



# Understanding Gender Transition Tracking Habits and Technology

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## ABSTRACT

Personal health tracking has long been a topic of investigation in the HCI community. There is an emerging class of apps that support gender transition, which we term *transition-tracking apps*. However, little work has been done examining the use and impact of such apps. We aimed to address this gap by conducting an interview study with sixteen participants who are currently undergoing different forms of gender transition. We provide an understanding of transition tracking habits, the usage and potential of transition-tracking apps in the context of transition support technologies, and provide design suggestions and open areas of research.

## CCS CONCEPTS

• **Human-centered computing** → *Empirical studies in HCI*; **Social navigation**.

## KEYWORDS

gender transition, transgender health and wellbeing, personal data, transition tracking

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## 1 INTRODUCTION

Gender transition is a process that many transgender people (i.e. someone who has a different gender than the one they were assigned at birth) undertake, and it can be a physical, social, and legal process. The physical component of transition can involve hormone replacement therapy (HRT) and gender affirming surgeries. The social aspect of transition often involves “coming out” to others, such as friends and family, and changing ways of dress and gender presentation. This aspect of transition can also be facilitated using technology [31]. Finally, the legal part of gender transition includes changing one’s legal name and gender marker and obtaining new government identity documents [17]. It is important to note that

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not all trans people choose to pursue all aspects of gender transition [49], and not all trans people transition in the same way [20]. For example, a trans woman may change her name on her birth certificate, come out to her loved ones, and go through HRT, but not undergo gender confirmation surgery.

The prevalence of personal health tracking has increased in recent years as wearable trackers become more available and accessible [30]. However, during the rise of such technologies, users may not be able to make sense of the data and visualizations being shown, as many apps operate on the “show them a graph and hope” mentality [37]. Similarly, these apps may not be accessible for users who may need to track more specialized forms of data or have different levels of ability [56].

There are a number of emerging apps and technologies that are designed specifically for the transgender population. One type of technology is voice training applications, which help users train their voice so that they can speak with their desired pitch [2]. There are also more explicitly healthcare-related apps such as Plume [48], which provides a way to remotely obtain prescriptions for HRT. Another category of apps aims to support gender transition more generally [7, 16, 22, 60]. *Transition-tracking apps* allow users to: 1. Record transition-related milestones, 2. Set goals for transition, and 3. Record progress in transition. Such apps are specifically designed to be helpful during the transition process, whether that is social, physical, or legal transition. This paper specifically studies the use of such apps in the context of transition-support technologies more broadly.

Technology usage can be harmful [53] or encounter mismatches between the values of the platform and their users [24]. While transition-tracking apps are becoming more mainstream, little work has been done to examine their social ramifications and the target audience of such apps. Because gender transition is not simply a medical process but more of a life transition [31], this examination needs to be done from a multipronged perspective. Indeed, previous work on life event tracking has found that users often want a more holistic form of tracking [21]. We hypothesize that trans users may have similar needs.

Previous HCI work has yielded an understanding of *trans technology* [34], *trans competent interaction design* [1], and trans technology needs [17], and provide valuable insights to this emerging landscape. Transition-tracking technologies are a class of apps that exhibits the combination of personal health tracking (and quantified-self) with transgender health technologies, and not much work has been done in examining these kinds of apps.

Gender transition may not be linear, and often does not follow a prescribed set of steps [17], and transition is not only for binary trans people, but for nonbinary people and those who may not fall

under either umbrella terms. Furthermore, not everyone who seeks gender transition will pursue every aspect of transition [49]. Thus, to examine the impact of such apps, we pose the following research questions:

- **RQ1: How are transitions currently tracked, and how do transition-tracking apps fit into this?** What kinds of benefits do users of such apps receive?
- **RQ2: Who are transition-tracking apps designed for, and who are excluded?** How might such apps better serve the trans population? What assumption do these apps make of their users?

To do this, we interviewed 16 transgender people to see how apps are viewed and used (if applicable). In the interviews, we asked about participants' transition process and plans and their thoughts on transition-tracking apps.

This work aims to increase the accessibility of transgender health and transition technologies given the heterogeneous needs of the trans community. Because gender transition is multifaceted [17], a multidimensional approach to such technologies is needed.

We contribute the following to the HCI community:

- An understanding of gender transition tracking, including information tracked and means and motivations of tracking, in the context of transition support technologies
- An understanding of how transition-tracking apps are used, their impact, and target audience
- Design and research suggestions for transition-tracking technologies

Our findings bring impact beyond the individual level, as many current systems (such as the healthcare and legal systems) prevent access to transition and prevent trans people from obtaining healthcare [36, 44]. As transition support apps can be a part of this system, we aimed to identify “blind spots” or ways that such apps may (unintentionally) operate using the medical-industrial complex's paradigm on trans health and transition.

## 2 RELATED WORK

Personal health tracking is a relatively mature area of study in HCI. At the same time, increased attention has been paid to technology designed for the transgender population, and the trans population's technology needs. We situate our work in examining transition-tracking technology in these two fields, bridging the gap between trans technologies and personal health tracking.

### 2.1 Personal Health Informatics

Previous work has studied health and fitness tracking apps in detail. Examples include the lived informatics model of personal informatics [28], proposed taxonomies for fitness trackers [59], and visualizations used in mobile health (mHealth) apps (such as charts, radial projections, and calendars) [5]. More generally, paradigms such as body-positive computing have been introduced to combat rigid views of tracking and what being healthy looks like [55].

Epstein et al. describe the various motivations people have for tracking their data, including curiosity, behavior change goals (such as for fitness), and instrumental tracking, which is tracking to record particular changes or behaviors. Transition tracking falls in between

instrumental tracking and behavior change goals, in the sense that behavior change may be a motivator in the case of setting goals for transition, however, instrumental tracking can be manifested through taking and comparing pictures of physical changes. The lived informatics model of personal informatics also describes integration and reflection as important roles in tracking [28], which we find also holds true for participants who have tracked their transitions.

In a social context, health tracking can be “pushed” (that is, explicitly externally enforced, such as in workplace programs) and “private” [30]. In these contexts, there can be mismatches that occur between the technologies and their users. This work proposes to extend what Spiel et al. refer to as “normative ontologies” and how they fit in with the cultural context of such technologies [56]. Ideologies behind tracking technologies may be exclusionary or incorrect even if the prescribers (e.g. the app designers, the developers, or the workplace employer) have the best of intentions [63]. For example, there is the assumption that losing weight is a desired goal for all who aim to improve their health, which could be harmful for those who have struggled (or are currently struggling) with eating disorders. This also dismisses the fact that people may track the same things but for different reasons [27], or that tracking progress can be affected by unexpected life events (e.g. miscarriage during fertility tracking) [21]. Spiel et al. also bring into attention the fact that choice and freedom are not often considered with the use of such technologies [56]. This also can apply to transition-tracking technologies, where designers may assume that all users are pursuing the same goals in gender transition and are taking the same path, not allowing for users to choose their own avenues of transition.

Lupton [41] notes, similarly, that the mass adoption of health monitoring technologies can reinforce the idea of a “techno-utopia”, and such tracking technologies can be viewed as means for self-enhancement. The assumption is that these technologies solve the “problem” of the body, compensating for where it lacks. The ideology behind this assumption comes from a worldview that emphasizes personal responsibility for one's health, and dismisses the socio-cultural aspect of health [41]. This is not only limited to general health, but also extends to the realm of sexual health and reproduction [42]. Given that many trans bodies are interpreted to be “problems,” Lupton's ideas are especially applicable to the usage of transition-tracking apps.

Munson [45], similarly, makes note of the assumptions that many self-tracking technologies make, of which many relate to the individual situated in the socio-cultural context. One assumption is that self-tracking happens in a vacuum, and that the data that is tracked only needs to be viewed and interpreted in the context of the individual. Munson challenges this assumption by noting that health is interconnected within the family and in the community [45]. In the same vein, there is a need for a more holistic and customizable approach to health tracking, especially when it comes to visualizations [21]. Personal health tracking is not simply personal, but can be extended to a more social context, looking at families, caregivers [51], and culture [13]. Because gender transition is not simply individualistic but also has a social component, we examined the social contexts that may appear in the usage of transition-tracking apps.

