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# Healthy Volunteers' Perceptions of the Benefits of Their Participation in Phase I Clinical Trials

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**Abstract**

Other than the financial motivations for enrolling in Phase I trials, research on how healthy volunteers perceive the benefits of their trial participation is scant. Using qualitative interviews conducted with 178 U.S. healthy volunteers enrolled in Phase I trials, we investigated how participants described the benefits of their study involvement, including, but not limited to, the financial compensation, and we analyzed how these perceptions varied based on participants' sociodemographic characteristics and clinical trial history. We found that participants detailed economic, societal, and noneconomic personal benefits. We also found differences in participants' perceived benefits based on gender, age, ethnicity, educational attainment, employment status, and number of clinical trials completed. Our study indicates that many healthy volunteers believe they gain more than just the financial compensation when they accept the risks of Phase I participation.

**Keywords**

phase I clinical trial, healthy volunteers, benefit perception, economic motivation, serial participation, demographic differences

## Introduction

Phase I trials typically rely on healthy volunteers to evaluate the safety and tolerability of investigational drugs. While often associated exclusively with first-in-human trials, in practice Phase I studies also include trials on healthy volunteers conducted later in the drug development process, such as to measure food effects, drug interactions, and drugs' bioequivalence. As part of the design of these trials, participants are often confined to a research clinic to facilitate the frequent procedures following dosing with the experimental drug (e.g., blood collection and electrocardiograms [ECGs]) and to ensure that participants adhere to all protocol requirements and restrictions (e.g., regarding food and exercise). Without the possibility of therapeutic benefit from their participation, healthy volunteers are typically offered financial compensation to incentivize their enrollment. Previous research on healthy volunteers has indicated that many of these participants enroll serially in research (Edelblute & Fisher, 2015; Tishler & Bartholomae, 2003). This is largely attributed to participants' financial motivations (Almeida, Azevedo, Nunes, Vaz-da-Silva, & Soares-da-Silva, 2007; Dickert, 2013), and some even pursue clinical trials in a manner consistent with full-time employment (Abadie, 2010; Elliott, 2008).

Despite scholarly attention to these so-called professional guinea pigs, there has been little research on how healthy volunteers themselves perceive the benefits of trial participation. The literature has understandably focused on risks (Chen et al., 2017; Cottingham & Fisher, 2016; Fisher, 2015; Johnson, Rid, Emanuel, & Wendler, 2016; Roberts & Kim, 2017), which is a critical topic but only one part of the risk–benefit assessments informing participants' decision making. Adding to the importance of ascertaining healthy volunteers' perspective on participation benefits is that U.S. federal regulation prohibits financial compensation from being considered as a benefit that can offset risk of harm (U.S. Food and Drug Administration [FDA], 1998).

One systematic review of healthy volunteers' motivations identified financial compensation, societal benefits, free health examinations, and making friends as reasons individuals choose to participate (Stunkel & Grady, 2011). However, most of the research studies included in this systematic review were quantitative surveys. This means that

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participants were generally presented with a list of possible benefits from which they could select those that applied to their perspective (Almeida et al., 2007; Cunny & Miller, 1994; Stunkel et al., 2010). Moreover, much of the existing research has focused on *motivation* to enroll in Phase I trials as opposed to thinking more holistically about *benefits* in terms of what healthy volunteers might gain or get out of their participation. For example, the financial compensation might motivate individuals to sign up for a clinical trial, but this does not tell us how people perceive the economic benefits, which often need to be understood in light of participants' specific sociodemographic contexts. Some studies indicate that many participants are dependent on clinical trial income to support their households (Cottingham & Fisher, 2016; Monahan & Fisher, 2015; Williams & Fisher, 2018), whereas others suggest that it is typically supplemental income to be used for consumer purchases and nonessentials (Tolich, 2010). Even less is known about what noneconomic benefits healthy volunteers might perceive from their enrollment in Phase I trials.

To develop a more complete view of healthy volunteers' perception of benefits, our study reports on in-depth qualitative research. Specifically, we describe the myriad elements of Phase I clinical trials, including, but not limited to, the financial compensation, that 178 healthy volunteers narrate as benefits of their participation. In addition, we analyze participants' benefit perceptions based on their clinical trial history and sociodemographic characteristics, such as gender, race/ethnicity, educational attainment, employment status, and age. We argue that healthy volunteers' experiences illustrate that they get more out of their participation than compensation alone. Our findings, which complicate existing interpretations of why people enroll serially in these clinical trials, evince the presence of important noneconomic benefits as well as differences in perceptions of benefits on the basis of sociodemographic factors.

## Method

### Study Design

The data for this study come from a longitudinal, mixed-methods research project on healthy volunteers' involvement in Phase I trials (for a detailed account of the study design, see Edelblute & Fisher, 2015). Participants in our study were identified as healthy volunteers based on their enrollment in such a trial in 2013 at one of seven U.S. research clinics. Participants were enrolled by a member of our research team who traveled to the clinics for the purposes of recruitment. Our team operated independently from the research clinics, which gave permission to recruit participants but otherwise had no involvement in the design or execution of the study. The clinics were selected based on their locations to help diversify our sample of participants, and we enrolled approximately one third of our sample on the East Coast, the Midwest, and the West Coast, respectively. The study was reviewed and approved by the Biomedical IRB at the University of North Carolina at Chapel Hill.

### Sample

Our sample of healthy volunteers included 178 participants with a range of different sociodemographic characteristics and experience in clinical trials (Table 1). Phase I trials in the United States tend to enroll minority participants (Fisher & Kalbaugh, 2011; Grady, Bedarida, Sinaii, Gregorio, & Emanuel, 2017), and our sample reflected this trend with underrepresented minority groups making up 68% of our participants. We also included Spanish-speaking individuals in our study, and 14 participants (8%) opted to be interviewed in Spanish by a bilingual member of our study team. In addition, our sample was predominantly men (74%) and people who had prior experience participating in Phase I trials. Only 21% were in their first study, and almost half of participants had participated in six or more studies (48%). Fifteen percent of participants were 50 years of age or older, and the majority were over 30 years of age (78%). Most participants reported a household income of less than US$50,000 annually (86%). Twenty-nine percent of participants had no additional schooling beyond high school, with the majority not having a college degree (67%). In addition, most participants were unemployed (41%), with only 25% having full-time employment and others have part-time or irregular independent contract work (34%).

### Data

We conducted face-to-face, semi-structured interviews with participants as part of their enrollment in the longitudinal study. The purpose of the interview was to solicit participants' views about the risks and benefits of clinical trials and how they made enrollment decisions, including at which clinics they screened and how the length of studies influenced their participation. In addition to general perceptions and decisions, we probed participants' actual experiences in prior clinical trials by asking them to provide examples and accounts of their clinic stays and how they used the compensation they earned from studies. We also asked questions about their current health and health behaviors. Following the norms of qualitative interviewing (Patton, 2002), our approach was to begin with fairly standardized open-ended questions but to ask follow-up questions based on participants' specific responses. To assess participants' perceptions of benefits, we asked, "What do you consider to be the benefits to you of participating in clinical trials?" Follow-up questions varied, but we had four follow-up probes included in our interview guide: (a) [If benefits are financial] "How do you typically use the money you earn in studies?" (b) "How have your perceptions of the benefits changed based on your experiences?" (c) "Other than money, what would you say you get out of doing studies?" and (d) "How important are

**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 |
| 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 US$10,000 | 30 | 16.9 |
| US$10,000-US$24,999 | 52 | 29.2 |
| US$25,000-US$49,999 | 71 | 39.9 |
| US$50,000-US$74,999 | 13 | 7.3 |
| US$75,000-US$99,999 | 7 | 3.9 |
| US$100,000 or more | 4 | 2.2 |
| Educational attainment | | |
| Less than high school | 12 | 6.7 |
| High school or General Equivalency Diploma (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 have those that identify as White, Black, more than one race, American Indian, and Native Hawaiian/Pacific Islander in our sample.
[b]Data for household income were 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.

these nonfinancial benefits to you?" We also collected from each participant basic demographic information, such as gender, race/ethnicity, educational attainment, employment status, and health insurance status.

