Adopt a Digital Fetus to Save Its Soul: A Polyethnographic Walkthrough of Abortion-Related Applications

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Amid a global "crisis" in abortion care, marked by expanding legal restrictions, persistent stigma, and dwindling international aid, technologies become central yet precarious infrastructures through which people navigate, negotiate, and endure barriers to reproductive care. Yet, HCI infrastructure scholarship often discusses abortion as a taboo, controversial, or purely political example. This framing tends to eclipse abortion as a lived, embodied, and relational experience. To bridge this gap, we engaged in a polyethnographic walkthrough of abortion-related mobile applications. We collectively explored what applications encode about abortion when examined as part of larger socio-technical and socio-political infrastructures. We find that abortion is 'designed out' of reproductive health applications through omission, over-simplification, and misrepresentation. Taking an infrastructure lens, we show how abortion applications disembed abortion from the user's relational context, as well as larger transnational and historical systems. To conclude, we offer guidance on grounding technical infrastructures to support local community infrastructure.

CCS Concepts: • **Human-centered computing → Collaborative and social computing design and evaluation methods**; *Walkthrough evaluations*; *HCI theory, concepts and models*.

Additional Key Words and Phrases: intimate, abortion, intersectional, feminist, mHealth

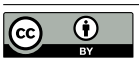
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Content Warning: This paper includes descriptions of abortion methods as well as harmful narratives around abortion. We encourage readers to engage at their own pace in a way that feels right for them.

1 Introduction

Abortion has been a contested issue for centuries. Currently, abortion care is experiencing renewed volatility, shaped by a resurgence of right-wing anti-abortion propaganda, shifting legal frameworks,

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and intensifying public discourse. At the time of writing, abortion care[1] is illegal in 13 states in the United States, and in 10 more states abortion is legally restricted before fetal viability[2] [72]. Nicaragua, El Salvador, and Poland have also rolled back protections to abortion care [1, 2, 120, 138]. Transnationally, anti-abortion groups are strengthening their influence and credibility by leveraging funding structures to recall USAID funds and allow the expansion of the "global gag rule"[3], contributing in an acute global reproductive health crisis [58]. These cutbacks are anticipated to result in the deaths of around 34,000 women, and around 990,000 unsafe abortions internationally [37]. In contrast, legal advances in Mexico [127], the European Union [109, 155], and the United Kingdom [35] alongside global accessibility of abortion pills [26] means that abortion care is at once *in crisis*, and more accessible than ever.

HCI crisis scholarship often positions care practices as solutions that emerge in the absence [51, 81, 164] or collapse [86, 143] of formal infrastructure during crisis [49]. Following disruptive events such as natural disasters, local care networks (e.g., mutual aid, community organizing) act as temporary stop-gaps, sustaining people until formal infrastructures are restored. Technology as a medium for care is often introduced to crisis scenarios to keep people connected and patch temporary breakdown [134, 142, 166]. In particular, mobile health technologies (mHealth) have been used as a way to extend care to people during health crises such as the COVID-19 pandemic [87, 104, 167] and alarming maternal mortality rates [30, 71]. Yet, as Star et al. [147] remind us, infrastructure becomes visible when it fails (or breaks down) as such moments expose the patterned relations that sustain social and technical arrangements. Infrastructure is not merely a technical substrate but "the movement or patterning of social form" [15], shaping who is supported, who is excluded, and under what conditions care becomes necessary. Thus, infrastructures may systematically neglect or marginalize particular populations, especially those facing intersecting forms of structural oppression.

Abortion provides a critical case for examining these dynamics. Restrictions on abortion access are often framed as discrete breakdowns or temporary glitches in an otherwise functional reproductive health infrastructure. Like other precarious infrastructures, problems are patched through legal reform, technical fixes, or informational tools, such as mHealth [59, 59, 95, 96, 112, 141, 152, 154, 172]. Prior research identifies abortion infrastructure as a state of "uncaring" [50]—"state-led systems of care and care policies are orientated toward restricting abortion and where those who access abortion and those who facilitate it face reprisals" (pp. 610). This uncaring disproportionately impacts systemically marginalized groups (ibid). As a result, scholarly attention called for a shift from the "products" of abortion infrastructure—such as individual apps or services—to the infrastructure itself: its legal, social, affective, and technical arrangements [110].

Rather than treating abortion-related mobile applications as isolated tools, this paper seeks to situate them within the broader abortion infrastructure they both depend on and help sustain. We ask: *how are socio-political and socio-technical forces encoded in digital technologies for abortion?* To answer this question, we conducted a polyethnographic walkthrough of abortion-related mobile applications as care technologies emerging as stand-in infrastructures for abortion care, both

[1]We understand abortion care to include a wide range of care practices across the actual provision of abortion, distributing supportive information about abortion, and providing aftercare. In various locations different aspects of abortion care are criminalized, most often the actual procedure of abortion, but in some cases other wraparound support such as giving information or helping someone reach their appointment can also result in criminal charges [25].

[2]The term fetal viability refers to "at or around" the time in a pregnancy when a fetus can potentially survive outside the uterus with medical support. However, the when viability occurs is still a highly contested matter [123].

[3]The "global gag rule", also known as the Mexico City policy, prevents U.S. funding from going to NGOs which provide abortion care or counselling. The policy has been enforced periodically based mostly on the political party in control of the presidency. In January of 2026, the Trump administration expanded the global gag rule to include gender affirming care, diversity, equity and inclusion [56]

supportive and harmful. We aim to contribute to HCI discussions that move beyond crisis response toward a critical engagement with how care, technology, and reproductive justice are structurally entangled through technology in the case of abortion care.

2 Background: The Status of Abortion Infrastructure

What follows is an intentionally incomplete historical account of information dissemination within abortion access infrastructures. Rather than offering a comprehensive history, this overview traces selected examples relevant to understanding how systems, organizations, and practices have shaped access to abortion care across different contexts. We understand *care as infrastructure* where "care practices, relationships, and systems [which are] foundational to the functioning of societies and organizations, similar to physical infrastructure like roads or telecommunications" [122]. Within this, we distinguish between *institutional infrastructure* as formal networks comprised of governments and medical associations, and *community-based infrastructures* as networks outside of formal institutions comprised of mutual aid connections, peer-to-peer knowledge sharing, and grassroots organizing.

To this day, predominantly women-led organizations continue to fill gaps left by formal healthcare systems, forming *community-based infrastructures* for abortion education, support, and access. For example, the Jane Collective in Chicago coordinated extralegal abortions and learned to perform abortions themselves prior to Roe v. Wade being passed, providing 11,000 safer abortions [75]. Another example are acompañistas, individuals or groups who provide emotional, informational, physical support through and after an abortion across Latin America through pill-based abortions regardless of legal status, and shepherd the person who had the abortion to learn how to support someone else [50, 85]. Despite the success of these organizations, abortion care infrastructure is largely consolidated in *institutional infrastructure*, which often reproduce systemic harms [171]. For instance, while abortion legalization in the United States was often framed through liberal notions of individual choice and bodily autonomy, this framework failed to account for the fact that many marginalized communities had long been subjected to eugenic policies, forced sterilizations, coercive reproductive control, and structural conditions that denied them the real possibility of having and raising children in safe and healthy environments [132].

The concept of *reproductive justice* captures how mainstream reproductive healthcare frameworks have historically neglected people of colour and marginalized communities, while centring the needs of those already privileged enough to exercise reproductive choice [133]. As *institutional infrastructures* have taken over reproductive care internationally, care has become rigid under regulation, primed for collapse should government provision of care break down under legal shifts, austerity measures— as evidenced by regressive abortion laws abruptly shifting the landscape of access [49, 53, 55, 115, 120].

3 Related work

3.1 Abortion in HCI

Research on abortion in HCI has largely focused on privacy considerations [14, 27, 48, 76, 99–101, 111, 144, 145], activism goals [57, 61, 88, 92, 103, 136], and discussed abortion as an example of a taboo and polarizing topic [7, 8, 61, 62, 136, 161]. There is a significant gap in addressing the realities of abortion experiences and designing for them [110].

Indeed, in Bowker and Star [21]'s seminal book *Sorting Things Out*, abortion is used as a case example of something categorized based on ethical-political concerns rather than medical outcomes (pg. 86). Only a few studies have examined the infrastructure of abortion access as the primary topic of inquiry [20, 26, 121, 169], and only one has focused on designing technology for abortion

care [97]. This is highlighted in a recent review on abortion care technology, the first of its kind, published in 2026 at CHI [110]. Still, little research has analyzed in depth technologies explicitly designed for abortion care, representing abortion as an abstract topic that technologies exist around, but not directly for.

3.2 Care Infrastructure in HCI

HCI scholars define infrastructure as "something built and maintained, sinking into an invisible background"—a relational system shaped by the ecosystems it supports [149]. At the same time, care theorists [43] that adopt ecosystemic, and relational visions of care, see it as practices that go beyond human-human interactions. Like infrastructure, care often fades into the background, while enabling other systems to function. Dye et al. [51] discuss how caring for a local internet system enabled an informal infrastructure of connectivity to succeed where corporate or state-run internet was absent. Both care and infrastructure are composed of relations [21] that enable—or constrain—collective functioning. While infrastructure requires maintenance and repair, we argue that *care is maintenance and repair*. Therefore, care often emerges in response to infrastructure's breakdown. These moments of *crisis* lay bare infrastructure's otherwise hidden labour, standards, and dependencies, making visible the systems that sustain or undermine social order [149]. Many infrastructures enabling care have faced their own crises in recent years. Austerity measures and privatization have particularly impacted eldercare, childcare, and healthcare [49]. These reductions in care infrastructure increasingly responsibilize individuals for their own care, isolating them from external supports (ibid.). When institutional infrastructures are in consistent breakdown, crisis becomes not an exceptional event but the ongoing condition of life [15]. In response to this collapse, technologies, such as mobile health (mHealth) applications, are introduced as provisional fixes meant to manage breakdowns without addressing structural causes [49]. As we walked through abortion-related mobile applications as part of broader infrastructure of abortion care in crisis, we found that these technologies could not be studied in isolation. Their purpose and operation emerge through the infrastructures they uphold and are embedded within.

