

Digital Care: Agency and Temporality in Young People's Use of Health Apps

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Abstract

This paper draws from interviews with 21 young New Zealanders, ages 16-24, to examine how health apps shape young people's experiences of themselves as agentive subjects in relation to their physical and mental wellbeing. Focusing on the intended and unintended effects of health apps, I examine how digital care technologies recast the spatiality and temporality of healthcare, enabling new ways of constituting and tracking health, expanding possibilities of interactive exchanges with others, and redistributing a sense of agency and control. In many ways, the forms of self-governance that health apps engender are no different from other moves to promote increased self-responsibility that are cultivated as part of advanced liberalism. However, I argue that by collapsing the spatial and temporal relations of technology use, health apps not only heighten opportunities for adopting self-responsibility, but also, as many young people attest, promote the feeling that there is no escaping from them. The result is that for many young people having a sense of control and responsibility over their health comes to be calibrated against not only the inherent inter-sociality of care (i.e. young people's desires to both give and receive care to and from others), but also the health and fitness "demands" seemingly made upon them by technology itself.

Keywords

health apps; youth health; responsibility; temporality; care

Introduction

Seventeen-year-old Olivia had been unhappy for a few weeks when she googled "chat sites for depression." This led her to the health app *7 Cups of Tea*. There, she explained, "I not only found out I suffer from depression, but found people to talk to about it." Soon she was feeling well enough to complete a twenty-question training and become a registered *7 Cups'* "listener." Now, she told me, she helps people around the world identify their symptoms as "depression," figure out coping strategies, and generally come to terms with their illnesses. Olivia's desire to use

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digital technology to take responsibility for her own health and offer care to others is hardly unique. It is emblematic of how digital healthcare is being employed to re-craft therapeutic strategies, reframe the temporal dimensions of health, and augment online and offline networks of care.

From teenagers to the elderly, people across the life-course use health apps to self-diagnose, collect and cross-check health and fitness information, and track data related to their own physical and mental wellbeing. Since the launch of the first app in July 2008, an enormous proliferation of apps has followed, with an estimated 165,000 apps focused on health available as of September 2015 (Riaz 2015). Use of online health sites, some of which are now integrated into health apps, is even higher, with leading sites such as *WebMD*, *NIH*, and *Yahoo! Health* receiving, respectively, an estimated 80 million, 55 million and 50.5 million monthly visitors (Top 15). Given the rapid spread of health apps and associated technologies, we are only beginning to grasp their present, and potential, impacts on healthcare.

Health apps operate on a global level, linking individuals into global networks of information, finance, and sociality, both corporate-controlled and “user-created,” not-for-profits. While there has been widespread concern over the ethics of data sharing and the collection and sale of “big data” with respect to websites and apps (Boellstorff and Maurer 2015; Lupton 2016), a similarly worrying, if much less noted, characteristic of health apps is that due to their novelty, they remain largely unregulated, operating outside of the state’s jurisdictions over healthcare (Buijink et al. 2012; Lupton 2014a). Developers can thus create tools for self-diagnosis or the promotion of health and wellness advice without any medical input or oversight or even disclosure of the sources of the medical advice their devices communicate.

Arguably the number one quality that attracts many users to health apps is their immediate accessibility (Goggin 2011). As with mobile phones, health apps are viewed as available, “anytime, anywhere, [for] anyone” (De Vries 2012: 12). As long as the infrastructures that underlay them, namely mobiles and connectivity, are available, health apps provide an almost immediate, and often free or relatively cheap, mode of individually-tailored information exchange. This is, however, just one aspect of how health apps, themselves a new form of infrastructure for communicating health information, are reshaping health and health-seeking behaviors.

The effects of infrastructural change are frequently not only unexpected but can remain largely unnoticed or attributed to what appear to be more visibly agentive sources (Jensen 2016; see also Bowker 1995). Health apps are, however, currently novel technologies that occupy the popular imagination, making them often the *focus* of attention, as much as the information and forms of sociality that they convey. Indeed, their novelty is part of their attraction. Like other seemingly “magical” technologies (van der Geest and Whyte 1989), apps appear agentive, holding out the potential for users to transform themselves in quite profound positive and negative ways but also making demands and ostensibly driving behavior, particularly through their reconfiguration of the temporal and spatial configurations of healthcare practices. It is unclear, however, how long this moment of visibility will last. As with the Internet, which was an object of fascination and is now arguably viewed mainly as the *source* of objects of fascination, it

is possible, and indeed likely, that awareness of health apps as a technology in-and-of-itself will fade into the background, making this a privileged moment for examining how users actively engage with a nascent technology and grapple with its visible and not so visible impacts on therapeutic practices. The comparison with the Internet is apposite as, in some ways, health apps are operationally an extension of the Internet, but there are also substantive divergences given the temporal and spatial flexibility apps enable. It is thus useful to compare them to what, by now, feel like more “traditional” forms of the e-health, throwing into relief how they encourage new facets of patient subjectivity.

