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Some Researchers Wear Yellow Pants, but Even Fewer Participants Read Consent Forms: Exploring and Improving Consent Form Reading in Human Subjects Research

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Abstract

Though consent forms include important information, those experienced with behavioral research often observe that participants do not carefully read consent forms. Three studies examined participants' reading of consent forms for in-person experiments. In each study, we inserted the phrase "some researchers wear yellow pants" into sections of the consent form and measured participants' reading of the form by testing their recall of the color yellow. In Study 1, we found that the majority of participants did not read consent forms thoroughly. This suggests that overall, participants sign consent forms that they have not read, confirming what has been observed anecdotally and documented in other research domains. Study 2 examined which sections of consent forms participants read and found that participants were more likely to read the first 2 sections of a consent form (procedure and risks) than later sections (benefits and anonymity and confidentiality). Given that rates of recall of the target phrase were under 70% even when the sentence was inserted into earlier sections of the form, we explored ways to improve participant reading in Study 3. Theorizing that the presence of a researcher may influence participants' retention of the form, we assigned participants to read the form with or without a researcher present. Results indicated that removing the researcher from the room while participants read the consent form decreased recall of the target phrase. Implications of these results and suggestions for future researchers are discussed.

Translational Abstract

Though consent forms include important information, those experienced with behavioral research often observe that participants do not carefully read consent forms. Three studies examined participants' reading of consent forms for in-person experiments. In each study, we inserted the phrase "some researchers wear yellow pants" into sections of the consent form and measured participants' reading of the form by testing their recall of the color yellow. Our first study found that most participants did not read consent forms thoroughly. This suggests that overall, participants sign consent forms that they have not read, confirming what has been observed anecdotally and documented in other research. Our second study examined which sections of consent forms participants read. We found that participants were more likely to read the first two sections of a consent form (procedure and risks) than later sections (benefits and anonymity and confidentiality). Given that most participants did not read the sentence even when it was inserted into earlier sections of the form, we explored ways to improve participant reading in the third study. Theorizing that the presence of a researcher may influence participants' retention of the form, we assigned participants to read the form with or without a researcher present. Results indicated that removing the researcher from the room while participants read the consent form decreased recall of the yellow pants phrase. Implications of these results and suggestions for future researchers are discussed.

Keywords: methods, informed consent, experimental procedures

Foundational documents guiding research ethics emphasize the necessity of obtaining informed consent from participants in a manner that allows them to truly understand the risks and benefits of a research study (Protection of Human Subjects, 2009). While Institutional Review Boards (IRBs) may provide guidelines for creating informed consent documents that contain all necessary information (risks, benefits, etc.), those with experience leading participants through the informed consent process would likely attest that even the most carefully crafted documents often go unread. Therefore, we set out to gain greater understanding of the extent to which participants read consent forms in in-person situations. In addition, we sought to develop interventions to improve reading comprehensiveness.

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Previous research on the topic of participants' reading of consent forms, which has been most widely studied in the context of medical trials and procedures, affirms that participants do not thoroughly read, comprehend, or recall information in consent forms. For example, participants solicited for a women's health study spent less than 30 s reading a consent form that should have taken them between 3 and 7 min to read (McNutt et al., 2008), and 69% of patients preparing for a variety of surgery types said they had not read the consent form prior to signing (Lavelle-Jones, Byrne, Rice, & Cuschieri, 1993). Though participants in a hospital study retained some information about the study they were in (e.g., the name of the drug administered to them), 41% could not describe the kind of study they were taking part in (Estey, Wilkin, & Dossetor, 1994). Indeed, literature reviews regarding informed consent for medical (Sherlock & Brownie, 2014) and dental procedures (Moreira, Pachêco-Pereira, Keenan, Cummings, & Flores-Mir, 2016) reveal generally low recall of information from consent forms, suggesting that people do not carefully attend to the forms even when they may contain high-stakes information such as risks to their physical health.

