



Informative inducement: Study payment as a signal of risk[☆]

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ABSTRACT

In research involving human subjects, large participation payments often are deemed undesirable because they may provide 'undue inducement' for potential participants to expose themselves to risk. However, although large incentives may encourage participation, they also may signal the riskiness of a study's procedures. In three experiments, we measured people's interest in participating in potentially risky research studies, and their perception of the risk associated with those studies, as functions of participation payment amounts. All experiments took place 2007–2008 with an on-line nationwide sample or a sample from a northeastern U.S. city. We tested whether people judge studies that offer higher participation payments to be riskier, and, if so, whether this increased perception of risk increases time and effort spent learning about the risks. We found that high participation payments increased willingness to participate, but, consistent with the idea that people infer riskiness from payment amount, high payments also increased perceived risk and time spent viewing risk information. Moreover, when a link between payment amount and risk level was made explicit in Experiment 3, the relationship between high payments and perceived risk strengthened. Research guidelines usually prohibit studies from offering participation incentives that compensate for risks, yet these experiments' results indicate that potential participants naturally assume that the magnitude of risks and incentives are related. This discrepancy between research guidelines and participants' assumptions about those guidelines has implications for informed consent in human subjects research.

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Subjects may be reimbursed for lost earnings, travel costs and other expenses incurred in taking part in a study; they may also receive free medical services. Subjects, particularly those who receive no direct benefit from research, may also be paid or otherwise compensated for inconvenience and time spent. The payments should not be so large, however, or the medical services so extensive as to induce prospective subjects to consent to participate in the research against their better judgment ("undue inducement"). (Council for International Organizations of Medical Science, 2002, Guideline 7)

Most organizations that sponsor research prohibit research participation payments that substantially exceed compensation for time and expenses (National Institutes of Health, 2006). This rule results from concerns including 1) the potential impropriety of using money to induce participants to overcome strong or principled aversion to risks (Grant & Sugarman, 2004; London, 2005) and 2) the prospect that excessively attractive payments can undermine the freedom of individuals by offering rewards that are "irresistible" (Council for International Organizations of Medical Science, 2002) or that compromise the quality of decision making (National Institutes of Health, 2006; McNeill, 1997). These concerns will be especially acute for vulnerable groups such as the poor or socially disadvantaged if they are disproportionately attracted by large payments or, due to lower levels of education, have difficulty evaluating the severity of risks (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1978). Based on these concerns and others, there is a common institutional standard that incentives for research participation should be limited to compensation for time and expenses and should not include compensation for risk (National Institutes of Health, 2006; Dickert, Emanuel, & Grady, 2002).

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Despite these arguments, some scholars have criticized the notion that substantial incentives undermine the autonomy of participants. [Wilkinson and Moore \(1997, 1999\)](#), for example, point to the ubiquitous use of financial incentives to influence decisions of consumers and job applicants. They argue that doing something that one would not normally do to gain an incentive is not the breakdown of autonomy, but is in fact, the paradigm of its exercise. [Emanuel \(2005\)](#) agrees, adding that appropriate IRB approval ensures that participants are only induced to engage in activities that are legal, ethical, and not unreasonably risky.

Others have proposed that financial payment for research participation can provide useful information. [Dickert and Grady \(1999\)](#), for example, argue that inducements for research participation may enhance the autonomy of potential participants by countering the “therapeutic misconception” – the false belief that the norms of the physician–patient relationship govern a research study such that research procedures serve participants’ best interests ([Appelbaum, Roth, Lidz, Benson, & Winslade, 1987](#)). This belief is false because research studies routinely subject participants to treatments whose risks are outweighed not by benefits to participants, but by the value of the information that the study seeks to generate. While money flows from the patient to the physician in the traditional physician–patient relationship, the fact that it flows from the researcher to the participants in research studies may help to alert participants that study procedures do not necessarily favor their individual interests, and thus may prompt vigilance about a study’s risks ([Dickert & Grady, 1999](#)).

Just as the presence of incentives can signal the need for vigilance, the *amount* that is offered also may be seen as informative. Although a prohibition against using large incentives to compensate for risk may eliminate the actual connection between risk and compensation, participants nevertheless might infer the riskiness of a study from the value of the incentive being offered. This is the central prediction that we test.

Previous research consistently finds that large participation payments increase willingness to participate ([Bentley & Thacker, 2004](#); [Slomka, McCurdy, Ratliff, Timpson, & Williams, 2007](#)). Evidence is mixed, however, about how payment amounts influence perceived risk. Structured interviews reveal that individuals are more likely to express concern about a study’s risks if participation payment is high ([Slomka et al., 2007](#)). However, other, experimental research finds no association between payment amount and perceived risk ([Bentley & Thacker, 2004](#)), or between payment amount and the projected probability of adverse effects ([Halpern, Karlawich, Cassarett, Berlin, & Asch, 2004](#)), at least when all participation payments are high ($\geq \$100$).