3.3 mHealth Proliferation

In response to gaps in formal abortion care infrastructures, mHealth has increasingly emerged as a tool claiming to provide information, guidance, and access to abortion-related healthcare services [59, 95, 96, 112, 141, 152, 154, 172], aligning with the WHO's broader promotion of mHealth as a means to address inequities in global healthcare access [80]. However, given the long history of systemic harms, exclusion, and unequal access that have shaped abortion care—and the current volatility of abortion infrastructures globally—we argue that critically investigating abortion-related mHealth technologies is essential. Significantly, the demographic groups bearing the greatest burden of abortion restrictions (minors and racialized individuals) are most likely to be "cellphone dependent," relying on mobile devices as their primary or sole internet access point [130].

The WHO has specifically promoted mobile phone technologies as critical tools for healthcare delivery in resource-constrained and politically hostile contexts [80]. Mobile applications offer particular affordances that make them appealing in crisis contexts. Their offline functionality and the widespread availability of mobile phones mean they can operate where other digital infrastructures fail. In particular, mHealth has been deployed in low-resource contexts, such as communities with limited internet and medical access [11, 162, 168], acute time-limited crises including COVID-19 [87, 104, 167], and under-valued health concerns like reproductive health [13, 29, 30, 71, 91]. Due to the focus on low-resource and politically hostile contexts [80], mHealth applications are often designed for contexts which create the greatest harm for marginalized populations. A review on the use of mHealth for marginalized populations noted a proliferation in mHealth with promises to

attend to "hard to reach populations", but noted a focus on individual health without attending to community and society level considerations risk neglecting the systemic causes of poor health outcomes [153]. Due to this gap, Diethei et al. [47] call for "a multi-disciplinary approach in equitable design and evaluation of mHealth interventions for marginalized groups." Prior work in HCI has examined mHealth in the context of reproductive health as technology that allows people who menstruate and/or can get pregnant to take control of their own bodies. Research has investigated menstrual tracking [54, 60, 129], ante-maternal care, pregnancy tracking [69, 124], and fertility tracking [111]. However, concerns have emerged about whether these applications benefit users as much as they benefit the companies collecting user data, as well as how they may contribute to the medicalization of menstruation [157–159]. Importantly, mHealth has been investigated in relation to abortion legality [27, 99, 100, 144, 145], and concerns have emerged about in-app consent, emotional manipulation, and presentation of a singular ideal vision of 'motherhood' based on exclusionary values [6].

As the crises of care and *institutional infrastructure* collapse progress, technology is offered as a solution, but can risk creating techno-chauvinist approaches divorced from *community-based infrastructures* [44]. In this paper, we use mobile applications as a lens to investigate how these technological patches for abortion infrastructure either reproduce or challenge the oppressions embedded within socio-political and socio-technical systems.

4 Methods

In this study, we treat walkthroughs as a method for analyzing how applications encode assumptions about abortion, care, and users through their design [94], rather than attempting to approximate or predict the behaviour of a generalized population of abortion seekers. In line with polyethnographic and feminist approaches, we position ourselves not as external evaluators, but as situated users whose lived experiences and positionalities are central to the analytic process [3, 12, 32, 73]. This allows us to interrogate how these technologies may be encountered, interpreted, and felt within specific socio-political and embodied contexts in line with HCI traditions that prioritize situated, generative, and design-relevant knowledge over statistical generalization [17, 70, 119]. In the following sections, we introduce our polyethnographic approach, as well as our rationale behind app selection and analysis.

4.1 Approach

Within HCI, first-person methods have gained traction for their ability to surface perspectives and experiences that are otherwise marginalized in research and design [46, 73], and to offer insights in contexts where sustained participation in conventional studies would be impractical [74, 93, 117]. As Ciolfi Felice et al. [32] note, such approaches are powerful precisely because they treat the personal as a valid site of knowledge production and use that perspective to interrogate power relations.

We base our methods on the walkthrough approach proposed by Light et al. [94] to study mobile applications. This approach is grounded in the premise that apps are underpinned by often-invisible infrastructures, and follows Star's [150] call to apply an "ethnographic sensibility" to the study of infrastructure. Accordingly, Light et al. [94] combine elements of ethnography, Critical Technocultural Discourse Analysis [23], and infrastructure studies to make visible an app's system of actors for analysis. The walkthrough method has been applied across domains such as menstrual tracking [94, 129], social media [18, 28], and gig work [24, 163].

Light et al.'s [94] method begins with examining "the environment of expected use" which examines information about the app to signal "socioeconomic and cultural aspects" such as the publisher website, terms of service, and business strategy. Therefore, we looked at the website,

Stage	Definition
Registration and Entry	Capturing how apps frame their purpose, governance, and ideal users through onboarding flows, data requests, identity verification, and terms of use.
Everyday Use	Examining core functionalities, interaction patterns, content, and norms of engagement, including how users are guided to act, decide, or seek information.
Closure and Leaving	Considering how apps support disengagement, exit, or completion, including account deletion, data retention, and how responsibility or care is handled at the end of use.

Table 1. Stages of the Walkthrough Approach

app store pages, and privacy policies of the publishers, as well as read through the comments on the app stores (i.e., Google Play and Apple App store). The technical walkthrough involves the following 3 stages: Registration and Entry, Everyday Use, and Closure and Leaving (see Table 1).

Following Light et al.'s [94] invitation for researchers to apply the walkthrough method flexibly and in conjunction with other methods, we adapted the method in two key ways: temporality and mode of engagement. While Reime et al.'s [129] study of menstrual tracking technologies involved sustained individual engagement with an app over time, followed by collective reflection, our study used collective walkthrough sessions in which researchers engaged with each application simultaneously. We collaborated remotely over 18 months, combining individual app walkthroughs with collective analysis sessions (10 months engaging with applications, 8 months engaging in reflective conversations and analysis). Our reflections and discussions were informed not only by these walkthroughs, but also by repeated individual revisits and researchers' accumulated experiences engaging with abortion-related applications over time.

This adaptation was important given the complexity and time-bounded nature of abortion-related app use. Unlike menstrual tracking, which is often cyclical and sustained, abortion-related applications are typically encountered in more urgent, time-sensitive, and situated moments[4]. A single researcher could not fully account for the legal, medical, racial, gendered, geographic, and infrastructural conditions that shape abortion access. We therefore incorporated elements of polyethnography to bring the diverse expertise and situated perspectives of the research team into the analysis, responding to Reime et al. [129]'s emphasis on first-person reflection as a way to

[4]Many people have more than one abortion. However, unlike most menstrual periods, abortion is not usually experienced in a cyclical or sustained fashion. For accounts of people who have had more than one abortion, see 2+ Abortions Worldwide.

strengthen the critical orientation of walkthrough methods within HCI. Polyethnography extends duoethnography [113] by involving more than two researchers who use their histories, experiences, and conversations as both a subject and process of analysis [10].

Importantly, we did not approach the walkthroughs as user testing. Rather, we followed Light et al.'s original aim: not to determine whether users respond to an interface as intended, but to examine the material traces of those intentions and critically analyze the app as a sociotechnical artifact [94]. Our adaptation allowed us to critically examine how the applications encode assumptions, constraints, and intentions through their affordances.

4.2 Researcher Positionalities and Shared Values

Our research team formed through R1 posting in a reproductive justice and HCI forum to invite collaborators to the project. This resulted in a group with complementary expertise across reproductive health issues. R1 and R2 are actively researching design for abortion care, with R1 focusing on infrastructural systems for abortion care, and R2 focusing on compassionate support for people who have had abortions. R3 is researching menstrual tracking applications, R4 maternal loss[5], and R5 Black maternal mental health. R6 joined the project during the writing phase and has a background in women's well-being, autonomy and safety, which aligns with the broader feminist commitments of the project. We all reside in Canada, the United States, or Europe and are affiliated with large academic institutions. We all have backgrounds in design, as well as human-computer interaction. These shared disciplinary orientations, alongside our distinct research foci, shaped a collective attentiveness to the sociopolitical, ethical, and infrastructural dimensions of reproductive health technologies.

Consistent with practice in polyethnography, we shared our positionalities, including gender, race, sexuality, reproductive health experiences, and professional sensitivities to systems of oppression prior to any data collection [10, 78]. We have disclosed relevant aspects of the positionalities of the authors involved in the walkthroughs while noting that what is shared is shaped by individual comfort levels and the political contexts in which we work and navigate. We do this as an expression of feminist ethics of care [67], attending both to how our positionalities inform the research and to the importance of researcher well-being and comfort.

We approached abortion through a reproductive justice lens [133], understanding reproductive autonomy as a human right. We are all people with uteri who have navigated reproductive healthcare and encountered its stigma and informational gaps, and none of us have given birth. Importantly, we do not conflate shared values with shared positionality: our relationships to reproductive justice knowledge are fundamentally shaped by our distinct identities and social locations. This combination of shared commitments and differing positionalities fostered both trust and productive analytical friction within the research process.

Our polyethnographic walkthrough approach is grounded in contemporary feminist standpoint theory, which recognizes that marginalized positions can offer particular insights while acknowledging the multiplicity of standpoints [10, 34, 66, 68]. Following Harding [66] and Collins [34], we understand our diverse positionalities not as conferring inherent epistemic privilege, but as "practical advantages" [36] achieved through sustained engagement with reproductive health systems. What we share is not identical experience but "strong objectivity" [65]—a reflexive commitment to examining how our distinct social positions shape what we know. Leveraging the interrelations between researchers' backgrounds and expertise allows us to acknowledge not just the personal,

[5]R4 is not included in the author list, as they chose to leave the project after the start of the second Trump presidency. This demonstrates not only the need to understand this research in relation to political forces, but also the need to attend to researcher wellbeing in relation to those shifts.

but also how the professional is political [9]. Through adopting elements of polyethnographic dialogue, our differences become generative: each researcher's standpoint illuminates aspects of the apps that might remain invisible from other positions, while collective reflection produces insights transcending individual perspectives [3, 17].

