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Speculating on precarious income: finance cultures and the risky strategies of healthy volunteers in clinical drug trials

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ABSTRACT

Speculation has become a normalized occupational strategy and quotidian economic rationality that extends throughout society. Although there are many contemporary articulations of speculation, this article focuses on contract labor as a domain of financialization. Seen through this lens, contract labor can be understood as a speculative investment strategy wherein individuals leverage whatever assets they have at their disposal – savings, time, bodily health – to capture economic advantages. In particular, we explore the speculative practices of healthy individuals who enroll in pharmaceutical drug trials as their primary or critical source of income. Mobilizing speculative logics to maximize the money they can earn from their clinical trial participation, these contract workers employ what we term a *future-income-over-immediate-pay calculus*. This speculative calculus valorizes fictional projections of significant long-term future income over present financial opportunities. For the economically precarious individuals in our study, we argue that rather than effectively increasing their income, speculation on contract work serves a compensatory function, providing an important – but ultimately inadequate – sense of control over market conditions that thrive upon workers' economic insecurity.

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Speculation is a form of high-stakes investing that involves the possibility of large financial rewards or losses. Classically defined in the professional realm of finance as the purchase of assets for later resale in the hope of profiting from an anticipated change in market price, speculation has become a pervasive cultural orientation that spans all income brackets, involves diverse asset forms, and guides a wide range of economic behavior. On one end of the spectrum, traditional forms of speculative investment in high finance persist, such as expert trading in stocks, foreign currency, and real estate (Preda 2001, Ho 2009). On the other end of the spectrum, individuals driven by economic precarity and insecurity routinely take big risks with their employment, savings practices, debt redemption, and consumption decisions, despite uncertain rewards (Martin 2002, Ross 2008, Graeber 2014). For instance, individuals who are self-employed or contract employees in a wide range of industries could be said to speculate on what projects or companies will generate the most revenue for them over time (Neff 2012, Duffy 2017). College students and subprime mortgagors, as well, embrace various forms of debt that they speculate will translate into future security (Hyman 2011, Allon 2015). Without any guarantees for long-term work or asset-value appreciation,

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many individuals must choose how best to use their limited resources today to position themselves for financial – as well as cultural and symbolic – success tomorrow. Through these processes, speculation becomes a normalized occupational strategy and quotidian economic rationality that extends throughout society.

Although there are many contemporary articulations of speculation, the focus in this article is on the speculative practices of healthy individuals who enroll in drug trials as their primary or critical source of income. As part of the development of new pharmaceuticals, Phase I clinical trials are conducted on healthy volunteers to test the safety and tolerability of investigational drugs. Despite the term 'volunteer,' these research participants are technically short-term independent contractors who are paid to enroll, leading many to participate serially in such trials with some even identifying as 'professional guinea pigs' or 'professional lab rats' (Abadie 2010). Compensation for studies varies depending on the length of the trial, including time confined to the research clinic and number of outpatient visits, as well as the procedures involved, but these trials typically offer $100 to $300 per day, creating trials that range from less than $1,000 to over $10,000 (Camporesi and McNamee 2014, Edelblute and Fisher 2015). Participants can generally expect to be paid within a week of a trial's end, so depending on the trial's length, participants could collect their study stipend within just a few days or weeks from pursuing it. While there are health risks involved in testing investigational drugs, Phase I trials are generally considered safe, and it is rare for healthy volunteers to die or have life-threatening injuries from their participation (Emanuel *et al.* 2015).

In making decisions about Phase I trial enrollment, some healthy volunteers mobilize speculative logics and practices to maximize their clinical trial compensation in an attempt to actualize long-term financial stability within a context of economic precarity. Specifically, they employ what we term a *future-income-over-immediate-pay calculus* when deciding whether to enroll in specific clinical trials available to them. Crucially, this speculative calculus valorizes fictional projections of significant long-term future income over present financial opportunities. To operationalize this calculus, imagine a contract worker is offered $1,000 to perform a job that could take two weeks. That worker, even if in need of the immediate pay, might not consider that contract worthy of her time and refuse the job out of the belief that something else will come along and earn her more income later. Alternatively, another contract worker is offered $10,000 to perform an onerous job that could require many resources and capital investment, making the job less attractive than one that might pay only $5,000. In this scenario, the worker chooses to make less money in the short-term out of the belief that his future income can be maximized by investing and earning less now. In both instances, these workers anticipate the demands of the contract labor market, foregoing available opportunities for revenue in pursuit of an imagined, more lucrative payout over time.

In developing the concept of the future-income-over-immediate-pay calculus, we argue that rather than effectively increasing their income, speculation on contingent contract work serves a compensatory function for these workers. Such labor speculation provides an important – but ultimately inadequate – sense of control over market conditions that thrive upon workers' economic insecurity. We analyze clinical trial participants' economic decision-making through the lens of speculation because these workers explicitly cast the decision to decline a study as risk-taking, but as with many other forms of speculation, we find that for the individuals in our study, these decisions often do not pay off financially. Indeed, our study suggests that especially for workers who are the most economically precarious, betting on imagined future income opportunities typically leaves them financially worse off than had they pursued an available option for immediate pay.

Like other financial investment practices that have been normalized as a means for meeting basic needs in the absence of secure wage labor, stable employment, or adequate state assistance (Callon 1998, Allon 2016), contingent contract laborers engage in speculative practices to manage economic insecurity. When workers are responsibilized to treat labor as an object of speculation, larger systems of finance-based capitalism are further insulated from direct recognition or critique. By attending to the strategies healthy volunteers use to evaluate the long-term value of individual clinical trial

contracts, our data provide important conceptual insights into the efforts and ramifications of precarious workers seeking to exert control over industries that typically leave them powerless.

Contract labor, uncertainty, and shifting financial practices

As scholarship on work and economic trends has shown, there has been a massive shift since the 1980s in employment patterns away from stable, benefits-bearing jobs to unstable, low-wage, exploitative jobs (Neilson and Rossiter 2008, Kalleberg 2011, Ross 2017). In addition to the proliferation of service-sector and temporary jobs, the rise of contract work has been a key part of the transformation of work in the past decades (Gregg 2011, Katz and Krueger 2019). Although contract work offers no promise of sustained income, empirical studies have shown that many workers choose to pursue this work because of its potential higher rewards compared to traditional full-time employment (Kunda *et al.* 2002, Gallagher 2008). Contract work has been particularly attractive to professionals who can offer their expert services to corporations and earn higher wages while having more flexibility over scheduling and the scope of their work (Sharma 1997, Barley and Kunda 2006). Through the perceived benefits of contract work, economically risky work has become appealing to many professionals (Neff 2012).

Individuals' relationship with financial risk is shaped by the broader culture. At the same time that employment patterns have changed, world economies have embraced finance capitalism, which refers to an economic system premised on deregulated financial markets in which the profits prioritized are those that can be made from capital itself (e.g. investments in stocks, currencies, and derivatives) as opposed to production (e.g. manufacturing and distribution) (Leyshon and Thrift 2007). In such a system, volatility and uncertainty have come to characterize international financial markets. The response to this increased uncertainty has been a proliferation of complex strategies of risk management, insurance, hedging, and speculation, which have paradoxically fueled more financial uncertainty (Strange 1986). This dynamic was evinced by the 2007/2008 global financial crisis that illustrated the 'house of cards' out of which the system had been built (Allon and Redden 2012).