In the current work, we measured the risk that people anticipate from participation in studies (Experiments 1, 2, and 3)

as well as their actual interest in participating (Experiment 2) as a function of payment magnitude. We tested two interrelated hypotheses: (1) people will judge studies offering significantly higher participation payments to be riskier, and (2) as a result, they will be more vigilant and more likely to seek out information about study risks. We tested these hypotheses in three experiments.

Experiments

Overview

Participants in all studies read information on the Internet about a “Health and Cognition Study.” A web link randomly assigned participants to a webpage corresponding to an experimental condition. The entry webpage linked to a network of other webpages that guided participants through experiment information and survey questions (see [Table 1](#) for a summary of methods and findings). All studies in the paper were conducted between fall 2007 and summer 2008 and were approved by the institutional review board at Carnegie Mellon University.

All experiments excluded participants from final analyses if any of four criteria was met: 1) participants clicked the entry link multiple times, potentially viewing multiple experimental conditions (65% of exclusions); 2) participants’ security setting blocked their page path from the data log, preventing tracking of web pages they visited (28% of exclusions); 3) participants did not enter the websites through the randomization link, but through an outside source like Google (3% of exclusions); and 4) participants expressed, in a final survey, suspicion that the described experiments were not real (3% of exclusions).

Experiment 1

Participants

Experiment 1 was conducted with two different samples characterized by different income and education levels. One sample consisted of 196 New York Times on-line Science Blog readers who clicked a side link titled “Health and Cognition Study.” Fourteen of the 196 met at least one exclusion criterion, resulting in a final sample of 182 individuals. The second sample, collected to better match the population of individuals who actually are likely to volunteer for research in exchange for payment, included 60 Pittsburgh community members. These participants completed the study in individual cubicles in a mobile laboratory vehicle with Internet access. The mobile lab parked in mixed SES neighborhoods (see [Tables 2 and 3](#) for demographics) where people walking by were recruited to

Table 1
Summary of experiment methods and findings.

	Population(s)	Experimental Manipulation(s)	Research Procedure(s)	Outcome(s)	Main Finding(s)
Experiment 1	1) NYTimes readers 2) Pittsburgh community	Participation payment amount (\$25 or \$1000)	TMS	Risk perception	Offers of high payment for research participation increased perceived riskiness.
Experiment 2	NYTimes readers	1) Participation payment amount (\$25, \$100, or \$1000) 2) Familiarity of research procedure (Familiar: Blood Drawing, Unfamiliar: Transcranial Magnetic Stimulation – TMS)	TMS Or Blood Drawing	1) Willingness to participate 2) Information search behavior	Offers of high payment for research participation increased willingness to participate, but also increased information seeking and viewing of risk information.
Experiment 3	NYTimes readers	1) Participation payment amount (\$25 or \$1000) 2) Link between study compensation and risk (Explicit, Not Specified)	TMS	Risk Perception	When a link between payment level and risk level was explicit, the relationship between high payment and perceived riskiness strengthened.

participate in exchange for \$2. No Pittsburgh participants were excluded from final analyses because the in-person recruitment method and study procedure precluded the most common exclusion criteria (e.g., participants could not click the randomization link multiple times to see multiple conditions).

Procedure

Participants evaluated a study involving Transcranial Magnetic Stimulation (TMS). We chose TMS (a procedure that places a magnet upon the scalp that interferes with brain activity) because it is more intrusive than many other common research procedures and is newer, with more uncertain risks than other common procedures.

Participants were randomly assigned to view one of two web pages which were identical except for one feature: one page noted that the study offered \$25 for participation while the other page noted that the study offered \$1000 for participation (see [Appendix A](#)). After reading background information about the study, including a brief description of TMS, participants completed two risk perception measures.

The first risk measure directly asked participants “How risky do you believe this study would be for participants?” Participants responded using a Likert scale ([Likert, 1932](#)) ranging from 1 (“Not risky at all”) to 4 (“Somewhat risky”) to 7 (“Very risky”).

The second risk measure included nine comparative questions, each of which asked whether a study procedure was riskier than another risky activity (e.g., getting a body piercing, see [Appendix B](#)). The activities were chosen because they each were familiar and involved some risk to physical health. We did not assume that any risky activity in the scale was more risky than another activity, and the order of the items in the scale did not have meaning. The number of times that participants judged the study procedures to be riskier than the comparison activity was summed to create a “Compared Riskiness” score (range: 0–9). The scale was reliable ($\alpha = 0.79$) and provided a measure of perceived risk that has been shown to be less subject to scale norming than a traditional Likert scale ([Lacey et al., 2008](#)).