Despite this overall low reading and recall rate, participants still report understanding consent forms well. More than 75% of those who reported not reading a consent document for a genetic epidemiological study nonetheless reported understanding the purpose and procedures of the study they expected to take part in "well" or "very well" (Matsui, Lie, & Kita, 2007). These findings underscore one troubling aspect of the informed consent process: It may give some participants an illusion of understanding and control that they do not actually have, inhibiting their ability to evaluate the given information and, consequently, diminishing their ability to make truly informed decisions. Conversely, other participants may feel a troubling *lack* of understanding and control in the informed consent process. In one study with oncology patients, more than a fourth of participants thought that they were required to sign consent forms presented to them (Cassileth, Zupkis, Sutton-Smith, & March, 1980). Altogether, these findings may point to a distinct problem in the informed consent process: The process may be neither fully informed nor truly consensual.

A smaller body of literature suggests that similar problems exist with informed consent reading in social science research settings. Varnhagen et al. (2005) found that the average recall of a consent form for a survey about technology use in the participants' psychology courses was less than 10% of the ideas contained in the form. They also found that 30% of participants reported skimming the form, with 5% reporting not having read it at all. Similarly, Mann (1994) found that undergraduate participants reading consent forms for an MRI study could only answer half of the general questions they were asked about the consent form they had signed. As Cassileth, Zupkis, Sutton-Smith, and March (1980) found in the medical context, participants also had misconceptions about the purpose of informed consent—under 20% of psychology research participants reported viewing the informed consent process as a practice designed to allow them to decide whether to participate.

While the shortcomings of the informed consent process may have graver consequences in high-stakes medical contexts, the flawed informed consent process in psychological research yields undesirable consequences of its own. Even in the absence of "dangerous" or risky experimental procedures, participants' ability to make informed decisions remains important. The importance of the process increases as many psychologists advocate for open data practices (Naik, 2017) and recommend including transparent information in consent forms about the sharing of participant data (Joel, Eastwick, & Finkel, 2018; Meyer, 2018). While Cummings, Zagrodney, and Day (2015) found that the inclusion of open data information in a consent form had no effect on participants' consent to participate, they concluded that this may have been the result of participants not attending to the consent form. If the informed consent process does not facilitate reading and comprehension, participants may be unable to make informed decisions about everything from low-risk experimental procedures to the sharing of anonymized data (a practice that some participants may not find as obviously agreeable; Cummings et al., 2015).

Failures of the informed consent process do not just pose potential ethical problems; they also may hinder or invalidate experimental manipulations or study procedures. Consider, for example, a group of researchers interested in the effect of trait anxiety levels (low vs. high) on participants' state anxiety levels while viewing a frightening video. The experimenters design a study in which participants view a frightening movie clip and rate their levels of anxiety while watching. In the consent form for the procedure, the researchers inform the participant that they will be viewing content they may find alarming. Individuals high in trait worry are more likely to read consent forms (Knepp, 2014), so the high trait anxiety group would likely be unsurprised, if somewhat anxious, when they view the frightening video. Those low in trait worry, however, are less likely to read consent forms (Knepp, 2014) and might feel anxiety while watching the video because they were caught off guard by its frightening nature. During data analysis, the experimenter may find no significant differences in state anxiety across the groups, not because those lower in trait anxiety tend to be just as anxious when presented with anxiety-inducing stimuli but because those lower in trait anxiety did not read the consent form thoroughly and were therefore surprised. This problem could have a significant effect on replicability problems facing psychology and other scientific disciplines. If two experimenters ran the same protocol but one had a consent form or situation that resulted in greater comprehension, these two research groups could easily generate different conclusions.

This anxiety study is just one hypothetical example, but it serves as a demonstration of the effects that reading (or not reading) a consent form could have on participants' experiences during a study and on subsequent results. One can imagine how low rates of consent form reading might also affect the influence of other information delivered in consent forms, such as cover stories for studies using deception. Well-designed studies, manipulation checks, and statistical controls may help to address issues like these, but raising consent form reading levels would help rule out additional alternative explanations for observed (or unexpectedly unobserved) results. Improving consent form reading will allow for more tightly controlled study procedures in addition to more ethical practices.