Finance capitalism affects more than just the practices of Wall Street. As the priority once given to including workers fully in the labor market yields to the primacy of investing as a way of orienting domestic policy and ideas of productive citizenship, a cultural economy that thrives on speculation and risk seeps into everyday life as well (Martin 2002). This phenomenon is exemplified by the proliferation and intensification of popular forms of involvement in financial markets (Lai 2018). As Martin (2002) explains,

> Finance is not only the question of what to do with the money one has worked for, but a way of working that money over, and ultimately, a way of working over oneself. … [A] new set of signals are introduced as to how life is to be lived and what it is for. (17)

The system of finance capital emphasizes that individuals are responsible for their financial futures and disavows the role of the state in ensuring that citizens' welfare needs are met (Lai 2017). Subscribing to this view leads individuals to normalize financial risk as they re-envision their homes, savings, and debt as speculative assets that *should* be leveraged (Allon 2015). Individuals' health can also be subject to investment logics through a process of bio-financialization, which ascribes financial value to people's bodies and behaviors (French and Kneale 2012). Not surprisingly, these financial activities, particularly because of predatory lending and sales practices, disproportionately disadvantage – if not exploit – people of color, women, the unmarried, the unemployed, and noncitizens (Cooper and Mitropoulos 2009).

While the extant literature has explored how individuals are encouraged to see themselves as units of financial management, contract labor as a domain of financialization has received less attention. Seen through this lens, contract labor can be understood as a speculative investment strategy itself wherein individuals leverage whatever assets they have at their disposal – savings,

time, bodily health – to capture economic advantages. This perspective is particularly salient when examining how contract labor has also changed in the past decade. Rather than a market for professionally trained or credentialed experts who often undertake contract labor under conditions of professional stability (Neff 2012), contract labor has expanded to include unskilled workers. This is most obviously manifest in the gig economy, which relies on non-employee workers fulfilling short-term commitments to meet the labor demands particularly of app-based, platform companies (Friedman 2014). Perhaps unlike many highly skilled contractors, these workers tend to suffer from overwork, social isolation, and less control over their financial security (Yin *et al.* 2018, Ravenelle 2019, Wood *et al.* 2019). Nonetheless, few empirical studies have examined the financial calculi involved in independent contractors' decisions about which contracts to accept or reject (Camerer *et al.* 1997, Shapiro 2018).

There is a vast literature in economics, sociology, psychology, and other fields that has examined individuals' and households' financial decision making (for an overview of this literature, see Opaluch and Segerson 1989, Beckert 2013). A key area of research inquiry has been the role of uncertainty in financial decision-making, or the impossibility of predicting in advance the outcomes of these decisions (Pixley 2010, Jasarevic 2014, Tellmann 2014). This literature is particularly relevant to contract work because individuals must make decisions about how to maximize their income over time based on limited information about present and future opportunities. Envisioning what the future might hold is critically important when dealing with uncertain outcomes (Cooper 2010), leading many to fabricate 'fictional expectations' about their financial futures (Beckert 2013). These fictions are often based on optimistic projections wherein individuals assume they will have greater success in an uncertain financial market than is perhaps possible (Stout 2012).

On a daily basis, individuals mobilize decision rules that structure their economic behavior. Serving to bridge the future they see for themselves and their current situation, decision rules operate as 'precise, formal means of implementing these [economic] motivations or could merely be a convenient "philosophy" for making choices' (Opaluch and Segerson 1989). Classic sociological work on households has shown that distribution of opportunity will, at least to some extent, change decisions or behaviors (Becker 1962). Having more or less income changes consumption practices, and it might also change individuals' responses to risky financial decisions. Mishra *et al.* (2012) have argued that individuals are more likely to choose higher-risk financial options when they are in situations of greater need. In this model, if a safer financial option is not likely to provide the resources that individuals need to make ends meet, then those individuals will pass on the relatively certain option of less money for the larger gamble of earning more, possibly being left with nothing as a result. This is an interesting perspective from which to understand contract labor, particularly for those individuals who have fewer financial resources. Combining a focus on contract work, financial decision making, and the culture of financialization in everyday life, our work contributes to these literatures by exploring how precarious workers use speculative logics when navigating between current contracts and unknown future possibilities.

Methods

We conducted a mixed-methods, longitudinal study of healthy people who enroll in Phase I clinical trials. The aim of the study was to determine not only how these individuals perceived their participation in medical research but also to track the clinical trials they screened for and enrolled in over a three-year period. Thus, we wanted to learn both what people say and what they actually do when it comes to Phase I trials. To identify healthy volunteers for our study, we obtained permission from 7 US Phase I clinics to recruit participants who were enrolled in studies at their facilities.[1] These clinics were located in the Eastern, Midwestern, and Western regions of the US, and our sample was roughly evenly divided among these three regions (see also Fisher *et al.* 2018a). The study was reviewed and approved by the Biomedical Institutional Review Board at the University of North Carolina at Chapel Hill. All research participants provided written informed consent.

We recruited participants in person during scheduled clinic visits to each facility between May and December 2013. All healthy volunteers who were enrolled in a Phase I trial and who spoke either English or Spanish were eligible for our study. This convenience sampling approach was facilitated by the offer of compensation for their participation, with participants receiving a US $20 Visa gift card after enrollment and completion of an initial interview. Participants were also informed that they would receive up to an additional $450 by completing the study (i.e. $50 for completing an interview 6 months after enrollment, $100 for completing an interview 1 year after enrollment, $100 for completing an interview 2 years after enrollment, and $200 for completing a final interview 3 years after enrollment). We determined that payment for research participation was essential for the success of retaining our sample for three years. In addition, our prior work (Fisher 2020) indicated that, unlike many other subjects of social science research, Phase I trial participants *expected* to get paid for their involvement in research. To fail to offer payment to participants would have diminished our ability to recruit and retain a representative sample of healthy volunteers. Moreover, given the financially precarious situations of the majority of our participants, we also believed it was the ethical thing to do to compensate people for their time and commitment to our research. We nonetheless set initial payment at a nominal level (i.e. $20) to reduce the possibility that the monetary incentive would compromise the voluntary nature of consent to our study (see, for example, Head 2009). Approximately 90% of the participants invited to enroll consented to join the study and completed the initial, confidential interview while in the Phase I clinic.

After enrollment and completion of the initial interview, all participants were randomized to either the 'full-participation' or 'control' arm of our study. Roughly 20% of participants were allocated to the control group so we could assess whether our study had an unintentional interventional effect on participants' perceptions or behaviors. Although we kept in touch periodically with control group participants to ensure we had up-to-date contact information, their remaining study involvement consisted of only a final telephone interview three years later. In contrast, individuals in the full-participation arm completed four telephone interviews that occurred 6 months, 1 year, 2 years, and 3 years after their enrollment. The full-participation arm was also required to complete online or telephone-based surveys we called 'clinical trial diaries' to document their ongoing Phase I trial involvement. The clinical trial diaries were designed to collect information in real-time about where participants screened for clinical trials, details about the clinical trial (e.g. therapeutic area, study length, risks, compensation), whether they qualified for and participated in the study, as well as their perceptions of the study and rationale for enrolling or declining participation (for a full description of the instrument and our data collection methods, see Edelblute and Fisher 2015). Although participants had to complete a clinical trial diary for each study they pursued, they were repeatedly assured that they were under no obligation to continue screening for or enrolling in Phase I trials. Compensation in our study was not tied to completion of clinical trial diaries, so participants were paid only for completing interviews. We felt this would take away any incentive for participants to continue to screen for clinical trials or to potentially provide false information about their clinical trial activity.