Even mental health self-care apps can perpetuate similar individualism, and perpetuate sanitized and “overly simplified” views of mental health management. Gender dysphoria is defined broadly as an experience of mismatch or “wrongness” about one’s assigned gender at birth [9]. It is very common, but not a universal experience for trans people [25]. Similarly to managing mental illnesses, managing gender dysphoria means dealing with stigma [40] and medicalization [61]. As we focused on digital dysphoria management, such views may also appear in apps that aim to reduce gender dysphoria (including, but not limited to transition-tracking apps).

Previous work on health tracking apps in the context of chronic illness have found that such apps may be emotionally-charged and feel like additional work [6]. For example, reviewing data can be an emotional experience, and data can be associated with value judgments. For these users, healthcare providers may trust the tracked data over the users’ personal (and qualitative) experience [6]. Because physical transition almost always involves at least one healthcare provider, these findings may also be relevant to trans users’ experiences.

Cifor and Garcia conducted a duoethnographic study of fitness trackers and state that “ignoring gender in the design of fitness tracking devices marks a dangerous ongoing inattention to the needs, desires, and experiences of women, as well as transgender and gender non-conforming persons [18]”. However, while designers may purport to ignore gender, the interfaces studied are themselves already gendered and make assumptions of the users’ health and lived experiences due to this. While transition-tracking apps by their nature take gender into account, gendered assumptions may persist, as we shall illustrate.

Health tracking technologies also come with privacy concerns [47] and can promote an overemphasis of individual responsibility over personal health [54] and encourage self-surveillance that results in disciplining one’s body to ensure that it falls in line with an externally defined “normal” [52].

Long-term health tracking can provide additional opportunities for users and researchers such as an increased understanding of information collection practices, alignment with lived experiences, and addressing barriers to tracking [26]. Because transition-tracking apps are so new, to our knowledge there is no long-term tracking being done currently. However, our results show that transition-tracking apps can be a potentially valuable long-term tracking tool for both users and researchers.

## 2.2 Technologies Supporting Gender Transition

Tracking, especially related to sexual health and reproduction, comes at the risk of defining one’s identity and sexuality in a limited, discrete manner [42]. This can lead to the assumptions being made by the designer and developer being enforced onto users. One such assumption, for example, is that by default, fitness trackers are genderless, yet they are based on a masculine design value, excluding the needs of people of other genders [18]. Lupton also notes that such technologies facilitate users participating in voluntary self-surveillance, evaluating if their bodies fit into the standard mold and narratives imposed upon them [42]. When considering gender transition, we consider self-surveillance as something that can also occur in transition-tracking apps, particularly given the

(often) social aspects of transition. This can result in a more self-critical view of one’s appearance and gender presentation, often reinforcing perceived societal narratives.

Present in such apps is also the assumption that meeting goals will result in healthier and happier states universally [57]. This is an assumption that contradicts many trans lived experiences, where beginning (or even completing) transitions, while resulting in increased gender euphoria/decreased gender dysphoria, can also make life harder in many ways [17, 32].

Tracking is not the only kind of technology that supports gender transition. Technologies that support life changes include resources such as online directories guides, and tutorials, specialized search engines, apps, tracking technology, social media, and forums. However, these tools are sometimes not calibrated to the users’ needs [15]. For instance, Ahmed examined transition technology through her analysis [1] and creation [4] of voice training apps. She notes that many such apps can be prescriptive and limiting for users, and enforce a traditional or normative view of what being transgender “should” be like. We asked similar questions, but focused on the intersection of transition-tracking technologies with personal health tracking and transition support technologies.

Haimson proposes the idea of “trans technology” [34], that which “allow[s] trans users the changeability, network separation, and identity realness, along with the queer aspects of multiplicity, fluidity, and ambiguity, needed for gender transition.” Transition-tracking apps, while created for the trans population, may fall under the umbrella of trans technology in various extents. Our work situated transition-tracking technologies under this umbrella, and discuss how such technologies may provide some of these features, but not all of them.

Devito, Walker, and Fernandez found that self-determination and inclusion are two important values that can be used to support LGBTQ+ users in social platforms [24]. Massimi et al. examined four case studies of online health communities that are used to support life transitions. They found that individuals utilize such groups for various reasons beyond emotional support, and often use such resources beyond their original intent [43]. Such communities are also helpful for trans individuals, with benefits such as information availability, social support and reduced isolation [19, 23, 29]. In this study, we examine transition support technologies and how tracking apps fit into this greater ecosystem. While tracking apps can help with finding and using information, aspects such as social support may not be present. We also explore how self-determination is needed not only in social platforms but also in individual ones.

*Transnormativity*, the idea that there is a “correct” way to be transgender, where those whose personal gender transition experiences follow prescribed norms benefit from increased access to transition and healthcare. Transition-tracking apps may facilitate this narrative, and we explored the ways in which transnormativity may be reinforced through such technologies.

There has been much work done on the realm of personal health informatics and an emerging body of work done on technologies to support the trans population. However, the domain of transition tracking, especially in the context of transition support technologies, has not been examined in detail to our knowledge. Thus, we investigate the role of transition-tracking apps (and transition support technologies more widely) in the gender transition process

(RQ1), and how the current benefits and limitations of personal health informatics and technologies that support life-changing events may manifest in this domain (RQ2), we conducted an interview study with sixteen trans participants about their technology usage and viewpoints.

### 3 TRANSITION-TRACKING APPS

There are a number of emerging apps and technologies that are designed for gender transition (at the time of writing, we found seven apps available). An example is Solace [22], which aims to provide information for users about, help them set goals, and track their progress. Their tagline is “Design Yourself A Better Transition.” Depending on the user’s pronouns (which is then assumed to be an indicator of their gender identity), the chatbot-like interface helps the user set up transition-related goals.

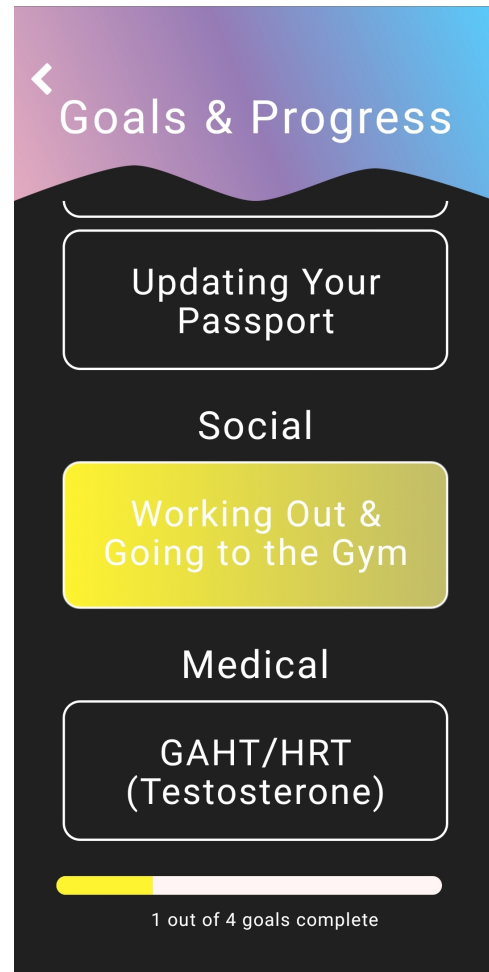
Users are able to view and select goals sorted in three categories: Legal, Social, and Medical. Solace approaches progress as focusing on the future by setting and achieving goals in physical and legal transitions and in lifestyle (e.g. social transition) [22]. Figure 1 shows Solace’s Goals and Progress screen. Each goal contains information about the milestone and relevant resources. Once the user marks the goal as complete, the bar at the bottom of the screen advances. Solace equally weights all of its goals. Thus, the bar moves in a linear fashion no matter which goal is completed. The information in the app is also password-protected.

Another app for gender transition is Transcapsule, which aims to provide its users a “time capsule” that they can use to see how far they have come in terms of gender transition. Users can record journal entries and upload photographs of themselves, set count-downs for important transition milestones, and set health-related reminders [60]. At the time of writing, Transcapsule is not yet available to the public.