## Analysis

All interviews were audio-recorded and then sent to an independent company for transcription. To ensure the accuracy of these transcripts, a member of the project team listened to the audio while reading and making corrections to the transcripts. Spanish-language interviews were then translated into English either by a member of our study team or by a professional translator. Next, each transcript was uploaded to Dedoose qualitative software for excerpting and coding. A code book was developed to reflect the topics we aimed to explore in the project (e.g., benefits and risks) as well as to capture unanticipated themes emerging from participants' interviews (e.g., comparisons of clinical trials to jobs and/or to a vacation, social aspects of their time in the clinic). Two members of the research team coded each transcript to ensure that the code book had been applied thoroughly and that team members had shared understandings of the codes. The Benefits code included the following subcodes: Change in Benefit Perceptions, Economic Benefit, Health Benefit, Networking Benefit, Personal Benefit, and Societal Benefit (see Table 2). We further added subcodes to the Economic Benefit code: Household, Investment, Others, and Self (also included in Table 2).

To analyze data for this article, we exported from Dedoose all excerpts that had been coded as benefit perceptions. This included 1,761 excerpts, or roughly 10 per participant. Excerpts were primarily made up of an interview question and its response, but lengthier responses were occasionally broken up into multiple excerpts to facilitate coding as well as to adhere to character number limitations affecting the export from Dedoose to Excel. In the process of reviewing benefits excerpts, we further refined the categories we had to capture the nuance of how participants were describing each of these beneficial aspects of their clinical trial participation (see below in results). In addition to analyzing each excerpt, we also made each of these benefit themes into variables, assigning each one as absent or present (0 or 1) for each participant. Two members of the research team assigned these results independently, and any disagreements were adjudicated between these team members or brought to a project meeting for further discussion. Because of the volume and nuance of data we had for societal benefit perceptions, we further categorized our data by placing each participant on a scale indicating their perceived level of societal benefit (none, weak, moderate, strong, super, and missing data) based on viewing their excerpts holistically (see Table 3). Due to the small sample size, to test for statistical differences we dichotomized this variable into none/weak and moderate/strong/super. Because the process of scalar ranking was more challenging than absence/presence, four

**Table 2.** Benefits Codes.

| Subcode | Definition |
|---|---|
| Change in Benefit Perceptions | Participants' reflections on how their perceptions of or their feelings about the benefits have changed. |
| Economic Benefit | Perceived benefits of clinical trial participation as economic/financial. |
| Household | Economic benefit is articulated as supporting family/bills/household. |
| Investment | Clinical trial money is described as having an investment purpose (starting business, purchasing property such as cars or rentals, etc.). |
| Others | Clinical trial money is described as being used for or given to others (college tuition, sick relative, etc.). |
| Self | Clinical trial money is described as being used for personal consumption (new consumer item) or used for travel and vacation funds. |
| Health Benefit | Clinical trials are seen as generating positive changes to personal health and increase in health-promoting behaviors; screening perceived as providing important information about health. |
| Networking Benefit | Participants perceive the development of relationships or friendships in clinical trials as a benefit. |
| Personal Benefit | Participants describe a nonfinancial benefit to themselves, such as self-improvement, personal growth, lifestyle, flexibility, downtime/time away. |
| Societal Benefit | Participants describe how their participation might help others who are sick and need medicine or might advance medicine more generally. |

**Table 3.** Societal Benefit Variable.

| Definition | Societal benefit variable refers to the level or degree to which participants perceive clinical trials as benefiting society or others (could be general or specific others). |
|---|---|
| None | Participants explicitly state that they perceive no societal benefit from their participation in clinical trials. Participant might mention that *other* participants believe their participation results in a societal benefit, but the participant then refutes this view and denies this benefit. |
| Weak | Participant reports that the societal benefits are "minimal," "negligible," or that "they had not thought about it." |
| Moderate | Participant reports that there are "some" benefits to others and may suggest that clinical trials "help others." They are likely to only mention "others" in a generic sense, without specifying particular people who might be helped by clinical trials. |
| Strong | Participant states repeatedly that clinical trials help others and/or society. They may elaborate in detail how studies help others while also naming specific individuals, such as family members or cancer patients, who can be helped by clinical trials. Participant might also describe himself or herself as a caring/compassionate person. |
| Super | Participant reiterates the societal benefits repeatedly throughout interview and in response to a number of different prompts, such as questions about risk, decision-making factors, or motivation to do studies. Participant might also describe himself or herself as a caring/compassionate person and comes across as an altruist. Helping others appears as the primary reason or "main benefit" for participating in studies and participant might suggest that they would participate even if money was not offered. |
| Missing data | A societal benefit is not mentioned in the interview. This means it is impossible to assess their views of a societal benefit. |

to five team members independently ranked each participant on the 5-point scale and then met to review and come to agreement on each participant.

Our quantification process enabled us to assess the prevalence of these benefit themes in our sample of participants as well as to compare how these perceptions of benefit might manifest differently based on participants' sociodemographic characteristics. Data were analyzed in SPSS using a series of Pearson chi-square tests. Specifically, for each benefit variable, we looked for differences based on gender, race, ethnicity, age, educational attainment, employment status, and number of clinical trials completed. Due to the relatively small sample size, binary variables were created for categorical and ordinal data. Missing data were excluded from the analysis. Results from the analyses of categorical variables and binary variables are included in the findings tables (Tables 4-7). We report on significant differences at the significance level $p < .05$.

## Results

### *Perceptions of Economic Benefits*

All of the participants in our sample emphasized in their interviews the monetary benefit of participating, but they did not all have the same view of the nature and importance

**Table 4.** Economic Benefits.

| | Staying afloat benefit | | | | Investment benefit | | | |
|---|---|---|---|---|---|---|---|---|
| | Absent | Present | *n* | $\chi^2$ | Absent | Present | *n* | $\chi^2$ |
| Gender | | | | | | | | |
| Men | 78<br>59.5% | 53<br>40.5% | 131 | 0.267 | 88<br>67.2% | 43<br>32.8% | 131 | 2.206 |
| Women | 30<br>63.8% | 17<br>36.2% | 47 | | 37<br>78.7% | 10<br>21.3% | 47 | |
| Minority status | | | | | | | | |
| Non-white or Hispanic | 72<br>59.5% | 49<br>40.5% | 121 | 0.217 | 78<br>64.5% | 43<br>35.5% | 121 | 6.000* |
| Non-Hispanic White | 36<br>63.2% | 21<br>36.8% | 57 | | 47<br>82.5% | 10<br>17.5% | 57 | |
| Ethnicity | | | | | | | | |
| Hispanic or Latino | 17<br>44.7% | 21<br>55.3% | 38 | 5.143* | 28<br>73.7% | 10<br>26.3% | 38 | 0.277 |
| Non-Hispanic | 91<br>65.0% | 49<br>35.0% | 140 | | 97<br>69.3% | 43<br>30.7% | 104 | |
| Education | | | | | | | | |
| High school or less | 24<br>49.0% | 25<br>51.0% | 49 | 3.875* | 41<br>83.7% | 8<br>16.3% | 49 | 5.848* |
| More than high school | 84<br>65.1% | 45<br>34.9% | 129 | | 84<br>65.1% | 45<br>34.9% | 129 | |
| Unemployed | | | | | | | | |
| Some employment | 74<br>70.5% | 31<br>29.5% | 105 | 10.309** | 71<br>67.6% | 34<br>32.4% | 105 | 0.831 |
| Unemployed | 34<br>46.6% | 39<br>53.4% | 73 | | 54<br>74.0% | 19<br>26.0% | 73 | |
| Age | | | | | | | | |
| Less than 50 | 92<br>60.5% | 60<br>39.5% | 152 | 0.010 | 100<br>65.8% | 52<br>34.2% | 152 | 9.790** |
| 50 or older | 16<br>61.5% | 10<br>38.5% | 26 | | 25<br>96.2% | 1<br>3.8% | 26 | |
| Trial participation | | | | | | | | |
| Less than 6 trials | 54<br>58.7% | 38<br>41.3% | 92 | 0.312 | 71<br>77.2% | 21<br>22.8% | 92 | 4.398* |
| 6 or more trials | 54<br>62.8% | 32<br>37.2% | 86 | | 54<br>62.8% | 32<br>37.2% | 86 | |

*$p < .05$. **$p < .01$.

of this benefit within their lives or of how they would or should use their clinical trial income. Many participants focused on how clinical trials pay well for the time required, with some even calling it "easy" money because of the lack of work required to earn it. In participants' detailing of how they spend their study compensation, many described using it to help make ends meet on rent or bills, whereas others reported putting it toward big purchases, such as appliances or cars, and other consumer goods. In our analysis of the specific function for participants of the financial compensation, we categorized more than half (57%) of our sample as perceiving at least one of two important types of economic benefit: reliance on the money to stay afloat and use of the money for investment strategies. While these were not necessarily discrete, and some participants described both of these subtypes of economic benefit, each differently illustrates how healthy volunteers might think about the economic leverage they can gain from clinical trials.

