is named “Bella” when transferred to the uterus, this name often follows into pregnancy applications describing “Bella’s” development. This affects the enactment of a fetal body in several ways. As Lupton (2016, p. 87) notes, several technologies and what they track are oriented to protect and optimize conditions for the unborn fetus rather than its parent-to-be (the person using the application), thus giving the fetal body agency in its own right. As we have touched upon, pregnancy applications present an *expected*, generic fetal development with figures or graphs that count days and weeks and describe the development of the fetus that is consistent with a healthy pregnancy. As screenshots from these applications are posted, “Bella” is produced; general information about pregnancies now serves to demonstrate the development of an actual and particular pregnancy. The reception of likes and comments and elaborate information about cycle days, spotting, bleeding, discharge, and any other physical symptoms serve to solidify the existence of the pregnancy.

As the medical gaze imprinted by medical technologies such as ultrasound or microscopy is brought into TTC communication, social media platforms and practices partake in the common imaginary of the female body as both a hospitable environment for a fetus and a necessary means by which to achieve pregnancy in the first place. The distribution of medical imagery in TTC communication involves an intra-active process between participating humans, new media technologies, medical technologies, and medical norms. Using Barad's (2007) terminology, posts thus become yet another type of material-discursive instance co-creating both corporeality and treatments and their outcomes, thereby becoming continuances of those technological interventions imposed on bodies during fertility treatments and pregnancy.

In later stages of pregnancy, i.e., when such characteristics become visible, classical images of pregnant bellies emerge. Here, the "baby bump" is photographed from the side to make it more visible. In TTC communication, filters are often used that add information about the pregnancy. Thus, the body is literally inscribed with information, for instance, through filters that contain information about the pregnancy, such as gestational weeks, which are placed over the image of the pregnant body. Heads are often cropped out, partly because participants want to remain anonymous, but also because the stomach area is regarded as most important in the photograph. The fact that the head of the mother is not included in the photograph highlights notions of the fetal subject as "flowing freely". Furthermore, the names or nicknames given to unborn children give them agencies of their own, as communication is formed around their existence.

Both physical changes and changing digital presences produce becoming bodies. In cases where pregnancies are lost and when successful pregnancies lead to children, posts in TTC communication often underline the material conditions leading up to that moment. If a pregnancy is lost, its materiality is often underlined through the only images of the fetal body that may exist, i.e., the image of the embryo before transfer, which is often presented along with a positive pregnancy test. Both the images and the pregnancy tests materially anchor and function as proof that a pregnancy indeed existed. Grief over what is lost is also often expressed through ultrasound images paired with "material traces", such as baby clothing, of the body lost. By being posted on Instagram, the digital materiality of the post itself functions to produce the fetal body and personhood into existence. Through hashtags, likes, and comments, these posts enter into a network of other posts about lost pregnancies.

Additionally, posts that depict fertility treatments ending in a successful pregnancy, and subsequently children, often return to the process of bodily *becoming*. One such post contains an image of the child, dressed in clothing with the text "Made with love and science". Needles used during fertility treatments were placed in a heart shape around the baby. In one way, the TTC community thus reproduces medical technology as the exclusive part in pregnancy, which conforms to the sterile medical technology setting between expertise and patient. In another way, however, "made with love and science" also allows

for “love” to take a shared or even prior part in this process. This is yet another example of what the Instagram platform, although it is strictly regulated, also offers to the production of the becoming bodies, as users can “spice” up their medical processes, as well as their bodies, with emotions, collective experiences, and visual imprints.

## Conclusions

We draw on two main strands of previous research dealing with the material-discursive becoming and production of bodies. Studies focusing on medical imaging technologies (Frost & Haas, 2007; Layne, 2003; Pollack Petchesky, 1987; Seiber, 2016) used during fertility treatments and pregnancy show that (female) bodies are intra-actively produced when they are “observed” or “investigated”. Other previous work has pointed to the inseparability of material conditions and digital practices (van Doorn, 2011) and how these form material-discursive entanglements involving users, bodies, devices, platforms, and their affordances (Reade, 2021; Warfield, 2016) that are all “performative and productive” (Bucher & Helmond, 2018; Lindén, 2020). Studies also show that the digital landscape is important in performing and producing (un)pregnant bodies, both through social media (Cino & Formenti, 2021; Tiidenberg & Baym, 2017) and self-tracking through mobile application use (Johnson, 2014; Lupton, 2016; Thomas & Lupton, 2016).