A third transition app, TransTracks, aims to record transition milestones and track progress by allowing users to upload photographs of their face and body as an entry. Users can then compare their transition at different points. Notably, TransTracks has a “deep cover mode” that allows the user to hide any transition-related information and shows a train schedule tool. This feature protects the user in the case of unsupportive family or household members [7]. Figure 2 shows the main app screen. While TransTracks does not allow users to directly compare between pictures from specific dates, there are apps that encourage this, such as Transcapsule [60].

Trans Memo [16] focuses more on tracking hormone replacement therapy specifically, and its main features are enabling users to set reminders for recurring dates to take hormones (e.g. taking a pill, applying a cream, and having an injection) and tracking dosages and schedules. Figure 3 shows an example of a statistics view for HRT tracking. We chose to not use Trans Memo in our study as the focus on hormones may not be applicable for all participants.

We used these currently available apps as a starting point to explore the ways that transition-tracking apps are used and received in the trans community, as such apps are fairly well-known and/or well-established. During the interviews, we showed Solace and TransTracks to participants, as they are the most mature of the apps available and the most widely-used at the time of the study. They are also more directly comparable to each other as both are geared



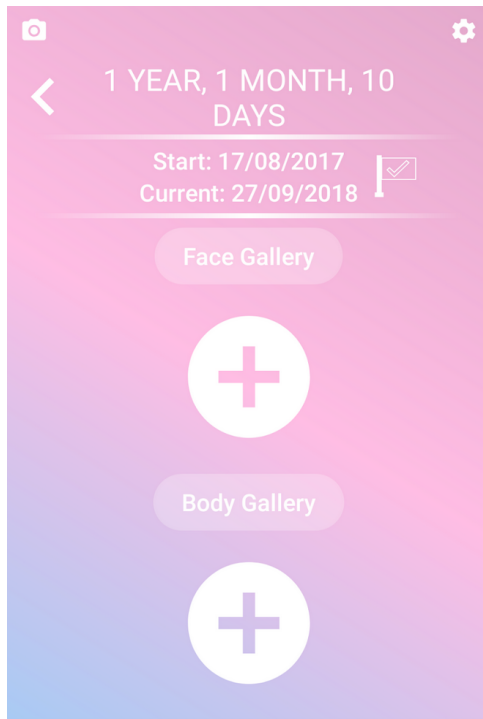
**Figure 1: Solace’s goal-setting screen. Once each goal is marked as complete, the yellow bar at the bottom of the screen advances.**

towards tracking aspects of gender transition such as changes and milestones. The main difference is that Solace focuses heavily on goals and covers the different aspects of transition such as medical, legal, and social transition, while TransTracks focuses more on medical transition and emphasizes physical changes over time and privacy and safety (as seen in the deep cover mode). Each app had over 10,000 downloads on the Google Play Store (we were not able to find the number of downloads for Solace on the Apple App Store) and are available globally.

### 4 APPROACH

We conducted an interview study with sixteen participants which examined current transition tracking habits and attitudes, as well as perceptions of transition-tracking apps. These interviews were conducted online over Zoom.

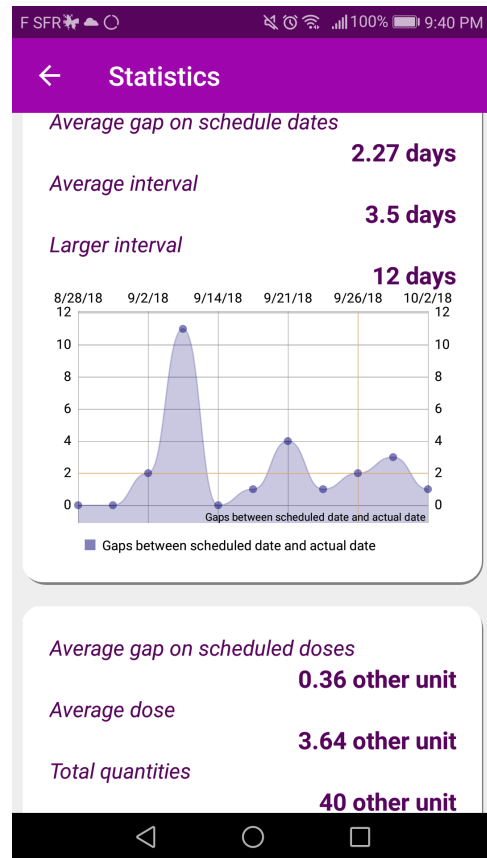
We recruited participants by reaching out to the previous participants via email who have expressed interest in or have participated



**Figure 2: TransTracks’ main app screen.** Users can upload a picture of their face and body in different periods of time. The back button allows them to move back and forth to previous entries.

in our past research, and have agreed to participate in future research studies. We also recruited participants using social media, such as Twitter, Reddit, Tumblr, and Facebook. The recruiting message consisted of an IRB-approved statement about the study and the interviewer’s background as a trans researcher. We selected the participants based on their backgrounds and perspectives they can provide on gender transition, with the aim of capturing a diverse set of viewpoints, including a range of racial backgrounds, stage of transition (with an emphasis on users who are earlier on or in the middle of their transitions as they are the target audience), and transitioning goals.

We asked about participants’ transition goals, process, and plans, and how they approached their transitions, including their expectations, timeline, use of resources, and the support (or lack thereof) that they received. We also asked about how they managed dysphoria and lack of access to transition-related care (if applicable) and their usage of and thoughts on transition-tracking apps. We used the walkthrough method by Light et al. [39] and used pre-recorded videos of Solace and TransTracks to facilitate this. We did not include Transcapsule as of the time of writing, the app was not available for testing. Each video captured the apps’ main features as of January 2022. After each walkthrough, we asked participants for their feedback on the app features and design. Each interview lasted approximately 60 minutes and participants were compensated with a \$20 payment via PayPal or Venmo. The app walkthrough and app-related questions took approximately 20-30



**Figure 3: Trans Memo’s statistics screen.** Users can track their HRT dosage and schedules and set reminders to take hormones.

minutes of each interview. Participants were able to go back and reference the walkthroughs if they wished.

Our criteria for participants was flexible and we only required that participants consider themselves transgender/nonbinary and consider themselves transitioning. Here we also define transitioning loosely, and leave it up to the participant to determine its definition. For example, a participant can be socially transitioning but not medically or legally transitioning. We aimed to gather a diverse range of perspectives and approaches to gender transition, and thus employ this criteria.

Of the sixteen total participants, seven were trans women, four were trans men, and the remaining five were under the nonbinary umbrella. Additionally, four participants self-identified as being disabled. The average participant age was 31.8 years, with a range from 21-42 years. Ten participants identified as white, two as Black/African-American, one as Asian, and three as mixed-race. Finally, thirteen participants are either currently tracking their transitions or have done so in the past.

We conducted open and axial coding [58] on the interview data in order to generate design insights that will benefit the HCI community. We chose this method due to this analysis of a relatively new domain and potential to uncover knowledge that can be applied to

other trans technology-related work in HCI. Two members of the research team went through two of the interviews and generated a list of potential codes. Then, the team members discussed the codes generated and developed a codebook. Finally, the first author went through the remaining interviews and coded them. Throughout the coding process, the codebook continued to evolve, and the team revisited the previously coded interviews and iteratively updated the codes.

## 5 RESULTS

We segment our results by first covering the context of transition and transition tracking, then cover the role of tracking in the trans population, including information tracked, motivations for tracking, and the role of tracking in the community. We discuss the usage of transition-tracking apps and the relationship between technology, transition, and care. It is important to note that not all participants approach their transitions in the same way, let alone track their transitions in the same way.

### 5.1 Contexts of gender transition and transition tracking

Transition can be complicated, and this affects how apps can be used. In P12's words, "it's so hard to make any sort of resource because being trans is so different to so many different people." This section lays out the different contexts of transition to form background that will support the takeaways for designers and researchers of transition-tracking apps in the Discussion section.