4.3 App Selection and Sample

To select relevant mobile applications, we searched "abortion" in the Apple and Android app stores on our devices. We then took screenshots of the results to document the order of appearance at the time of search, as well as compare results across researchers. We then noted down names of 31 applications for review (full list included in Appendix 4), excluding irrelevant applications in the results (i.e., were not about reproductive health or reproduction in any way[6]).

From the list of 31 applications we selected a final sample of 11 applications (see Table 3). To determine the final set, we prioritized diversity of stance on abortion and intended audience, prominence in app store search results, and cross-regional visibility, defined as appearing in at least four of the five researchers' app stores[7]. For each app, we assessed its stance on abortion through a combination of explicit disclosures, publisher background research, and analysis of anti-abortion rhetoric. R1 and R2's experience working on abortion research was instrumental in these assessments for recognizing anti-abortion rhetoric such as 'abortion pill reversal'[8].

We chose not to include applications that were designed for specific organizational events and networking (such as the American College of Obstetricians & Gynecologists or the National Celebrate Life Conference), due to the specificity of their audience and information. We continued to add applications until the subsequent applications we independently opened conveyed no new perspectives from ones we had already covered, or until the applications were irrelevant or no longer maintained. It was important for us to include in our sample both apps explicitly designed to support access to abortion care, as well as apps that appear in abortion-related searches while serving other agendas (e.g., anti-abortion, pregnancy and menstruation tracking apps.), in order to capture the range of content users may encounter when seeking abortion support in app stores.

4.4 Polyethnographic Walkthrough Sessions

We conducted fifteen recorded and transcribed 90-minute Zoom sessions, drawing on Light et al. [94]'s walkthrough method. Each session focused on a single application, however four applications required two sessions due to their size (Aya Contigo, IPPF, Safe Abortion, Ovia). Each session began with designating one researcher as the 'pilot' to screen-share their device while all of us navigated the app simultaneously on our own devices.

During the *registration and entry* stage, we varied mock profiles (e.g. locations, ages, last menstrual period.) across researchers to surface differences in onboarding experiences. This dual approach of individual device interaction alongside a shared screen created both created both intimate, situated engagement and a collective analytical space. For *everyday use*, we followed the app's core user flow first, and then sequentially explored all parts of the app. Finally, for *closure and leaving*, we took note of app policies and whether there was an account deletion functionality within the app,

[6]For example AnchorAlarm which alerts boat owners when their boat moves outside a defined radius or Shazam which identifies songs based on audio input

[7]Most apps appeared in all researchers' app stores. The exceptions are Aya Contigo US and Before You Decide, which did not appear in R2's app store.

[8]The term abortion pill reversal refers to the use of progesterone to help reverse the effect of mifepristone, and thus reverse the process of medical abortion. However, research has proven that there is insufficient evidence to prove that taking progesterone reverses the effects of mifepristone [151]. Even so, misinformation around abortion pill reversal keeps spreading, supported by anti-abortion clinics and propaganda [165].

or on the publisher's website. After each session, we independently documented our professional analysis of socio-cultural issues in the app alongside our personal positional experiences.

4.5 Analysis

After completing the walkthroughs, we held three 90-minute discussions about our reflections and analytic perspectives of the data. Each researcher then added memos to points in the data they found important. R1 led iterative open coding informed by these discussions, presenting initial codes to the group after analyzing two to three transcripts at a time, which the group would iterate on before the next 2-3 transcripts were coded. Through structured, collaborative discussions designed to support equal participation, we developed a coding framework ensuring that all researchers' perspectives and experiential insights were meaningfully integrated into the analysis. Three major iterations of our coding framework are included in the supplementary materials. R1 then coded all transcripts and session recordings, maintaining analytical memos throughout. Our approach aligns with reflexive and interpretive traditions of thematic analysis, where coding is understood as an analytic and iterative process shaped by researcher perspective rather than a procedure aimed at achieving inter-coder agreement. As such, we did not seek inter-rater reliability, as our goal was not to produce uniform coding outcomes, but to develop rich, situated interpretations through dialogue, memoing, and collective reflection [102]. Following principles of feminism as method [148], we treated consensus as agreement on the significance of what we observed rather than uniformity of perspective. These reflections informed collective theme refinement in relation to our research questions [22].

4.6 Limitations

First, we acknowledge that our analysis is based on a relatively small set of applications. Rather than providing an exhaustive account of abortion-related technologies, which has been addressed by Nadal et al. [110], we focus specifically on mobile apps that users may encounter when searching for "abortion" in app stores. Sampling continued until we reached a point of informational saturation, where additional applications did not yield substantively new insights. Adopting an infrastructural perspective, we treat app store search as a mediating layer that shapes what becomes visible and actionable to users. As such, the aim of this study is to examine how a set of prominent and diverse apps encode assumptions about abortion, care, and users through their design, and how these assumptions are encountered in practice. The longitudinal and collaborative nature of our analysis—combining 18 months of walkthroughs, repeated revisits, and collective reflection—supports the depth of our interpretations.

Secondly, our analysis is shaped by our positionalities as researchers based in Western institutional contexts, which inevitably influences how we interpret and engage with the applications. Therefore our interpretations remain situated within our own social, cultural, and epistemic positions. As such, we do not claim universal applicability, but rather offer insights intended to be transferable to similar contexts through resonance and reflection [3, 17]. Future work could extend this analysis by engaging researchers and participants embedded in non-WEIRD contexts.

5 Findings

In the sections that follow, we describe how we observed socio-technical and socio-political dynamics to be surfaced or obscured within abortion-related applications. Across our walkthroughs and collective reflection, we found that abortion-related mobile applications largely treat abortion as a decontextualized event, as a static, technical problem rather than a situated experience shaped by power, care, and constraint. We posit that in neglecting socio-political complexities, pro-abortion

apps create openings for anti-abortion applications to spread, and reproduce historical harms of institutional abortion infrastructures.

To orient readers to the applications included in our study, Table 3 includes the names, version numbers, publishers, target audiences, and group of each app. We have grouped the apps into five 'types' based on their stated goals, intent, and stance on abortion. For the remainder of the paper we refer to the applications by *Group*-Application Name to support recall.

(1) Pro-Abortion
   (a) Self-managed Abortion Support: the application's primary goal is guiding someone through a pill-based abortion (Aya Contigo, Safe Abortion).
   (b) Medical Professional Guidance: the application provides guidance for a medical professional to assist someone through an abortion (WHO CAC Tool, IPPF).
(2) Anti-Abortion
   (a) Anti-Abortion Support: the application focuses on guiding the user or the user's partner away from having an abortion or people who have already had abortions, where crisis support is provided and shaped by anti-abortion organizational values (PCCNY, BYD: Mobile).
   (b) Fetus Adoption: the application allows the user to adopt a virtual fetus to rescue its soul (Army for Life, Adopt Life).
(3) Tracking: the application functions as a reproductive health tracker for menstruation, fertility, or pregnancy, but contains some information about abortion (Euki, Ovia Pregnancy Tracker).

Further, we structure the results using four-levels in which the apps respond to infrastructural crises in abortion care: personal, individual, relational, and systemic. Following our intention to document the relationality of abortion-related apps to the user, their context, and sociopolitical forces, these levels relate to the "scales of care" (individual, relational, and systemic) observed by Petterson et al. [122] with the addition of *personal* to acknowledge the internal embodied experience of abortion. Definitions of each scale of care can be found in Table 2.

Scale of Care	**Definition**
Personal	Care between an individual and their own body
Individual	"Care between two individuals in an asymmetric manner with one individual being the caregiver and other being the care-receiver"[122]
Relational	"Care across two or more entities" that is horizontal rather than hierarchal[122]
Systemic	"A holistic view of care that encompasses entire structures and networks" [122]

Table 2. Scales of Care

5.1 Systemic Level: Disentangled from political context

5.1.1 Positional and Geographic Location. Political stances were communicated implicitly through aesthetics and language in the applications. Pro-abortion applications and anti-abortion applications

Application Type	Application Name	Publisher	Target Audience
Self-managed Abortion Support	Safe Abortion	Hesperian Health Guides	Individuals internationally looking to self-manage their abortion
	Aya Contigo	Vitala Global	Individuals in the United States or Latin America looking to self-manage their abortion
	This is Normal	Anna Krasner	Individuals who want to learn about self-managed abortions
Medical Professional Guidance	WHO CAC Tool	O2BDigital	Health workers internationally to support an abortion seeker
	IPPF Clinical Guidelines	International Planned Parenthood Federation	Planned Parenthood affiliated health workers internationally
Anti-Abortion Support	BYD: Mobile (Before You Decide)	CareNet	Individuals who are considering abortion or their partner
	PCCNY	Crisis Pregnancy of New York Inc.	Individuals who are considering abortion or their partner, or who have had an abortion and are looking for emotional support
Fetus Adoption	Army for Life	Jesus Youth	Individuals who would like to pray for a digital fetus to prevent it from being aborted.
	Adopt Life	Fundacja Malych Stopek	Individuals who would like to pray for a digital fetus to prevent it from being aborted.
Tracking Application	Ovia Pregnancy & Baby Tracker	Ovia Health	Individuals who would like to track their pregnancy
	Euki	Women Help Women	Individuals who would like to track their menstrual cycle

Table 3. Application Details

were presented together on the app store, and were interspersed with health tracking applications, without any distinction made by the app store platforms. R1 and R2, drawing on their prior research experience on abortion, were able to recognize these signals, whereas others on our research team did not recognize all of the more common anti-abortion rhetoric due to its subtle nature.

For example, R1 flagged that, although *Anti-Abortion Support*-PCCNY and BYD: Mobile did not explicitly identify as anti-abortion, language commonly employed in anti-abortion advocacy such as "late-term abortion"[9], "abortive pills", and their overemphasis on rare negative outcomes such as ongoing heavy bleeding and suicidal ideation signalled the reality of their position.