Much like the technology itself, research into how health apps are being used is in its early stages. Some promising lines of analysis have focused on the role that health apps play in heightening self-responsibility for health and fitness, promoting what, following Nikolas Rose (2006), is frequently referred to as patient *responsibilization* (e.g. Lupton 2012, 2013, 2014a, 2014b; Nicholls 2013; Thomas and Lupton 2016). In this paper, I take a slightly different tack, considering health apps as a novel technology that not only fosters self-responsibility but also recasts health temporalities, thus impacting on how app users experience themselves as agentive subjects in relation to their physical and mental health. I suggest that by radically expanding the Internet’s reach and thus reframing the temporalities of healthcare, health apps heighten and intensify both self-focused and interpersonal dynamics of care and add a new dimension of technological compulsion to experiences of healthcare. The result, paradoxically, is that the very tools that are intended for facilitating patient autonomy are experienced by some users as stripping away their control over their health.

My analysis here is centered on material collected through interviews with 21 New Zealand young people, ages 16-24. Taking place in May 2015 and over the six month period of December 2015-May 2016, the interviews were carried out by myself and by a student research assistant, Andrea Merino Ortiz. Our interlocutors included high school and university students as well as young people living and working in Auckland, New Zealand. In addition, while we waited for ethics approval, Andrea undertook her own self-exploration of health apps, some of which informs my discussion here (see also Trnka and Merino Ortiz n.d.).

In our interviews, we invited young people to talk to us about any experiences they may have had with “health apps and health websites.” Strikingly, almost all of our interlocutors interpreted “health-related” technologies in a very wide frame: we heard about their use of fitness technologies and programs such as *Fitbit*, *Sworkit* and *MapMyRun*, their engagements in a variety of mindfulness and meditation apps, and their experimentations with sleep apps and period trackers. But until they were prompted, very few spoke of using apps or the Internet to deal with illness episodes—for example, googling illness symptoms to see what might be ailing them. Their comparative lack of enthusiasm to do so underscored a general tendency to interpret “health” as the *maintenance* or *maximization* of health and wellbeing (Dumit 2012). Just as strikingly, more than half of our (admittedly small) sample use apps for maintaining or optimizing emotional or mental wellbeing, ranging from coping with anxiety and panic attacks to practicing mindfulness and meditation, and described supporting their mental wellbeing as a significant facet of their health-related activities.

Many of the youth we spoke with highlighted health apps as an easy and convenient way of taking charge of their health. Some of them described the centrality of e-technologies in facilitating moves towards more independent care as they grew into young adulthood, with one, for example, noting that today “Google is my parents” when it comes to healthcare. But our discussions also reveal new sources of concern and ambivalence over where agency over health-related activities is vested, with some youth crediting e-technologies with *compelling* their behavior and not always in positive directions.

Responsibility in the Context of Care

Within the literature on eHealth, as well as in studies of contemporary health more broadly, much has been made of how online technologies contribute to the late 20th and early 21st century emphasis on self-responsibility. Apps and other web-based technologies become one of a variety of means for inculcating a new ethic of personal responsibility as we become “responsibilized” into so-called “expert patients” who self-manage our health and well-being (Rose 2006; see also Broom 2005; Dumit 2012; Kirmayer et al. 2013; Lewis 2006; and Lupton 2013; 2014b). As much of the literature on this attests, there is a decidedly moral edge to this understanding of the self, as those who are unable—or unwilling—to self-manage are deemed morally deficient (Rose 2006). The unable or unwilling are, moreover, viewed as guilty of letting down not only themselves but society as a whole; as Michel Foucault (1997[1994]) long ago noted, “care for the self” is intimately imbricated with the goals of liberal government.

New Zealand has often been noted as being at the extremes of promoting neoliberal governmentalities, both in healthcare (Barnett 2000; Fitzgerald 2004), and more broadly. As part of the “New Zealand Experiment,” the country became “a paradigm case of neo-liberal political reform ... regarded as remarkable for the purity of its new state managerial design, the speed of its implementation, and the ideological certainty with which it was pursued” (Lewis 2004: 161; see also Kelsey 1995; Trnka and Trundle 2014). Increased self-responsibility for health manifests itself in this context not only through self-management of illness, but also self-diagnosis and, at times, independent experimentation with drug therapies (Trnka 2014; Trnka and McLauchlan 2012). How do digital technologies enhance and detract from these practices?