Against this backdrop, we have approached TTC communication on Instagram as an intra-active arena in which bodies are produced through a multitude of material and discursive forces. Inspired by the notion of mediation as a *vital* process (Kember & Zylinska, 2012) and media technologies as “integral parts of how life and the body is lived, experienced and continuously transformed” (Stage et al., 2020, p. 4), we understand TTC communication as a performative space of hybrid agencies that are formed through the intersection of platform functionalities and restrictions (e.g., commenting, liking, and using different filters); human users and their practices of recognition, conflict, and imagination; and digital (e.g., applications for self-monitoring) and non-digital (e.g., pregnancy or ovulation tests) technologies.

More specifically, our study has shown that TTC communication produces bodies that are *collective*, *unruly*, and *becoming*, which are all intersecting and impossible to fully separate as they are done through each other. The platform structure and interactive exchange of experiences on fertility treatments and bodily symptoms between participants allows for a collective recognition that both solidifies and contests medical knowledge and creates a collective body of knowledge. Thus, alternative narratives of infertility and fertility treatments that are simultaneously based in, departing from, and rejecting standard medical knowledge take form.

Unruly bodies are bodies that reject or are rejected by medical narratives, as they are either waiting to become, both in and with standard medical protocols, at certain days in a cycle or through specific reactions or outcomes. Through TTC communication, and

the Instagram platform in particular, these bodies are written into existence and for the dimensions of having and being a body that is not included in standard medical narratives. This body bleeds and weeps and is excessive in symptoms and affects. These bodily agencies conflict with standard medical narratives as well as the expectations, wishes, and wellbeing of TTC participants.

As we have noted, all bodies produced in TTC communication are “becoming”, in the sense that they emerge as the result of platforms, posts, and practices. However, in relation to pregnant and fetal bodies, becoming is produced as a bodily trait, where imagination and fetal subjectivity and agency are given primary positions. This is done through the introduction of medical imagery into the digital arena, where they form new material-discursive instances that function as continuances of medical monitoring during fertility treatments.

Although previous research has shown how technology produces and depicts bodies, as well as fetuses and their agencies, our contribution lies in the additional intra-active aspects that the digital setting provides. Medical technologies dominate the TTC settings on Instagram, but they are also contested and challenged through the collective bodies of experiences and knowledges that the TTC setting offers. In relation to the idea of mediation as a vital and lively process, as argued by Kember and Zylińska (2012), we introduce the notion of *agential energies* as a way to explore and understand the vital interplay between users, practices, platforms, and functionalities in TTC communication and other social media settings. This notion refers to the variation in intensity and movement that takes place in the meeting between humans and platforms. Different agential energies emanate from the discursive content in posts, but also from the different interactional patterns that users and platform affordances create, thus producing different kinds of bodies in TTC communication. The production of collective bodies, for instance, is associated with active agential energies that emerge from active and engaged commenting and liking patterns. Similarly, becoming bodies are endorsed and actively enacted through comments and likes, where the participation of other TTC members, the platform, and functionalities, such as filters, enact the becoming trait. Concerning unruly bodies, on the other hand, the agencies of the platform and participants are productive, but often do not actively challenge the narratives of posts. Instead, here, comments and associated likes accept and confirm rather than contest the body that is described and experienced.

We propose that an empirical sensitivity considering agential energies (and their different intensities) is a way to unpack and understand how meetings between platforms, humans, and other agencies are productive in different ways. Although connected with agential energies of varying intensity and movement, agential meetings in digital TTC communities provide a broadened palette of interpretations, narratives, knowledges, and emotions that expand the experiences of individual persons, for example, in traditional medical settings. By acknowledging the complexity and multidimensionality of different meetings, one-dimensional explorations of social media settings are avoided. This

approach is useful for studies across social media platforms, but also in the exploration of the multiplicity of meetings, practices, and productive forces within a single platform. Our study also adds to previous research on how to explore the uses and understandings of medical technology among a broader public (patients, their peers, and followers) and how they deal with such expertise in their everyday lives (see e.g., Winter, 2016, 2019a, 2019b).

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