Given the central role of geographic location in shaping abortion seekers' access to care, we noted that while some applications (*Medical Professional Guidance*-WHO CAC Tool, *Self-managed Abortion Support*-Safe Abortion) offered user-specific customization (e.g., location or medical profession), their content did not meaningfully change in response to these contexts. While it could be argued that our app stores served to filter out applications that were not relevant to our particular location, R2 had used an Italian app store and could still download apps that catered to non-European contexts. Without locational specificity, R2 noted that she would feel that the applications were not for her. Reflecting on this dynamic, R2 noted: "Let's say the first Safe Abortion app we looked at, it was really catered to a specific kind of population or culture. I feel like that makes the app less effective in a way," particularly for users whose contexts fall outside the app's implicit assumptions.

The apps which did specify geographic focuses either explicitly or implicitly concentrated on places where abortion is either illegal or restricted, but only identified legality as the reason for their geographic specificity on the publishers' webpages. Both *Self-managed Abortion Support*-Aya Contigo US and *Tracking*-Euki focused on the United States, while *Self-managed Abortion Support*-Safe Abortion, though presented as an international application, primarily served languages from African contexts where around 90% of people who can become pregnant live under restrictive abortion regimes [140]. Although Safe Abortion provided country-specific information about abortion policies, the guidance within the application did not change in response to the selected context.

Different categories of application approached political context at different levels. For instance, the *Medical Professional Guidance* apps did not address specific legality or political dynamics. Further, while the *Self-Managed Abortion Support* apps did note the legal status of abortion for their target regions, most pro-abortion applications did not address political tensions beyond abortion legality, such as the structural inequalities that shape who can safely obtain care. The exception was *Tracking*-Euki, which included information on health insurance and where to find financial support. By attending to political dynamics but not acknowledging them, apps make invisible the very situatedness they claim to accommodate through customization.

In doing so, apps neglect the fact that there can be real consequences if someone is not aware of legal considerations or local policies. In different regions, guidance varies depending on how many weeks into pregnancy someone can undergo a pill-based abortion[10]. In the United States the Food and Drug Administration has approved mifepristone and misoprostol for use up to 10 weeks of pregnancy, whereas in Sweden it is approved up to 22 weeks [114]. *Self-managed Abortion Support*-Safe Abortion did provide different legal information and support links for some countries, but this guidance is included in a separate section, and therefore is not part of the main user path (Figure 1, 2). As a result, the apps position users to determine for themselves whether an application is compatible with their local abortion infrastructure, including whether it operates within a supportive or potentially harmful legal and medical context. These applications appear to

[9]"Late-term abortion" is a non-medical term that anti-abortion organizers use to suggest that abortions later in gestation are more immoral. There is no point at which an abortion becomes "late-term", rather some abortions are had *later* in gestation than average. Generally, abortions at 21 weeks gestation and later are due to the pregnant person receiving new information (such as finding out they are pregnant at a later time, health risks, or changes in relationship), or because their care was delayed. More information can be found at Who Not When.

[10]Guidance from the WHO suggests that the pill-based abortions can be self-managed (used outside of clinical settings) prior to 12 weeks pregnancy and can be done with the support of a medical worker after 12 weeks of pregnancy.

assume a level of contextual understanding that may not be available to all users, especially within a broader informational landscape where abortion disinformation and stigma persists.

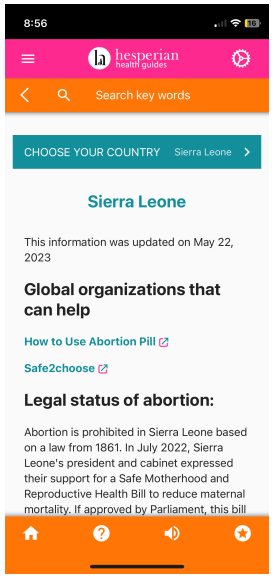


Fig. 1. Abortion Legality in Specific Country

5.1.2 Obfuscation of Identity Politics. Reproductive health is a highly politicized topic that impacts marginalized groups particularly. We noted that the apps we examined reproduced some of those same harms via exclusionary language, imagery, and affordances.

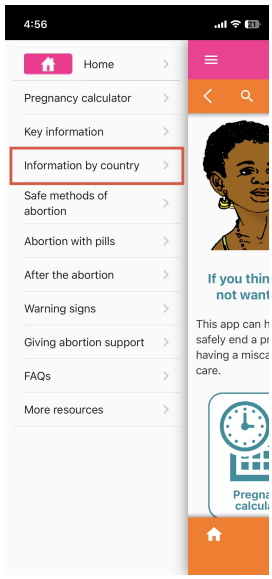


Fig. 2. Country Information Located Outside of Main Flow

Gender diversity representation: Replicating gaps in HCI work on reproductive health [82], queer and trans identities were largely excluded from abortion-related applications. While abortion does affect primarily cisgender heterosexual women, lesbian and bisexual women, trans men, and non-binary people can need abortion care [31]. R2 noted that images across the applications featured people who looked like cisgender women (Figure 3, 4), and the other applications used mainly female-gendered language. The only applications that included diverse gender and sexuality language were *Self-managed Abortion Support*-Aya Contigo—which mostly used gender neutral language throughout the app, and included a statement in their section on "common myths" about abortion that clarifies "women, trans men, and non-binary people" get abortions—and *Tracker*-Ovia Pregnancy Tracker—which included photos of lesbian couples in their informational articles. Both *Medical Professional Guidance*-WHO CAC Tool and IPPF used mainly gender-neutral language but did not note any reason for doing so.

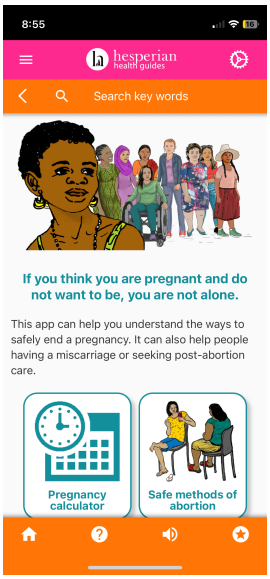


Fig. 3. Safe Abortion Gender Representation

Despite written attempts at gender neutrality, trans exclusion persisted. *Self-managed Abortion Support*-Aya Contigo consistently used the word "mothers" rather than "parents". On the app store page for *Tracking*-Ovia Pregnancy Tracker, several reviews included transphobic and homophobic remarks: "It's too left and liberal. Pregnant folks, pregnant people, and even after I entered by babies gender, everything was they in them. And I don't live in La La Land with those who believe men can get pregnant and there are 3,000 different genders", and others complained about the number of same-sex couples depicted. Rather than removing these remarks, the *Tracking*-Ovia team responded "we support all women". In a reflection, R1 pointed out that this re-excludes trans men and non-binary people, and instead possibly includes trans women who do not require abortion care. The anti-abortion applications overtly excluded trans and queer identities by strictly using heterosexual categories (i.e., by separating materials for men and women) as in Figure 5. Despite the common association of abortion-rights work with other reproductive care such as trans healthcare [83], the pro-abortion applications and the anti-abortion applications aligned alarmingly close on their treatment of gender.



Fig. 4. This is Normal Gender Representation

Racial Representation Racial dynamics of abortion appeared most clearly in the application aesthetics. Both *Fetus Adoption* applications used only white fetus imagery and images of children. While this has clear implications of what kind of babies the anti-abortion applications were implying should be born, R4 also noted that this lack of diversity is historically common in all reproductive health materials, which made her pleasantly surprised when *Self-managed Abortion Support*-Aya-Contigo, Safe Abortion, and *Tracking*-Euki used a variety of skin tones as default. "I get a little sensitive about it, you know in the first glance […] I do like the fact that it is not like a, kind of default skin colour that I would see elsewhere." As a person of colour who had navigated reproductive health systems previously, R4 valued the diversity in representation, but also expressed internalized narratives about being overly "sensitive" about representation. In this way, racialized aesthetics in abortion-related applications reproduce historical norms about whose reproduction is valued, while potentially shaping how users from marginalized backgrounds perceive their own belonging within these systems.

Addressing the *systemic* level of relations, technologies for abortion care must recognize the political histories of abortion care, both positive and harmful. By not discussing the politicization of abortion, pro-abortion applications left space for anti-abortion narratives to go unchallenged. For example, videos within *Anti-Abortion Support*-PCCNY discussed the histories of forced sterilization, and likened anti-abortion to anti-slavery abolitionist movements. Anti-abortion applications explicitly mentioned issues of morality, rights to life, and eugenic population control, all common arguments to attack abortion access [45, 89]. The fact that anti-abortion applications took note of histories of eugenic projects while only presenting white fetuses, and the pro-abortion applications did not acknowledge those histories of harm at all, is telling. By not attending to the sociopolitical harms that were created by abortion infrastructures throughout history, and the continued harms through obstetric racism, trans-exclusionary reproductive care, and prioritization of particular pregnancy outcomes over others, these applications run the risk of recreating or at the least not challenging those harms.



Fig. 5. BYD: Mobile Gender Representation

5.2 Relational Level: Linear and Uncomplicated Abortion Journeys

5.2.1 Streamlined Abortion Experience. The language and user flow of the pro-abortion apps did not include people who may have varying reasons for seeking an abortion, or people who may be undecided on their choice. For instance, in *Self-managed Abortion Support*-Aya Contigo one of the 'myths' was that the pregnancy is not a baby. As R2 pointed out, drawing on her work with maternal loss, "it's not, like, a quote-unquote baby. But like, to some people, it really is", reflecting the varying sentiments that the carrying person might have towards their pregnancy. R1 confirmed that based on their work counselling people after abortion, many people prefer to call their past pregnancy "baby" rather than "fetus". In contrast, *Tracker*-Ovia Pregnancy Tracker immediately began referring to the pregnancy as a "baby" and prompted the user to name their baby. R4 noted that this could risk creating additional harm should the person experience a pregnancy loss or have a change in circumstance that necessitated them having an abortion: "I personally feel, not to expect the worst, but the fact that you are already having so much association, like having a name for the baby, the baby looks like this... you just don't know what your body is going through, and if at all, you end up facing a loss, it's just going to impact you more". Therefore, in both the apps for abortion and the pregnancy tracker, a lack of choice in terminology left potential for harm.