*Staying afloat.* Specifically, 39% of participants explicitly indicated that study compensation was a critical means of staying afloat financially. Some participants relied solely on income from clinical trials, seeing no other alternatives to make ends meet. For example, a White man in his 40s who was a full-time study participant and completed 70 clinical trials expressed how he would be unable to support his two children without them: "If I couldn't do clinical trials, I

**Table 5.** Societal Benefits.

| | None/weak societal benefit | Medium/high/super societal benefit | *n* | $\chi^2$ |
|---|---|---|---|---|
| Gender | | | | |
| Men | 26<br>34.2% | 50<br>65.8% | 76 | 2.061 |
| Women | 6<br>20.0% | 24<br>80.0% | 30 | |
| Minority status | | | | |
| Non-White or Hispanic | 16<br>23.5% | 52<br>76.5% | 68 | 3.991* |
| Non-Hispanic White | 16<br>42.1% | 22<br>57.9% | 38 | |
| Ethnicity | | | | |
| Hispanic or Latino | 2<br>11.8% | 15<br>88.2% | 17 | 3.261 |
| Non-Hispanic | 30<br>33.7% | 59<br>66.3% | 89 | |
| Education | | | | |
| High school or less | 9<br>33.3% | 18<br>66.7% | 27 | 0.170 |
| More than high school | 23<br>29.1% | 56<br>70.9% | 79 | |
| Unemployed | | | | |
| Some employment | 15<br>22.7% | 51<br>77.3% | 66 | 4.620* |
| Unemployed | 17<br>42.5% | 23<br>57.5% | 40 | |
| Age | | | | |
| Less than 50 | 29<br>33.3% | 58<br>66.7% | 87 | 2.277 |
| 50 or older | 3<br>15.8% | 16<br>84.2% | 19 | |
| Trial participation | | | | |
| Less than 6 trials | 20<br>40.0% | 30<br>60.0% | 50 | 4.323* |
| 6 or more trials | 12<br>21.4% | 44<br>78.6% | 56 | |

*$p < .05$. **$p < .01$.

would be a real deadbeat dad; I would be so worthless as a dad, you know? So it's a lifesaver being able to do these" (F2412). Even for participants with traditional forms of employment (e.g., working in construction), their jobs were often unstable (e.g., contracted, part-time, or seasonal), leaving them without consistent work throughout the year. An unemployed Black man in his 40s who participated in five studies articulated his view of how clinical trial compensation is beneficial in this context. Having recently been laid off from his job as a medical transportation driver, he shared,

> For me personally, I think it's the fact if somebody doesn't have a job-, like I'm in that situation right now. I can do four days, you know, participate for four days [in a clinical trial] and get pretty much a paycheck, which it would take people two weeks to make [that same amount in a job], some cases three [weeks], you know, but. So, I think that's kind of a benefit. It's a good way to make some money. It's quick money. It can help to compensate for money you may not be making, or it can help you to get out of financial debt . . . . I've always worked, except for a few times, [then] I've done a couple [clinical trials]. (F3316)

Participants also claimed that because the compensation is dispersed as a lump sum as opposed to smaller increments, it makes it easier for them to pay off fines or debts. This can be particularly meaningful for participants

**Table 6.** Friends and Health Benefits.

| | Friends benefit | | | | Health benefit | | | |
|---|---|---|---|---|---|---|---|---|
| | Absent | Present | *n* | $\chi^2$ | Absent | Present | *n* | $\chi^2$ |
| Gender | | | | | | | | |
| Men | 84<br>64.1% | 47<br>35.9% | 131 | 0.051 | 67<br>66.4% | 44<br>33.6% | 131 | 0.102 |
| Women | 31<br>66.0% | 16<br>34.0% | 47 | | 30<br>63.8% | 17<br>36.2% | 47 | |
| Minority status | | | | | | | | |
| Non-White or Hispanic | 76<br>62.8% | 45<br>37.2% | 121 | 0.534 | 81<br>66.9% | 40<br>33.1% | 121 | 0.246 |
| Non-Hispanic White | 39<br>68.4% | 18<br>31.6% | 57 | | 36<br>63.2% | 21<br>36.8% | 57 | |
| Ethnicity | | | | | | | | |
| Hispanic or Latino | 19<br>50.0% | 19<br>50.0% | 38 | 4.508* | 20<br>52.6% | 18<br>47.4% | 38 | 3.680 |
| Non-Hispanic | 96<br>68.6% | 44<br>31.4% | 140 | | 97<br>69.3% | 43<br>30.7% | 140 | |
| Education | | | | | | | | |
| High school or less | 37<br>75.5% | 12<br>24.5% | 49 | 3.515 | 35<br>71.4% | 14<br>28.6% | 49 | 0.975 |
| More than HS | 78<br>60.5% | 51<br>39.5% | 129 | | 82<br>63.6% | 47<br>36.4% | 129 | |
| Full time | | | | | | | | |
| Not full time | 81<br>60.9% | 52<br>39.1% | 133 | 3.157 | 82<br>61.7% | 51<br>38.3% | 133 | 3.881* |
| Full-time employment | 34<br>75.6% | 11<br>24.4% | 45 | | 35<br>77.8% | 10<br>22.2% | 45 | |
| Age | | | | | | | | |
| Less than 50 | 100<br>65.8% | 52<br>34.2% | 152 | 0.637 | 106<br>69.7% | 46<br>30.3% | 152 | 7.416** |
| 50 or older | 15<br>57.7% | 11<br>42.3% | 26 | | 11<br>42.3% | 15<br>57.7% | 26 | |
| Trial participation | | | | | | | | |
| Less than 6 trials | 70<br>76.1% | 22<br>23.9% | 92 | 10.975** | 67<br>72.8% | 25<br>27.2% | 92 | 4.258* |
| 6 or more trials | 45<br>52.3% | 41<br>47.7% | 86 | | 50<br>58.1% | 36<br>41.9% | 86 | |

*$p < .05$. **$p < .01$.

whose earning potential had been jeopardized by an outstanding fine. This perspective was voiced by a Hispanic man in his 50s who used one of his nine studies as an indirect way of keeping a job for which he needed a valid driver's license:

> Yes, I had to get my license because it was suspended . . . I owed a lot of money on the license, then I didn't have money to get it, to pay for the tickets, but the supervisor of that company, I let him know that there was a study and I had to be in here [the clinic] for 33 days, and I told him if I get that money, if I do that study, I'll pay for the tickets left on my license with that money . . . So that's why I came. (F3437, translated from Spanish)

One final way that study compensation helps keep participants afloat is that the lump sum can help them make advance payments on critical bills, such as rent, which becomes a type of insurance policy against tough financial times in the near future. A Black man in his 30s who completed 10 studies explained,

> Usually working at your regular day-to-day job, it's hard to save money . . . You got your bills, your check is already spent before you-, you're waiting for the next paycheck. No, I call it "staying ahead of myself" [how I use my study money]. I mean, there's a lot of things you can pay [in advance]. You can pay your rent off for a couple [months] . . . You ain't gotta