Results

Using the Likert scale, participants in the \$1000 condition rated the study as significantly riskier than did those in the \$25 condition (NYT sample: Median_{\$1000} [Quartiles_{\$1000}] = 4.0 [3.0, 5.0], Median_{\$25} [Quartiles_{\$25}] = 3.0 [2.0, 4.0]; Mann–Whitney *U* test: $U = 2892$, $p < 0.0005$; Pittsburgh community sample: Median_{\$1000} [Quartiles_{\$1000}] = 4.0 [3.0, 4.25], Median_{\$25} [Quartiles_{\$25}] = 3.0 [1.5, 4.0]; Mann–Whitney *U* test: $U = 318.5$, $p < 0.07$, a marginally

significant difference, but revealing the same pattern as the larger NYT sample).

The Compared Riskiness score of participants who were informed that the study offered \$1000 for participation was also significantly higher than for participants informed that the study offered \$25 (NYT sample: Median_{\$1000} [Quartiles_{\$1000}] = 3.0 [1.0, 5.0], Median_{\$25} [Quartiles_{\$25}] = 2.0 [0, 4.0], Mann–Whitney *U* test: $U = 2892$, $p < 0.05$; Pittsburgh community sample: Median_{\$1000} [Quartiles_{\$1000}] = 3.0 [1.0, 5.0], Median_{\$25} [Quartiles_{\$25}] = 1.0 [0, 3.0], Mann–Whitney *U* test: $U = 278.5$, $p < 0.05$).

Consistent with our first hypothesis, both the higher income sample (NYT readers) and lower income sample (Pittsburgh residents) reported greater perceived risk when a study offered high participation payments. There were no significant differences between the two samples’ responses to the risk questions.

Experiment 2

The goal of Experiment 2 was to examine behavior when individuals actively considered participating in a potentially risky study, to see how payments influenced information searches and, ultimately, the choice about participation. Whereas Experiment 1 asked participants to evaluate a study from an outsider’s viewpoint, Experiment 2 presented a study for which participants could actually sign up to participate.

Participants

One thousand seven hundred and forty individuals clicked the same NYT “Health and Cognition Study” web page link, but were now directed to the website for Experiment 2. Five hundred and twenty-two of those met one or more of the exclusion criteria, resulting in a final sample of 1218 participants.

Procedure

The entry link randomly assigned participants to view one of six web pages. Three web pages described study procedures that involved drawing blood, a procedure familiar to most individuals. The other three described study procedures that involved TMS, a procedure unfamiliar to most individuals (see [Appendix C](#)). For each procedure type, participants were offered \$25, \$100, or \$1000 for participation.

After viewing initial study details, participants could navigate through several web pages that explained the study and detailed its

Table 2

Experiment 1 education distributions.

NYTimes Sample Education	%Per category
Less than high school	0.6
High School/GED	0.6
Some college	11
2-year college degree (Associate’s)	3
4-year college degree (Bachelor’s)	36
Master’s Degree	25
Doctoral Degree	11
Professional Degree (MD/JD)	12
Pittsburgh Sample Education	
Less than high school	2
High School/GED	14
Some college	22
2-year college degree (Associate’s)	18
4-year college degree (Bachelor’s)	29
Master’s Degree	12
Doctoral Degree	0
Professional Degree (MD/JD)	2

Table 3

Experiment 1 household income distributions.

NYTimes Sample income	%Per category
\$0	6
\$10,000–\$25,000	9
\$25,000–\$50,000	19
\$50,000–\$100,000	35
\$100,000–\$200,000	22
\$200,000–\$500,000	9
>\$500,000	1
Pittsburgh Sample Income	
\$0–\$10,000	10
\$10,000–\$25,000	25
\$25,000–\$50,000	27
\$50,000–\$100,000	27
\$100,000–\$200,000	8
\$200,000–\$500,000	3
>\$500,000	0

risks. The first page described general study logistics. The second described background information about the procedure (TMS or having blood drawn). Another page allowed participants to view the study's contraindications, i.e., conditions such as heart disease that put specific participants at disproportionate risk for the study's procedures (see Appendix D). Other pages allowed participants to learn about side effects, the experience of the procedures, potential benefits, and history of the procedures.

Participants could stop gathering information (i.e., stop viewing informational web pages) any time by clicking a link titled “make a decision about participating.” Then, participants specified whether or not they wished to participate and answered questions about the study.