In total, we enrolled 180 healthy volunteers in our study. However, we withdrew two participants from the study when we discovered that they were actually only one person who had enrolled twice, using an alias and different demographic information the second time. We made the decision to exclude all of her data, and we were left with a sample of 178 healthy volunteers (see Table 1). As is typical of Phase I trials (Fisher and Kalbaugh 2011, Grady *et al.* 2017), our sample was predominantly men (74%), people who had prior experience participating in Phase I trials (79%), and members of racial and ethnic minority groups (68%). Only 21% were in their first Phase I trial, and almost half of our sample had participated in at least 6 prior trials (48%). Black participants made up the plurality of our sample (40%) followed by non-Hispanic whites (32%) and Hispanics (21%), of whom 14 (8%) completed interviews and clinical trial diaries in Spanish. Healthy volunteers in our sample were largely from low-income, low-educational-attainment, and

Table 1. Demographics of Study Participants ($N = 178$).

	n	%
Gender		
Women	47	26.4%
Men	131	73.6%
Clinical trial experience		
1 study	38	21.3%
2–4 studies	49	27.5%
5–10 studies	45	25.3%
11–200 studies	46	25.8%
Race/Ethnicity		
Non-Hispanic white	57	32.0%
Black / African American	72	40.4%
American Indian	2	1.1%
Asian	6	3.4%
Hawaiian / Pacific Islander	2	1.1%
More than one race	13	7.3%
Hispanic[a]	38	21.3%
Foreign born	35	19.7%
Age		
18–21	6	3.4%
22–29	34	19.1%
30–39	58	32.6%
40–49	54	30.3%
50+	26	14.6%
Household income[b]		
Less than $10,000	30	16.9%
$10,000 to $24,999	52	29.2%
$25,000 to $49,999	71	39.9%
$50,000 to $74,999	13	7.3%
$75,000 to $99,999	7	3.9%
$100,000 or more	4	2.2%
Educational attainment		
Less than high school	12	6.7%
High school or GED	37	20.8%
Some college	52	29.2%
Trade/technical/vocational training	19	10.7%
Associate's degree	21	11.8%
Bachelor's degree	32	18.0%
Graduate degree	5	2.8%
Employment status[c]		
Full-time/Business owner (self-employed)	45	25.3%
Part-time/Independent or irregular contractor	60	33.7%
Unemployed/Retired	73	41.0%

[a]The category Hispanic includes all racial groups, of which we had those in our sample who identified as white, black, more than one race, American Indian, and Native Hawaiian/Pacific Islander.
[b]Data for household income was not reported by one participant.
[c]These data are based on consolidated definitions of each employment category that we used to standardize self-reported data from participants.

underemployed groups. Nearly half of our sample reported a household income of less than US $25,000 annually, and only 13% reported a household income over US$50,000. Only about one-third of our sample had a college degree. Additionally, aside from their clinical trial enrollment, most participants were unemployed (41%), with only 25% employed full-time and 34% reporting part-time or irregular work.

We retained 92.2% of our sample (91.1% of the full-participation arm and 97.1% of the control arm). We draw upon here data from all waves of interviewing ($n = 736$) and all completed clinical trial diaries ($n = 1138$). Interviews were semi-structured, lasted an average duration of 68.5 min, and covered a wide variety of topics, but each interview consistently included questions about participants' clinical trial experiences, their motivations for trial enrollment, their perceptions of clinical trial risks and benefits, their decision making about trial enrollment, their health and health

behaviors, and their expectations about future trial participation. At different interview stages, we also asked questions about participants' employment history, education, and family life. All interviews were transcribed in full, verified by a study team member for accuracy, and coded by two team members using Dedoose software. Following an abductive analysis methodology (Tavory and Timmermans 2014), our coding process identified emergent themes while also exploring *a priori* topics that were part of our larger project aims. In particular, we focus here on the interview data that were coded as pertaining to economic decision making, which were the most relevant excerpts to investigate for inquiry into speculation and included 2,222 excerpts from all interviewing waves. We use the clinical trial diary data in aggregate to compare participants as well as at the individual level to find evidence of the speculative financial practices in which participants were engaged. As we analyzed the data, we also contextualized coded excerpts and clinical trial diaries in participants' larger stories by re-reading transcripts in their entirety and referring to detailed memos taken about each participant. Thus, the coded excerpts and clinical trial diaries were merely a starting point for the analysis we present below.

Clinical trials as speculative labor

For those healthy individuals who choose to enroll in Phase I trials, the economic incentive is paramount. While many healthy volunteers espouse a belief in the societal benefit of their trial participation (Fisher *et al.* 2018b), it is nonetheless the financial compensation that motivates them to enroll and structures the system of 'clinical labor' (Cooper and Waldby 2014). While attention in the literature has concentrated on the 'professional' healthy volunteers who consider their drug trial participation to be a 'job' (Elliott 2008, Abadie 2010), they are not the majority of those who enroll in Phase I trials (Williams and Fisher 2018, Fisher 2020). There are also those healthy volunteers who might see their clinical trial involvement as a one-time event as well as those who perceive of it as a long-term, intermittent source of income when they need it or as a revenue-generating economic activity 'for which one does not need to work' (Nyman *et al.* 2013, p. 61, see also Nyman *et al.* 2008, Beckert and Lutter 2013). However, given the prevalence of racial and ethnic minorities and people who report below-poverty-line incomes, recruitment for Phase I trials capitalizes on social and economic inequalities that make such work both necessary for and attractive to certain segments of the population (Fisher 2020).

While not all healthy volunteers pursue Phase I trials full time, the search for their next trial can lend itself to a speculative approach for those participants aiming to maximize their Phase I income. These clinical trials differ in how much they pay based on the confinement length, number of outpatient follow-up visits, study procedures, and other factors, and healthy volunteers' selection of one study precludes their participation in others because they are limited to enroll in only one clinical trial at a time and are typically required to observe a 30-day 'washout' period between studies.[2] Thus, when and where they enroll in a study affect their options for future participation, but healthy volunteers do not necessarily know what studies might be available tomorrow as they decide whether to join a study today. Operating within a field of unknowns and aiming to mitigate their economic precarity, healthy volunteers nevertheless develop financially-based decision rules to guide their trial enrollment.