First, not all decision-making is the same, and some participants may make decisions that do not immediately align with their goals because of barriers to transition or transphobia. These decisions can be due to tradeoffs in transition. For example, P1 did not want a legal gender marker change, but may need to because of how they were perceived, while P2 had to make a decision between pursuing bottom surgery immediately and getting good results. The considerations these participants and others had to take extended beyond their immediate transition and covered issues such as safety, passing, and finances.

The multiple facets of transition can intertwine, and the order and means that they are pursued can be different. For example, while the expectation may be to simultaneously go through physical, legal, and social transition, often physical transition affects social transition. For instance, participants such as P5 and P10 started physical transition before social transition by beginning HRT before coming out to others. On the other hand, P16 prioritized social and physical transition and used them to mark progress (i.e., "moving through the world the way I want to and feel most comfortable") rather than legal transition, which was not his highest priority.

Transition is also shaped by relationships with others. Multiple participants affirmed the importance of having support from others online or in real life. In particular, P14 defined their ideal transition as having an accepting family, rather than accessing a particular procedure or completing a certain milestone.

Finally, transition does not have a discrete starting and ending point for everyone. P6 brought this up, saying, "There's the question of when does the transition stop? And I have to wonder when did it actually start? If I go by when I first got a professional medical

**Table 1: Common information recorded in transition tracking.**

Quantitative records	Qualitative records	Tasks/Plans
Measurements	Pictures	Social transition plans
Clothing/Shoe size	Videos	Legal transition plans
Voice pitch analysis (Hz)	Voice recordings	Steps for surgery or HRT
Blood test results	Emotions or Journaling	Savings
Moods	Resources	-

diagnosis and was prescribed hormones, it would be 11 months. But if I'm going by when I decided that this is something I had to do, when I started doing anything, then it's been longer than that." Rather than a concrete end point, P14 expressed it as "different cycles throughout your life. You kind of feel different, but I don't think it really ends." Finally, P15 remarked, "transition implies a certain end point. I would say where I am in transition is like a blob, and I don't know where that blob is going or where it is right now, but it's there, and it's not where it started." This feeling of transition as nebulous rather than discrete could have implications for designers who wish to create transition-tracking apps.

Finally, while individual tracking habits may depend on the individual, Table 1 provides a high-level summary of what participants track.

We covered the context of transition and transition tracking, which allow us to present findings covering the contexts that influence transition and transition tracking, the role of tracking in goals and decision-making, and different ways that tracking relates to care, access, and community dynamics. Within each finding, we will cover how apps, particularly Solace and TransTracks relate to each of these insights. Apps can provide benefits and drawbacks, and their usefulness can depend on the intended audience, according to our participants. We will mention the app name specifically if the participant is referring to one app over another. One participant, P6, has used both TransTracks and Solace before. Another participant, P2, has used Solace in the past but not TransTracks. All other participants have never used either app.

### 5.2 Records of physical changes can be useful, but are not for everyone

One of the most common things that participants tracked were records of physical change. This can include outward changes over time using photos, to blood test results, to regular recordings of voice changes. Because many factors such as HRT dosage and genetics can affect the physical changes that occur, participants tended to track these from a few different angles. For example, P5 tracked her blood test results and her doctors' recommendations.



Photographs are also common as records of change. They are often standardized in some way, such as using consistent lighting or poses. P6 took photographs regularly: *“Every morning since the first day that I started taking HRT, [I would take] a picture, a selfie of my face and then a couple of different body pictures just trying to maintain the exact same pose, that same place and everything so that I can at least be able to look back and see what’s going on.”* For P6, taking photographs was a way of keeping updated on the physical changes from HRT. P5 also used photo slideshows to track progress. However, this kind of before-and-after comparisons may be harmful, as P12 pointed out:

*“Having your own expectations for transition largely formed by other people’s transition timelines feels like you’re setting yourself up for failure...We all say and we acknowledge you don’t need dysphoria to be trans and you don’t need to follow a specific like path of transition to be trans or to have your own goals and make those own goals with any sort of any system or app that’s made. But there’s going to be some amount of social pressure to it.”*

Thus, the method of tracking or sharing that tracking may cause harm to some of those involved.

There are also apps that give information on the change in voice over time, which participants like P4 used. Such apps show the change in pitch and categorize the user’s voice in gendered ranges, which is explored more in Ahmed, Kim, and Hoffman’s work [3]. Other participants such as P7 made manual voice recordings at regular intervals.

Participants also commonly tracked measurements of body parts. These can vary from person to person, from parts measured, frequency of measurement, and method of record-keeping. For example, P7 tracked the change in her shoe size, while P3 tracked her weight, different areas of her body, and put these values in a spreadsheet to measure her progress. This tracking information may overlap with information recorded in more general health tracking.

**5.2.1 Apps can cause harm by focusing too much on physical changes.** Tracking of physical attributes can be harmful for those whose transitions do not happen as expected. For example, P14 remarked that one of their transition goals was to pass, and that their transition timeline took longer than he expected. For him, the use of apps such as TransTracks could reinforce disappointment at the rate of physical changes that were occurring.

Apps focusing on more physical changes such as TransTracks can also exacerbate pre-existing dysphoria or body image issues. The emphasis on physical appearance can cause conflation of that and physical transition, while ignoring more internal perceptions or other experiences in this facet of transition. P15 called out that transition-tracking apps may be harmful for body image and gender dysphoria: *“If you’re taking photos of yourself and you’re already dysphoric, then sometimes it’s easy to focus on the dysphoric parts.”* Depending on the usage and where the user is coming from, such apps may exacerbate gender dysphoria.

### 5.3 Tracking to support goals and decision-making

At a higher level, people may track plans and progress they have for transition. This includes information on social transition such as people they have come out to (or plan to come out to), such as in P5 and P6’s cases. In the case of changing legal documents such as name and gender marker in official records, P3 commented: *“I am creating a list of things that I know I need to do in the order to do them.”*

These plans also included financial goals. For example, P9 had all his sources of savings and income in one place so that he could figure out how he stood in relation to his goals:

*“So I had [information] for that. I have this much in my savings. I’m going to make this much from my job in the next month. Insurance will cover this. This is my deductible. This many people donated this much money. It’s nice to just have that all in one spot to say, Oh, I need to make two thousand dollars more or something.”*

Participants also used information about day-to-day changes over time to plan future actions, such as in P5’s case: *“You can see what your progress is over time...As far as tracking changes, that’s been the biggest, biggest help. It’s just being able to note, OK, I’m feeling this today. I look like this today, or this is what I want to talk about in my next therapy appointment or I’m noticing these changes. I’ll remember this or check this.”* This information can be helpful for remembering what to discuss with healthcare providers or to adjust a transition plan.

Tracking can be used for higher-level planning and decision-making. For instance, P1’s videos of themselves helped them decide to go back on hormone therapy: *“It’s been very interesting to have these videos of myself. Having them was, I think, integral in my decision to go back on T because I was like, Oh, in my memory, I am much more masculine presenting than I actually am. It’s cool that my brain is doing that as superimposing that idea. I want that memory and reality to more align.”* This reflection helped them gauge where they were and move to a place that helps align themselves more with who they want to be. Another way that P1 tracked for decision-making to anticipate when undesired physical changes may occur so that they can alter their HRT plan if needed.

**5.3.1 Apps can help decision-making, but are not one-size-fits-all.** One major benefit of using a transition-tracking app is having it as a **“command center.”** This is because apps can help keep all transition-related information in one place, show a high-level view of transition, and show the different options available. Participants such as P16 felt that Solace can help present transition-related information in a centralized location.

P11 also mentioned that TransTracks could give an overview of one’s transition by showing users where they are at and where they are going. This high-level overview (of transition in general or its subtypes) can be helpful for planning, getting started, and seeing the present state of things.

A significant drawback about transition-tracking apps is that the way they lay out goals or progress could reinforce normative ideas of what it means to transition or what it means to be a trans person. Participants commented on this for both Solace and TransTracks.