Results

As shown in Figs. 1 and 2, payment amounts affected both participation interest and vigilance about study procedures. Consistent with prior research, higher compensation amounts increased willingness to participate as measured by whether or not participants left an e-mail address to be contacted to participate. Entering procedure (TMS versus having blood drawn) and two categorical predictors for payment amount (Predictor 1: \$25 condition = 1, \$100 and \$1000 conditions = 0; Predictor 2: \$1000 condition = 1, \$100 and \$25 conditions = 0) simultaneously into a binary logistic regression predicting whether or not participants left their e-mail address, revealed that procedure type had a non-significant effect on willingness to participate (unstandardized regression coefficient $b_{\text{TMS}} = -0.22$, $p = 0.12$), whereas payment amount had a significant impact; the \$100 payment increased willingness to participate compared to the \$25 payment ($b_{\$25} = -0.38$, $p = 0.04$) and the \$1000 payment increased willingness to participate compared to the \$100 payment ($b_{\$1000} = 0.39$, $p < 0.02$; Fig. 1).

Second, higher compensation amounts increased information seeking, as measured by the number of information pages viewed and time spent viewing information. Entering procedure and payment predictors simultaneously into a linear regression predicting number of pages viewed, revealed that the TMS procedure increased number of pages viewed compared to the blood drawing procedure ($b_{\text{TMS}} = 1.02$, $p < 0.0005$), that the \$100 payment increased the number of pages viewed compared to the \$25

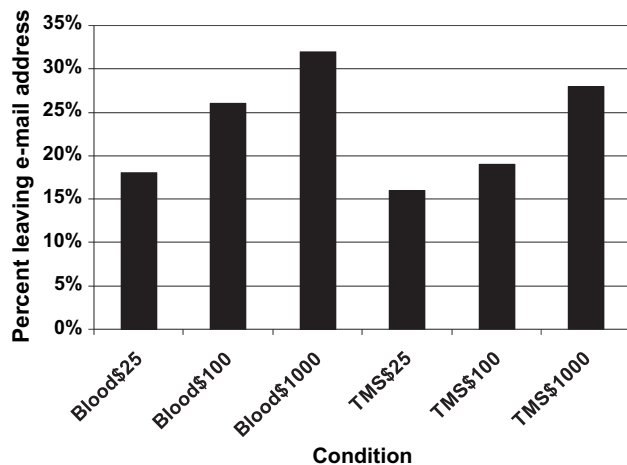


Fig. 1. Experiment 2: Higher payments increased interest in participation, as measured by the number of people leaving an e-mail address (p 's < 0.05). Procedure type had no significant impact ($p = 0.12$).

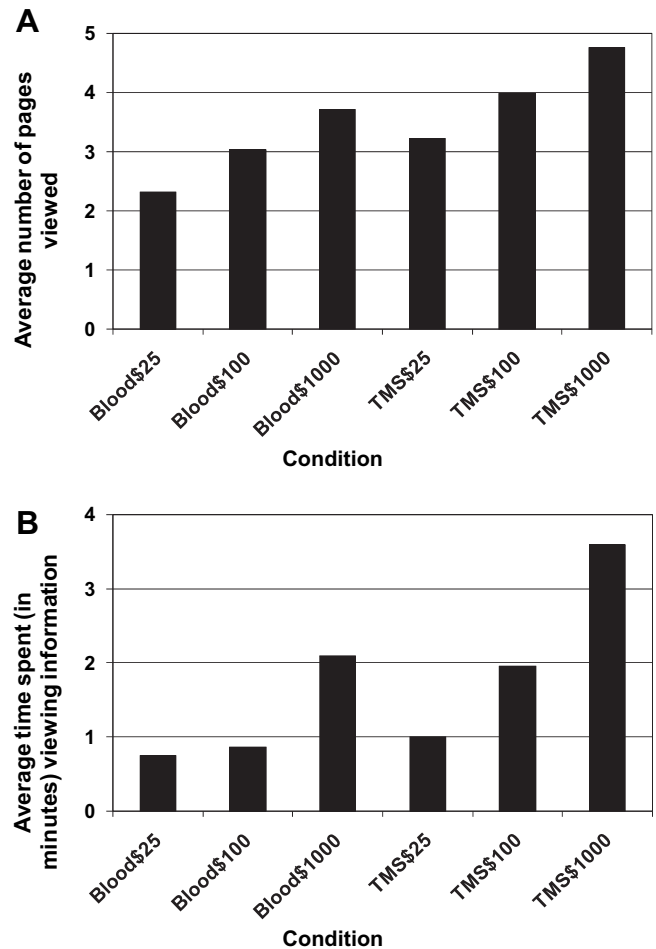


Fig. 2. Experiment 2: Higher payments increased information searching, as measured by the number of information pages viewed (p 's < 0.01). Procedures involving TMS (versus drawing blood) also attracted greater informational page views ($p < 0.01$). Offering \$1000 versus offering \$100 increased time spent viewing information ($p < 0.04$) while offering \$100 versus \$25 had no significant influence ($p = 0.39$). Studies involving TMS (versus drawing blood) increased time spent viewing information at a marginally significant level ($p = 0.09$).