The necessity of altering consent forms to improve participants' understanding of them has been recognized by the federal organizations responsible for updating the Common Rule. The revised Common Rule, issued in 2017, stipulates that

> informed consent must begin with a concise and focused presentation of the key information that is most likely to assist a prospective

> subject or legally authorized representative in understanding the reasons why one might or might not want to participate in the research. This part of informed consent further requires that this beginning portion of the informed consent must be organized and presented in a way that facilitates comprehension. (Federal Policy for the Protection of Human Subjects, 2017, p. 7255)

Despite this potential improvement, recent research has found that shortened versions of consent forms do not necessarily lead to improved comprehension and the ability to seek more information was almost never utilized (Perrault & McCullock, 2019). These findings suggest that simply shortening the form may not have the desired effect, so other techniques should be considered.

While some researchers have examined which sections of consent forms participants read and recall the most (Tait, Voepel-Lewis, Nair, Narisetty, & Fagerlin, 2013; Varnhagen et al., 2005), whether information presented at the beginning of forms is more readily attended to or comprehended has not, to our knowledge, been empirically studied. Understanding which sections of consent forms participants read is essential to understanding how participant reading can be improved and to understanding whether the alteration mandated by the updated Common Rule is sufficient to increase participant understanding of essential information.

Changes to the Common Rule are by no means the first attempt at increasing understanding of informed-consent forms. Many researchers, mainly in the medical field, have attempted to improve the informed consent process to increase participant understanding with mixed results. Multimedia protocols, such as delivering information via video (e.g., Friedlander et al., 2011), are often viewed favorably by participants (Tait, Voepel-Lewis, Chetcuti, Brennan-Martinez, & Levine, 2014; Tait, Voepel-Lewis, McGonegal, & Levine, 2012) and are sometimes associated with encouraging rates of comprehension and understanding (Friedlander et al., 2011; Tait et al., 2012), but reviews of studies implementing such interventions do not provide conclusive evidence of their effectiveness (Flory & Emanuel, 2004; Palmer, Lanouette, & Jeste, 2012).

When interventions are successful, their effectiveness is often limited. For example, some evidence suggests that shorter forms lead to greater comprehension of at least some kinds of information (Mann, 1994; Perrault & Nazione, 2016; Tait et al., 2013). However, as Perrault and Nazione (2016) found, even comprehension among those exposed to shorter forms may remain low. The extant literature suggests that shorter forms (Perrault & Nazione, 2016) laid out in a processable manner (Tait et al., 2013) and written in a low rather than high reading level (Young, Hooker, & Freeberg, 1990) may help to enhance reading and comprehension of consent forms. However, interventions that go above and beyond the effects of such alterations have not, by and large, been explored. Given Flory and Emanuel's (2004) finding that altering consent forms had little overall effect on participants' understanding in medical contexts, exploring alternative interventions seems prudent.

The Present Research

Our goals in the present research were threefold. First, we aimed to evaluate participants' reading of informed-consent forms in in-lab psychological research settings at a small liberal arts college, expanding on research largely done in the medical field. The large body of evidence supporting low reading and comprehension of consent forms led us to *Hypothesis 1: Most psychology research participants will not thoroughly read an informed consent form*. In Study 1, we tested this hypothesis by inserting a distinctive phrase into a consent form and assessing participants' recall of a key word in the phrase.

Second, we aimed to examine which sections of consent forms participants appear to read most thoroughly. As the research on this topic is more limited, we did not develop a specific prediction and instead developed *Research Question 1: Are some sections of a consent form read more thoroughly than others?* To assess this question using a more objective method than the self-report used in previous work (e.g., Tait et al., 2013), in Study 2, we varied the section of the consent form in which we inserted a distinctive phrase and tested for participants' recall of a key word in the phrase.