Given New Zealand’s emphasis on self-responsibility, coupled with the fact that young adulthood is widely viewed in the West as a time when people are expected to embrace their new-found independence and take charge of their lives (Du Bois-Reymond 1998), it was not surprising that many of the young people we spoke with enthusiastically related how health apps provide them with the capability of re-constituting themselves. Sergei is a 24-year-old Russian-born IT product manager who describes himself as the kind of person who derives “a lot of satisfaction and pleasure” from achieving his goals. For Sergei, using apps is an easy, low-cost opportunity to remake himself, actively remolding aspects of his physique, his mental state, and his daily behavior. Last year, he took up a group *Fitbit* challenge offered by his company, driving

² All names are pseudonyms.

himself to gain muscle mass. This year, he is using the same company challenge to work with a mindfulness app, recording and analyzing his emotions and behaviors with the aim of devoting more of his time to activities that generate positive feelings.

He explained, “I want to maximize my *inflow* state of mind and so have started using an app called *InFlow* ... that prompts you 3 to 4 times a day to record what you are doing and how you are feeling. The first part of my year was [spent] checking in using the app... [and] in 3-4 months, I could see what activities result in feeling good and then maximize the number of these activities and see the results.”

He described how the app has had both immediate and long-term positive effects: “you know you will get asked [how you are feeling] at some point during the day, so you are encouraging yourself to feel good. ...I remember very well ... the times I record that I am feeling really bad, so even subconsciously I try to avoid those activities. So I guess in a way having entered data about what you are doing and how you are feeling has taught me how to maximize the number of things that make me happy.”

While Sergei was generally positive in describing his interactions with *InFlow*, other app users seem simultaneously both to embrace and to feel daunted by, or even frightened of, how driven they felt to fulfill the goals they set themselves through their apps. Sarah, a 24-year-old NGO worker, is as goal-oriented as Sergei, but recognizes that her ambitions can have a down side. A few years ago she had a bad experience using a calorie counting app that resulted in her teetering on the edge of an eating disorder. Today she uses a running app and has seen tremendous progress in her fitness, to the extent of being able to visit Mount Everest Base Camp a few months before our interview. Describing her feelings about the app, she wavered between appreciating how the daily notifications and records of her progress push her to keep on track, and worrying over whether she is again becoming too inflexible or even, as she put it, “obsessive” about her health regime.

Sarah: I think that even if I missed one day—like I couldn’t run or do something—I would probably go for a walk or do something for [a] longer [time] the next day. Not because I am worried about not being in shape, but because I would be [wanting to push myself]. When I was getting the motivation for Everest, it was like “it is either gonna hurt *now* or it is gonna hurt when I am like half way up a friggin mountain and I can’t do it.” So in my head I’d rather push myself now ...

Interviewer: I mean, eventually you are gonna have to do it [miss a day]?

Sarah: Yeah, but that still makes me freak out, if I think about missing one day.... Oh, you are right! Ahhhh, I need to keep that [worry over missing a single day] in check!

While Sergei and Sarah both embrace the idea that by setting a goal and working toward it they can transform their lives, others find that aiming too high can “demotivate you” when they find themselves failing, either in respect to their own goals or the achievements of others. Indeed, another direct reflection of the ethical mandate of taking self-responsibility is the large number of

young people who described the *guilt* they feel when they do not partake in the health and fitness regimes they have set up for themselves through their health apps. Michael, a 23-year-old student, recounted that forgetting to use his fitness app makes him feel like “I am being lazy, like [I’m] lying in bed or something [all day]. I feel like a kind of a sense of obligation [to exercise].” Lilly, a 20-year-old student, not only felt that she “let herself down” when she couldn’t keep up with her yoga app, but that she had “failed” when the charting of her fitness activities revealed a momentary dip or other anomaly as everything should, she explained, “remain steady.” Describing the effect that “failing” on her fitness app has on her, she recounted, “there is that moment when you might have a piece of cake, and be like ‘well, I sort of failed, so might as well just have some more cake, because I failed already.’” Lilly also worried that her apps might broadcast her failures; when asked about data sharing, she was one of the few young people who expressed concern, fearing that a GPS tracking feature on her phone might one day enable a health insurance company to catch wind of her proclivity for fast food (given her numerous trips to KFC) and adjust her insurance premiums accordingly.

Many youth referred to the motivational, or de-motivational, aspect of apps and online technologies in terms of the “inspiration” it did or did not provide. Lilly felt overwhelmed by inspiration, while others took a more pro-active attitude towards it. Sarah found that earlier forms of “dieting inspiration” had a negative effect on her sense of wellbeing, and now self-consciously focuses on surrounding herself with positive health messages:

I put a lot of things like “seize the moment,” “go find adventures” and “don’t be scared to try new things” [on *Instagram*] and take that [into]... my work day. It’s like you get into the daily grind and then you check *Instagram* and you are like, “Oh—breathe,” “plan the next adventure” or something like that. I don’t know how much of that is in my nature or how much is because of the app. ... [But] it is the good side of the apps ... You can probably do it offline and put posters on your wall and [there are] articles you can read and books, and being with people and talking ... But you can also make a positive little world for yourself online.