payment ($b_{\$25} = -0.80$, $p = 0.001$), and that the \$1000 payment increased the number of pages viewed compared to the \$100 payment ($b_{\$1000} = 0.74$, $p = 0.002$; Fig. 2A). An identical analysis using time spent viewing information (in minutes) as the dependent variable yielded a similar, although weaker pattern ($b_{\text{TMS}} = 0.93$, $p = 0.09$; $b_{\$25} = -0.57$, $p = 0.39$; $b_{\$1000} = 1.44$, $p < 0.04$; Fig. 2B).

Finally, higher compensation increased the likelihood that participants viewed information about contraindications. Entering the procedure condition and payment predictors simultaneously into a binary logistic regression predicting whether participants viewed contraindications revealed that participants were more likely to view the contraindications page for the TMS procedure than for the blood drawing procedure ($b_{\text{TMS}} = 0.47$, $p < 0.0005$), that the \$100 payment increased the likelihood of viewing of contraindications compared to the \$25 payment ($b_{\$25} = -0.54$, $p < 0.0005$), and that the \$1000 payment increased the likelihood of viewing contraindications compared to the \$100 payment ($b_{\$1000} = 0.43$, $p < 0.01$).

In sum, higher participation payments increased vigilance, as measured by the amount of information sought, the amount of time

spent viewing information, and the likelihood of viewing contra-indications. This pattern occurred for both the blood drawing (familiar) and TMS (unfamiliar) procedures.

Importantly, we see evidence that information seeking is not simply a proxy for interest in participating. For example, although participants generally viewed more information in the TMS conditions than in the blood drawing conditions (Fig. 2A), they were (non-significantly) more likely to want to participate in the blood drawing conditions compared to the TMS conditions (Fig. 1).

Experiment 3

The primary goal of Experiment 3 was to test whether explicitly informing participants that a study's payment level is commensurate with its risk level would strengthen the relationship between payment amount and perceived risk. If so, allowing study payments to increase with riskiness, and informing participants that risk and payment are related, could serve as one way to enhance informed consent.

A secondary goal of Experiment 3 was to examine whether perceived risk was related to demographic factors such as income and education.

Participants

Four hundred and eighty-four participants clicked on the same NYT link and answered at least one question of interest. Twenty-seven met an exclusion criterion, resulting in a final sample of 457 participants (125 Male, 210 Female, 122 Unknown; Median Age: 45 years; see Tables 4 and 5 for demographics).

Procedure

The web link randomly assigned participants to view one of four web pages, all describing a TMS study. Two pages explicitly linked the payment amount with the study's riskiness ("this amount of money was selected as being appropriate for the level of risk that the study poses to participants"). The other two pages did not link the payment amount with the study's riskiness (see Appendix E). For each type of web page, participants were offered either \$25 or \$1000 for participation. As in Experiment 2, participants could navigate through a series of web pages that provided information about the study background and procedures. Then, participants answered the risk questions from Experiment 1 as well as demographic questions about gender, age, income, and education.

Main results

An explicit link between payment level and riskiness increased participants' wariness of studies that provided large payments. This occurred for both the Likert Scale measure of perceived risk and, in some analyses, the "Compared Riskiness" measure. Entering

Table 4
Experiment 3 education distribution.

Education	%Per category
Less than high school	0.3
High School/GED	0.3
Some college	11
2-year college degree (Associate's)	3
4-year college degree (Bachelor's)	35
Master's Degree	28
Doctoral Degree	13
Professional Degree (MD/JD)	9

Table 5
Experiment 3 household income distribution.