P10 remarked, “Everyone has a different checklist in a different order and there’s no right or wrong way to do it. An issue with an app like [Solace] is reinforcing that idea that there is.” The ways that this can be manifested include ordering steps a certain way (or only showing certain steps), or assuming that all trans people want to approach transition a certain way, as P12 put it: “Transition is not one size fits all...If there’s only so many options in the app, it can be very easy for people to feel pressured into doing them, even if it’s not right for them.” P12’s concern was that app creators’ assumptions can create or reinforce the pressure for trans people to behave in a certain way.

Participants also mentioned that the usefulness of apps such as Solace and TransTracks depend on the stage of transition. Many said that the apps are most useful in the beginning of the gender transition process, while others said that the app can be useful later on. Apps tend to be best in the beginning because that is when information gathering and goal setting are the most important and physical changes come quickly. Although the “beginning” stages depend on the person, it could be at the phase where one is trying to decide if they are trans, participants mentioned stages when one is seeing an endocrinologist, starting HRT, or planning for transition. This can be especially true because people early on in transition may not know where to look or have access to resources or personal support, which is where safety features would be the most helpful. P2 felt that TransTracks would be the most useful in the beginning, because it can record more rapid physical changes that occur: “That’s when I was really tracking the changes in my body. The changes in my hormone levels. Those things have all been pretty, pretty dialed in for a while now.”

In addition to supporting goals and decision-making, transition tracking can function as a means of care.

## 5.4 Tracking as care

Whether users track their transitions using apps or by other means, transition tracking can be a form of self and community care. Self-care can occur in the realization and reminders that transition can be a long process and changes may occur slowly and steadily. Tracking can function as a form of community care by allowing users to share their experiences with others backed by data. Users can also share information or apps as resources for others.

**5.4.1 Tracking as self-care.** One prevalent reason for tracking is to use it as a means of journaling/sensemaking of changes that occur during transition. When tracking for this reason, “progress” in transition is defined through a reflection of the past. For P3, this tracking helped give a reminder that transitioning can be a long process, and that while day-to-day changes may not be noticeable, they add up over time and puts things into perspective. This is similar to previous findings on long-term tracking [26], but the main difference is that in this domain, reflection is more explicitly tied to a sense of progress rather than informing future action.

Tracking and journaling can be intertwined, and it can be hard to pull out differences between the two. As P7 stated:

*“I started hormones, so that I keep track of that. But I also started writing down different memories...I was writing down stuff about that and then particularly around feelings about top surgery, just trying to track*

*how I feel. I used to keep transition related stuff really close to my chest and having a process of releasing it is very, very helpful.”*

For P7, this tracking was simultaneously a record of the past and present.

Tracking is also a means of self-reassurance, validation, and/or affirmation. P10’s usage of before/after photos can be very affirming and helpful:

*“I have been irregularly looking back at old photos and making a before and after timeline with pictures. And that can be really validating because from day to day, you can’t always tell what’s happening. And then you look at like a photo from two years ago and it’s like, Wow, holy shit. That’s a completely different person...It would be something that I’ll do when I’ll be having a day where I’m not as positive about myself as I can be. It can really help to go back and remind myself that I’ve made a lot of progress.”*

In addition to using tracking as a reflection of the past like P3, P10 also used it as a means of affirmation. P5’s affirmation was more future-focused and focuses on a sense of anticipation:

*“Seeing that OK, just because I don’t notice it immediately doesn’t mean that things are not changing, and it’s been really nice to be able to go back and see a photograph in succession and just see it right next to each other and be able to see that things are progressing slowly. But they are progressing.”*

Seeing the changes in the past “add up” helped P5 feel that more things will change in the future, which gives her a sense of hope.

Tracking can also be beneficial for dysphoria management. P3 mentioned that transition tracking was “a good way to keep myself going during some of those dysphoria times.” In this way, transition tracking can be seen as a means of managing gender dysphoria.

Transition tracking can also enable communicating one’s experiences with others. Commonly, participants mentioned tracking information to help them communicate changes with healthcare providers or for self-advocacy. This can be done intentionally or as a byproduct of another reason for tracking. For instance, P10’s initial reason for tracking was not to communicate with her providers, but later she found that the tracking helped her more effectively communicate with them and advocate for herself:

*“It can also help with remembering certain dates, like if you have a medical appointment, they ask a few questions that I wouldn’t have remembered...I only really wanted to track this just so I would be able to know what I’m talking about when I’m talking to the doctor and make a case for myself...I need to have that information to be able to make that case like, hey, my estrogen levels after my second follow up went down to 98, when they should be more in the 200 or 300 range. And I have like a little graph or I can just see it over time.”*

By showing her providers the data, she was able to ask for adjustments to the dosage for her hormones.

**5.4.2 Apps can provide self-care benefits.** While transition tracking itself can be used as self-care, apps can go one step further in



providing additional emotional benefits to further these self-care practices. Firstly, apps can feel like a safe space. P4 felt so about Solace: *“You can sit down and play around with what you want to do before actually going out and physically doing it. And having a place that’s always with you, that could make you feel a bit more comfortable when you’re out in the world.”* Having a space on one’s phone to be themselves and explore parts of their identity helped P4 feel that Solace worked as a portable safe space. Similarly, P1 remarked the following about TransTracks: *“I love the idea that this is like a tender place that you can have privacy to understand where you’re going.”* Apps like Solace and TransTracks provide a dedicated space with privacy for users to figure themselves out and what they want out of transition.

P6, who had previously used TransTracks, mentioned that the app was most useful for looking back to reflect and as a source of self-assurance. Solace was seen as best for more detailed guidance that may not be needed later on in transition.

Many participants appreciated the privacy options available in both TransTracks and Solace, particularly the Train Tracks feature on TransTracks. The Train Tracks feature enabled participants to lock their information with two separate codes. One code could be used to unlock the app and access the transition-related information. The second code can be used to show a dummy app called “Train Tracks,” which shows local train schedules. Participants mentioned that features like these helped them feel safe.

Similarly to how tracking itself can be a source of hope or reassurance when reflecting on the past, apps can help when users feel trapped or stuck as they can function as a source of hope. In P11’s words on Solace, *“If someone was under 18, unable to do any transitioning because they were living with their transphobic family, then things seem to be really difficult. But if you can see on this tracker that you have plans in the future and it’s going to get better, looking at that could help.”* In addition to being a source of reassurance that depends on the future, P12 also commented that this reassurance can happen in the moment when dealing with barriers for transition. Apps such as these can help users feel more grounded in the moment and look to the future if needed.

Apps can also help users feel less overwhelmed by the transitioning process. In particular, P10 felt that Solace would be helpful in this regard: *“It felt so overwhelming to transition because there’s just so many things that I realized I had to do, that being able to just see that, see a list of them, even if I didn’t want to do all of them, I think that would have been something that would have been helpful for me.”* The app could provide a way for the user to calibrate their plans.

**5.4.3 Tracking as community care.** In addition to communicating with providers, some participants tracked their transitions to share their journeys to others. P4 recorded stories of parts of his transition online to share with others he knew: *“For a while, I was keeping up a little. I think it was on my blog or something about my journey and my transition, and mainly because I had some coworkers in that talk about how interesting some of my stories were. And they thought it would be neat if I shared it online and I did.”* For P4, this sharing took form through storytelling online.

In addition to tracking as a means of sharing experiences, another reason was tracking as a means of sharing resources. P10 spoke

of a friend who had her own tracking sheet that she sent to P10 during the beginning of P10’s transaction:

*“She sent me this whole spreadsheet of every ID that she had to change and what she needed it for and had that all tracked. And she had a spreadsheet of basically every single distinct step that costs money and how much money it costs. How much it was for laser hair. Here’s how much my therapy appointments were. Here’s how much ID change is, here’s how much I spent on new clothes. It was just like good to have that information from somebody else.”*

While tracking as a means to share information may not have been P10’s friend’s main reason for keeping the spreadsheet, it proved to be a beneficial resource for P10.

**5.4.4 Apps as a community and research resource.** Apps themselves can function as a resource to be shared with others, such as in P16’s intention: *“I would love to have an app like Solace to show...and then everyone can have a little mini trans encyclopedia at their fingertips.”* Similar to P10’s friend who shared the tracking spreadsheet of resources and information to her, sharing apps such as Solace could reduce the amount of labor and friction needed to share information.