**Table 7.** Clinic Free-Time, New Experiences, and Alternative Lifestyle Benefits.

| | Clinic free-time | | | | New experience | | | | Alternative lifestyle | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Absent | Present | *n* | $\chi^2$ | Absent | Present | *n* | $\chi^2$ | Absent | Present | *n* | $\chi^2$ |
| Gender | | | | | | | | | | | | |
| Men | 80<br>61.1% | 51<br>38.9% | 131 | 1.248 | 90<br>68.7% | 41<br>31.3% | 131 | 0.217 | 103<br>78.6% | 28<br>21.4% | 131 | 0.406 |
| Women | 33<br>70.2% | 14<br>29.8% | 47 | | 34<br>72.3% | 13<br>27.7% | 47 | | 39<br>83.0% | 8<br>17.0% | 47 | |
| Minority status | | | | | | | | | | | | |
| Non-White or Hispanic | 74<br>61.2% | 47<br>38.8% | 121 | 0.882 | 84<br>69.4% | 37<br>30.6% | 121 | 0.010 | 96<br>79.3% | 25<br>20.7% | 121 | 0.045 |
| Non-Hispanic White | 39<br>68.4% | 18<br>31.6% | 57 | | 40<br>70.2% | 17<br>29.8% | 57 | | 46<br>80.7% | 11<br>19.3% | 57 | |
| Ethnicity | | | | | | | | | | | | |
| Hispanic or Latino | 26<br>68.4% | 12<br>31.6% | 38 | 0.508 | 31<br>81.6% | 7<br>18.4% | 38 | 3.246 | 34<br>89.5% | 4<br>10.5% | 38 | 2.817 |
| Non-Hispanic | 87<br>62.1% | 53<br>37.9% | 140 | | 93<br>66.4% | 47<br>33.6% | 140 | | 108<br>77.1% | 32<br>22.9% | 140 | |
| Education | | | | | | | | | | | | |
| High school or less | 37<br>75.5% | 12<br>24.5% | 49 | 4.219* | 42<br>85.7% | 7<br>14.3% | 49 | 8.243* | 44<br>89.8% | 5<br>10.2% | 49 | 4.208* |
| More than high school | 76<br>58.9% | 53<br>41.1% | 129 | | 82<br>63.6% | 47<br>36.4% | 129 | | 98<br>76.0% | 31<br>24.0% | 129 | |
| Full time | | | | | | | | | | | | |
| Not full time | 85<br>63.9% | 48<br>36.1% | 133 | 0.041 | 92<br>69.2% | 41<br>30.8% | 133 | 0.060 | 99<br>74.4% | 34<br>25.6% | 133 | 9.295** |
| Full-time employment | 28<br>62.2% | 17<br>37.8% | 45 | | 32<br>71.1% | 13<br>28.9% | 45 | | 43<br>95.6% | 2<br>4.4% | 45 | |
| Age | | | | | | | | | | | | |
| Less than 50 | 98<br>64.5% | 54<br>35.5% | 152 | 0.440 | 108<br>71.1% | 44<br>28.9% | 152 | 0.951 | 119<br>76.3% | 33<br>21.7% | 152 | 1.424 |
| 50 or older | 15<br>57.7% | 11<br>42.3% | 26 | | 16<br>61.5% | 10<br>38.5% | 26 | | 23<br>88.5% | 3<br>11.5% | 26 | |
| Trial participation | | | | | | | | | | | | |
| Less than 6 trials | 60<br>65.2% | 32<br>34.8% | 92 | 0.247 | 65<br>70.7% | 27<br>29.3% | 92 | 0.088 | 78<br>84.8% | 14<br>15.2% | 92 | 2.959 |
| 6 or more trials | 53<br>61.6% | 33<br>38.4% | 86 | | 59<br>68.6% | 27<br>31.4% | 86 | | 64<br>74.4% | 22<br>25.6% | 86 | |

> worry about-, there's all types of things you think about so you can stay ahead of yourself. (F3460)

*Investment plans.* Unlike the notion that clinical trial income is meaningful in terms of personal economic relief (or forestalling imminent downtimes), 30% of participants described the important investment ends to which they had already, or hoped to, put their compensation. As noted above, this could at times be in addition to using trial money to stay afloat. Seventeen percent of all participants had already used or were currently using clinical trial income to support an investment, and another 17% of all participants had plans to invest their study compensation in the future. Seven participants had both current and future investment plans for their study compensation. As an example of an investment strategy, a Black woman in her 40s who worked full time as a phlebotomist and completed 35 studies discussed how clinical trials were part of her long-term plan to purchase an investment property: "I'm trying to save up enough money to buy me a rental property so I won't have to do studies as much. That's what I'm trying to do" (C2403). In addition to real estate investments, participants used clinical trial income for other entrepreneurial endeavors, including businesses or working for themselves. A self-employed Black man in his 40s who participated in over 70 studies demonstrated how clinical trial income continuously funds his work of making documentaries:

> This [current study] I need to pay for equipment and also need to have extra money. This is actually paying partially for my

> trip to Thailand. I'll be shooting a documentary in Thailand, so this will probably pay for it, yeah. So that's really the motivation I have. (F1443)

Many of the participants who described their future plans to invest study compensation in business ventures spoke of other participants who had encouraged them to do so. Recalling that few participants have actually used their study compensation in these ways, such narratives may indicate unrealistic future goals. These plans seemed particularly underdeveloped when participants emphasized the desire to make money without articulating any specific projects, as depicted by a Black man in his 30s who completed 12 trials:

> I assume that I can't do these [clinical trials] forever, and some day I'd like to take a big, a large amount of money [from studies] and invest that in something, make it work for me. I have a couple ideas, but I'm not set on anything right now 'cause I'm keeping my options open. But, as I stack money, stack and stack and stack, you know, eventually the time's going to come where I say, "Hey, that's the right thing," and I'm going to do that so I can just sit back and make money. (F1446)

Finally, participants also referenced investing in their human capital through secondary education and professional certifications or licenses. Some were currently pursuing these paths or had done so in the past, whereas others had future aspirations to do so. For example, a Hispanic man who was employed part-time on a ship and had completed three studies explained how he was leveraging his compensation by using it to advance in his career:

> I'm working on getting a captain's license. So that costs some money. I've put-, you know, you put down like $100 to reserve your spot in this course. But I need the rest, which, you know, will be covered by this [clinical trial]. And, yeah, so that's also just really good timing [of this trial]. (F3325)

*Demographic differences in economic benefit perceptions.* We found statistically significant differences in narratives of economic benefit for the demographic categories of ethnicity, clinical trial experience, and educational attainment (see Table 4). Hispanic participants, people with a high school degree or less educational attainment, and unemployed participants were all statistically more likely to identify staying afloat as the salient economic benefit of enrolling in clinical trials. These findings are consistent with the fact that each of these groups is highly likely to experience economic insecurity, in many cases compounded by falling into more than one of these demographic categories. In particular, many of the Hispanic participants in our study disclosed that they were not legal U.S. residents and faced economic hardship in large part due to irregular and unstable work opportunities; in this context, clinical trials provide an important financial opportunity to stay afloat. For example, an undocumented Hispanic woman in her 50s spoke of enrolling in her first clinical trial out of economic necessity after losing her job at a fast-food restaurant following an immigration crackdown:

> Well, the truth is that I was scared of needles. I am scared when they draw blood . . . but the necessity forced me to come here, because, well, it's an amount that I don't make in half a year at work . . . . Well, it's like, it's just as sad, right? It's sad to me because it doesn't seem like something that God wants for us, but, well, we have to participate. We have needs, you have to pay for electricity, water, food. (F3111, translated from Spanish)

In this case, although the participant felt compelled to join a clinical trial, she nonetheless saw it as an economic benefit given the lack of employment alternatives.

Participants who had enrolled in six or more clinical trials were statistically more likely than participants with less trial experience to describe investment purposes for their study compensation. In addition, minority participants (non-White and/or Hispanic), participants with a high school degree or more educational attainment, and participants younger than 50 were statistically more likely to talk about investing their study compensation than non-Hispanic White participants, participants with less than a high school degree, or participants older than 50, respectively.