Finally, we aimed to investigate ways of improving the thoroughness of participants' reading. Noting the limited success of alterations to the informed consent form itself (Flory & Emanuel, 2004), we opted for an alteration to the informed consent process. This led us to *Research Question 2*: *Do participants read a consent form more thoroughly when the research assistant leaves the room?* Previous work in this field has compared the presence of an in-person research assistant to an online environment (i.e., an environment where the presence of a research assistant is not possible) and found that those reading in-person with the experimenter were more likely to remember a phrase from the form than those reading online (Pedersen, Neighbors, Tidwell, & Lostutter, 2011). However, no previous study that we are aware of attempted to compare the presence or lack thereof of the experimenter in an in-person setting. We speculated based on experience that the presence of a research assistant in the room might pressure the participant to read the form more quickly than they might otherwise. Therefore, being left alone in the room with nothing else to do would lead them to read the consent form more thoroughly. In Study 3, a research assistant either remained in or left the room while participants read a consent form with a distinctive phrase inserted into it. Participants were later tested for their recall of the phrase.

Study 1

Method

Participants. Participants in Study 1 were 39 undergraduate students (56% female, 85% White, mean age 19.9) at a liberal arts college in the Midwestern United States recruited through SONA Systems in exchange for psychology course credit. These participants were recruited as part of another ongoing in-lab study to which the consent study was attached.

Materials and measures. To assess participant reading of the form, the random statement "some researchers wear yellow pants" was added into the middle of the risks section of the consent form. Participants were tested on their recall of the phrase—in particular, their recall of the word "yellow." We opted to use recall of a random statement as our measure of participants' reading because it more sensitively measures thoroughness than do comprehension questions and makes guessing correctly more difficult. The particular yellow pants phrase was selected because it was odd

enough that it would stick out to those who read the statement and could be easily asked about in the follow-up questions. The color yellow was selected over other common colors (such as blue or red) as we speculated it was less likely to be guessed by any participant attempting to pass off as having read the form when they had not. This speculation was confirmed in a post hoc study.[1] Our primary assessment of participant reading was a follow-up question asking what color, if any, was mentioned in the form.

Procedure. Prior to their arrival, participants were randomly assigned to receive a consent form either with ($n = 18$) or without ($n = 21$) the random phrase. A pen was placed above the form on the table. When participants entered the room, they were asked to have a seat at a table where a consent form was waiting for them. If the participant reached for the pen within the first 5 s after sitting down, they were reminded to read the consent form before signing it. After signing the informed consent, participants completed a short survey including the Ten-Item Personality Measure (TIPI; Gosling, Rentfrow, & Swann, 2003), which was included to minimize participant suspicion, and the two follow-up questions about the consent form. Following these questions, participants were debriefed from the consent study and continued to complete the original study that they signed up to take. This study, and all of the subsequent studies in the present article, were approved by the IRB at the institution where the present studies were conducted.

Results

Before assessing rates of recall of the color yellow for participants in the experimental condition (i.e., the condition where the target phrase was present), we assessed whether any participants in the control condition (i.e., the condition where the target phrase was not present) recalled the color yellow. Of the 21 participants in the control condition, only one indicated they had seen any color, and they indicated they had seen the word blue, not yellow. Additionally, in the control condition, no participants guessed a color other than yellow; those who did not guess yellow indicated they had not seen or did not remember a color being mentioned. These low rates of apparent guessing and the absence of any participants in the control condition guessing "yellow" give us greater confidence that participants recalling yellow in the experimental condition had actually seen the phrase and were not just guessing a color at random.

To assess our first hypothesis that the majority of participants would not read the consent forms thoroughly, we conducted a one-sample chi-square test in SPSS on the experimental group of 18 participants whose consent form included the color yellow. The null hypothesis was that most participants in the experimental group *would* thoroughly read the consent form. The most conservative version of this null hypothesis is that 51% of participants (i.e., the smallest possible percentage of participants that would constitute a majority) will recall the color yellow. We compared the actual frequency of participants who recalled the color yellow (22%) against this null hypothesis frequency. Results supported rejection of the null hypothesis that most participants would recall the target phrase inserted into the consent form, χ^2 (1, $N = 18$) = 5.97, $p = .015$. That is, our results suggest that most participants do *not* read consent forms. Frequencies of recall of the color yellow by condition are available in Table 1.