One beneficial side effect that participants mention is that the tracking data from such apps may be valuable for research or sharing at a large scale. For instance, P14 mentioned that data on timing of a transition or averages of hormone levels or changes occurring would be beneficial. In addition, they noted that such data would likely be more diverse and have more representation than current clinical samples. P16 similarly mentioned that this information would be useful, especially for long term studies. With participants’ consent, such data could be invaluable for better understanding the trans experience.

## 5.5 Tracking as queering technology

There are various ways that participants have tracked their transition without dedicated apps. Many participants describe queering available technologies [38] by repurposing them for transition. For example, P7, a trans woman, used a menstrual tracker to keep track of her moods:

*“I used a period cycle tracker on the phone because I became super emotional. That’s when I figured out how to cry. I’ve gone 30 years without crying and Week 7 [on HRT] just whoosh. And then it happened again about a month later. I knew the exact date that it had happened the first time and it was 28 days apart. And the next time that happened, I went and checked the dates, and it was, again, 28 days. That’s when I started using the period tracker, so I have an idea ahead of time when my mood swings are happening.”*

While the creators of menstrual trackers likely did not anticipate them being useful for trans women, P7 took this piece of technology and used it to aid her transition.

The information that users track also do not necessarily have to be conventionally tied to the process of gender transition. For instance, P10 commented that on Solace, it would be useful to have information on which major pharmacies ask for the patient’s sex

assigned at birth when making COVID vaccination appointments. Similarly, P4 kept track of information such as clothing size and brands that would fit him the best. P7 also used a menstrual tracker to keep track of her moods and to see how they correlated to a 28-day cycle. The information that participants mentioned were helpful for navigating not just transition and healthcare, but life as a whole.

All of the participants who mentioned tracking by themselves use some form of digital tool, but two combined both analog and digital tools. For instance, P4 had a physical notebook to keep notes in, but also used Google Notes for making lists. P1 had a similar setup, and transferred written notes to a Google Doc for easier access.

Other digital tools include spreadsheets, visualizations, and text files. P9 created visualizations for his bloodwork using an Excel spreadsheet:

*“I wanted a way of looking at all of that. It’s nice to have it there and be able to make graphs of it and see that the longer I’m on testosterone, the more red blood cells I have, or my blood sugar has gone up or it’s gone down. I like having that in one spot.”*

These graphs helped him to track larger changes over time and see what factors could have caused the changes.

P10 used a long text file to keep track of any information important for her transition:

*“I keep it open, my text editor. And it’s a big, totally unorganized file of stuff I wanted to keep track of. I’ve got research on FFS [facial feminization surgery] surgeons, the address I need to send if I want to get my birth certificate changed, some voice feminization practice sentences. I just have like a big kind of messy file where I write down stuff I don’t want to lose track of.”*

While P10 used a plain text file, other participants such as P4 and P5 used apps such as Google Notes and a native Notes app to keep lists in. Some participants who specialized in data may make use of specific types of tools. For example, P3, who does project management, used a workflow visualization.

**5.5.1 Need for greater customization in apps.** Many participants also noted that the apps needed to be more customizable. P3 commented that she wanted Solace to enable her to track different measurements, and P6 commented that it should be easier to update user pronouns on Solace without having to delete an account and start over. A common theme among participants was a need for entering custom goals and paths. As P14 put it:

*“Sometimes there’s people who can’t take certain steps to transition at that moment. I’ve been in a position like that before. So what I would do is find little ways that I can move forward every day. I would be doing at least one small thing every day, even if it was like the smallest thing. And that made me feel better. I think it’s important for people to be able to write in their own goals.”*

Being able to support custom goals would help users who are not able to access parts of their transition. If this is not supported, it can be discouraging for many users.

Participants also noted that the apps can have too narrow of a focus. P12, speaking of a formerly used app, noted, *“It was largely a focus of what traditional milestones have I achieved, but not how I felt about it. There’s a very specific difference there.”* The lack of multi-dimensional tracking (and prioritization of quantitative data over emotions) limited the app’s usefulness for P12. P2, who used to use Solace, also felt that it can be inflexible: *“I think it’s very much more helpful for binary trans people than nonbinary people...Even down to giving them your pronouns and then it spits out all those options based on what your pronouns are. And I think if you’re non-binary, it just spits out all of them.”* The app’s assumptions of users’ goals based on their pronouns can be limiting for users who do not fall into normative gender categories.

## 5.6 Tracking as access

We found that transition tracking can be a form of access. In the following subsections, we describe transition tracking as a means for users to access their own records, resources and information, and even transition in general.

**5.6.1 Accessing Records.** One straightforward reason for tracking transition is simply for record-keeping. For example, P11 had no intentions of publicly posting any transition-related tracking information, but recorded the information for *“future posterity.”* Similarly, P3 stated, *“I want to make sure that I’m documenting this in some way for myself.”* This record-keeping was being done primarily for the participants themselves, more so than for others (if at all).

Previously, we discussed transition tracking as a means of self-reflection. For many participants, apps can be a way of facilitating this. Apps can also function as a way to keep records (and enhance the way that other tracking methods have worked). For instance, TransTracks would be helpful to P2 because *“it would be cool to be able to look back at my transition and know like why I did certain things, and not just that I did them or just have a check off.”* This record-keeping can also be another way that apps facilitate reflection.

**5.6.2 Accessing Resources.** More specifically, the information tracked can help find resources for different needs, such as in P9’s case when he recalled his tracking the available transition aids:

*“There still wasn’t a lot of racial diversity around binders and packers. If you wanted a binder that looks like your skin, you usually shelled out more money for it because it was custom. So I just put in the item, put in the company, how much it cost, and compare it to other ones and see which one’s the better deal. And what do the reviews look like? That was also really helpful to figure out the many parts of transition.”*

Because of the lack of binders and other aids that were made for Black trans individuals, P9 had to find and record this information for himself.

P10 referred to Solace as not just an amalgamation of shared knowledge, but also felt that it was trustworthy because the creators *“know what they’re talking about.”* This can help users feel that transition-related information is accessible and reliable.

5.6.3 *Apps can help to access transition tracking.* Transition-tracking apps in general help make transition tracking more accessible and easy. P16 reflected:

*“Platforms like YouTube or running a blog or even people I see sometimes now track on Facebook. I just feel like the effort ratio to do all these things and record a video or track things, I feel like that app kind of erases that. It’s already built, and you just literally have to input a date, upload a picture. I think it would have simplified my reluctance to devote a lot of energy to tracking those things.”*

By reducing the overhead needed to track, these apps help make transition tracking more feasible for many.

## 5.7 Perceptions of tracking in the community

While transition tracking and app usage can provide many benefits, the trans community has varying perceptions of transition tracking, especially when apps were involved. We found that some participants felt that there was pressure to engage in transition tracking, and that there may be some barriers to adoption of apps as they can be different from a more grassroots approach in information sharing and management. Finally, we found that a common perception of apps is that they are more suitable for those who are earlier on in their transitions.

5.7.1 *Cultural Norms in Tracking.* Some participants felt pressured to track their transition. This tracking was being done because it is a cultural norm, or the “thing to do,” which P11 could relate to: *“I decided that maybe it would be good to record what I’m doing and how I’m feeling through the transition because I saw online lots of people having their transition timelines there, like videos.”* P5 concurred, saying, *“Everybody does that right now. All of us are on Instagram or Facebook or whatever. Taking photos of ourselves and documenting our lives like this is just a more targeted, narrowly focused way of doing that.”* Because P5 and P11 felt that it was a common trans experience to record and share transition tracking information, it was something they should do as well.

This pressure to track transition can be interpreted by looking at transition tracking as a performance. P1 reflected, *“It was about wanting to be observed. I wasn’t really sure by whom. And it’s a funny thing because I’m immensely private and I would never, ever share that on social media...It’s just been so normalized as a part of transition, as part of like taking T for the first time. You record it.”* Even if the information being recorded would not be posted anyway, P1 described feeling that tracking is a sort of self-surveillance.