As the accounts of these young people suggest, new technologies both reflect and create political ideologies (Reeves 2016; Sharp 2014), in the sense of heightening possibilities for the realization of the responsabilized self. Not everyone can participate in these exercises, but even those who actively eschew them do so under the shadow of apps as an easily accessible and widely popular medium and approach to self-cultivation. For the many who *do* use them, part of their popularity lies in how they seemingly enable users to engage in an array of health and fitness activities, just about any time and anywhere, while promising to provide them with privacy and a sense of control.

Maintaining Privacy and Control While “Signing Your Life Away”

Like mobile phones, which provide one of the primary platforms for health apps, one of the allures of apps is their ready availability, portability, and speed of access. For many young

people, an associated feature of portability is the privacy it enables (Gibson and Carthwright 2014). As Jenna, who recently started using a period tracker, explained, now the dates of her menstrual periods are stored on her phone, while before, “usually I just marked them on a calendar and I had an awkward couple of conversations when my flatmate was like ‘Why do you have highlighter on some of the days?’ [laughs] ... So this is a little bit more private.”

Just as importantly for many users, many (but not all) health apps enable health information to be accessed without requiring personal disclosure. For Olivia, who at seventeen decided she had depression and was going to treat it via online chat sites, the privacy provided through *7 Cups* was vital as it allowed her to seek help without involving her parents. She recounted a previous occasion when she was scared that what turned out to be a urinary tract infection might be a sexually transmitted infection and attempted to privately access medical care. At that point 16 years old and living at home with her parents, she made an appointment with her family physician whose receptionist promptly texted her mother an appointment reminder, even though Olivia was by New Zealand law an adult in charge of her own healthcare. The result was a heated confrontation between mother and daughter. This time, she wasn’t going to make a similar mistake, she told me.

Older youth aren’t as worried about their parents finding out, but nonetheless relish the possibilities of anonymous interaction. Lilly told us it would be excellent to use an app to attain professional counseling because you could be “anonymous and have someone that you don’t know and who is not going to judge you [to talk to], and have a conversation that is a bit more unrestrained than if you were talking to your mother.” In a similar vein, Kerry Gibson and Claire Cartwright (2014) found that youth are attracted to counseling services conducted through text, because it both remains anonymous and enables them to stop replying at any time, granting them both more privacy and greater control over the terms of their therapeutic encounters.

For 23-year-old Michael and his live-in girlfriend, the privacy enabled by a fitness app allows them to explore exercise programs that they would never take up in an ordinary gym. He explained that “what I like about it is that we can do it in our own home, like in the bedroom, so it’s not embarrassing or anything. Because you don’t have to go outside and have other people see you. [My girlfriend] did say to me after the first time we tried the app, ‘I am so glad we are not doing this out in public.’” Moreover, while others may relish the opportunity to upload their data and compare their improvement with that of other users, Michael and his partner embrace the opportunity to do precisely the opposite, appreciating how, unlike in an exercise class, the app enables them to individually tailor their trainings, controlling their pace and progression of without reference to anyone else’s interests or progress.

The emphasis on the privacy enabled by health apps may seem surprising given that so much current discussion focuses on how these technologies amass information that is both personally sensitive and commercially valuable, turning users’ self-tracking into profit-generating enterprises (e.g. Buijink et al. 2012; Lupton 2014a). These two levels of disclosure are, however, seen as radically distinct: young app users are interested, and often intensely so, in whether or not other users will be able to view their data, particularly in terms of how this may affect their personal reputations, but tend to be much less concerned with how that information

may be collated and used by commercial entities. Indeed, many young people refer to the commercial collection of their data as an unwanted, but nonetheless easily tolerated, fact of life. Sergei, who works in an IT company, encapsulated this perspective when he stated, “with any cloud provider, when I clicked ‘agree’ in the *Terms and Conditions*, somewhere in there it says they can share the data. ... They know exactly what I am doing and they can do whatever they want [with it] because they asked you to sign your life away. It’s okay—it is part of living in 21st century.” The trade-off is that while money might be made off of one’s data, users are able to access information, and the means of organizing and storing information, for free or at least relatively cheaply.

Health app use is thus linked to the market place in two ways: the creation of valuable data and the circulation of free or inexpensive expertise. For many users, it is not only that they can access advice for free but also that the interactive nature of searches and chat sites reinforces their sense of control and even mastery of health information. Instead of being positioned as passive recipients of healthcare, they are actively engaged in seeking out and determining the value of information. The advice they access, moreover, often appears specifically tailored to their individual conditions, heightening their sense of being active participants in taking care of their healthcare needs. For Olivia, engaging in a chat site for depression meant that she was not only comparing her state of mind against descriptions of “depression,” but interactively receiving responses to, and even assessments of, her specific, individual circumstances, in ways that reinforced her own self-diagnosis.