Discussion

Hypothesis 1, that the majority of participants would not read consent forms, was supported by our results. This suggests that overall, participants sign consent forms that they have not read, confirming what has been observed anecdotally and documented in other research (e.g., Cassileth et al., 1980; Lavelle-Jones et al., 1993; Mann, 1994; Matsui et al., 2007; McNutt et al., 2008; Pedersen et al., 2011; Perrault & Nazione, 2016). These results also demonstrate that our color check reading assessment can produce similar results to previous researchers and thus can be considered a viable means to test for participant reading in follow-up experiments. In order to gain a more nuanced perspective on consent form reading, in Study 2 we explored which sections of the consent form participants read and which they skip.

Study 2

Method

Participants. Participants in Study 2 consisted of 134 undergraduates enrolled in psychology courses (63% female, 78% Caucasian, mean age 19.8). Participants were given course credit for participation. As in Study 1, participants for Study 2 were recruited as part of other in-lab experiments and took the consent study prior to the study they were initially recruited for. Due to clerical limitations, we were not able to directly exclude participants who took Study 1 from participating in Study 2. However, when possible, participants were asked if they had previously participated in a study which asked whether a color was mentioned in the study's consent form (options were "yes," "no," or "I don't remember"). We excluded only those who said "yes," reasoning that those who reported not remembering may have been cautious respondents who did not remember taking part in such a study but were not certain enough to rule it out. In total, eight participants were excluded from the analyses for this reason.

Materials and measures. Study 2 was run in conjunction with three distinct in-lab psychology studies and therefore used three distinct consent forms. For each distinct study, four versions of the consent form were created; each version had the random phrase inserted into either the procedure, risks, benefits, or anonymity and confidentiality section of the form. Although the content of each section differed across studies, we standardized the location of the "yellow pants" statement within each section to the extent possible, placing it in the approximate middle of each assigned section.

Once again, the TIPI was used in conjunction with a series of follow-up questions that gauged participant recall. The same "some researchers wear yellow pants" phrase and follow-up question was used to assess participants' reading.

Procedure. Unlike in Study 1, in Study 2 all versions of the form contained the statement. With the exception of the location of the statement in the consent form and the number of different consent forms, there were no procedural differences between Studies 1 and 2.

[1] Data from the post-hoc study, and all other studies, is available at https://osf.io/5hu4n/?view_only=ba04d0e2776b4fb99a404afc008803a9.

Table 1
Frequency of Recall of the Target Phrase by Condition for Study 1

Condition	Recalled target phrase	Did not recall target phrase	Total
Experimental group	4	14	18
Control group	0	21	21
Total	4	35	39

Results

Preliminary analysis. Because we inserted the phrase into consent forms for three different studies, we wanted to verify that the different content in each study's consent form did not influence participants' recall of the phrase. We performed a chi-square analysis and found no relationship between what study participants were in and participants' recall of the color yellow, $\chi^2(2) = 0.60$, $p = .739$.

Research Question 1. We tested our question about whether some sections of a consent form are more thoroughly read than others by performing a chi-square test of independence. We found that the consent form section and participants' recall of the statement were not independent, $\chi^2(3) = 19.02$, $p < .001$, suggesting that some sections of the consent form are more thoroughly read than others. A greater percentage of participants recalled yellow than didn't when the statement was inserted into the procedure (61.70%) or risks (62.07%) sections of the form. This was not the case when the statement was inserted into the benefits (26.67%) or anonymity/confidentiality sections of the form (21.42%; see Figure 1 and Table 2).

Discussion

Results of our first research question indicated that participants were more likely to read the first two sections of a consent form (procedure and risks) than later sections (benefits, and anonymity and confidentiality). There are two possible reasons for this pattern of response. The first is that the further into a form participants read, the less they paid attention to the contents. If this is the case, then the newly mandated inclusion of a brief opening section summarizing important information within the consent form (Federal Policy for the Protection of Human Subjects, 2017) may indeed improve the likelihood that participants read, understand, and recall a consent form's key messages. However, researchers have recently reported that rates of recall of a randomly placed word did not differ based on whether the word was placed in top, middle, or bottom sections of a consent form (Baker & Chartier, 2018), which suggests the possibility of another explanation. It may be that certain sections of the form are read with greater detail than others, independent of their order. Previous research has indicated that participants recall the most information about the risks described in a consent form (Varnhagen et al., 2005). However, it is not possible to determine which reason drives our results, and this question should be investigated in future research.