In what follows, we explore the narratives and experiences of healthy volunteers who engage in speculation as short-term, independent contract workers. In particular, we focus here on the segment of our sample who enrolled in pharmaceutical drug trials as their primary or critical source of income. Some of these individuals could be characterized as 'professional' participants, but others were individuals who enrolled regularly in clinical trials to help make ends meet while also pursuing other types of work. Together, these two types of healthy volunteers made up about 65% of our participants, and they distinguish themselves from the remainder of our sample who had other full-time employment or other stable sources of household income (e.g. partner's income).[3] We begin by illustrating the speculative orientations these participants bring to Phase I trials,

particularly in terms of how they understand their health and time as speculative assets and the possibility of earning their income through trials alone. Next, we turn to healthy volunteers' actual practices and their mobilization of what we call the future-income-over-immediate-pay calculus in determining whether to enroll in or decline particular clinical trials. Finally, we describe the financial outcomes of healthy volunteers' speculation in the clinical trial marketplace, including their interpretations of the success and/or failure of their decision-making strategies. When seen through the lens of contingent contract work (rather than research participation alone), healthy volunteers' involvement in Phase I trials reflects the broader shift in society from more stable forms of employment to precarious – and responsibilized – labor that supports the system of finance capitalism, under which *all* individuals become agents subject to financialized structures of opportunity and decision.

Speculative orientations

When people learn that they can earn money by enrolling in Phase I trials as healthy volunteers, they might initially focus on the bodily risks or social stigma associated with such an endeavor (Cottingham and Fisher 2017). However, for those individuals who do complete a first study, most are surprised that it is a relatively appealing way to earn money, particularly because study compensation is typically paid relatively quickly and as a lump sum.[4] Among healthy volunteers in our study, participants often reflected on their own or others' first impressions of studies as rather negative. For example, Michael, a black man who had participated in over 20 studies, explained,

> They automatically just place judgment on it. … They don't know what's going to happen, and so they're like, "Oh man, … y'all are putting what in your body?" … And then it's like as soon as like that check [for completing the study] kicks in, like, "You know what? It wasn't too bad, actually."

With thousands of dollars offered in exchange for their participation, many healthy volunteers viewed studies positively as an unrivaled source of income. Jason, a multiracial man who had participated in more than 30 studies, stated simply, 'Because for the time commitment, you know, it is an amount of money that a lot of people in this country don't have the opportunity to make in that short of a period of time.' Blake, a black man who had participated in more than 10 studies, emphasized not only how much money he could earn but also how 'quick' and 'easy' it is:

> The advantages, I would say, is making more money with less effort. There's a lot of people I know who work four weeks and only make about $1,200. … I work one week as opposed to four weeks, [and] I can make double that without doing any work.

The potential to earn more in clinical trials than through conventional employment prompted about one-third of the participants in our study to pursue clinical trials full time as work (i.e. as 'professional' participants). Indeed, this was the case for Michael, Jason, and Blake, all of whom had a prior history of low-wage jobs and now regularly traveled to clinics throughout the Midwestern and Eastern United States as part of their clinical trial participation.

To earn money in these clinical trials, however, participants have to be healthy. They must be able to pass all the screening tests that ensure that their bodies are free of any diseases or illnesses and are functioning normally. When healthy volunteers develop a speculative orientation to clinical trials, they are more likely to see their health as an asset that gains economic value through their bodies' ability to qualify for studies. Nadia, a white woman who had emigrated from Russia and had participated in more than ten studies, made this point explicitly: 'Really it's not a labor [that is, like work], you know? If you have good health, you can earn and sell it.' As a speculative asset, it is up to each healthy volunteer to decide how much their health is worth and which clinics will allow them to best capitalize on its value. Derek, a black man who was enrolled in only his second study when we first met him, asserted,

> So, you gotta think, "What am I really worth?" It's not about being greedy, but … your time is money. You know what I'm saying? Like I just see it as I'm a hot commodity, … you're not getting no junk research [from me]; you're going to get the top of the line research. So, why wouldn't I get the top of the line price, you know?

Elsewhere, we have analyzed the ethical dimensions of treating one's body as a commodity (Walker and Fisher 2019), but the important point to consider here is how healthy volunteers leverage their good health in order to earn clinical trial income *over time*.

In the same ways that cultivating specialized knowledge and insider networks are constructed as key to success in high finance speculation (de Goede 2005), so too are they crucial to healthy volunteers' orientation to achieving financial success through clinical trials. As we have reported elsewhere (Monahan and Fisher 2015, Fisher 2020), many serial participants studiously hone their knowledge about best practices for enhancing their control over the conditions of their participation. These efforts also contribute to their perception that they can engage in labor speculation shrewdly. In this context, health-promoting behaviors essentially become a bodily investment that can help participants qualify for clinical trials. For example, Paolo, a Hispanic man who had participated in more than 20 studies, explained,

> I'm willing to go and invest in this because I really know my body is going to be in optimal chemical form. From spinach to broccoli, … I put everything in a blender and drink it. And, knowing exactly what my body needs to be in order to gain entrance [to studies], it increases my percentage of getting in there.

Yet, control over qualifying is never absolute, and Paolo failed screenings for clinical trials several times over the three years he was in our study, but these missed studies confirmed his belief that he needed to invest in his body.

Additionally, as with research that finds the 'soft' skills of communication to be increasingly crucial to sourcing work in a gig economy (Broughton *et al.* 2018), some healthy volunteers try to leverage their good rapport with research staff to find out about their timelines for upcoming, high-paying studies. Once serial participants have this information, they can try to coordinate their own availability with the desired study, meaning that they have finished their washout period in time for the new study and they are not confined to another clinic elsewhere. Jason, who had a habit of clandestinely dating clinic staff, imparted, 'That's usually the biggest part of it, you know, having the timing, having good information. If you've made friends with a staff person … and they disclose information that they're not supposed to tell, … that gives you an advantage.'

In these ways, a culture of competition exists among many professional participants, which can encourage a broader speculative orientation to clinical trial labor as individuals try to outdo each other. Shared stories about participants making large sums of money contribute to this, leading some individuals to acquire a kind of celebrity status and serve as aspirational figures for others. Even those who did not serially participate in clinical trials, like Marco (a Hispanic man who had completed only two clinical trials by the end of our study), spoke to the draw of speculation:

> I had guys tell me, like, "Yeah, last year I made [$]50,000." And I'm like, "What?" And then they'll tell me, they'll be like, "Yeah, I have two house[s] … I got this, I got that. I got three cars. I got-." You know what I mean? Wild shit. … And then when you hear all that, it start[s] getting you hyped, like, "Damn, I need to get that 50,000," you know?

Although many of these financial success stories lack credibility, as we will show, they nonetheless set the tone for participation in this market.

That said, pursuing Phase I contract work has an expiration date. The number of trials seeking healthy volunteers over the age of 45 is quite limited, and individuals will typically age out of studies altogether after 55 (if they have not already developed health issues that also exclude them, such as high blood pressure or cholesterol). Awareness that health is a time-limited asset makes many healthy volunteers more reflexive about the speculative nature of clinical trial participation. Austin, a black man, was new to clinical trials when we met him, but he participated in more than 20 new

trials over the next three years. Acknowledging clinical trials as a risky economic activity, Austin proclaimed,

> You gotta be smart, I think, to do studies. If not, then you just end up with nothing. You end up letting all this time pass that you spending money and gambling money and just paying bills, and the next thing you know, you're too old to go to work and get the pension, and you haven't paid enough into the Social Security to get Social Security. … You just gotta see it in that way—that you can't do this forever.

Thus, participants largely agreed that clinical trial participation cannot sustain them forever and that they should avoid becoming too reliant on trials. However, this perspective on the work motivates some healthy volunteers to capitalize all the more on the opportunity before it is foreclosed.