Agency and the Recasting of Health Temporalities

The feelings of control that apps can encourage are, however, tempered for some users by their sense that the technology has an agency of its own. Apps structure particular kinds of affective engagements in health activities, creating a sense of responsibility and guilt, competition, success or failure. These affective responses drive particular behaviors to the point that some users describe apps as agentive forces, particularly when they are felt to restructure the temporalities of health and healthcare. As anthropologists, sociologists, historians, and philosophers have underscored, control over time—including the structure and tempo of mundane, daily activity and inactivity—can radically impinge upon people’s sense of where agency over their behavior lies (Greenhouse 1996; Rutz 1992; Verdery 1996). Apps have life spans that can last a few minutes to years of a user’s lifetime. While apps can be deleted at any time, some users feel like specific apps impinge on their abilities to temporally frame their healthcare activities, appearing unable to wrest free from their demands.

For Michael, having an exercise app that is not only free, but always accessible, makes it harder to justify why he doesn’t train more often. “The phone is in my pocket [so] I could just do it, and then [the question] is *why are you not doing it?*” he explained. While many youth expressed feeling similarly “guilty” when they don’t make use of their health apps, others worried about apps’ possible obsessive qualities. And some very frankly stated that instead of feeling in control

of the app and using it as the tool they intended it to be, its constant interruptions and demands on their time and attention make them feel like *they* are the ones in danger of being controlled.

Sarah spent some time “obsessed” with a calorie-counting app that would scan in the barcodes of ingredients and calculate the calorie of each mouthful. “You just get obsessed with numbers,” she explained, “worrying over three calories. ... I think it was just the numbers that you could see going up and down [on the app].” Asked if she thought the app actually instigated, or only enabled, her obsession, she first replied:

the apps give you a means to fuel this obsession that I think most people, or maybe most girls, have with body image. It gives you a way to track it and focus... [and] really *achieve* something. ... You get so many different things telling you what is good for you and this is how you get in shape, and this gives you a way to track what you are being told. And some of the promises give concrete results, like you are gonna lose this much by 6 weeks.

But then she began to describe the app in terms of its *demands* upon her:

I just turn off all the notifications ‘cause otherwise they can just pop up on your screen at certain times during the day. If you haven’t been focusing on it, it is like, “Ohhh come back to me!” [laughs] It [the app] would be like, “You haven’t logged your food this morning,” or, “You haven’t logged your food in a couple of days, like a *we-miss-you* kind of thing.” Some other apps email you, being like “oh, we miss you—you seem to be inactive for a while”—like reaching out through other methods if notifications aren’t working—which ... is just too much... but maybe that is just me, like I hate being told things from technology.

Sue, age 18, related having a similar feeling of compulsion when she looks up health-related information on the Internet. Too much information at her fingertips leads her to feeling overwhelmed and yet also unable to stop looking into possible conditions she may or may not have. In describing this dynamic, she depicted herself as simultaneously both powerful and powerless in responding appropriately to the information she finds on the Internet, explaining:

I don’t think it’s natural for people to know about so much. Maybe it’s a bad thing to say, but some people are quite weak-minded and can be quite impressionable. And when you hear different stories of people with these sicknesses and when all these very common symptoms could be a possibility [indicating] so many things, it leads you to come back. Because you can’t ever just get over it in one session on the Internet, and you keep on coming back.

Having the Internet continually at one’s disposal on an iPad or phone further compounds such feelings of compulsion. For others, apps similarly appear to drive their behavior, but more in the spirit of games that take on a life of their own until they are “beaten” or mastered (Maturio and Setiffi 2016). Describing a complicated give-and-take between the agentive force of an app, his own agency, and the social expectations of his friends, Michael related how his previous

flatmate got him hooked on a sleeping app until he “won” the two young men’s unacknowledged race to “beat” the app:

My flatmate said it was really good, so I tried it out. I guess the way it works is it uses the microphone in your cell phone to record the noises whilst you are sleeping, and then depending on how restless you are—or whatever, I don’t know [the way it works]—it does some science-y thing and shows you with a little graph, where you were spiking or being awake or in a really deep sleep or whatever. [So] you wake up and look at your phone and it gives you a rating of how well you slept, like a 50 percent rating or a 70 percent rating. And so it really turned into a competition between him and I—we were competing about who was sleeping better. Then one night I got a 100 percent rating. I think I was hung over and slept for like 12 hours and got a 100 percent rating. And then I deleted the app off my phone and never used it again. In a weird way I felt like I had finished the app. I clocked it, like it was a video game or something—this is what it feels like to have a perfect night sleep according to the app, now I know and I don’t care anymore.

In other cases, the ever-present nature of apps is seen as disruptive of the very activities they are intended to support. Sergei described frustration with how the mindfulness app frequently interrupts his day. Set up to measure how many of his waking hours are spent being “inflow,” the app has the ironic effect of interrupting his concentration by making him stop what he is doing to record his moods and emotions.