## *Perceptions of Societal Benefits*

In addition to discussions of the economic benefits of participation, it was fairly common for healthy volunteers to reflect on the importance to them of the possible societal benefits of their participation. Nearly 60% of participants discussed the societal benefits in their interview, in some cases prompted by the interviewer. We distinguish societal benefits from altruism because participants were not necessarily describing their motivation for enrolling in studies so much as their belief that clinical trials in general, or their participation in particular, would lead to positive outcomes for society broadly or even for specific people they know who were affected by disease.

We categorized participants' depiction of societal benefit on a scale of none, weak, moderate, strong, and super. The percentage of participants categorized into the combined groups of none/weak, moderate, strong/super distributed rather evenly in our sample, with 30%, 38%, and 32% in each of these respective groups. Although we used the entirety of participants' interview to place them on the

societal benefit scale, the following examples illustrate these types.

The participants we categorized as "none" denied any societal benefit from their participation, with two common types of articulations. First, some asserted that they did not personally care whether the investigational drugs being tested might help people, and second, some doubted the value of the research being performed. Capturing the latter sentiment, a Black man in his 30s who completed over 200 studies declared,

> At the end of the day, the purpose of this whole [clinical trials] organization is to help people. But at the end of the day, when you finally get into it and you've been doing it as long as I have, you realize it's . . . only helping the [pharmaceutical] corporations get richer, you know what I'm saying? (F1453)

In contrast, participants with a weak view of the societal benefit acknowledged such a benefit was possible, but they explicitly described it as having little significance to them. An example of this came from a White man in his 40s in his first study: "I guess in an altruistic sense, I'm helping future, you know, people to take the medication, but to be honest, that's not my primary concern [laughs]" (F3113).

Participants we categorized as demonstrating a moderate perception of societal benefit affirmed the belief that clinical trials "help others." They typically did so by talking about the drug development process and having a role in products making it to the market. For instance, a White man in his 50s who completed 16 trials said,

> I mean it's kind of interesting to keep an eye on the-, when you go through the [consent] paperwork and you see the sponsor and what the drug is, and then to see it on the market . . . And you know that you've maybe had a little bit of a part in that, you know? . . . I mean it makes you feel like, you know, contributing a little something in your own way [laughs]. (F2403)

Those participants who accorded more importance to the societal benefit throughout their interview, particularly by emphasizing how clinical trials would help future patients, were categorized as strong on our scale. A Hispanic, Native Hawaiian man in his 30s who completed two studies pronounced this benefit dramatically:

> I feel like I'm contributing to society and helping, [by] being a part of this research. This [drug-interaction trial] can help save lives and to determine whether it has a negative impact or effect on people with blood pressure and arthritis issues. So, me being a healthy participant, I feel like, hey, you know, I'm coming in as a champion, as a knight, in order to help serve my fellow human beings. (F3212)

Emphasizing the societal benefit even more were those participants we categorized as super on our scale. They distinguished themselves by arguing that the societal benefit is equally important to or of even greater importance than the economic benefit. A White man in his 50s who completed six studies affirmed this position:

> You're helping refine the drug that you're in a study for. If you're helping somebody else, then, you know, that's what we're here for. Other than that, I mean the compensation is nice, it's a bonus, but you're just helping other people, so. (F2420)

*Demographic differences in societal benefit perceptions.* When examining how participants distributed across the societal benefit scale, we found a relationship between perception of societal benefit and race, employment status, and clinical trial experience (see Table 5). Unemployed participants and non-Hispanic Whites were more likely to describe the societal benefit as none or weak. In addition, we found that participants who completed six or more studies were less likely to describe the benefit as none or weak compared with those with less trial experience. Interestingly, we found no statistical gender-based differences when dichotomizing societal benefits as none/weak and moderate/strong/super, but when categorizing societal benefit as none/weak/moderate and strong/super, we did find that women were statistically more likely than men to see a strong or super societal benefit.

## *Perceptions of Noneconomic Personal Benefits*

In addition to economic benefits, healthy volunteers also identified a range of other personal benefits from their participation in Phase I trials. From our categorization of these themes, the five noneconomic personal benefits from most to least prevalent were making friends (35%), having positive effects on one's own health (34%), having free time in the clinic (34%), having new experiences (30%), and allowing for an alternative lifestyle (20%). On average, participants referenced 1.5 of these personal benefit categories. We describe each of these benefits in turn, including any statistically significant differences we found among demographic groups.

*Friends benefit.* Some participants described as a personal benefit the friendships they had formed, especially those relationships they maintained after trials concluded. Participants discussed developing these friendships as a result of having extended periods of time, sometimes weeks, living in the study facility with other participants. Some referred to these friendships in terms of the serendipitous benefits that social connections can have in one's life. This sentiment was expressed by a Hispanic man in his 20s enrolled in his first study:

> The good thing is you meet new people . . . You meet a person, [and] they could be connected to a job, [or] you might meet your wife, your husband through that person, you know. So, yeah, you might get your big break or your best friend [from participating in a clinical trial]. (F1110)

Some participants with more study experience had developed lasting friendships through clinical trials, and they referenced how meaningful to them this has been. One Hispanic woman in her 50s who completed seven studies was effusive about this benefit:

> I meet a lot of women [in studies], and . . . there is four or five of them that we're still friends, you know. And I connect with them, and we go out, and-. You know, it's a lady thing . . . and it's just so fun! . . . We book dates where we can go here or we can go there, and . . . we come back [to the clinical trial facility] . . . [so] we can get into a study again together. (F3429)

We found statistically significant differences among participants identifying the friends benefit based on their trial experience and by ethnicity (Table 6). Participants who had participated in six or more trials were more likely than participants who had participated in five or fewer trials to describe the importance of study friendships. In addition, Hispanic participants were more likely to discuss the friends benefit than non-Hispanics.

*Health benefit.* Although there might be no *medical* benefit from enrolling in Phase I trials, many participants felt that there is a health benefit. They described this benefit in terms of receiving a health screening, gaining knowledge about their own health, improving their everyday health behaviors, and/or experiencing positive health effects from their time in the study clinics. Many of these participants focused on the physical examination that is a required part of the screening process for Phase I trials, often because it provides confirmation to them that they are healthy. While this was a benefit common both for people with and without insurance, those without insurance articulated how they receive a checkup they could not otherwise afford. For example, a White man in his 40s who completed 20 studies explained,

> Between the ECGs and the lab work, you have a once over physical kind of thing, so all of that comes together in a good way, in that as you're aging and you don't have insurance necessarily, [you know from passing the screening that] you're kind of okay . . . . I mean they do a pretty good overall lab reports across the board, so they'll have a good idea if anything is off [in your body]. So, I mean, those are the benefits to me is knowing that I'm healthy. (F2413)

Participants also suggested that they gain knowledge through clinical trials about how their body works or about proper nutrition and a healthy diet. This can be seen in the perspective of a Black man in his 30s who completed 22 studies:

> Another thing I've learned just from being in studies is just adding certain things to my eating habits. You know, I know that Total [cereal] is good for iron. You know, I've always ate fruit and everything . . . A lot of times African-Americans' white blood [cell] count runs low. I've learned that . . . 'cause I had that problem when I first started [participating in trials], just my white blood count. He [a study doctor] was like [adopting an authoritative tone], "Well, it's a little too low. Eat more of this, drink more orange juice. Eat more dark green salads and blah blah blah." (F2404)

Furthermore, some participants recognized that they had improved their health as a result of implementing more health-promoting behaviors to increase their chances of qualifying for studies. This could be due to the knowledge they had gained, as we saw in the prior example, or due to clinical trials providing the motivation participants needed to quit smoking or maintain a healthy weight. For instance, a Black man in his 40s who completed 13 studies averred,

> I learned how to eat better, so that I would pass the study, you know. I don't use salt [anymore] . . . Okay, everybody knows you don't [*sic*: shouldn't] use salt, but it helped me research more about what foods would help lower my blood pressure and better my cholesterol, you know. So when I'm home, especially like a week before I have to come for a study, . . . I eat oatmeal, you know. I like oatmeal, and it helps lower my cholesterol. I learned about eating spinach, so I eat a lot of raw spinach when I'm home. And I got me a juicer . . . so I juice my spinach, maybe spinach and carrots or spinach and an apple, you know, that type of deal, which helps out. (F1464)

Finally, other participants believed that they could even experience a direct health benefit as a result of the study itself. This was most often referenced in terms of weight loss that could result from calorie-restricted diets during trials. One White woman in her 50s who completed two studies shared,

> At home, I have a high-fat diet. I love butter, I love ice cream. I love, you know, I eat whenever I want, the amount I want. I knew when I came here, that it would be very controlled . . . And I knew that I could walk in circles [i.e., laps around the clinic], so I'm going to lose 10 pounds! That's, you know, I have a goal: I'm going to lose 10 pounds. (F3214)

We found statistically significant differences among participants who identified the health benefit based on their trial experience, age, and employment status (Table 6). Participants who enrolled in six or more trials were more

likely than their counterparts to perceive a health benefit. In addition, participants older than 50 were almost twice as likely to identify some health benefit than were younger healthy volunteers. Finally, participants with full-time employment were less likely than those without full-time employment to identify a health benefit.