Income	%Per category
\$0–\$10,000	6
\$10,000–\$25,000	8
\$25,000–\$50,000	26
\$50,000–\$100,000	31
\$100,000–\$200,000	22
\$200,000–\$500,000	7
>\$500,000	1

"commensurate risk" payment condition (versus the "not specified" condition), \$1000 (versus \$25) condition, and their interaction term into an ordinal logistic regression predicting Likert scale perceived riskiness revealed a significant interaction between payment amount and the commensurate risk condition ($b_{\text{CommensurateCondition} \times \text{Payment Amount}} = 0.90$, $F(1, 457) = 6.6$, $p = 0.01$; Fig. 3A). The interaction was such that the large payment increased perceived risk to a greater degree in the commensurate risk condition than when no link was specified. The same pattern emerged, but was not significant, when using the "Compared Riskiness" measure of perceived risk as the dependent variable (see Fig. 3B; $b_{\text{CommensurateCondition} \times \text{Payment Amount}} = 0.38$, $F(1, 425) = 0.96$,

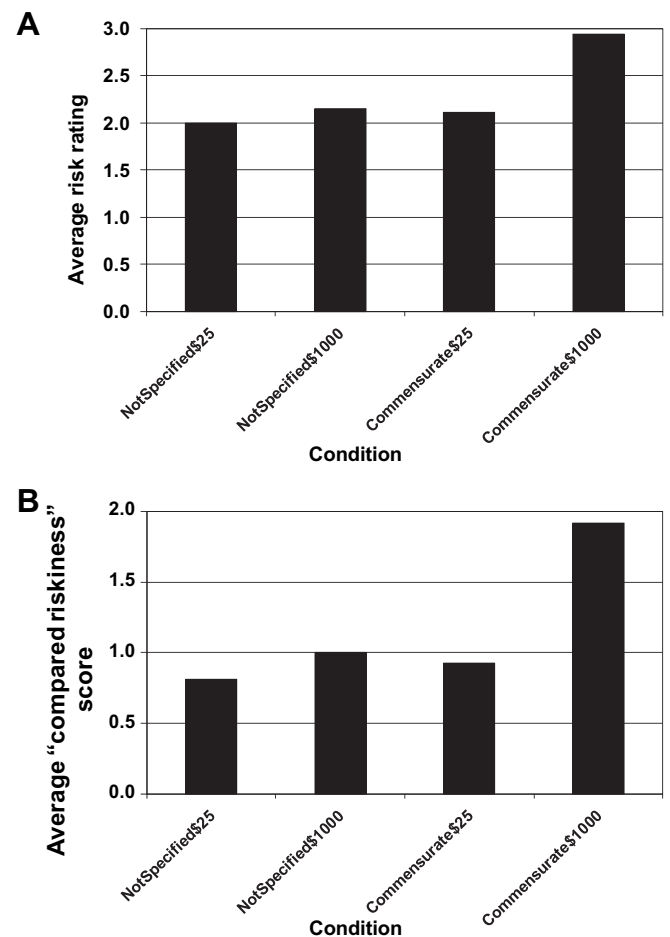


Fig. 3. Experiment 3: Payment amount influenced perceived risk more strongly when payment was described as commensurate with risk compared to when it was not, as measured by two risk measures (Likert Scale, $p = 0.01$; "Compared Riskiness" measure, $p < 0.05$).

$p = 0.33$). However, the same interaction term was significant in a standard multiple regression, which is arguably justifiable given the count nature of the “compared riskiness” score ($b_{\text{CommensurateCondition} \times \text{Payment Amount}} = 0.80, t(421) = 2.3, p = 0.02$). In short, the bulk of evidence suggests that when participants learned that payment was commensurate with risk, the increase in perceived riskiness of a study's procedures based on payment amount was larger than when there was no mention of the link between riskiness and payment level.

Demographic analyses

The correlation between education level and perceived risk as measured by both the Likert Scale perceived risk measure ($r = 0.05, p = 0.31$) and the “Compared Riskiness” measure ($r = -0.01, p = 0.88$) was small and non-significant. Similarly, there was no significant correlation between income and perceived risk as measured by the Likert Scale perceived risk measure ($r = 0.07, p = 0.22$) and the “Compared Riskiness” measure ($r = 0.08, p = 0.14$). Nor was there a significant interaction between payment amount and education or income when predicting either measure of perceived riskiness (both p 's > 0.15). In these analyses, for simplicity and maximum statistical power, we treated income and education as continuous predictors, centered and regressed with payment amount and their interaction term on perceived risk and “compared riskiness” in ordinal regressions. Although the on-line sample is more educated and has a higher income, on average, than the general population, these results suggest that the positive relationship between payment level and perceived risk that we observed in all three studies holds across a variety of education and income levels.

Discussion

In three web-based experiments, increasing participation payments increased potential participants' vigilance about risk. Although high payments increased willingness to participate, they

also increased information seeking, viewing of risk information, and perceived risk. Instead of blinding participants to potential risks, higher payments actually seemed to make participants more vigilant. When a link between payment level and risk level was made explicit, the relationship between high payment and perceived riskiness strengthened.

Some limitations to this research are, however, first, the large difference in payment amounts in Studies 1 and 3 (\$25 versus \$1000). In real research settings, it is unlikely that such a large-payment range would be applicable to any one study. Second, we measured willingness to participate in Study 2 by whether or not participants left an e-mail address so they could be contacted, but we did not measure whether those who did leave an address would ultimately have ended up participating.