Users are, moreover, not always being summoned by software-generated notifications. Sometimes interruptions, both wanted and unwanted, stem from other users’ seemingly never-ending requests for communication. For Olivia, the 24-hour nature of health apps was seen as a real bonus, enabling her to counsel people on the other side of the world. As she explained, often someone will be in strife and needing support at 3 or 4 a.m. in the US when most people in America are sleeping. But as this is the middle of the day in New Zealand, she is wide awake, easily reachable, wherever she might be, on her phone, and ready to help. For others, however, potentially constant communication can wrest open ethical issues regarding their sense of obligation to provide care to others, resulting in confusion over what are appropriate limits to one’s availability and the amount of responsibility and intimacy they take on. One young user recounted how challenging she found it when someone she did not know began to frequently message her about their emotional and psychological struggles:

I was having a bad day and wrote something [into my mood tracker app] along the lines of “I’m feeling angry, why won’t people do things the way I want them to?” Almost immediately I had three replies from other users, [one of whom stated], “I know what you mean—my parents annoy me so much when they do things their way!” I replied and after a few exchanges, my correspondent began writing more and more about her parents. She informed me that they were both alcoholics and that she was really struggling, at times wondering what was the point of it all. I became genuinely concerned ...[and] found myself

suggesting she look into Al-Anon [a support group for relatives and friends of alcoholics, allied with Alcoholics Anonymous].

The next morning I'd almost forgotten about the whole thing when I suddenly got another message from my "new friend." She wanted to know how I was doing and if I felt better. She also wanted to let me know she had been looking into Al-Anon and might be going to a meeting near her. I looked at my phone and a huge sense of regret filled me. Did I really want to establish constant communication with this person? In the end, I didn't reply, as it felt inappropriate to carry on. My "friend," however, carried on messaging me, asking me how I was feeling, and expressing concern over my silence... A month later I deleted the app out of sheer exasperation.

While relations formed offline can include similar kinds of boundary negotiations, what is striking about friendships initiated through e-technology is the speed, intensity, and possible ceaselessness of their connection, given the possibilities of 24-hour inter-connectivity. There is also the seemingly simple means of dissolution (Bauman 2003), given the ease with which messages can go without reply and whole apps can be deleted. The actual effects of severing ties may, however, in some cases reverberate for a long time. This young woman at first felt obligated to respond with advice, but later found herself unable to assist in the way that seemed to be desired of her, leaving her in an ethical conundrum that never quite disappeared, even after the app was deleted (Trnka and Merino Ortiz n.d.).

Socialities of Care

Regardless of whether one manages to "beat" the app or feels "beaten" by it, in general, many youth spoke of apps as providing an added dimension of entertainment and excitement not only to health and fitness activities but also to pre-existing social relations (see also Thomas and Lupton 2016). Many of the youth we spoke with engaged with health apps as a new facet of offline and online socialities, either uploading and sharing their data through apps with friends they had made offline, or actively engaging with health apps in front of or alongside friends and partners.

Sergei's office used *Fitbit* as the basis of an intense face-to-face competition, making each employee's daily progress visible for all to follow. As he explained, "I felt a bit awkward first when I was on the *Fitbit* board and everyone could see my steps—when I am active and when I am not active—so it was a bit awkward but then I stopped caring really." *Fitbit* is often promoted as a tool for taking personal responsibility for one's own health, with advertising copy hailing it as way of "help[ing] you stay motivated and improv[ing] your health by tracking your activity, exercise, food, weight and sleep" (Fitbit 2016). Users are encouraged to enhance their progress by "challeng[ing] friends and family" and watching their progress on the leaderboard (Fitbit 2016). In this case, however, *Fitbit* was transformed into a corporate forum that provoked judgment and face-to-face commentary within the office. Such commentary fostered not only individual commitment and collective solidarity but also positive and negative peer pressure. Two employees quickly dropped out of the competition. For the others who remained, the

leaderboard became a site of both humor and interpersonal rivalry. Sergei recounted, “it was a friendly competition. We had conversations about it, we had lots of jokes. [On the final day] literally everyone was on their feet running. ... The next day we all came in to work, [without getting] enough sleep but in a good mood, discussing how we were all running [through the night] for the competition.” Sergei was a bit chagrined he did not win the *Fitbit* challenge but noted that the winner went through a huge transformation (losing weight and generally getting fit) which “is inspirational—it is. It is no secret to anyone that he has changed. Everyone has seen it and he has done well. ... I am very goal driven myself so when I see an inspiration like that, then it inspires me even more.”