*Clinic free-time benefit.* Free time in the clinic was another important noneconomic personal benefit discussed by participants. During a clinical trial, participants are typically allowed to spend their time as they please when there are no mandatory study procedures. Many noted that this time in the clinic gave them the opportunity to relax, watch television shows and movies, work on projects, or make plans for the future. Touching on many of these elements, a Hispanic man in his 30s who completed three trials reflected,

> You're just relaxing, sitting here watching Netflix, and some guys spend all the time playing video games or on the Internet . . . Some guys would catch up on some work. So one guy was studying for some big exam and used this time to study. And you can use this time to your advantage definitely. This one guy's a photographer here, and he's been like editing photos and things like that. So you can use the time as like a paid vacation where you just get to relax and work. So, you know, there's ways to make this thing [i.e., being in a study] work for you, definitely. (F3325)

Others explained how they designated clinic time to work on projects they enjoy or hobbies, as illustrated by a White woman in her 40s who completed 13 trials: "I like to bring a project along [to the clinic], whether it be editing a film from some footage I've shot or, like right now, [I'm] putting together a slideshow for my parents' 50th wedding anniversary" (F2421). Often participants referenced how study confinement provided free time that they would not be afforded in the "real world" because of their day-to-day responsibilities. This time was not only an opportunity for participants to relax or recharge, but it also gave them the chance to organize their thoughts or make plans for the future. A Black man in his 20s who completed three trials explained,

> The good thing about being in here is you're shut away from the world. Like, let's say you're having problems with somebody, and you're just like, "You know what? I can't wait to get in this study and just clear my mind." . . . I come in here, and I just think about what I'm gonna do, and plan my next move. (F1318)

For statistically significant differences between demographic groups, we found participants with a high school degree or less educational attainment were less likely to discuss clinic free-time as a benefit than those with more education (Table 7).

*New experience benefit.* Participants also noted the benefits of having new experiences related to their trial participation. They recounted that clinical trials gave them the opportunity to travel for studies, to learn about people from different places and backgrounds, and to gain expert knowledge from other participants. In general, some participants described as a benefit the uniqueness of the study experience, including staying in a new place or doing something that not a lot of other people have done before. A White man in his 50s enrolled in his second study said,

> I like thinking outside the box anyway, so I like, you know, this is kind of an alternate life here. So I just, I don't know, [stammers] it's fun to do different things. It's fun to do some nonconventional things. (F3205)

Because some participants travel to participate in Phase I trials (Edelblute & Fisher, 2015; Monahan & Fisher, 2015), they might experience the benefit of going to new cities and seeing places they would be unlikely to visit otherwise. To make this point, a biracial man in his 20s who completed 17 studies across the United States proclaimed,

> I'm touring, I'm a traveler, I'm-. Each study give [*sic*] you the ability to do something that you couldn't do before, you're traveling while making money, you're getting to see a different place, you're getting to learn about-. I never been to Kentucky [before]-, I mean I been [through] there by bus, passed there, stop at the Greyhound station: "Hey, what a tour!" [I] got to see Kentucky Derby stadium and Louisville stadium . . . You know that's what studies do, you can tour. (F2406)

Along with a new experience, participants also suggested that they were given the opportunity to meet people from other "walks of life" with whom they would not normally have the occasion to interact. A Black man in his 40s who completed 25 studies related,

> A lot of people I run across [in studies], my own opinion, with tattoos, you know, were, I'll put it diplomatically, were street-smart people . . . . But, yet, at the same time, I would say everyone has their own prejudices until they discover that it is a prejudice. You know, when you sit down and talk to some people, like, "Oh, this person's not so bad." (F1441)

Occasionally, these experiences with other participants had a more instrumental value because they created the opportunity to learn new ideas or investment strategies. For example, a Black man in his 30s who completed two studies shared,

> And you meet [in studies] some of the brightest minds, and you share a lot of information. Like I didn't know much about stocks at first. Well, I had a guy teach me more about stocks when I was in a study. And then everywhere you go, you know, you might ask somebody, "Hey, who knows more about this?" And it's, "Oh, I do." . . . That's the biggest thing, I think, the big asset of doing it because you learn so much from different people. (F2202)

In our statistical analysis of this benefit, the only statistically significant demographic difference we found was based on educational attainment (Table 7). Mirroring our findings for the clinic free-time benefit, participants with a high school degree or less educational attainment were less likely to discuss the new-experience benefit than their counterparts who completed more schooling.

*Alternative lifestyle benefit.* A final noneconomic personal benefit we found was the alternative lifestyle or flexible schedule outside of the clinic that participants could have as a result of pursuing Phase I trials. This benefit was often articulated through comparisons with more traditional jobs. A White man in his 30s who completed 12 studies stated, "So, yeah, there's a lot of benefit to doing these studies as opposed to a 9-to-5 job. I've had both, and I don't like the 9-to-5 jobs. Uh uh. They're soul sucking" (F1438). In particular, participants saw earning an income while avoiding conventional employment as a means of generating more free time to do things they enjoy. For example, a White man in his 40s who completed 70 trials argued,

> [Doing studies] It gives me a lot of free time to spend doing the things I like to do that don't pay money. When I was working jobs, living paycheck to paycheck like that, it was just a lot more stressful, I felt drained all the time, I didn't have the energy for anything else, and I couldn't afford to like go overseas. This has given me the ability to travel overseas. You know, I've been to Europe, I've been to Southeast Asia. I could never do that if I didn't do clinical trials. I'd be stuck in the States, you know, working dead-end jobs. (F2412)

For participants with children at home, the benefit of the flexible schedule was often discussed in terms of having more time to spend with their family, as narrated by a man in his 20s who completed nine studies: "That's another reason why I haven't worked and I've just been doing this, 'cause it gives me time to spend more time with him [my son] than anything" (F2402).

We found statistically significant differences for both educational attainment and employment status in the identification of an alternative lifestyle as a benefit (Table 7). Participants with a high school degree or less were much less likely to discuss this benefit compared with those with more education. In addition, participants with full-time employment were dramatically less likely to identify this benefit than were other healthy volunteers.

## Discussion

The extant scholarly literature has largely ignored the benefits, outside of clinical trial income, that healthy volunteers perceive from their Phase I trial participation. We took a ground-up approach to this topic by exploring through in-depth qualitative interviews the benefits that healthy volunteers identified, predominantly without prompting. This is a departure from prior survey-based research that tends to provide a menu of benefits from which participants can select. Our approach allowed us to use healthy volunteers' own experiences to define study benefits as well as explore nuances and differences in how participants perceived those benefits. We found the benefits could be categorized as economic, societal, and noneconomic personal benefits and were able to further classify economic benefit into two primary types: a mechanism to stay afloat and an investment strategy. Similarly, we discovered a range of noneconomic personal benefits including developing friendships, providing health information or motivation for behavior change, appreciating the free time in the clinic, creating opportunities for new experiences, and affording an alternative lifestyle. These reflect some of what has already been reported in the literature. For example, Stunkel and Grady's (2011) systematic review noted financial compensation, societal benefits, free health examinations, and making friends as motivators to clinical trial participation. Our findings, however, extend beyond these to note other positive elements of participation that healthy volunteers see as beneficial, independently of whether these benefits motivate participation.