Nonetheless, given that rates of recall were under 70% even when the sentence was inserted into earlier sections of the form, exploring ways to improve participant reading overall is also important. To this end, our research team brainstormed several ideas regarding how changing the informed consent process may result in greater comprehension. One of those ideas was having the experimenter leave the room with the participant for the amount of time it may take to read the consent form. We speculated that perhaps participants feel pressured to sign the form quickly because the experimenter is waiting on them or that several minutes of silence may result in the participant going back and rereading the form.

Study 3

Method

Participants and design. Participants were 123 undergraduate students recruited for psychology course credit. Demographic data was not collected for Study 3, but because we recruited from the same participant pool, sample characteristics are likely similar. Again, participants who indicated that they had previously taken a study about consent form awareness were excluded from analysis,

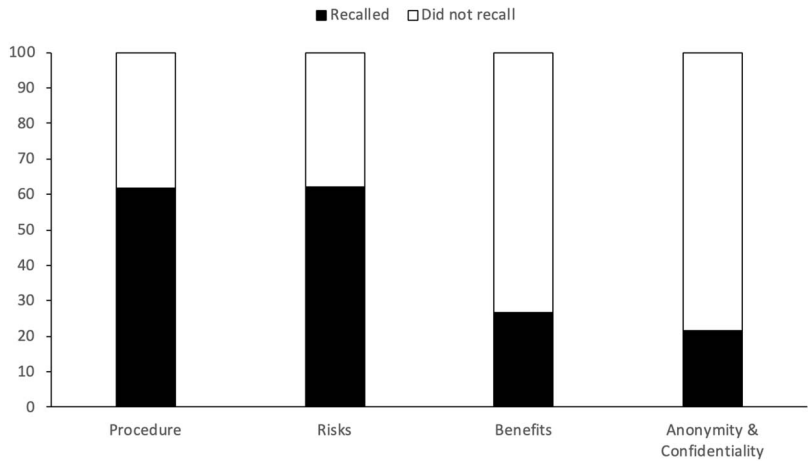

Figure 1. Percentage of participants in Study 2 who recalled the color yellow versus did not recall the color yellow by consent form condition.

Table 2
Frequency of Recall of the Target Phrase by Consent Form Section in Study 2

Consent form section	Recalled target phrase	Did not recall target phrase	Total
Procedure	29	18	47
Risks	18	11	29
Benefits	8	22	30
Anonymity & confidentiality	6	22	28
Total	61	73	134

but those who said they had never taken such a study or said they were unsure were included. This yielded a final sample of 109 participants.

We submitted participants to a 2 (alone vs. not alone) by 2 (phone vs. no phone) design. Our primary focus was whether participants differed in their consent form reading when left alone by the experimenter. However, pilot testing of our procedure of leaving participants alone when reading the consent form coincided with the introduction of a new lab policy in which we asked participants to place their phones in a box upon their entry to the lab to ensure their attentiveness during the study. We added the second factor (phone vs. no phone) to test for potential additional effects of asking participants to put away their phones.

Materials and measures. The sentence "some researchers wear yellow pants" was inserted into the risks section of the consent form. The same question used to assess participants' recall of the word "yellow" in the previous two studies was used in this study.

Procedure. Participants were randomly assigned to be in a *phone* or *no phone* condition. In the *no phone* condition, participants were asked to place their phone in a box when they entered the lab. In the *phone* condition, participants were given no instructions regarding their phone. Participants were also randomly assigned to *alone* or *not alone* conditions. As in the previous studies, in all conditions, the consent form was ready on the table with a pen placed above it when participants arrived. Participants in the *alone* condition were shown the consent form and left alone for 2.5 min by the research assistant with instructions to read the consent form and sign it if they agreed to participate. The research assistant left the lab room, closed the door, and stood outside, returning 2.5 min later. Participants in the *not alone* condition were shown the consent form, but the research assistant remained in the room, standing off to the side, while the participants read and signed the form. Following the informed consent process, participants completed the TIPI as a filler questionnaire and completed the consent form recall measures.