Another part of the thrill for users is watching the technology unfold, seeing (as much as possible) how it works, and envisioning where it might lead. For Michael, the sleep app was intriguing because he wasn't sure how it worked, and while its effectiveness seemed pretty limited at the moment—“it's like I don't completely trust it, ... just because maybe the technology isn't there yet to really give you [an] accurate precise thing”—he assumed it will improve. Some of the novelty and lack of trustworthiness is offset by the incorporation of health apps into pre-existing assemblages of healthcare. Michael refrained from uploading his fitness data into the exercise app, instead choosing to keep track of his and his girlfriend's exercise sessions on a piece of graph paper they taped onto their refrigerator door. Having given up calorie counting, Sarah was keen to buy a *Fitbit* but worried about the effects the calorie-counting feature may have on her, proposing to cover it up with a piece of sticky tape so that the numbers would no longer be in view.

Many young people express similarly ambivalent relationships with the information they find online, both embracing it for the assistance it provides and seeking proof of its veracity. Sarah was living alone for the first time when she turned to health apps and the Internet for basic health advice. “Google is my parents,” she said, with respect to how she makes sense of illness symptoms. But she also triangulates health regimes and information that she finds through apps with advice from her friends. Lilly went through a process of cross-checking all online information on multiple sites. Sergei at first recounted that he would never trust information from the web, but then described verifying online health information with colleagues and friends, and, in turn, double checking what they told him against information he found on websites. The ability to corroborate something across multiple sites, and to check its accordance with “common sense,” frequently come to stand as the hallmarks of validity. As Sue explained of some of her attitudes to healthy living, “the reason I know these things is because I got it all from online. ... I can't say that my sources are credible, but you know, it does make sense [and] I've heard this [specific advice] several times.”

But users are also aware, many acutely so, of how health apps stand in for other services that they find preferable but too expensive, even in a state-supported medical system. An app or using “Dr. Google” were frequently cited as a much cheaper alternative to paying to see a physician. Some jokingly referred to their abilities to use apps to obtain access to higher-level services whose offline counterparts are far outside of their financial means. Michael, for example, laughingly explained that half the fun of the fitness app is that the “personal trainer” it provides

is actually an “*impersonal* trainer” (i.e. a software program), while ruefully noting that he doesn’t have the money to go to the gym, much less to work with a real personal trainer who would take into consideration his individual needs and progress.

Young people may thus be swayed by the promises of new technologies that stoke desire and fantasy (Sharp 2014; Turkle 2005, 2011), but many also actively employ pre-existing socialities to frame the knowledge they encounter online (c.f. boyd 2014). They are also keen to represent themselves as wary and alert to the possibilities of being caught out. Health apps are thus seen as appealing and fun, but many youth also suggest they need to be approached with a grain of salt, lest one be duped by empty promises.

Crafting Selves Online

The sensitivity of young people to encountering false or incorrect information online may be partly fuelled by their own online practices. Actively re-crafting one’s online persona(s) appears to come naturally to those well-versed in putting their best face forward on *Facebook* and other social media sites. Health apps thus often appear to present youth with the alluring possibility of altering personal data in order to appear to have met their (self-determined) health and fitness goals.

Even the research assistant on this project, a graduate student in her mid-20’s who was hired to try out health apps, was not immune, noting that she was tempted to “cheat” on the daily logs she entered into a meditation app. A long-time meditator, she explained,

According to my meditation stats [generated by the app], I am a failure—I do not meditate long enough, or change my mood significantly through meditation. Actually, I cannot really tell how long (or how “well”) I meditate, as my logs are inconsistent and sporadic. I would have to be extremely disciplined if I wanted to produce more realistic charts and graphs. ... Even more frustrating is how this app has a “My Progress” tab in which I never “Earn a Sticker” for improving my meditations ... But what about other users? Are their logs equally flawed or are they the disciplined ones while I just lack the necessary willpower?” (Trnka and Merino Ortiz n.d.).

“Cheating” in the depiction of one’s online self/selves might appear at first as a form of false representation, perhaps leading some to wonder why users would sacrifice the ability to improve the “real” self (through tools such as tracking) in order to improve the often-anonymous online presentation of the self. This, however, evades the point of how the self is variably constituted on- and offline (Boellstorff 2015; Turkle 2011). Just as presentations of the self diverge across multiple offline contexts, be they domestic, educational, or professional, online and offline selves do not necessarily have to replicate one another, much less entirely align, in order to be “real” enactments. As anthropologists have long pointed out, the concept of the “divisible self” enables an understanding of the self as socially constituted and frequently divergently so in different contexts (Marriott 1976; Strathern 1988). Users’ doubling (or tripling, quadrupling, etc.) of the self online, uploading stats that ostensibly represent offline activity and are subject to the

gaze of others, is yet another site of identity creation. Indeed, achieving health as the crux of identity creation online might be more vital to some users than tracking “actual” offline activities. For others it is an unfortunate, or even troubling, misalignment between online and offline personas (as conveyed by their use of the word “cheating”) but remains nonetheless alluring. Reducing this tension to “representation versus reality” doesn’t capture the ways in which online representation is another form of reality (Boellstorff 2015).