Speculative practices

When asked what kind of study they preferred, the vast majority of participants would say they were seeking the best paying study that could be completed in the shortest amount of time. As straightforward as this preference might seem, it is nearly impossible to execute given the messy reality of how Phase I trials are structured. Most of these clinical trials are complete in one to three weeks, but the amount of time required for healthy volunteers to spend overnight in a residential research clinic varies. Some studies have participants check into a clinic and keep them there until the end of the study with no additional follow-up visits. Others might have healthy volunteers come and go for multiple shorter confinement periods. Still others might consist largely of outpatient visits rather than require healthy volunteers to sleep in the research clinic. Thus, participants must choose among an array of dissimilar studies based on their perception of which has the most financial benefit. Interestingly, this choice might also include passing up *higher-paying* studies when participants perceive those studies as limiting their ability to earn greater sums over the long term. In other words, participants engaged in a future-income-over-immediate-pay calculus evaluate how joining one study would affect their long-term earning potential in clinical trials. This type of financial decision making is quite speculative in the sense that healthy volunteers are risking more certain income now based on the fiction that they can predict what types of studies will be available to them in the future.

The future-income-over-immediate-pay calculus can best be illustrated by examining cases in which participants declined specific Phase I trials, especially high-paying ones, out of concern for how those trials might affect their eligibility for future studies. Longer Phase I trials tend to pay more, accounting for the time healthy volunteers must spend confined to a research clinic and/or the number of outpatient visits. Yet, counterintuitively, many participants argued that they could make more money over time by enrolling in shorter studies, even though they pay less. Wanda, a black woman who had participated in about 7 studies, emphasized the importance of making decisions based on study length rather than on total compensation alone:

> I've seen some [studies] where it may be like 7 [or] 8,000 dollars, but they stretch it out over six months, you know, like one visit a month. And, no, I don't want to do it like that because then that's gonna keep you from participating in something else that may come up, so I'd rather just go ahead and get it over with, you know, even if it's like staying for 30 days at a time, you know.

In these instances, participants believe that they can complete more studies per year and earn more money by pursuing shorter ones or at least by avoiding those with many follow-up visits.

This strategy of turning down a higher-paying study for a lower-paying one primarily makes sense when someone wants to complete as many studies as possible. For many full-time healthy volunteers, doing so becomes a complex puzzle in which they have to consider screening and check-in dates as well as any outpatient visits. Jason, for example, related how he passed up a higher-paying study for a shorter one that he felt would give him more options:

> For example, right now at [Midwestern clinic], they have a screening scheduled for [a] $8,750 [study]. That sounds great. But you check out on August 21st, you have to return for an outpatient visit in September and

> October and November. Well, if you have your last outpatient visit with them in November, then you can't do a study [at that clinic] at least 30 days, you know, until after that date [due to washout period requirements]. … I had a screening for that study, and I was like, yeah, I'd love to get the 8,750, but … I don't want to tie up my eligibility to do studies [at that clinic]. … *So, I can't, you know, get tied up and cut down the future money that I'm able to make*. So, outpatient visits is a big criteria … because it'd almost be more beneficial to do, you know, a study that pays significantly less money in that case that was over sooner so that you could do other studies over that same time period and recoup some of the money that you would have made at the higher-paying study. (emphasis added)

A study that pays nearly $9,000 is not common in the Phase I world, but Jason nonetheless believed that his future income would be greater by finding a shorter study with fewer outpatient visits, so even after having screened and qualified for it, he declined to enroll in it.

Another important factor in the future-income-over-immediate-pay calculus concerns participants' perceptions of how one Phase I trial might affect their body's ability to qualify for the next. Participants described avoiding certain studies not because they were too risky in an abstract sense but instead because those studies might have exacted short-term bodily changes that were not harmful per se but might have prevented them from being able to pass all the screening procedures for a new clinical trial (see also Fisher 2020). Because of consuming investigational drugs and having repeated blood collection during these clinical trials, tests of healthy volunteers' liver and kidney function or other myriad physiological processes might not come back 'normal' for several weeks. For those healthy volunteers who want to join the next trial as quickly as possible after finishing their last, these corporeal changes devalue their bodies, threaten their future income, and need to be minimized. Steve, a white man who participated in studies full time, learned this lesson the hard way in the two decades he had enrolled in Phase I trials:

> I've been burned a couple of times. Like, I did one [study] … where it raised your cholesterol, which I didn't mind doing, but then I found out it kept your cholesterol up for a long time. So, I wasn't able to get into other studies for like several months afterwards, and I had to really work to get my cholesterol down. Then, there was one that messed with your white blood cell count … and [afterwards] I was getting rejected from studies because of that. … So, my main concern is: will the side effects prevent me from getting other studies, you know?

For his part, Jason was more concerned about the effects of blood collection, particularly because he was eager to go from one study to the next. He explained,

> It's always a concern when you get out of a study and have given a lot of blood throughout the study to go screen somewhere else and your hemoglobin level is in the correct range, and your red blood cell count. … So that was my concern, that if I take this study [with a high volume of blood collected], I might, you know, not be able to qualify for those other studies that I have lined up. So that was my concern.

As with other full-time healthy volunteers, Steve's and Jason's attempted solution was to select studies based on how they might affect their future income in terms of their ability to qualify for more trials.

Determining how much time to wait between studies was another way in which healthy volunteers aimed to exert control over their long-term income. The washout period between studies is designed to give healthy volunteers' bodies the chance to clear any remaining traces of an investigational drug out of their system. This requirement has the dual purpose of improving the validity of trial results and of minimizing the risk to participants of drug interactions. Some of our participants perceived the washout period as an impediment to earning income in Phase I trials, so routinely ignored it and enrolled as quickly as they could in their next trial. However, others believed that observing this time between studies preserved the longevity of their trial participation. Compared to many other full-time participants, Steve exercised more caution about defying the washout period. He argued,

> You don't wanna get busted breaking a 30-day washout, and particularly if I got banned from, say, [my local clinic], that would change my life because I'd have to move out of [this city] 'cause I wouldn't be able to make a

> living there. So, I can't afford to get banned from [that clinic]. Same with [two other clinics in my region], if either of them banned me, … I'd be screwed, I'd have to relocate.

In other words, it was an economic decision for Steve to observe the washout period so he could remain in good standing at the clinics he frequented. While he might make more money in the short-term by ignoring it, he would rather forego the opportunity for immediate study pay to safeguard his long-term future income at those clinics. In contrast to Steve with his history of having enrolled in more than 70 studies, Jonathan, a white man in only his second clinical trial, emphasized the importance of the washout period for health reasons:

> Because just the interactions with two different drugs, you don't know how it's gonna affect you. … Let's say you did two studies [without observing the washout period] and you make $10,000. That'd be great and all, but then you get really sick. Two things can happen. [First,] you can get really sick and be permanently not able to go to here [to the research clinic] because you're permanently sick. But, [second,] at the same time, let's say you don't get completely sick, and it's only like three, four months [of sickness]. Well, while you could've been doing studies by waiting on the washout period, yeah, $10,000 right away was great, but now you're stuck in bed not making any money at all.