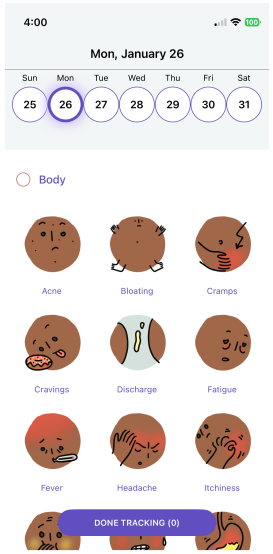


Fig. 6. Euki Racial Imagery in Symptom Tracker

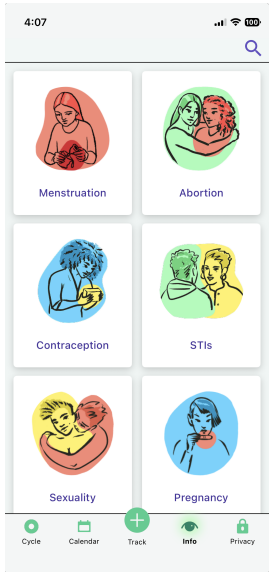


Fig. 7. Euki Racial Imagery in Information Repository

Further, in the two *Medical Professional Guidance* apps (WHO CAC Tool and IPPF), the only follow-up procedure included beyond confirmation the person was no longer pregnant was to provide immediate contraception to prevent further pregnancy. Both *Self-managed Abortion Support*-Aya Contigo and Safe Abortion also suggested contraception as follow-up from an abortion. While many people might benefit from contraceptive care, R5 pointed out that it might not be a given that someone would not want to be pregnant again soon after an abortion, particularly if someone



Fig. 8. Adopt Life Racial Imagery



Fig. 9. Army for Life Racial Imagery

had to terminate their pregnancy for fetal differences. To R5 and R2, the insistence in the apps of providing contraception as the given next step of abortion care was conveying to the user "you are dangerously fertile, but also you're dangerously poor" and irresponsible. Regardless of the app creators' intention, the fact that contraception was assumed after-abortion care in these apps suggested that their priorities might be to reduce births, rather than to care for people's reproductive autonomy[11].

5.2.2 Emotional Aftercare. Beyond contraceptive follow-up, the *Medical Professional Guidance* applications did not include continued support, with the IPPF app explicitly stating that "no follow up is necessary". R3 noted that "it's like purely medicalized...but there is the part of emotion and

[11]We recognize that in many contexts contraception is an essential component of reproductive safety to allow people with uteri to navigate highly oppressive settings. We advocate here for people to have the freedom and respect to choose contraception based on their own life priorities.

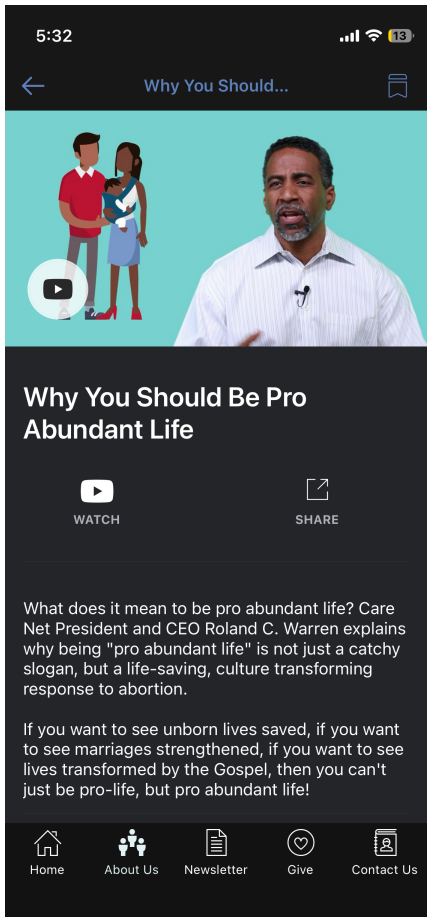


Fig. 10. PCCNY Frames Abortion as Amoral

the mental…is completely subtracted from all of this". While many anti-abortion advocates have falsely claimed that abortion itself leads to worse mental health overall [98], the most common emotion after an abortion is relief. However, research has shown that people can experience strong negative emotions after an abortion, often related to stigma and isolation which can lead to serious mental health challenges [63, 135].

In our initial walkthrough of the applications, *Self-managed Abortion Support*-Aya Contigo was the only pro-abortion app that provided in-app support run by the publishing organization. Aya Contigo and *Tracking*-Euki also included some information about emotional aftercare resources, abortion storytelling, and help seeking. Promisingly, *Self-managed Abortion Support*-Safe Abortion also added support information in updates after our walkthrough (in version 1.20.11), suggesting a growing acknowledgement of the need for emotional support after abortion. Still, emotional support information was kept in a separate section, rather than included in the abortion flow, whereas confirming the pregnancy had ended and contraception were always included as aftercare. R1 noted that often in their volunteer role people report that they feel guilty for experiencing sadness or regret after their abortion, because it might make them a "bad feminist", a sentiment that could be reinforced by keeping emotional aftercare separate.

The anti-abortion support applications addressed the gaps of people who may have had strong emotional connections to their pregnancy decision and people who were undecided. As R2 noted, "I think there's also like a lot of flows or edge cases that the anti-abortion [apps] kind of, support. So, if you're deciding to pursue abortion, then they'll have something for you…I think, like being assured that, oh, don't worry, there's a solution. There's a community there's we will help you. It's also really beautiful in a certain perspective." In fact, we noted that *Anti-Abortion Support*-BYD: Mobile and PCCNY offered "post-abortion counselling and education" through the app itself. While options and "post-abortion" counselling might at first seem helpful, R1 called out that anti-abortion organizations often use emotionally manipulative language in order to make people feel guilty about their abortions, propagate harmful disinformation, and often require an individual to take religious courses to access their services. In some cases, they have even given misleading information that has resulted in an abortion seeker having medical or legal complications [19, 105]. Thus, anti-abortion applications have an opportunity to fill in gaps in the abortion infrastructure not addressed by the pro-abortion apps, and potentially mislead or even seriously harm someone.

5.3 Individual Level: Solo, not Self-Managed

5.3.1 Implicit invitation to keep abortion private. Social responsibilization was evident in the applications through privacy messaging as well as lack of users' social context. With the focus on abortion legality, pro-abortion applications focused heavily on privacy and security to protect users, echoing the focus that HCI has had on security concerns in mobile applications related to abortion [14, 27, 48, 76, 99–101, 111, 144, 145]. For example, across onboarding flows, several pro-abortion apps emphasized that they did not share user data, they offered options for frequent data deletion and included additional security features such as secondary PINs to prevent others from accessing the app (Figure 11, 12). While security and privacy are an essential component to abortion care, we reflected that an over-emphasis on privacy without acknowledgement of the possibility of asking for support could reinforce feelings that abortion is something that must be kept private.

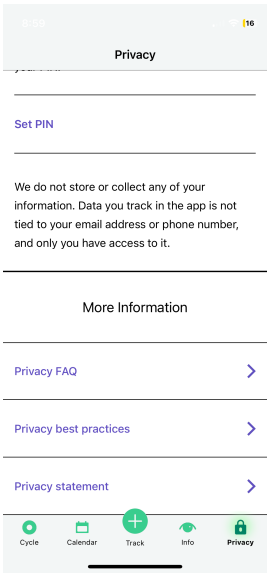


Fig. 11. Euki Security Information

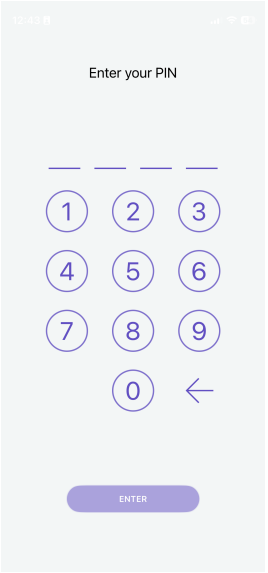


Fig. 12. Euki Pin Upon Launch

Such a focus only on privacy suggests that bringing another person into the abortion process might be unsafe or inappropriate. R3 articulated this tension, noting: "On one hand, I could totally see all the benefits around protection and safety, and, like autonomy. On the other, I would feel like it's very personal, like this is something I shouldn't share with others". Drawing on her knowledge as a computer science researcher, reproductive health advocate, and user of menstrual tracking, she expanded that many people like to share their menstrual data with a partner, which would not be possible with Euki's safety and privacy features since data is only stored locally on the device, preventing a user from bringing another person into their reproductive experience. "The CS [computer science] researcher side of me is like, wow, that's so great that they have all these features that are like privacy protection [...]. On the other hand, my initial reaction before my researcher part kicked in was there's like a lot of potential things to be fearful of" R3 continued. By focusing strongly on data privacy without attending to the reasons why users might want others to know or share in their reproductive experiences and data, the design may reinforce an assumption that certain reproductive health experiences should be managed in silence and isolation.

However, we simultaneously acknowledge the need for nuance and the real risks involved in abortion disclosures both legal and social. Given the role of the technology itself as an actor in the care exchange [42, 122], R1 noted that many of the people they had counselled on the after-abortion textline felt more comfortable disclosing their abortion experience through a digital technology. Particularly in scenarios where someone may not be able to tell anyone safely about their abortion experience, R1 posited that sharing information with an application that can keep it private may be the only safe option for some people. Therefore, the option of a private exchange between the application and user is vital, but currently excludes the possibility of expanding the care network beyond the application.

5.3.2 Apps assume you're doing this alone. By neglecting to consider interpersonal relationships, the design reinforces an impression of abortion as a private and individual experience. Both *Self-managed Abortion Support*-Safe Abortion and Aya Contigo addressed an individual and did not

include a local companion or take into account surrounding community in the core stepwise flow of the abortion experience[12] (Figure 13, 14). Drawing from wisdom of acompañista networks (see Section 2), Aya Contigo provides an embedded structure to reach out to support through online volunteers, but does not include information for someone to ask a known individual to support them. We reflected that while it is true that self-managed abortion can be a powerful expression of bodily autonomy and self-determination, the emphasis on the 'individual' and being independent could further reinforce the impression that abortion is something that should be experienced alone, and that the individual alone is responsible for. Critically, activists have often emphasized that pill-based abortions should be *self*-managed, not *solo*-managed [16], meaning that the person having the abortion should have autonomous control over what their abortion experience looks like, including with or without support people.