One of the drives toward creative re-crafting of the self appears to be the wish to wipe away a sense of guilt. Another is the desire to take a more active role in online (and perhaps offline) socialities. Digital technologies open up the space for a particular kind of expertise that is primarily negotiated through representation and managed self-disclosure to an extent rarely available in offline relationships. On the *7 Cups* therapy website, Olivia was able to refashion herself as a listener/counselor providing advice to people she refers to as her “clients,” despite the voluntary nature of her services. These activities are not only a part of how Olivia envisioned her “healing process” but also enabled a teenage girl to step into what is usually considered an adult role without any overt questioning of her status or abilities to do so. Given that her profile describes her as a listener available for both adults and teenagers, “clients” who may otherwise balk at receiving advice from a teenager are likely unaware of her age. Indeed, *7 Cups*’ policies enable listeners as young as 15 to provide counseling (with the caveat that they should have parental consent), but it is hard to see what might stop youth younger than this age from “cheating” on their ages and taking part, if they wish to claim the identity of a counselor.

While the emphasis of neoliberal discourse rests firmly upon the activities undertaken by the self, self-care occurs, and often can only occur, in social contexts in which it is actively enabled by others (Trnka 2017). Indeed, some youth seek out such inter-personal contact, using health apps or Internet sites not only to obtain care from others, but also to provide acts of care to those in need. Their efforts depend largely on their abilities to craft online selves who are appealing to others. Even though early studies hailed the inherent egalitarianism of the Internet, recent research highlights the ways in which online power dynamics advantage some users over others (Boellstorff 2015). Knowledge and authority are asserted, and contested, in online health forums in particular ways that enable some participants, usually those who are savvy in quickly, briefly and provocatively expressing themselves in written form, to adopt modes of authority that might be foreclosed to others. Health and fitness thus become intensely socially-mediated experiences, mediated through (online and offline) engagements with those one meets online as well as through pre-existing socialities. Most of these are described as reciprocal exchanges, with youth taking part in both eliciting and providing advice.

More radically, a minority of youth recount that sometimes inspiration and peer-to-peer care are simply not enough, acknowledging how illness can strip even the most self-responsible subjects of their abilities to care for themselves. Jenna, who suffers from occasionally crippling anxiety and depression, was unusually forthright in asserting the importance of inherently unequal relations of care:

So much of mental illness is imbalanced brain chemistry and if you keep that to yourself, I think you are basically putting yourself in a position where you don't see the full picture and are putting yourself in danger. ... When it is chronic and long term and you are in a situation where you're behaving erratically, but you are justifying [your behavior], you are not gonna talk yourself down from doing something a wee bit extreme. Whereas health professionals can [step in]. ... Like if you are having a bad week and you miss a doctor's appointment, your doctor is gonna ring up, especially with mental health stuff. They are gonna ring and they are gonna say, "How are you doing? You missed the appointment—how come? When do you want to reschedule it for?" And so if you have not been out of bed in three days, your doctor is going to remind you of that and is going to motivate you to get up and come out. Whereas with a website you don't have to get out of bed to look at it, no one is gonna chase after you.

In her poignant critique of the dangers of over-emphasizing patient agency, Jenna suggested that even by radically extending the temporal and spatial coordinates of online healthcare, health apps cannot possibly match relationships in which agency and responsibility can radically shift between patient and caregiver on an as-needed basis (c.f. Mol 2008).

Conclusion

I have underscored how the near ubiquitous and multi-varied nature of health apps has led users, particularly youth, to employ them for a wide range of purposes. As with the Internet, health apps have diversified health and fitness activities, creating sites of unregulated sale and distribution of health advice, new ways of constituting and tracking health, and expanded possibilities for interactive exchange. Facilitating multifarious modes of intra- and inter-personal activity, health apps have widened the temporal and spatial possibilities of therapeutic engagement. Though the "enchantments" of this new infrastructure may be many (Harvey and Knox 2012), for the moment, users' responses to health apps' effects range from anticipation and excitement to skepticism and fear.

In some ways, the affective forms of self-governance that health apps engender are no different from other moves to promote increased self-responsibility that are more broadly cultivated through the regimes of advanced liberalism. But by collapsing the spatial and temporal relations of technology use, mobile devices and the apps they enable heighten not only the possibilities of activities promoting responsabilization, but also, as some youth attest, the sense that there is no escaping from them. One can take responsibility for her or his own health by looking up information in medical textbooks or online; it is another matter when a health app sends you reminders that you haven't input your data that day (or in the last couple of hours), or when other users can instantaneously comment on your progress or make requests for your attention "anytime, anywhere." While increased self-responsibility, in particular through activities centered on self-surveillance and tracking, is one facet of what these technologies promote, having a sense of actual *agency* over one's health becomes part of a careful balancing act, calibrated against the need to both receive and give care to others, the pressures and

expectations of one's (online/offline) communities, and the "demands" seemingly made by digital technologies themselves.

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