Conclusions

These findings suggest that participants may make unwarranted assumptions about studies' risks based on the payment amounts that the studies offer. Research guidelines generally prohibit research incentives that compensate subjects for participation risks, yet potential participants naturally assume that incentives and risks are related. The current mismatch between practices and beliefs could lead to troubling outcomes, such as participants erroneously assuming that objectively risky studies that offer low payments pose little risk.

At the same time, the findings diminish concerns about informed consent for high-paying studies. We observe that participants not only rate high-paying studies as riskier, but that they spend more time studying potential risks when study payments are large. Taken as a whole, the findings underscore that the debate over research participation incentives must consider the automatic inferences that people draw from the level of incentives that are offered to them.

Appendix A. Experiment 1 Background web page text.

\$25 Condition

In an experiment that just ended, we recruited participants for a study involving Transcranial Magnetic Stimulation (TMS). We would like to give you the information that potential participants viewed and ask you to make a guess about how risky it would be to participate in that study.

Background Information

- People who participate in the study were informed that they would receive \$25 for one hour of their time.
- TMS is a technique that gently stimulates the brain and allows observation of brain functioning. It uses a specialized electromagnet placed on the scalp that creates short magnetic pulses.
 - ◊ The main risk of TMS is seizure, though with close monitoring this complication has been very rare. No seizures have been reported in the scientific literature since safety guidelines have been implemented.
 - ◊ Because the technique directly influences brain activity, there is a potential risk of disturbing the brain's normal function. However, in studies reported so far, no cognitive side-effects like loss of memory, negative changes in concentration and other cognitive capacities have been reported.

[NEXT](#)

\$1000 Condition

In an experiment that just ended, we recruited participants for a study involving Transcranial Magnetic Stimulation (TMS). We would like to give you the information that potential participants viewed and ask you to make a guess about how risky it would be to participate in that study.

Background Information

- People who participate in the study were informed that they would receive \$1000 for one hour of their time.
- TMS is a technique that gently stimulates the brain and allows observation of brain functioning. It uses a specialized electromagnet placed on the scalp that creates short magnetic pulses.
 - The main risk of TMS is seizure, though with close monitoring this complication has been very rare. No seizures have been reported in the scientific literature since safety guidelines have been implemented.
 - Because the technique directly influences brain activity, there is a potential risk of disturbing the brain's normal function. However, in studies reported so far, no cognitive side-effects like loss of memory, negative changes in concentration and other cognitive capacities have been reported.

[NEXT](#)

Appendix B. “Compared Riskiness” measure: questions comparing the study procedure with other potentially risky activities.

*** 4. Does the study procedure seem...**

	Yes	No
More risky than talking on the cell phone while driving?	<input type="radio"/>	<input type="radio"/>
More risky than receiving the flu vaccine?	<input type="radio"/>	<input type="radio"/>
More risky than flying on a plane?	<input type="radio"/>	<input type="radio"/>
More risky than driving 15 mph over the speed limit?	<input type="radio"/>	<input type="radio"/>
More risky than taking 3 times the recommended dose of a pain killer?	<input type="radio"/>	<input type="radio"/>
More risky than receiving stitches?	<input type="radio"/>	<input type="radio"/>
More risky than riding a motor cycle with no helmet?	<input type="radio"/>	<input type="radio"/>
More risky than getting a body piercing?	<input type="radio"/>	<input type="radio"/>
More risky than bungee jumping?	<input type="radio"/>	<input type="radio"/>

Appendix C. Experiment 2 Introduction and Background Pages.

TMS Condition Introduction Page (\$100 Condition).

Introduction	<p>Hello! We are a group of researchers from cities across the United States and Canada studying physical health and cognition. This website will give you some information about a current study, ask you if you would like to participate in the study, and ask you to tell us about your reactions to the study, whether or not you decide to participate.</p>
	<p style="text-align: center;">The Study</p> <p>The procedure for the study includes Transcranial Magnetic Stimulation (TMS), which is a noninvasive method of observing how the brain functions. During the procedure, a magnet will be placed over the front of your head for a few minutes. Over 3000 scientific papers have been published that safely use this procedure. If you participate in the study, you will receive \$100 for one hour of your time.</p>
	<p style="text-align: center;">The Survey</p> <p>Whether or not you decide to participate in the study, it would be very helpful to us if you would complete some survey questions that we will ask you so that we can learn about why people do or do not want to participate in our studies.</p>
	<p style="text-align: center;">NEXT</p>

Blood Drawing Condition Introduction Page (\$100 Condition).