Even though Jonathan believed that he could be physically harmed by not observing the washout period, his focus was nonetheless on making decisions that facilitated his ability to join future studies. In this regard, the underlying logic for why he should follow the rules set out by the research clinics mirrors that of Steve: the possibility of immediate pay offered in a specific clinical trial that begins prior to the end of the washout period is traded against the prospect of more substantial trial income in the long run that is gained by waiting the entire 30 days before seeking a new contract. Thus, whether to follow or ignore the washout period involved speculation on the part of participants who wanted to earn as much money as possible from clinical trials over time.

Some participants believed the best way to maximize their Phase I trial income was never to settle for studies below a set compensation level, but this too was a speculative practice given the unpredictability of future clinical trials on offer. Rather than selecting among possible studies, they simply opted not to participate at all until a study with a large stipend became available. For our many participants struggling to pay bills, however, this was an especially risky practice. For example, Wyatt, a black man who had participated in more than a dozen studies, had amplified financial and scheduling concerns because he was primary caretaker of his two sons, one of whom had special needs. He often passed up lower-paying studies because he did not think they were worth the effort, including coordinating paid childcare, based on his knowledge of what studies *could* pay. Reflecting on what he was looking for in a clinical trial, he joked,

> Just trying to find a big study where I can pay off some stuff and make some changes [in my life]. [*laughs*] That one's like the white whale, it's just aloof. [*laughs*] … I actually get a sight of it [sometimes], but it's definitely like Moby Dick where I can't grab that sucker [*laughs*].

Speculation outcomes

The labor market for clinical trials is undoubtedly extractive and rigged against the long-term success of healthy volunteers (see also Monahan and Fisher 2020). Nonetheless, participants' rationales can shed light on the dangers of the financialization of everyday life, particularly when these rationales for engaging in labor speculation are juxtaposed against the actual financial outcomes of their decisions. While it is impossible for us to know how many clinical trials our participants were aware of but did not pursue, we were able to track clinical trials for which they screened and qualified but chose not to join. This included 66 clinical trials for which 57 different participants ultimately declined enrollment after the clinics had accepted them. These clinical trials ranged in financial compensation from $900 to $11,000, with an average payment of $3,780, and totaled nearly $250,000. For the most part, these decisions were based on finding a more desirable study (typically one that paid more or was significantly shorter) or simply on perceiving the study as not worth their

time relative to the broader 'market' of trials.[5] In this section, we take a more quantitative approach to exploring participants' decision making not only to evaluate whether their decision making paid dividends but also to illustrate how a speculative orientation to contingent contract labor generates real monetary risk to workers who are already in financially precarious situations.

In analyzing the Phase I studies that participants declined within the context of their larger clinical trial enrollment, it appears that nearly three-quarters ($n = 29$) might have lost money by declining. For example, Sylvester, a black man who had participated in over 20 studies, had the opportunity to enroll in a study that paid $1,525. The study required only four nights in the clinic, but it had multiple outpatient visits and took about seven weeks to complete. Based on our discussion above, this study provides a concrete example of a long study that might seem like it is not worth healthy volunteers' time, particularly due to the relatively low compensation rate. Although Sylvester next screened for another lengthy study offering $2,050, he did not pass the screening tests. His subsequent worry about his income shortfall to cover all his household bills led him to then screen for a three-day, $850 study, but he was – to his extreme frustration – a few pounds too heavy to qualify. Ultimately, it took Sylvester nine months to qualify for and participate in his next clinical trial, for which he was paid $3,500 for a three-week long study that included a two-week confinement in the research clinic. While this study paid more than the original one he had declined, there is no reason to believe he could not have enrolled in both given that he qualified for both and the expansive time lapse between them. As someone who typically brought in about $5,000 from clinical trials each year to augment the wages he earned in a low-wage, part-time job, Sylvester's gamble that he could do better than the $1,525 study did not pay off in the short term, particularly because he wanted clinical trials work.

A surprising pattern we found, however, was that turning down studies that offered smaller amounts of compensation seemed to lead to *less income overall* from clinical trials than turning down high-paying studies. Specifically, when engaging in labor speculation, the majority of people who seemed to be most harmed financially (72%, 21 of 29) had passed up less than $5,000 in study compensation, whereas the people who might have *benefited* from turning down available studies (78%, 7 of 9) had declined studies totaling more than $5,000. This finding becomes clearer when comparing the total amount of money from clinical trials that participants turned down to how much study compensation they earned during the three-year reporting period. Take as examples the experiences of Everett, a participant who was in the category of declining less than $5,000, compared to Jason, who had declined more than $5,000 worth of study compensation. Everett was a black man who had participated in more than 20 studies, and in one instance, he deemed that a $2,900 study for which he had qualified did not compensate what it should. Explaining his decision not to enroll, he said,

> I just didn't feel like the hassle. … I mean, they were cheap! Let's put it that way. You know, they want me to jump through hoops, and they're gonna dose me [with the investigational drug] every day … for 18 days, and when you get out, they only give you $100, and then once you come back for the follow-up [a week later], then they give you the balance of your money. No, it was terrible!

Everett was bothered by both the total study stipend and the compensation schedule. He expected that he could find a better study, so he declined the opportunity to participate. However, as with Sylvester, Everett then had difficulty qualifying for other clinical trials. Ten months later, he eventually completed a study that paid just $1,100. Everett's situation was different than Sylvester's though in that he was otherwise unemployed and brought in an annual average of only $705 from clinical trials during the three years we followed him. While he might have found the $2,900 study 'cheap,' his expectation that other, better studies would be more worth his participation strained his financial situation considerably, given that he arguably needed the income much more than some other participants.

In contrast, Jason declined to enroll in ten of the studies for which he had qualified and which would have compensated $56,000 over three years. Jason was one of the highest earners in our

study, bringing in an average of $33,500 per year from Phase I trials, and he was rather fearless when it came to taking financial risks in terms of turning down available studies. On one occasion, he was scheduled for a $6,150 study but turned it down for a $9,350 study instead. Later on, he turned down a $8,300 study so that he could participate in two other studies back to back and netted $9,600 instead. His decision to count on two back-to-back studies instead of a single higher-paying one could be seen as a big gamble given that the first study could have affected his ability to qualify for the second. As indicated above, Jason was certainly no stranger to these bodily effects, and there were clearly times that Jason miscalculated when he turned down the ready money offered in the hopes of securing a better study. Indeed, he had a six-month period during which he struggled to earn any income at all from clinical trials. Reflecting on this period, he later said,

> I was kind of aggravated with how things were going study-wise last year. There have been some studies that I've missed out on [that] I thought that I was going to get. There had been some times where I had a choice to make between two studies, and I ended up making the wrong choice a couple times.

Specifically, there was a point at which Jason had qualified for a $6,500 study and turned it down for a $7,400 study for which he had also qualified. However, when he checked in for the latter study, he was disqualified because his liver enzymes were then too high (an asymptomatic condition likely due to the prior clinical trial). He then experienced a string of disqualifications resulting from a range of physiological factors. Due to Jason's extreme study participation (i.e. he screened for 53 clinical trials and participated in 20 in three years), there is no way to estimate how doing one study instead of another might have affected his overall income – by doing studies back to back, changing one study would have a domino effect on all the others. Yet, it appears that he earned more money in three years than he declined based on the decisions he made.