Across our research team, we noted the possible harms of isolated reproductive experiences based on our own expertise. R4, who has worked with many people who experienced maternal loss noted that the narrative of choice and independence could leave out people who either need support or are seeking an abortion due to events outside of their control by "Making it come out as if you can do it all by yourself... Isn't that contradictory to each other having a support network where you can basically share things versus you having to do everything discreetly, and thinking of what the person who wants to do this is going through during and after". R5 reflected that in her work on Black maternal mental health the parents she has spoken to often express the value of a close network for support, a possible resource that was not visible in the applications. Although both the *Medical Professional Guidance*-WHO CAC Tool and the IPPF are oriented towards medical professionals, they do not include information for medical professional to consider or interact with people other than the abortion seeker—neglecting their social context with friends, family, or significant others, again emphasizing that abortion is something that is experienced privately.

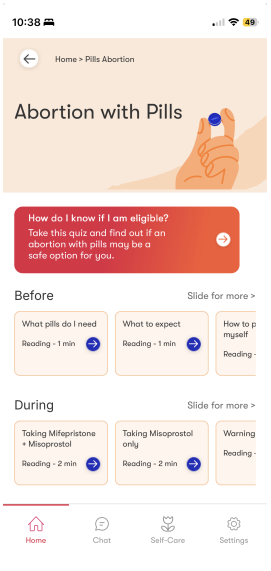


Fig. 13. Aya Contigo Articles using "I" as a singular user

[12]After an update (version 1.20.11), Safe Abortion added a section on giving abortion support, which was not present when we performed our walkthroughs.

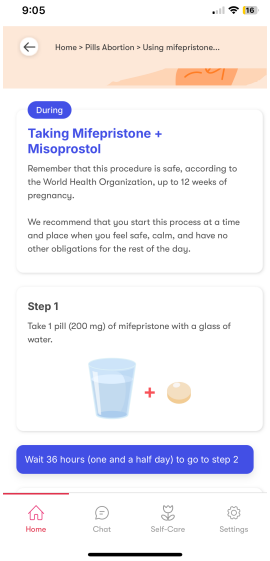


Fig. 14. Aya Contigo addressing "you" as a singular user

At the *individual* level, abortion narratives can at times err on the side of independence, presenting abortion as something that should be navigated alone. The applications (with the exception of the applications for medical professionals) addressed the user as "you", not mentioning other individuals until a moment of emergency. Further, the emphasis on privacy could have gotten in the way of people sharing their experience with supportive others.

5.4 Personal level: Equipping users to self-manage abortion effectively and affectively

5.4.1 Textual guidance. Despite positioning abortion as personal responsibility, the applications often failed to provide the information necessary for users to safely manage the medical aspects of abortion outside of clinical settings. The pro-abortion applications relied on unexplained medical terminology, overlooking the reality that many people lack access to comprehensive sex education and may instead encounter abortion-related disinformation across online platforms and social media. Despite the team's expertise in reproductive health, there were instances where we ourselves had to look up terminology or explain things to each other, such as molar pregnancies[13]. The applications included information that relied on professional medical knowledge not typically accessible to lay users. For example, when noting whether someone had a complication from the pill-based abortion, the common advice from the applications is that you should not be soaking through more than two menstrual pads in two hours, and clots should not be larger than an orange, or than your fist (Figure 15). However, this neglects the fact that menstrual pads have different absorbency and sizes, fists and oranges come in varying sizes, there is no textual explanation of what "soaking through" means, and no clear picture to show it. A lack of clarity in understanding signs of complications is particularly concerning because, when people worry about complications after an abortion, they may seek medical support at a hospital, where they may not know how to ask questions or disclose information without risking criminalization [77]. Furthermore, if someone requests medical

[13]Molar pregnancies are a rare complication in which abnormal placental tissue grows inside the uterus instead of a viable embryo, often requiring medical intervention and follow-up care.



Fig. 15. Safe Abortion Warning Signs

support after a self-managed abortion, regardless of whether they are experiencing complications or simply normal symptoms, their visit will be recorded in the same way. These numbers are often instrumentalized in political campaigns such as the one in the United States to roll back the FDA[14] approval of Mifepristone, claiming that it leads to increased burden to emergency care [116][15]. Therefore, unclear guidance not only risks the person having an abortion, but also contributes to anti-abortion narratives.

The issue of unexplained medical terms was also present in *Tracker*-Ovia Pregnancy Tracker, where users were asked to complete a detailed health survey containing condition-related questions such as "Do you have a history of HELLP?" without explanations[16]. After a subsequent update, the application includes additional information about the significance of the survey questions. However, this information only appears after a response is submitted, prioritizing the collection of data about users' reproductive health knowledge over providing them with direct, anticipatory information. In the same survey, *Tracker*-Ovia Pregnancy Tracker asks the user about the number of pregnancies, births, and miscarriages they have had, avoiding asking about abortion. Notably, abortion was still a topic of conversation in the public forum section of the app, where users asked questions about abortion and shared their experiences. The lack of information on abortion in the app's content left users to seek support through the application's public forum, resulting in unreliable responses across abortion beliefs—some supportive, others hostile. Particularly in contrast to the direct questions about complex reproductive conditions, the absence of abortion as a possible pregnancy outcome was alarming to our research team.

[14]The Food and Drug Administration (FDA) is a federal agency of the United States Department of Health and Human Services responsible for promoting public health by supervising food, dietary production and medicines, including over-the-counter pharmaceuticals, vaccines, supplements, medical devices and more.
[15]While this paper was in revisions, a lower court in the United States outlawed the use of Mifepristone in telehealth which was then blocked by the Supreme Court, reflecting the volatile role the court system has in pill-based abortions [137]
[16]HELLP is a condition that can occur during the second or third trimester of pregnancy which causes low platelet counts and high levels of liver enzymes. This can result in pre-term birth, hemorrhage, and organ failure [52]

5.4.2 Visual guidance. In addition to textual guidance, the visual design of the applications often failed to provide clear or informative medical imagery. Most applications used cartooned imagery rather than photographs or anatomically realistic depictions. *Self-Managed Abortion Support*-Safe Abortion, Aya Contigo and *Tracking*-Euki used cartoon images for all representations of people and medical diagrams, and did not include any more specific depictions. In *Tracking*-Ovia Pregnancy Tracker, one of the first things the user can choose is how to represent their "baby"—choosing between fruit, pastry, or a fetus, which, R3 noted: "looked more like a cartoon dinosaur" (Figure 17). The two *Medical Professional Guidance* apps contained no imagery at all (Figure 19). Interestingly, the two *Fetus Adoption* applications featured the most anatomical depictions of fetal development (Figure 20). However, these apps portrayed fetuses as significantly more developed at early gestational stages than is medically accurate, and contained inaccurate information about "heartbeat" and other developmental milestones historically been used to manipulate abortion seekers. Both the lack of sufficient medical information and the lack of information through visual abstraction are of particular concern in the mobile application environment, as one key affordance of mobile applications, as opposed to web-based resources, is they are usability offline, in which case the user cannot supplement missing or false information in the app with web searches.



Fig. 16. Ovia Pastry Representation of a Fetus

5.4.3 Knowledge gaps are opportunities for anti-abortion propaganda. These informational gaps created vulnerabilities that anti-abortion applications were able to exploit, particularly when users were likely to feel isolated or uncertain. In contrast to the pro-abortion applications, which often relied on medical terminology without explanation, *Anti-Abortion Support* - PCCNY used much more accessible, layman's terms to explain it, and used this opportunity to place a negative spin on the descriptions of the procedure as highlighted by R2: "They make it sound just slightly more scary. [Using words like] grasp, pull, and scrape the pregnancy out. It just sounds like, they have these subtle, like. Uh, what would you say [...] a little harsh undertone? It's not as flowery, but it's very subtle". Similarly, *Anti-Abortion Support* - BYD: Mobile included visual depictions (Figure 21,

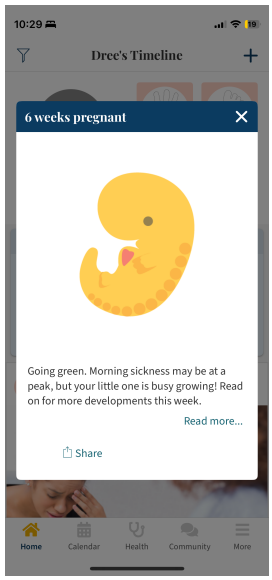


Fig. 17. Ovia Representation of a Fetus



Fig. 18. Ovia Representation of a More Developed Fetus

22) of different abortion procedures which emphasized tissue extraction and visualized the fetus as an outline of a baby at various sizes.

In other instances, *Anti-Abortion Support* applications mimicked the medical tone of pro-abortion applications to spread disinformation, such as promoting "abortion pill reversal", a dangerous and ineffective practice in which someone takes a heavy dose of progesterone after taking Mifepristone to prevent the abortion from continuing [128, 151]. The combination of unexplained medicalized

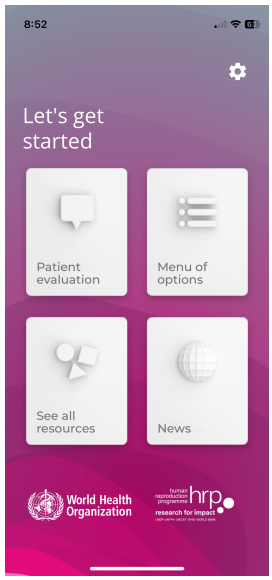


Fig. 19. WHO CAC Tool Lacking Imagery

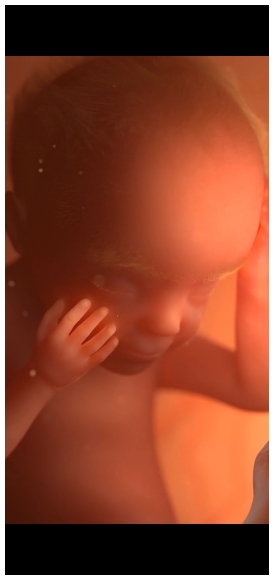


Fig. 20. Adopt Life Anatomical Representation of a Fetus

language in pro-abortion apps and emotionally charged or misleading framing in anti-abortion apps contributes to an informational environment that makes users more susceptible to strategically deceptive narratives. By placing the burden on users to interpret complex medical information without adequate support, ostensibly informational applications may inadvertently create conditions in which anti-abortion actors can intervene and reshape understanding through fear-based or manipulative framings.