In addition, by quantifying the prevalence of these themes among participants, we were able to compare benefit narratives across different groups of healthy volunteers based on sociodemographic factors and their histories of clinical trial participation. Regarding gender differences, our only significant finding was that women were more likely than men to describe the importance to them of a societal benefit. This is a somewhat expected result as women are typically socialized to espouse greater care or concern for others, whether those others are people in their own families or strangers (Erickson & Cottingham, 2014; Mayseless, 2015). When analyzing benefit perception by age, we found that older participants were less likely to express an economic investment benefit but more likely to discuss health benefits. Considering those older than 50 might be nearing retirement and would lack the time needed to truly benefit from long-term investment returns, they might be more inclined to think of clinical trial income as supplemental. Perhaps older participants were more likely

to identify the health benefit due to these participants being more sensitized to the number and kind of health issues that develop as one ages (Pickard, 2016), so having one's good health confirmed through the screening process might be particularly meaningful to older adults.

In our analyses of race and ethnicity, we found that Hispanic participants were more likely to describe the economic benefit of participating as a strategy to stay afloat. The economic precarity of many of these participants, particularly those who confided that they lacked authorization to work in the United States, likely accounts for some of this difference between Hispanic and non-Hispanic participants. In contrast, we found that non-Hispanic White participants were less likely to describe future investments they intended to make with their study compensation. This result is harder to explain; however, we interpret it as based in part on the fact that, of the racial and ethnic groups represented in our study, non-Hispanic Whites have the best chance of obtaining paid employment. Because many of the perceived future investment benefits were quite implausible "fantasies" (e.g., becoming millionaires), it is possible that individuals with less realistic opportunities for paid employment were more likely to entertain these hopeful narratives as a way of maintaining a positive vision for their future (Williams & Fisher, 2018). This is consistent with other findings, for instance, about the relatively high participation of poor and minority groups in lottery gambling, where "self-perceived social deprivation" can motivate regular lottery ticket purchases (Beckert & Lutter, 2013).

Educational levels also generated statistically significant differences in benefit perception. Participants with a high school degree or less educational attainment primarily described the economic benefit in terms of helping them to stay afloat. This group was also the least likely to describe plans to use study money for investment purposes. In addition, these participants were much less likely to identify the clinic free-time, new experiences, or an alternative lifestyle as benefits of clinical trial participation. These findings together indicate that participants with a high school degree or less were particularly focused on the immediate economic gain of participation.

Employment status generated similar patterns of statistically significant differences to educational attainment. People who were unemployed were more likely than those with part-time or full-time jobs to describe the economic benefit of staying afloat and were also less likely to claim any societal benefit of their participation. These findings suggest that when participants are financially more dependent on clinical trials, societal benefits will be less salient. Participants with full-time employment, for their part, were less likely to describe the benefits to their health or from an alternative lifestyle. Full-time workers might be granted health insurance through their employer, perhaps making free screenings less notable or important to these participants. Moreover, for participants with full-time employment, enrolling in clinical trials requires integrating a study into their vacation time or normal work schedule, thereby offering them *less* scheduling flexibility. Because those participants have full-time employment, they might also not be as interested in alternative lifestyles that eschew traditional forms of employment. For participants without full-time employment, narratives of alternative lifestyles might also be compensatory mechanisms, helping them locate meaning in noneconomic arenas to maintain a positive attitude in the face of economic precarity (Neff, 2012; Ross, 2009).

In sum, these demographic differences among healthy volunteers suggest that more vulnerable populations, including minorities and those with less education or less stable employment, perceive fewer noneconomic personal benefits overall and place less value on the societal benefit of studies. Because these individuals in our study were financially more dependent on clinical trials than participants who had other sources of wage income, they might not have felt they were at leisure to focus on noneconomic personal and societal benefits. It is also plausible that this group was less likely to describe societal and noneconomic personal benefits because they felt less personal freedom regarding their participation, which might make trial participation feel like a necessity to make ends meet. This is an important finding given that financial compensation cannot be considered by ethics review boards as a benefit to offset the risk to participants of enrolling in Phase I trials. By emphasizing that more vulnerable healthy volunteers perceive no or weak societal benefit of their participation, our study illustrates a tension between the regulation of such trials and the empirical reality on the ground. In addition, it emphasizes the limits of trying to minimize the "undue inducement" of participants when profound social inequalities underlie participation in Phase I trials, suggesting perhaps that the greater ethical risk is exploitation (Elliott, 2017; Elliott & Abadie, 2008; Walker, Cottingham, & Fisher, 2018).

Finally, our results suggest that *serial* participation leads to the identification of more benefits. We found people who had participated in six or more trials were more likely than those who had participated in five or fewer to narrate the importance of a societal benefit as well as to discuss friendship and health benefits. These participants were also more likely than those with less trial experience to have used their study compensation for past or current investments. With long-term participation, healthy volunteers might have more opportunity to strategize about how to use their compensation for investment rather than merely joining a study to stay afloat. They might also develop a greater appreciation for, or personal interest in emphasizing, the societal benefits generated by the clinical trial enterprise. Because continued participation is time-consuming and can become an identity, it is reasonable that the development of friendships within clinical trials will be important for serial

participants' well-being. Finally, as participants learn more about their bodies and change their health behaviors to continue qualifying for clinical trials, it follows that a health benefit may be perceived. Taking these findings together, we interpret the statistically significant differences based on clinical trial history as part of a communal narrative among serial participants who share with and learn from each other explanations for why participation is beneficial in ways beyond the economic incentives.

Despite the strength of qualitative methods for exploratory research, there are also limitations. Because the specific benefits that we detail here were largely unprompted by the interviewer, the absence of a stated benefit does not indicate that a participant would not recognize or value said benefit of trial participation. It does, however, demonstrate that the benefit was not salient enough for the participant to have discussed it during the interview. While this limitation is normal for qualitative research, it does present challenges for quantification and subsequent analysis of these data.

## Best Practices

The results of our study could be used to provide participants with more positive experiences during trial participation. This might include conveying more information, when relevant and accurate, about the potential societal benefit of the drugs being tested so that healthy volunteers have a broader sense of the drug development process and their role in it. In addition, our finding that some participants value the health benefit from participation could be leveraged by clinics to provide more information to healthy volunteers about their health status when they screen for studies. There is also an educational opportunity for clinics to provide information about how health behaviors can promote or compromise health, particularly for those participants whose cholesterol or blood pressure might be clinically normal but elevated. The other noneconomic personal benefits are generally out of the purview of the research clinics, but fostering a comfortable and stimulating environment in which participants can get the most out of their time during confinement would further enhance healthy volunteers' experiences. These recommendations are initial mechanisms to create new best practices for recruitment and informed consent in Phase I trials.

## Research Agenda

Our study suggests that it is important to distinguish between healthy volunteers' motivations and the benefits they experience. Yet, to more thoroughly explore demographic differences in healthy volunteers' benefit perceptions, future research could build on our study's findings to develop survey methodology with more expansive categorizations of benefits than have been used previously. As well, our results suggest that there is a necessity for further research in different contexts and countries on healthy volunteers' perceptions of benefits beyond financial incentives and how these perceptions change over the course of their ongoing participation in Phase I trials.

## Educational Implications

Our research contributes to a broader understanding of how healthy volunteers conceptualize the benefits of their Phase I participation. Such a holistic view of participants' benefit perceptions might be useful for researchers and ethics review boards charged with balancing the risks and benefits of Phase I trials. In particular, attention to details such as those outlined in Best Practices above should be part of how researchers and review boards conceptualize participant benefit. While such benefits cannot offset substantial risk, they can contribute to the ethical requirement to minimize risk by improving participant welfare overall. Furthermore, identifying the benefits that are of concern to participants themselves—especially in the context of economic and social vulnerability—highlights a potential ethical requirement for the provision of fair benefits in Phase I healthy volunteer research that is typically raised only in international research contexts (e.g., Emanuel, Wendler, Killen, & Grady, 2004).