Thus, depending on healthy volunteers' individual financial situations, labor speculation – and specifically applying a future-income-over-immediate-pay calculus to their participation – might be more or less risky. Of those individuals who were seemingly harmed financially by declining one or more studies, 33% ($n = 5$) earned no clinical trial income at all in three years, another 20% ($n = 3$) earned less than $1,000 per year from their participation, 27% ($n = 4$) earned between $1,000 and $2,500, and the other 20% ($n = 3$) earned between $2,500 and $5,000. In short, none of these participants earned more than $5,000 annually from clinical trials. This is in stark contrast to those participants who did not seem to suffer financially when they turned down one or more studies. Nearly three-quarters of these latter participants ($n = 17$) earned more than $5,000 per year, including 17% ($n = 4$) who earned more than $25,000 per year. One interpretation of this variance is that for those who find that clinical trials are plentiful and constantly pursue studies, they have more latitude in speculating on contract work because they are more likely to secure another contract, even when the gamble does not pay off exactly as they hope. That labor speculation appears to hurt those who are the worst off parallels arguments for how financial speculation is often riskier for those who have more to lose from the gamble (Cooper and Mitropoulos 2009).

Finding oneself on the losing end of labor speculation does require participants to either rationalize their decision making or change their practices if they would like to continue earning money through Phase I trials. To this end, some participants exaggerated the amount of income they had actually earned from trials. Derek, the participant who spoke of his body as a hot commodity, regularly exaggerated his Phase I earnings as well as how much he expected to make in the future. At one point, he insisted that he earned about $40,000 per year from enrolling, and he emphasized how strategic he was in selecting studies:

> I always try to stay ahead of the game. … It's kinda like me playing chess: I've just gotta stay two moves ahead of whatever I can predict and keep money coming in. That's what the main name of the game is all about. If I'm doing this as a living, a way of living, then I gotta run it like a business and stay ahead of the game.

Derek's professed study compensation would place him as the top earner in our study. However, after inventorying with him the studies he had done, Derek's average earnings were closer to

$20,000 and his best year brought in $28,500. These numbers place him above 95% of our other participants, but the inflated calculation of his earnings also helped him rationalize his labor speculation – such as declining a $4,000 study that he did not think was worth his time, then not qualifying for another study for three months – by inordinately focusing on the best-paying studies he had done – such as one that paid $12,200. Extrapolating from their highest-paid contract might provide workers with a narrative that justifies their continued involvement in insecure work and compensates for exposure to financial risk and uncertainty, even if the outcome is not as lucrative as they would like to believe.

As a counterexample to those like Derek engaging in the future-income-over-immediate-pay calculus, other participants who struggled to earn a decent living through Phase I trials mitigated financial risk by not turning down any studies, regardless of how little they paid. AJ, a black man who participated in ten studies in a little over three years, scoffed at other participants who declined participating in studies for which they had qualified. He, too, enrolled in Phase I trials full time, did not have a speculative approach to choosing studies, and completed studies paying anywhere from $1,700 to $9,600. His average annual income was close to $20,000 (and placed him slightly higher than Derek on the earnings' leaderboard), and he explicitly contrasted himself to others:

> I was just going for anything, you know. Just going for anything I can get into 'cause you never know when the places are not gonna have a study. 'Cause there's points when you call, and they're like, "Oh, well, we don't have anything right now. Call back." … When all of a sudden you could've been into one last week, but … your ego got in the way and was like, "No, the money's not really good," dah-dah-dah-dah. Well, now you're just sitting home broke, so yeah. … Like I said, you can't pass up on it because you don't know when you're gonna get one. These things are like unicorns. You just gotta grab 'em, you know? They're rare, so just get it, get it, get it, get it.

Thus, AJ provides an exception to the rule of how full-time participants try to maximize their clinical trial earnings, not by speculation but by accepting any study that comes along. The result was that he might not have earned as much as some of the bigger risk-takers in our sample, but he consistently earned money through clinical trials, unlike others who might have valued their labor more highly for specific studies than did the clinics. If we can conclude that the future-income-over-immediate-pay calculus does not always pay dividends, that it can fail and leave individuals less financially secure than if they had taken a more conservative approach, then what might these conclusions tell us about the speculative practices of independent contractors more broadly?

Discussion

Healthy volunteers are contract workers who can be said to use their health as a financial asset to earn money by testing investigational drugs for the pharmaceutical industry. If we think about the availability of clinical trials as a market, then choosing which study to 'invest' in is a form of speculation in which healthy volunteers attempt to predict which studies offer the best value to their income both in the short and long term. However, this labor market is characterized by a high degree of uncertainty in that workers cannot foresee what studies will be available, how much the clinics will pay, or whether they will qualify, despite their best efforts to control for these variables. Nonetheless, similar to financial speculators who risk available capital on the possibility of a higher future payout, many healthy volunteers engage in the speculative practice of choosing not only among studies that are available to them but also between studies at hand and imagined future studies that are more lucrative or otherwise economically appealing. This process is situated both in assessing one's worth as an independent contractor and aiming to maximize one's income over time. This future-income-over-immediate-pay calculus, therefore, requires a triangulation of information as well as a certain amount of faith that declining an available study (and its offered compensation) will pay dividends tomorrow.

As we have seen, the future-income-over-immediate-pay calculus leads many workers to lose money, despite its opposite intention. Financial loss appears more likely – and is more striking –

for those healthy volunteers who earn less from clinical trials overall, indicating that those with less opportunity to make money as contract workers are taking larger risks with their income and suffering larger setbacks by declining available studies. This confirms Mishra *et al.*'s (2012) finding that people who have the greatest need are more likely to take larger financial risks despite unknown odds. To apply this insight to healthy volunteers, when an available trial offers compensation that is insufficient to keep someone afloat, the participant might be all the more willing to risk the opportunity for that immediate pay based on the speculation that a future clinical trial will be more apt to stabilize their financial situation. However, when that future trial does not materialize, the participant has inadvertently sacrificed making any income from the Phase I industry.

That low-income workers, in particular, would engage in speculative labor practices as independent contractors does not challenge the rationality of what Allon (2010) refers to as the 'citizen-speculator' in the current economy. Despite associations of speculation with financial distortion and moral imprudence in finance sectors (vanden Heuvel 2009, Smith 2010), healthy volunteers' involvement in Phase I trials might be a perversely rational response of ordinary individuals to a context characterized by labor market insecurity and public disinvestment (e.g. the reduction of state-funded pensions, the privatization of education, healthcare, and other forms of social security). With regard to healthy individuals' participation in drug trials, such contract work facilitates the redefinition of one's health as a liquid asset and clinical trial participation as a source for privatized economic security through the mobilization of speculative logics.

The speculative orientation that serial Phase I trial participation elicits from healthy volunteers is part of the larger culture of financialization in everyday life. As labor markets have become increasingly volatile and income less certain, individuals have embraced rather than eschewed financial risk taking. This resonates with studies of contract workers in more professional settings. For example, in Neff's (2012) study of information technology (IT) contract workers, she found that some of these 'venture laborers' explicitly framed their work as an investment, and they wanted to invest themselves in jobs that would have the greatest financial payoff. Their orientation to work highlights the cultural logic that underpins financially risky contract labor. Neff argues that 'By taking risks, people feel as though they have some control over outcomes in a seemingly capricious labor market' (37), and this interpretation resonates with our study of healthy volunteers who want to believe they can get the best of the Phase I market by turning down less economically desirable clinical trials as a bodily and temporal investment in their future participation in more worthwhile clinical trials.