P10, while not opposed to transition-tracking apps, could see why cultural norms might go against their adoption: *“I might not want to turn it into an app. This is my own journey.”* She added that the official presentation of information found in Solace may run against some cultural norms for the trans community:

*“That’s the kind of thing that I would have just heard through the grapevine, either on social media or from friends. And it’s interesting to see that presented in an app. It feels more official. And it’s funny...These are all kind of community norms and kind of shifting. Instead of sub community of people just telling things to each*

*other, seeing it presented in an app, it’s a little bit weird. I’m trying to figure out how I feel about it.”*

Due to the grassroots and decentralized means of information sharing in the trans community, finding information through apps like Solace can feel counter-intuitive to many users.

Transition-tracking apps also tend to be individualistic. P4 pointed out that Solace can feel *“a little isolating.”* However, P9 pointed out that one potential benefit of having a more solitary, individualistic experience is that it can mitigate some of the harm that comes from comparison within the community: *“One thing that gets really complicated, especially in trans spaces, is that people compare themselves to other people on their progress or whatever, so it’s almost a really positive thing of not having the social aspect.”* However, this is a facet of the larger online trans community experience, and even if an app is individualistic, this does not prevent similar experiences from elsewhere.

5.7.2 *Tracking apps are seen as for people who are newer/not connected to the community.* Many participants saw apps as more for people who are not integrated in the trans community. P4 mentioned that Solace could be more helpful for someone who is more removed from the trans community:

*“I can definitely see [Solace] being an extremely useful app for somebody who is really, really shy or would prefer to keep a lot of that kind of information internally and looking at them that themselves as opposed to message boards or things like that.”*

P12 agreed, feeling that Solace is best for someone who is not so comfortable asking friends for help or information: *“I might not have been able to talk to or ask about stuff or might just not want to treat friends like an encyclopedia.”* While Solace contains a large amount of information, much (if not most) of it can also be found in the community.

In addition to functioning as a centralized knowledge repository, apps can help give users a high-level overview of transition and the steps involved. Solace in particular shows the different transition options so that users can know the options available to them. Because of this, P7 felt that it could be a good introduction to transition:

*“A lot of the times you see the questions like ‘Am I transgender?’ I don’t know. I have these feelings. I can’t explain them. And having a resource to send that says, here’s some places to go. Here’s some things to do...That would be good because it would give them an idea of what transitioning might actually involve and what kind of goals they could set up.”*

This high-level overview (of transition in general or its subtypes) can be helpful for planning, getting started, and seeing the present state of things.

5.7.3 *Barriers to using apps.* First, many participants mentioned that the information provided by these apps can be too general. For P6, this was the case for Solace: *“The description is kept as general as possible on purpose so that it’s applicable to more than just a small segment of the population. It’s not exactly helpful.”* Because Solace did not provide this level of granularity around information such as specific insurance policies, this could limit its usefulness.

Transitions are extremely personal and even the same steps may be accomplished differently, as P10 put it:

*“Coming out to friends is so dependent on who your friends are and what your relationship is and the kind of personality that you have. I feel like some people would do great just being like, ‘sup guys, I’m trans’ and some people would want to write a whole heartfelt email. And some people would just not want to bring it up. I just feel like that’s so personal.”*

Because the apps need to balance generalizability with helpfulness, there would need to be some kind of trade-off for how helpful users may find them.

Another drawback of transition-tracking apps, especially for Solace, is that they are geared towards Americans only. Two of the participants did not live in the United States, and commented on this specifically. P13, who lived in a European country, commented: *“If you’re not from America, the laws aren’t going to be the same.”* The Ameri-centric targeted audience could exclude potential users who live in other countries.

Participants such as P5 also felt that Solace may not be able to provide as much guidance as some users need because of the emphasis on goals over guidance. This can limit the usefulness of the apps for many potential users.

Another drawback about apps that provide information is that participants were not sure if the information is reliable or up to date. Commenting on Solace, P11 remarked, *“I like that they provide information that’s hopefully vetted to some degree. It says it’s credible. I don’t know how true that is.”* While P11 had doubts about the credibility of the information provided, P10 had hesitations about whether the information Solace was up to date: *“I think the trouble is this stuff is always changing because that’s very specific to a time and place piece of information.”* For instance, documentation requirements for changing legal documents can change quickly, or steps to access hormone therapy or surgery may differ with insurance and legislation changes.

Many participants also expressed concerns over the privacy and security of such apps. This is a concern with apps in general, however, because transition-tracking apps contain particularly sensitive information, this privacy concern can be heightened. Security and safety is another piece of the puzzle that may not be favorable for transition-tracking apps.

## 6 DISCUSSION

From our results on the contexts of transition tracking and perceptions of transition-tracking apps, here we first discuss the particularities of transition tracking as compared to other types of health and wellness tracking such as fitness tracking. Next, we discuss transition and transition tracking as both an individual and collective process, and how apps may play into this dynamic. Finally, we discuss the potential of transition-tracking apps to support ongoing trans research.

### 6.1 Transition tracking as its own domain

There are some overlaps between habits and attitudes on transition tracking and on health/fitness tracking. For instance, both types of

tracking do not necessarily have an end point. For instance, transition is not discrete and can be a lifelong process, although there may be a list of milestones or goals to hit. Similarly, if an athlete is training, they may have a race or event that they are training for, but after this event is completed, this does not necessarily mean that the athlete is done. In this sense, both transition tracking and health/fitness tracking may but do not necessarily have end points.

A common theme found in both transition tracking and health tracking (especially in vulnerable populations) is that those who track need to have their sense of agency supported [10]. This need for agency is especially true for trans users when they navigate barriers to care, which is mostly out of control for the trans person. To increase a sense of agency, we can allow for those who track to define their own parameters and what progress means. For users like P14, who used small steps every day to reclaim a sense of agency, this would be greatly beneficial. This can be a way that transition tracking can increase access and can be a form of access itself.

Similar to general health tracking, users may want to share this data with others, such as healthcare professionals. However, this sharing can depend on the audience. Similar to other kinds of personal health tracking [27], participants mentioned that they share tracking information with healthcare professionals. However, the nuances are different in that for trans individuals, this sharing is more likely intended to advocate for themselves and get the care that they need given the increased emphasis on power differentials based on the nature of trans healthcare compared with other forms of healthcare. In contrast, when information is shared with others such as friends or co-workers, the purpose is to tell the story of their transitions and connect relationally. Thus, it stands to reason that the types of information and how it is shared differs depending on the audience, and that there is a level of curation involved. This is an area where designers can potentially allow for greater customization, such as offering different views or filters that users can select depending on the information they intend to share.

There are also some notable differences. In general, transition tracking involves a more holistic view of tracking. For instance, while other types of tracking may involve reflection, the act of journaling cannot be separated from the tracking itself. Similarly, relationships with others can define the ideal transition more so than an objective metric or end point. This affirms previous work which has noted the need for more holistic tracking support [12] especially in the lack of visualization customizability or suitability [21], where participants of this study have generated their custom visualizations (such as workflow visualizations or graphics) and have found ways to queer technologies not initially meant for transition tracking. However, we extend the definition of holistic tracking to not just (quantified) data tracking but more qualitative information such as journal entries.

This holistic approach needs to include the emotional component as well, as we have seen how tracking can be used as a form of care for the tracker (similar to [11]) and their community. Recall that P12 commented that a previous transition-tracking app focused more on completing traditional milestones than the feelings around the process or of the completion itself, which limited the app’s usefulness. Transition is more than checking off a to-do list or completing milestones. Thus, transition-tracking apps need to acknowledge the

emotional component and build this into the tracking mechanisms. For example, such apps can include regular check-ins or a field that allows recording of emotions or feelings. Furthermore, such apps can avoid prioritizing quantitative or easily-measurable data over more qualitative data. However, since we know that for some populations, professionals such as healthcare providers may trust the (quantitative) tracked data over more personal (and qualitative) experience [6], curation may also be especially needed in this case.