Introduction	<p>Hello! We are a group of researchers from cities across the United States and Canada studying physical health and cognition. This website will give you some information about a current study, ask you if you would like to participate in the study, and ask you to tell us about your reactions to the study, whether or not you decide to participate.</p> <p style="text-align: center;">The Study</p> <p>The procedure for the study includes drawing blood, which is also known as venipuncture. During the procedure, a needle will be briefly inserted into a vein in your arm and will draw a blood sample. Over 3000 scientific papers have been published that safely use this procedure. If you participate in the study, you will receive \$100 for one hour of your time.</p> <p style="text-align: center;">The Survey</p> <p>Whether or not you decide to participate in the study, it would be very helpful to us if you would complete some survey questions that we will ask you so that we can learn about why people do or do not want to participate in our studies.</p> <p style="text-align: center;">NEXT</p>
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TMS Condition Background Page:

Background Experience of TMS Study Information Contraindications Make a Decision about Participating	<p style="text-align: center;">BACKGROUND</p> <p>TMS is a technique that gently stimulates the brain and allows observation of brain functioning. It uses a specialized electromagnet placed on the scalp that creates short magnetic pulses that are about the strength of an MRI scanner's magnetic field. (To learn more about the experience of TMS, please click here.) The magnetic pulses pass through the skull just like the MRI scanner fields do, but because they are short pulses, they can stimulate the underlying cerebral cortex.</p> <p>Go back to the study information page</p> <p>Make a decision about participating</p>
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Blood Drawing Condition Background Page:

Background Experience of Having Blood Drawn Study Information Contraindications Make a Decision about Participating	<p style="text-align: center;">BACKGROUND</p> <p>Drawing blood is a technique that allows observation of vitamin, mineral, and lipid concentrations in the blood. It uses a specialized needle that is inserted into the arm to extract a small amount of blood. (To learn more about the experience of having blood drawn, please click here.) The blood is stored in small test tubes and then is transported to a biological laboratory where it is analyzed for several standard components.</p> <p>Go back to the study information page</p> <p>Make a decision about participating</p>
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Appendix D. Contraindications page.

CONTRAINDICATIONS	
Contraindications	Below is a list of contraindications (conditions that may put you at risk for completing the study's procedures).
History	1. Anemia
Potential Benefits	2. Cirrhosis
Side Effects	3. Coronary Artery Disease
Experience	4. Diabetes
Background	5. Disseminated or untreated cancer
Study Information	6. Insomnia
Make a Decision about Participating	7. Lethargy
	8. Psychiatric disease
	9. Psychosocial problems
	10. Shortness of breath
	11. Substance abuse
	Make a decision about participating
	Go back to the study information page

Appendix E. Experiment 3 Introduction Page.

“Commensurate Risk” Condition.

Introduction	<p>Hello! We are a group of researchers from cities across the United States and Canada studying physical health and cognition. This website will give you some information about a current study, ask you if you would like to participate in the study, and ask you to tell us about your reactions to the study, whether or not you decide to participate.</p> <p style="text-align: center;">The Study</p> <p>The procedure for the study includes Transcranial Magnetic Stimulation (TMS), which is a noninvasive method of observing how the brain functions. During the procedure, a magnet will be placed over the front of your head for a few minutes. If you participate in the study, you will receive \$1000 for one hour of your time. The procedure is considered by the National Institutes of Health to pose minimal risk for most populations and over 3000 scientific papers have been published that safely use this procedure.</p> <p style="text-align: center;">The Survey</p> <p>Whether or not you decide to participate in the study, it would be very helpful to us if you would complete some survey questions that we will ask you, so that we can learn about why people do or do not want to participate in our studies.</p> <p style="text-align: center;">NEXT</p>
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“Not Specified” Condition.

Introduction	<p>Hello! We are a group of researchers from cities across the United States and Canada studying physical health and cognition. This website will give you some information about a current study, ask you if you would like to participate in the study, and ask you to tell us about your reactions to the study, whether or not you decide to participate.</p> <p style="text-align: center;">The Study</p> <p>The procedure for the study includes Transcranial Magnetic Stimulation (TMS), which is a noninvasive method of observing how the brain functions. During the procedure, a magnet will be placed over the front of your head for a few minutes. If you participate in the study, you will receive \$1000 for one hour of your time. This amount of money was selected as being appropriate for the level of risk that the study poses to participants.</p> <p style="text-align: center;">The Survey</p> <p>Whether or not you decide to participate in the study, it would be very helpful to us if you would complete some survey questions that we will ask you, so that we can learn about why people do or do not want to participate in our studies.</p> <p style="text-align: center;">NEXT</p>
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