However, because healthy volunteers are typically drawn from more socially vulnerable groups, such as racial and ethnic minorities and those with less education and unstable employment histories, the stakes are much higher for these contract workers than they might be for professional groups. IT workers, for example, might be able to secure full-time employment for a company rather than continue to operate as independent contractors, but there is no such parallel employment stream for healthy volunteers to fall back on. Indeed, their participation is generally motivated by a lack of opportunity in the regular employment market, and clinical trials become one more liability rather than an asset for their resumés should they seek more traditional forms of employment (Monahan and Fisher 2015, 2020).

Yet, healthy volunteers might be said to be acting as if they were highly skilled contractors rather than economically precarious ones when they engage in the future-income-over-immediate-pay calculus. This indicates that they have bought into the 'free agent' ideology of contract work that emphasizes the potential for higher earnings and more flexibility (Kunda *et al.* 2002), even though these benefits are less likely to pan out for them (*and* they are also exposed to the same drawbacks, such as higher taxes and different tax schedules imposed on independent contractors). That the deck is largely stacked against healthy volunteers might also encourage some to behave opportunistically – a risk in all contract work (see Sharma 1997) – and flagrantly break the rules of their contracts when they fail to observe washout periods, which can create physical and financial risks to the healthy volunteers themselves as well as financial risks for the companies hiring them (Fisher 2020).

However, understood through a financialized logic of speculation, such choices can appear justified: skirting the rules may enhance one's ability to secure a spot in a more lucrative study, and so it is both a risky choice but also a legitimate, rational, and natural (financial) practice (cf. de Goede 2005).

As for the decision rules on which healthy volunteers rely, the uncertainty of the clinical trials market makes it difficult for workers to have hard and fast rules for when to enroll in or decline a study. This is strikingly different than independent contractor taxi drivers, for example, who have been shown to use daily income targets to structure their income and adjust accordingly the number of hours they work each day (Camerer *et al.* 1997). With ultimately much less control over their hours and wages, healthy volunteers are more like gig economy workers (Abadie 2019, Fisher 2019). For instance, Shapiro (2018) found in his study of couriers working for app-based platform companies that 'everyday decisions and negotiations [about their work] are not dictated by bald calculations of earnings potentials, but rather entail a complex amalgam of intuition, qualification, and judgment' (2965). Workers in Shapiro's study attempted to predict the times of day and types of orders that would make them the most money, but their earnings were much more difficult to predict in part due to partial information provided by the companies about the nature of orders, the number of workers with whom they were competing for orders, and the dynamic pricing system that varies the payrate based on myriad factors. While working as an independent contractor for a platform company like Postmates (in Shapiro's study) or Uber requires different types of decision rules for their labor, these workers often are powerless in much the same way as healthy volunteers, even as they operate within a system that emphasizes their freedom to set the terms of the exchange.[6] These workers can and do decide when and how to work, but the financial rewards of their labor are quite limited. Nevertheless, they often employ speculative forms of reasoning in their decision making – using what information they do have to inform the risks they take in hopes of conjuring profit out of unknowable future conditions.

In this way, healthy clinical trial volunteers help shed light on the spectrum of power relations structuring contract labor that spans from highly skilled workers who can set the terms of their employment to gig workers who experience constantly fluctuating work conditions set through algorithmic platforms designed to exploit their labor. Speculation in contract labor can run through all of these forms of work. Regardless of how much control the workers can exact over their employment, speculation allows them the illusion of control over their financial situations. Given uncertain sources of income, healthy volunteers – and possibly other vulnerable contract workers – subscribe to optimistic versions of a financial future in which their labor investments pay off (cf. Pixley 2010, Stout 2012).

In an unjust and racialized society, the 'choice' to invest one's body toward the capital accumulation of multinational corporations in exchange for what are at best modest and irregular wages is another critical aspect of these labor relations. Although many healthy volunteers enjoy clinical trial work, they are also not naïve to the patterns of exploitation that enable pharmaceutical companies to earn massive profits from the clinical labor of racial and ethnic minorities who have few better options for work (Walker *et al.* 2018, Fisher and Walker 2019, Fisher 2020). In this context, the future-income-over-immediate-pay calculus creates a space for agency that is all the more vital given the impossibility of achieving long-term prosperity from labor speculation in the clinical trial market. Even when it is a financially risky strategy, labor speculation is a way to set the terms of exchange with oneself if not with the companies providing the revenue. While their expectations can be said to be fictions (Beckert 2013), they become narratives that impart a sense of control to vulnerable workers and affirm their agency to win or lose in an unfair labor market.

Notes

1. The clinics were not involved in the design of the study or analyses of the data. They simply allowed us access to the healthy volunteers who were enrolled in clinical trials during our recruitment visits. To protect confidentiality, we do not identify the clinics or the specific locations at which we recruited participants.

2. In the clinical trials industry, a washout period is defined as the time between drug exposure periods. Typically, clinical trial protocols mandate a period of time between a volunteer's final dose of an investigational drug in one trial and their enrollment in the next. During this time, the drug is 'washed out' of the participant's system. This requirement is meant to both minimize the number of variables involved in the measurement of an investigational drug's effects, as well as to protect participants from potential (known and unknown) drug interactions.
3. There were 40 individuals in our sample (24%) who at the end of three years had not participated in another clinical trial. Eighteen (11%) had never even screened for another trial. Many of these individuals had secured full-time employment during those years, but others were unable to find any clinical trials for which they qualified.
4. Healthy volunteers also make enrollment decisions based on their perceptions of a study's risks (Chen *et al.* 2017, Fisher *et al.* 2019). Among our study participants, we found that although the majority thought that Phase I trials were moderately to very risky, most asserted that they were personally safe from harm, often because they thought they could protect themselves (Fisher *et al.* 2018a). This is not to say that participants do not experience bodily changes during clinical trials. Participants commonly experience 'adverse events,' but they typically do not consider these as harmful and engage in a process of minimizing, denying, or reattributing the cause of the symptoms (McManus *et al.* 2019). Our findings generally resonate with meta-analyses that indicate that bodily changes are quite commonly experienced during Phase I trials, but healthy volunteers rarely suffer long-term or serious harm from their participation (Sibille *et al.* 1998, Emanuel *et al.* 2015).
5. In five instances, the participants also noted that the bodily risks of the study were not worth the compensation, and this included the $11,000 study previously noted (n.b., the lowest paying study perceived as too physically risky was $1,260 and the average of the five was $6,130). For the purposes of this paper, we focus on economic decision making here rather than on risk, which we analyze elsewhere (Fisher *et al.* 2019).
6. Arguably, the terms of exchange are even more restrictive for healthy volunteers than many forms of gig work. Both the frequency of procurable contracts (e.g. the rapid turn-over rate of Uber rides in a given shift versus the more limited availability of clinical trial opportunities) and the time commitment required upon accepting a contract (e.g. completing a 'ride' for an Uber driver versus whole trial completion for a healthy volunteer) make the decisions of healthy volunteers more consequential in determining their overall earnings.

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