We found that perceptions of tracking apps in the trans community may also be unique. For instance, some participants mentioned that there may be hesitancy to adopt tracking apps due to cultural norms in tracking and a lack of trust in the developers. Additionally, participants mentioned that apps such as Solace and TransTracks tended to be more useful earlier on in transition, and some participants tracked their transition less often or ceased to track as time passed. This is in contrast to even other kinds of transition support technologies such as online support groups, where community members may remain in such groups for longer than the immediate need. Online groups may provide more support for changing levels of needs (such as managing different obstacles that may occur later into the journey) [43] compared with transition tracking, which participants mentioned were most helpful earlier in the transition.

While there are benefits to consistent tracking such as a more comprehensive record of change, this is not always desirable or necessary [26]. In addition, for transition specifically, tracking can be an emotional task influenced by factors such as expectations about results, thus, ceasing tracking (at least temporarily) may be beneficial. For those who feel that they have completed transition or are in the maintenance phase, tracking is also unlikely to provide significant benefits and it may be natural to taper off transition tracking.

In general, many participants also noted that the apps need to be more customizable. This could be improved in two parts: first, by allowing increased self-definition of goals and parameters to track, as discussed above, and by not making assumptions of the users. Examples of not making assumptions could be not associating pronouns with suggested transition goals, allowing users to easily change core information such as name and pronouns, and by adding custom fields to track information that at first glance may not be related to transition.

In addition, transition tracking has additional needs in that safety needs are more obvious than other tracking types. While health tracking can involve potentially sensitive data, especially in the case of chronic illness and disability, the challenges to safety in transition tracking come from both the immediate surroundings and a greater societal level.

Transition tracking also has a similar problem space compared with knowledge management and knowledge transfer [8, 35], such as participants not being sure if the information presented in the apps are trustworthy or up to date and participants' challenges with finding and sharing information in a decentralized manner. These problems can overlap with current work in social services information sharing as well [64]. Examining the domain specificities of knowledge management and knowledge transfer in transition tracking can be an avenue for future work.

Finally, transition tracking technology can be classified as a trans technology [33] even in the present state of queering existing

technology. Transition tracking apps, especially with increased customizability, can provide space for users to experiment with different ways of being and presenting, as well as provide a separate space for this to do so safely.

**Takeaways:** There is some overlap between transition tracking and other types of health tracking, but transition tracking can be very holistic and include differing aspects of life that personal health tracking may not be able to capture. Thus, we suggest that designers allow for users to “trans” the technology available to them. That is, designers should expect that users may not use the apps as they are designed. Furthermore, designers should give users increased agency and include the emotional aspects of transition as well. Researchers can further investigate how information is shared with healthcare providers and how the user may be able to curate the information shared based on the audience. Finally, designers can consider increasing the customizability of transition-tracking apps and taking both individual and environmental safety into consideration.

## 6.2 Transition (tracking) as an individual versus collective process

As we have seen in the results, current transition-tracking apps present transition as a more of an individual process. However, similar to other domains [50], many participants noted that transition (and transition tracking) can be a collaborative, collective process as well. For example, participants mentioned that an ideal transition can be defined by relationships with others in addition to the act of transition itself, and that resource and information sharing within the trans community is a significant part of transition and transition tracking. Accessing support networks and care from others in the community can be a vital part of transition, similar to others who are going through life changes [43]. This lack of network is a limitation of the currently available options, and an area for exploration and development in future iterations of transition-tracking apps. Potential features designers can consider include a social timeline, shareable information, or a chat or forum function.

This is similar to findings from a study on a non-WEIRD user group that found that health tracking can be a more social experience for certain cultures [46]. The authors note that designers can consider “balance between an ‘inner dialogue’ and a ‘dialogue with the world’ when implementing health tracking.

While transition-tracking apps can be individualistic, participants note that this can be a benefit in that it may reduce comparison, which can increase transition tracking's potential for acting as a means of self care. As previous work have shown, the social component of self-tracking tend to be more geared towards comparison, with the resulting hope of this comparison being physical changes [18]. Theoretically, if the user is not able to see others' changes or journeys, they would not be able to make comparisons. However, this trade-off between individual and collective experiences may result in increased isolation in a journey that can be quite solitary. Thus, we suggest that to manage this balance, designers should consider implementing filters or different views for the social component of such apps. In this way, users who are seeking community will be able to access it, while those who are prone to body image

issues or excessive comparisons will be able to use the apps in a comfortable way.

**Takeaways:** We suggest that designers implement the social aspect of transition tracking not only because this can reduce feelings of isolation, but because it better fits in with the transition process. However, when implementing social features, designers should be careful to not encourage comparison by giving users the ability to filter out what social aspects/information they want to see or participate in.

### 6.3 Transition tracking as an avenue for research

Many participants mentioned that the data collected would be beneficial for trans research. This long-term tracking [26] could help address the dearth of research studies on topics such as physical transition and health needs, transition timing and access, and other relevant issues [62]. Such data may aid the largely anecdotal information that many trans people rely on to make decisions around their transitions.

While increasing the empirical trans literature can be beneficial in many ways, there are a few factors that need to be considered before jumping into developing transition-tracking apps that double as research tools. First, in the trans community, data sharing is a challenging topic. Many in the trans community have a distrust of the research community, and for valid reasons. While much of the literature is beneficial for increasing the quality of care and resources for the trans community, there is much harm that researchers can do which can lead to increasing barriers to accessing care and transition at best, and worse, increasing transphobia and legal measure. Similarly, as P10 pointed out, a resource from a singular organization (rather than from a grassroots effort) may be met with skepticism.

To address these concerns, we suggest that researchers be mindful of privacy by allowing users to opt in and opt out of participating in research and select which data can be shared. For instance, some users may be comfortable with sharing goals for transition but not necessarily body measurements or photographs. When done well, research can be a valuable way to increase access to transition, and, paired with apps, can be an incentive for participation.

Additionally, because we saw that participants described the apps as safe spaces which may facilitate a sense of affinity with the developers, this can be used to increase user trust in the researchers. For instance, researchers can provide additional information about their studies or background and how they are related to the trans community (and their involvement in the trans community, if they are comfortable disclosing this). Because much of this concern comes from not knowing how the data or research will be used, this would be able to address many users' worries about participating in the research or using the apps.

Finally, the use of transition-tracking apps can open a door for participatory research [14]. For example, such apps can include polls that ask what users want to learn the most, or enable recruitment for potential collaborators and participants. This allows researchers to work hand-in-hand with the participants to co-create a research agenda that will consider the information and learnings important

to the community. This can lead to greater and more sustainable participation especially in more longitudinal studies.

**Takeaways:** Transition-tracking technology can be a valuable tool for increasing the knowledge we have about transitioning. However, there may be valid hesitancy in participating in such research. To address these, we suggest that researchers give increased control to users to opt in or opt out of participating in research, include trans people involved in the community in the research, and involve the participants as co-creators of the research.

### 6.4 Limitations

While this work aims to address the use and impact of transition-tracking technologies, our findings may not be generalizable to all change or transition tracking behaviors. Since we spoke to participants who have indicated that they have tracked some aspects of their transitions (even if they did not use any apps to do so), in this work we did not cover reasons against tracking. Furthermore, most of the interviewees are in the United States of America. Thus, this work may not fully capture the transition tracking needs of trans populations in different countries.

## 7 CONCLUSION

Through a series of semi-structured interviews with sixteen participants, we uncovered the context of transition tracking and how apps fit into this process. We found that participants tracked their transitions in a variety of ways and differed in the information that they kept records of and their motivations for tracking. In addition, apps may be helpful especially in the early stages of transition and can provide a wealth of information. However, these apps may be limited in their scope and may make assumptions about users that limit their usefulness.

We then discussed the particularities of transition tracking as compared to other types of tracking. We also discussed the ways that transition-tracking apps currently position transition as an individual process, which does not reflect many participants' lived experiences, and suggest ways that designers may be able to incorporate a more collective and collaborative approach to transition tracking. Finally, we posit that transition-tracking apps may be a valuable tool for research, especially longitudinal studies, and suggest ways that researchers can overcome potential barriers to using these tools.

Future work includes conducting additional studies to determine the requirements of transition-tracking apps and determine which aspects of transition to include in these apps. Further, the relationship between transition as an individual versus a communal journey can be explored as a way to generate specific design guidelines for transition support technology.

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