Fig. 21. BYD: Mobile Depiction of a Pill-Based Abortion



Fig. 22. BYD: Mobile Depiction of a Dilation & Evacuation Abortion

6 Discussion

We began this project by asking: *what do mobile applications encode about abortion when examined as part of larger socio-technical and socio-political infrastructures?* Through a polyethnographic walkthrough study, we found that abortion-related applications left notable gaps in the complexity, context, and even existence of abortion. We observed that both historical and contemporary systems of oppression were reflected in these applications. In this discussion we expand our findings to comment on the way design reflects crises of infrastructures around abortion at a larger scale and advocate for an intentional scaffolding for abortion through an infrastructure of care. In other words, we argue for an approach to designing and sustaining abortion-related systems not as ad hoc fixes or emergency responses, but as coordinated, supportive structures that hold people before, during, and after abortion, across legal, informational, emotional, and social dimensions.

6.1 Designing out Abortion

Across the applications, we observed recurring patterns in which abortion was variously depoliticized, decontextualized, or omitted. In fact, we propose that abortion has been *designed out*, its complexities erased and existing systems of oppression reproduced through technology. Light et al. [94] developed the walkthrough method to challenge the assumption that mobile applications are contained within technical spaces as discrete programs on personal devices, an assumption that obscures the sociopolitical forces and design decisions shaping users' experiences. Following Star and Strauss [150]'s assertion that infrastructure disappears into the background, we suggest that in abortion access the technology is both invisible itself, and invisibilizes abortion. Below, we outline how such erasure takes place through omission, simplification and depoliticization.

6.1.1 Omission. Omission is the most glaring instance of how abortion has been *designed out*. In abortion apps, these omissions operate at multiple levels: from literal omission of abortion as a possible result of pregnancy to the erasure of images, language, and contextual information.

This was immediately apparent in the *Tracking* - Ovia Pregnancy Tracking application, which omitted abortion as a pregnancy outcome option despite tracking pregnancies from conception onward. The exclusion of abortion as a viable pregnancy outcome politically categorizes abortion as non-viable, not possible [21]. In the applications beyond Ovia Pregnancy Tracker, abortion was explicitly part of all applications, however it was omitted in other ways. We found few descriptive images as the only depictions of abortion's physical realities were abstract representations of full menstrual pads. This visual omission contrasts sharply with the anti-abortion apps, where fetal

imagery was hypervisible and unrealistically detailed. On the other side, the pro-abortion apps' aesthetic choices included cartoon bodies, generic diagrams and sanitized abortion's materialities. As R3 noted, the abstracted medical diagrams felt disconnected from embodied experience.

The omission of abortion perpetuates stigma, misinformation, and a culture of silence, where people who have abortions are made to feel that they cannot or should not share their abortion experience with others, preventing care at the *individual* and *relational* levels [63, 135]. At a *systemic* level, abortion within institutional infrastructure has a long history of being omitted from broader healthcare infrastructure. Medical facilities which provide abortions are often separated from primary care and hospital locations. As abortion care is treated as separate from standard obstetrics, abortion clinics and providers are specially targeted by legal attacks, anti-abortion protests and hate [139]. Mirroring the omission of abortion from other healthcare, researchers among our author team noted that their experience on this research project made them realize for the first time that abortion was highly relevant to their own research agendas, and that there was a significant amount of misinformation they had absorbed about abortion prior to the project.

However, omitting abortion can be a strategic move when navigating hostile infrastructures. Whether to "go public" with abortion organizing efforts has been a longstanding point of debate, balancing the preservation of behind-the-scenes activist networks against the potential benefits of visibility in normalizing abortion in public discourse [50]. Similarly, the choice of whether to disclose a personal abortion story or omit it is highly personal and contextual. The pro-abortion apps in our sample respected this choice, prioritizing privacy. The question of privacy with menstrual tracking and abortion has already been well-investigated [27, 99–101, 145], which shows that users are aware of privacy concerns in relation to their menstrual tracking, but were unaware of how to manage risk [27]. In our study, we noted that apps did provide information about how the app itself was protecting data privacy, but only *Tracking* - Euki offered no guidance on how to then have data privacy beyond data stored in the app. Omitting abortion from personal or political narratives is dependent on a complex combination of risk-benefit analyses. Omission of abortion is a question of power—**the question is not whether abortion should always be visible, but who controls the terms of visibility**. Apps that simply omit abortion cede that control to anti-abortion narratives, and without flexible and robust support for privacy practices, abortion seekers cannot have full control of their data.

6.1.2 Simplification. We use the term simplification in abortion technologies to refer to instances where the complex emotional, physical, spiritual, familial, and relational contexts of abortion are neglected.

The applications neglected the complexities of abortion by implicitly designing for what we identified as a *universal abortion-seeker*: someone confident in their abortion decision, not seeking pregnancy soon after abortion, cisgender, possessing robust sexual health knowledge, and not needing emotional follow-up. Similar to prior critiques of mHealth applications [153], the applications in our study neglected to engage with the surrounding *relational level* in social and community contexts. In our study, several applications made it seem as if the app could be customized based on location or medical role, but did not include any change to the information given in the app. This treats "medical facts" as standalone matters of fact, thereby dismissing the social, emotional, and political conditions in which abortion takes place. By focusing on clinical checklists, the medical professional guidance apps, and at times the self-managed abortion support apps, erased the additional care work surrounding abortion.

Coming from different racial and cultural backgrounds, gender identities, and focusing on different research contexts, we were particularly sensitized to how the *universal abortion-seeker* failed to align with our positional sensitivities. R4's observations on racial representation, both

affirming and harmful, together with R1's critique of queer and trans representation highlighted how the applications reproduced systemic harm, while also surfacing parallels with our own reproductive experiences of exclusion in health institutions. Reproductive health infrastructure has historically treated people with uteri as not capable of making their own reproductive choices. Across minority world regions, racialized individuals—particularly Black women—face a "crisis of obstetric racism" through the denial of services, generational trauma, and needed vigilance in medical spaces [40, 41]. Further, in the face of abortion restrictions, non-white populations are most likely to lose access to safe abortions [39]. Significantly, the *Self-Managed Abortion* applications, which offer guidance for having an abortion outside of institutional medical infrastructure, primarily depicted women of colour. This reflects the impact of obstetric racism at a *systemic level* generating a need for reproductive care outside of institutions as well as an acknowledgement of the application designers that those harms exist.

Some apps explicitly challenged the universal abortion-seeker view—such as *Tracking* - Euki's robust resource lists and *Self-Managed Abortion Support* - Aya Contigo's chat feature, which recognizes variations in people's circumstances around abortion and the value of continued support. *Self-Managed Abortion Support* - Safe Abortion also included specific resources and legal information for different countries. Efforts to acknowledge relationality with other justice issues was also evident in Euki and Aya Contigo's work to include diverse genders through gender neutral language, which gender-expansive people seeking abortion have noted as of high priority in improving their experience in seeking care [106]. We expand on the implications of explicit contextualization, relationality, and complexity in our suggestions situating abortion applications in section 6.2.

Our professional expertise surfaced additional fault lines in the applications. For example, R4 and R2's discussion of people's choice to refer to a pregnancy as a baby, alongside R1's attention to the complex emotions experienced after abortion, revealed the difficult balance between framing abortion positively as an expression of reproductive choice and acknowledging the challenging life circumstances and sociopolitical contexts in which those choices are made. For example, the apps treated abortion as complete once the user confirms a pregnancy has ended, yet we know that abortion experiences can last any amount of time and impact each person differently [84]. This temporal truncation erases the ongoing nature of abortion as a lived experience. Without acknowledgement of the need for continued support, pro-abortion apps left users with two harmful messages. First, they suggested that feeling emotions such as grief or sadness after abortion is uncommon or should not be shared—reinforcing the very stigma that causes post-abortion distress [63]. Second, by omitting emotional dimensions entirely, the apps inadvertently supported anti-abortion narratives: that abortion is callous or casual rather than a deeply personal decision, and that emotions following abortion stem from the procedure itself rather than from surrounding social stigma and the contexts that shape abortion decisions.

6.1.3 Depoliticization. In the applications, abortion was depoliticized in two primary ways: first, by overlooking the political history of abortion care that informs current infrastructures of access; and second, by leaving a narrative vacuum for anti-abortion applications to fill with anti-abortion propaganda and wording.

Abortion has long been sanitized for political means. In order to circumvent social distaste for abortion, liberal politicians formulated the phrase "pro-choice" to sanitize discussions and make people more comfortable. Some went so far as to assert that abortion has "no place in politics" [160]. However, the "pro-choice" framework positions abortion as a consumer choice rather than a human right to bodily autonomy, failing to account for socioeconomic and medical factors that render the decision of whether to have a child a question of survival rather than real choice [170]. Further, the shift towards "pro-choice" language was an intentional move to distance family

planning organizations from racially biased population control efforts which informed the setup of much of the infrastructure for reproductive healthcare (ibid). Yet despite policy and language changes away from overt population control, political systems around reproduction continue to impact racialized people at disproportionate rates, particularly those in lower socioeconomic groups [107, 131]. Changing language without changing systems did not address oppressions in reproductive healthcare infrastructure, but merely obfuscated them.