Our findings, by focusing more generally on perceived benefits rather than motivation to enroll, provide insight into what participants might believe they are gaining when they accept the risks of participation. Whereas participants' perception of risk is a topic we take up elsewhere (Cottingham & Fisher, 2016; Fisher, 2015), this article complements investigations of whether participants understand trial risks or perceive they might be harmed. In addition, our findings expand the focus on benefit away from important, but limited, discussions about undue inducement in Phase I research (Iltis, 2009; Largent, Grady, Miller, & Wertheimer, 2012). If included in a training curriculum for researchers and ethics review boards, these insights might help shift the ethical concerns away from specific compensation levels by directing attention to how money is differentially perceived by healthy volunteers based on their social address and clinical trial history. Moreover, our finding that the more one participates in studies, the greater appreciation one might have for the societal benefits and noneconomic personal benefits generated by the clinical trial enterprise challenges some prior—and overly simplistic—representations of serial participants as solely interested in the economic compensation (Devine et al., 2013; Dresser, 2013). By focusing on what might be considered the "collateral benefits" of their participation (Henderson & King, 2001), our study reveals that healthy volunteers might feel that they get a lot more out of participating in Phase I trials than a paycheck.

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## References

Abadie, R. (2010). *The professional guinea pig: Big pharma and the risky world of human subjects*. Durham, NC: Duke University Press.

Almeida, L., Azevedo, B., Nunes, T., Vaz-da-Silva, M., & Soares-da-Silva, P. (2007). Why healthy subjects volunteer for phase I studies and how they perceive their participation? *European Journal of Clinical Pharmacology*, *63*, 1085-1094. doi:10.1007/s00228-007-0368-3

Beckert, J., & Lutter, M. (2013). Why the poor play the lottery: Sociological approaches to explaining class-based lottery play. *Sociology*, *47*, 1152-1170.

Chen, S. C., Sinaii, N., Bedarida, G., Gregorio, M. A., Emanuel, E., & Grady, C. (2017). Phase 1 healthy volunteer willingness to participate and enrollment preferences. *Clinical Trials*, *14*, 537-546.

Cottingham, M. D., & Fisher, J. A. (2016). Risk and emotion among healthy volunteers in clinical trials. *Social Psychology Quarterly*, *79*, 222-242.

Cunny, K. A., & Miller, H. W. (1994). Participation in clinical drug studies: Motivations and barriers. *Clinical Therapeutics*, *16*, 273-282; discussion 271-272.

Devine, E. G., Waters, M. E., Putnam, M., Surprise, C., O'Malley, K., Richambault, C., . . . Ciraulo, D. A. (2013). Concealment and fabrication by experienced research subjects. *Clinical Trials*, *10*, 935-948.

Dickert, N. W. (2013). Concealment and fabrication: The hidden price of payment for research participation? *Clinical Trials*, *10*, 840-841.

Dresser, R. (2013). Subversive subjects: Rule-breaking and deception in clinical trials. *Journal of Law, Medicine & Ethics*, *41*, 829-840.

Edelblute, H. B., & Fisher, J. A. (2015). Using "clinical trial diaries" to track patterns of participation for serial healthy volunteers in U.S. phase I studies. *Journal of Empirical Research on Human Research Ethics*, *10*, 65-75.

Elliott, C. (2008, January 7). Guinea-pigging: Healthy human subjects for drug-safety trials are in demand. But is it a living? *The New Yorker*, pp. 36-41.

Elliott, C. (2017). Commentary on Grady et al.: Using poor, uninsured minorities to test the safety of experimental drugs. *Clinical Trials*, *14*, 547-550.

Elliott, C., & Abadie, R. (2008). Exploiting a research underclass in phase 1 clinical trials. *New England Journal of Medicine*, *358*, 2316-2317.

Emanuel, E. J., Wendler, D., Killen, J., & Grady, C. (2004). What makes clinical research in developing countries ethical? The benchmarks of ethical research. *The Journal of Infectious Disease*, *189*, 930-937.

Erickson, R. J., & Cottingham, M. D. (2014). Families and emotions. In J. E. Stets & J. H. Turner (Eds.), *Handbook of the sociology of emotions: Volume II* (pp. 359-383). New York, NY: Springer.

Fisher, J. A. (2015). Feeding and bleeding: The institutional banalization of risk to healthy volunteers in phase I pharmaceutical clinical trials. *Science, Technology, & Human Values*, *40*, 199-226.

Fisher, J. A., & Kalbaugh, C. A. (2011). Challenging assumptions about minority participation in U.S. clinical research. *American Journal of Public Health*, *101*, 2217-2222.

Grady, C., Bedarida, G., Sinaii, N., Gregorio, M. A., & Emanuel, E. J. (2017). Motivations, enrollment decisions, and sociodemographic characteristics of healthy volunteers in phase 1 research. *Clinical Trials*, *14*, 526-536.

Henderson, G. E., & King, N. M. P. (2001). Studying benefit in gene transfer research. *IRB: Ethics & Human Research*, *23*(2), 13-15.

Iltis, A. S. (2009). Payments to normal healthy volunteers in phase 1 trials: Avoiding undue influence while distributing fairly the burdens of research participation. *Journal of Medicine & Philosophy*, *34*, 68-90.

Johnson, R. A., Rid, A., Emanuel, E., & Wendler, D. (2016). Risks of phase I research with healthy participants: A systematic review. *Clinical Trials*, *13*, 149-160.

Largent, E. A., Grady, C., Miller, F. G., & Wertheimer, A. (2012). Money, coercion, and undue inducement: Attitudes about payments to research participants. *IRB: Ethics & Human Research*, *34*(1), 1-8.

Mayseless, O. (2015). *The caring motivation: An integrated theory*. New York, NY: Oxford University Press.

Monahan, T., & Fisher, J. A. (2015). "I'm still a hustler": Creative and entrepreneurial responses to precarity by participants in phase I clinical trials. *Economy and Society*, *44*, 545-566.

Neff, G. (2012). *Venture labor: Work and the burden of risk in innovative industries*. Cambridge, MA: MIT Press.

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: SAGE.

Pickard, S. (2016). *Age studies: A sociological examination of how we age and are aged through the life course*. Thousand Oaks, CA: SAGE.

Roberts, L. W., & Kim, J. P. (2017). Healthy individuals' perspectives on clinical research protocols and influences on enrollment decisions. *AJOB Empirical Bioethics*, 8(2), 89-98. doi:10.1080/23294515.2016.1271062

Ross, A. (2009). *Nice work if you can get it: Life and labor in precarious times*. New York: New York University Press.

Stunkel, L., Benson, M., McLellan, L., Sinaii, N., Bedarida, G., Emanuel, E., & Grady, C. (2010). Comprehension and informed consent: Assessing the effect of a short consent form. *IRB: Ethics & Human Research*, *32*(4), 1-9.

Stunkel, L., & Grady, C. (2011). More than the money: A review of the literature examining healthy volunteer motivations. *Contemporary Clinical Trials*, *32*, 342-352.

Tishler, C. L., & Bartholomae, S. (2003). Repeat participation among normal healthy research volunteers: Professional guinea pigs in clinical trials? *Perspectives in Biology and Medicine*, *46*, 508-520.

Tolich, M. (2010). What if Institutional Review Boards (IRBs) treated healthy volunteers in clinical trials as their clients? *Australasian Medical Journal*, *3*, 767-771.

U.S. Food and Drug Administration. (1998). *Information sheet guidance for Institutional Review Boards (IRBs), clinical investigators, and sponsors: Payment to research subjects*. Retrieved from http://www.fda.gov/RegulatoryInformation/Guidances/ucm126429.htm

Walker, R. L., Cottingham, M. D., & Fisher, J. A. (2018). Serial participation and the ethics of phase 1 healthy volunteer research. *Journal of Medicine and Philosophy*, *43*(1), 83-114.

Williams, Q., & Fisher, J. A. (2018). Captive to the clinic: Phase I clinical trials as temporal total institutions. *Sociological Inquiry*. Advance online publication. doi:10.1111/soin.12228

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