The applications we walked through reflected this obfuscation by neglecting to consider the political and legal contexts users operate under. The Medical Professional Guidance applications for example did not include information for health workers to navigate the complex sociopolitical context in which they administer care; rather, they isolated abortion to the medical process itself. In our walkthroughs, and with our expertise around global abortion politics, we were sensitized to the fact that the implicit target of many pro-abortion applications were the same populations and regions historically targeted for sterilization and for whom conditions of safe, healthful reproduction have often been denied. Importantly, Planned Parenthood and WHO—publishers of the two *Medical Professional Guidance* apps in our sample—are organizations that historically promoted reproductive care as population control in majority world countries [118, 170]. The applications' lack of emotional aftercare information and assumption that the next logical step after abortion is contraception, regardless of creators' intentions, reflected these historical harms and accompanying infrastructure in their design.

Simultaneously, racial politics have been leveraged as a way to attack abortion access—Judge Clarence Thomas specifically cited assertions that abortion was an anti-Black eugenic project in abortion cases leading up to the Dobbs v. Jackson decision [108]. Indeed, both *Anti-Abortion Support-*PCCNY and BYD: Mobile echoed these beliefs within their abortion dissuasion information, making comparisons to anti-slavery abolitionist activism. However, in the *Fetus Adoption* applications we noted that all of the fetuses were white—reflecting questions of what pregnancies are actually valued. Particularly alongside maternal mortality rates being nearly four times higher for Black birthing people than non-Hispanic white birthing people in the United States [90] as well as the systemic lack of non-white representation in reproductive medical images [79], highlights the hypocrisy of race-based arguments against reproductive agency. Notably, none of the pro-abortion applications addressed racial disparities in reproductive care explicitly within the apps.

This depoliticization creates space for anti-abortion groups to supply their own narrative, as we saw in the applications [89]. Indeed, R1 and R2's discussion about global abortion politics and dynamics, as well as pointing out inaccurate information in anti-abortion applications were what informed R3-5 about the more subtle dynamics, even though each person on the research team is an expert on reproductive health in their own right. Without acknowledgement of political systems, anti-abortion applications made claims about the political intentions of pro-abortion people and over-promised on systems of support available to those who chose to remain pregnant. This mirrors political systems which prioritize banning abortion and encouraging birth, then perpetuate austerity measures limiting access to infant formula, nutrition programs, childcare opportunities, and other essential needs for "raising children in a safe and healthful environment" [132]. By not engaging with political discourse around abortion, pro-abortion applications cede narrative ground: anti-abortion applications establish stories which reduce people's reproductive autonomy. While we believe that in an ideal world abortion would not be governed by shifting political forces, refusing to acknowledge reality is counter to reaching that end goal.

Returning to Star's [150] definition of infrastructure as "something built and maintained, sinking into an invisible background". abortion applications are part of an infrastructure that can uphold or challenge the exclusion of abortion care. Many of the ways that abortion was 'designed out' only became visible through a close analysis of the applications. By attending to the ways in which

abortion is designed out of care infrastructures, future design work on abortion care can remain critical of the context in and for which they are building resources, and work towards a more caring infrastructure.

6.2 Responding to a Crisis of Abortion Care Infrastructure

Recognizing the ongoing crises of care impacting reproductive health, the overlapping systems of oppression which impact abortion access, and the relational nature of abortion experiences, we expand upon Duffy's calls for an infrastructure of care [50]. Drawing inspiration from the work of acompañistas in Peru, Duffy et al. argue "the riposte to a state project of abolishing abortion care should be to generate infrastructures of abortion care beyond the state." We argue that projects of abolishing abortion care are traceable through the applications we performed walkthroughs on, both in ways systemic oppressions around abortion are perpetuated and ways they are challenged. To suggest an infrastructure of care, then, is to reify the relational nature of abortion care with contextual and complex support.

Consistently through the applications, we noted instances in which "designing out" by pro-abortion applications left care gaps which anti-abortion applications were positioned to fill. Many of those gaps had always been present in institutional abortion infrastructures built by the state. As a patch for gaps in institutional infrastructure, applications ended up perpetuating those same issues [15]. In contrast, the applications which intentionally responded to systemic oppressions related to abortion care drew on abortion access infrastructure beyond the state—grassroots organizations and feminist care movements which are the rebuttal to "states of uncare" [50, 64]. Particularly for populations who are often the target of mHealth applications, as we saw with *Self-managed Abortion Support* - Safe Abortion and Aya Contigo, it is vital for the design to respond to contextual needs and intersectional systems of oppression in their design choices [33, 124].

In the abortion space, grassroots, relational responses to states of uncare have always existed and continue to grow. From elders, midwives, doulas, friends, siblings, activists—knowledge about how to end a pregnancy and the support to do so has always existed in some capacity. Prior work in justice-oriented mHealth has called to centre perspectives of target users who have perspectives outside of 'minority world' or institutional systems in mobile health application design [168] and an incorporation of lived wisdom of target users in application design [13]. Through the perspectives embedded within them, abortion related applications reflect and reinforce socio-political systems which impact abortion care. Therefore, by turning to extant relational responses to uncaring abortion infrastructure, designs can reflect and reinforce community-based infrastructure often dismissed by techno-solutionist approaches. Indeed, prior work in mHealth on menstrual tracking highlights the value of *relational care* across stakeholders such as "family, partner, peers, health practitioners, and more" [157]. In our study, we saw two applications in particular—*Self-managed Abortion Support:* - Aya Contigo and *Tracking* - Euki—reflect these ideals. Rather than operating as patches for gaps in institutional abortion care infrastructure, these grassroots systems of care are infrastructuring "alternative" networks of care [38, 50]. Infrastructuring describes the ongoing work of building and maintaining systems from below, rather than simply filling holes in failing systems from above.

Care in an infrastructural sense serves as a mode of relating and an ethical commitment, rather than a provision of service [4, 5, 122]. Tronto and Fisher [156] define care as maintaining and sustaining the world, but in cases where the world is in a state of 'uncaring', an infrastructure of care may mean choosing to subvert, dismantle, and build otherwise in the face of crisis, rather than aiming to repair. In order to do so, however, there must be an acknowledgement of the sociopolitical and socio-technical underpinnings of the infrastructure under crisis [15]. As evidenced

by our walkthroughs, those underpinnings *will* arise. The question is whether they are allowed to perpetuate harms or whether they will be confronted.

The applications which confronted systems of oppression were those that drew on grassroots organizing and acknowledged relational dynamics between someone having an abortion, their internal experience, their community, and political landscapes. Due to the nature of care systems, which bridge the public and private spheres, a response to a crisis of care needs to transgress personal, community, and world relations. Taking inspiration from other movements which have proposed alternative, relational infrastructure in response to crisis—such as mutual aid [146], care webs [125], and transfeminist ethics of care [126]—as well as transnational feminist reproductive organizing, we reject patches for infrastructure under crisis. Instead, we argue for building "technology for shaping counter-hegemonic subjectivities as embodied, affective, and relational" [64]. Mobile technologies can have a positive place in a caring infrastructure for abortion, but not in a way that reproduces individualistic medical approaches. They must reinforce and augment collective caregiving that honours the ties, good and bad, to histories, identities, politics, communities, and affect.

7 Concluding Reflections

In this paper we conducted a polyethnographic walkthrough of 11 abortion-related mobile applications to visibilize the underlying sociopolitical and sociotechnical infrastructures that shape them. We found that these apps both reinforce and combat historical and contemporary harms but neglect their relationalities to those harms. We found that *abortion has been designed out through omission, simplification, and depoliticization.* The infrastructures temporarily patched by the mobile applications continue to embed systemic harms.

Our collective encounters with these applications also made apparent that apps do not simply provide information; they configure affective and moral orientations toward abortion. As we moved through the apps repeatedly over time, we encountered content that was confusing, misleading, fear-inducing, insensitive, and unsettling. These moments accumulated, shaping not only what we observed, but also how the apps felt to engage with. Through continuous dialogue, we were able to make sense of these encounters together, sitting with difficult material without becoming isolated in it. We therefore argue for more caring abortion infrastructures that do not merely critique or patch existing institutional failures, but build otherwise by learning from community-based abortion infrastructures, honouring their work, and imagining more just forms of abortion care to come.

> *Abortion access is at a critical point, not just theoretically but in material ways. Working towards more caring abortion infrastructures is about honouring the tens of thousands of people who die each year from unsafe abortions, who are forced to carry an unwanted pregnancy to term, and who navigate their abortion care in isolation. It is not sufficient for the HCI community to critique adjacent technologies, nor can we respond only to the most immediate crisis. Therefore, in this contribution, we make a step towards addressing the larger systems that have shaped, and continue to shape, abortion infrastructures. We encourage the research community to keep troubling these systems, attending to how technologies participate in the ongoing negotiation of knowledge, care, and access.*

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A App List Pre-Selection

App Name	Selected?	Exclusion Reason
Safe Abortion (SA)	Y	
FEMM Period Ovulation	N	Not available for most researchers
Trying to conceive Tracker	N	Not available for most researchers
Flo Period Tracker	N	Not available for most researchers
Euki	Y	
BYD: Mobile	Y	
My Choice Plus	N	Limited Functionality
IPPF Clinical Guidelines	Y	
Life Decisions Resources		Limited Functionality
Cara - Healthcare & Abortion	N	Limited Functionality
WHO CAC Tool	Y	
Helpline - Helpful hotline numbers	N	Not sufficiently relevant
Lillio	N	Not sufficiently relevant
Safe Place App	N	Limited Functionality
Women's Guide to Health Services	N	Not available for most researchers
Army for Life	Y	
Rescue Those	N	Networking
Lutherans for Life	N	Networking
Charity Mobile	N	Networking
Birth Choice Centers	Y	
ProLife Network	N	Networking
SFP Meetings	N	Event Organization
Nuestra Decision	N	Not available for most researchers
This is Normal	Y	
Ovia Pregnancy & Baby Tracker	Y	
Safe Abortion	N	Not available for most researchers
Aya Contigo	Y	
Adopt Life	Y	
White Rose Resistance	N	Networking
Power of 7	N	Limited Functionality
Planned Parenthood Direct	N	Not available for most researchers

Table 4. List of Applications Examined for Inclusion in Walkthroughs