Results

To assess whether presence of the experimenter in the room made a difference to participants' recall of the target phrase, we performed a Cochran-Mantel-Haenszel chi-square test, an analysis that tests for the association of two categorical variables while controlling for a third (Cochran, 1954; Mantel & Haenszel, 1959). We assessed the association between recall of the color yellow and presence of the research assistant in the room while controlling for whether participants had access to their phones or not. A Breslow-Day test of homogeneity of the odds ratio suggested the relationship between recall of the color yellow and presence of the experimenter did not differ based on whether participants had access to their phones, χ^2 (1, N = 109) = .074, p = .79. The Mantel-Haenszel test of conditional independence was significant, χ^2 (1, N = 109) = 6.59, p = .010, suggesting that there is a significant relationship between recall of the color yellow and presence of the research assistant when controlling for whether participants had access to their phones. The Mantel-Haenszel common odds ratio estimate was 3.03 (95% CI [1.37, 6.70]), indicating that contrary to our intuitions, the odds of recalling yellow were around 3 times *higher* when the experimenter was in the room than when they were not. Frequencies of recall by condition are available in Table 3.

To assess whether access to their phones made a difference to participants' recall of the target phrase, we performed the same kind of analysis, this time assessing the relationship between presence of phones and recall of yellow while controlling for whether the experimenter was in the room with the participant or not. Again, while the Breslow-Day test of the homogeneity of the odds ratio suggested that the relationship between recall of the color yellow and phone access did not differ based on presence of the experimenter (χ^2 (1, N = 109) = .074, p = .79), the Mantel-Haenszel test of conditional independence was not significant, χ^2 (1, N = 109) = .125, p = .723. The 95% confidence interval for the Mantel-Haenszel common odds ratio estimate of .799 contained 1, 95% CI [.363, 1.759]. Based on these findings, recall of the target phrase did not appear to be related to participants' access to their phones during the consent form process. In sum, while the presence of an experimenter during the informed consent

Table 3
Frequency of Recall of the Target Phrase by Condition in Study 3

Room condition	Phone condition	Recalled target phrase	Did not recall target phrase	Total
Experimenter not in room	No phone access	12	13	25
	Phone access	12	18	30
	Total	24	31	55
Experimenter in room	No phone access	20	8	28
	Phone access	18	8	26
	Total	38	16	54
Total	No phone access	32	21	53
	Phone access	30	26	56
Total		62	47	109

process increased odds of recalling the target phrase, the presence of one's phone had no effect, regardless of whether the experimenter was present or not.

General Discussion

Two studies documented problematic habits of consent form reading by participants while a third offered a potential procedural solution for increasing reading and comprehension. In Study 1, we found that the majority of participants did not read consent forms carefully. In Study 2, we found that participants were also more likely to read the earlier sections of the consent form compared with later sections. Participants were much more likely to notice the statement in the first and second section (with similar percentages) and not in the third and fourth sections (with similar percentages). Finally, in Study 3 we showed that removing the researcher from the room for the reading of the consent form decreased noticing the target phrase.

This set of studies helps broaden work previously done in medical fields (Lavelle-Jones et al., 1993) by showing similar but even lower rates of comprehensive reading in social science research. Our work has expanded these previous studies by showing that participants tend to read certain sections early in the consent form and disregard later sections. Additionally, we have provided evidence for the direct presence of an experimenter as a way to increase consent form comprehension. The majority of previous interventions to increase reading have focused on manipulating the content rather than the procedure around the form. The methods in this experiment could be used to increase consent form reading or serve as an example for future procedural (rather than content manipulation) changes that could also facilitate greater reading. Finally, we found that the presence of a cellphone did not affect consent form reading. To our knowledge, these two findings have not been previously documented for the reading of in-person consent forms in the medical or social sciences.

These results have multiple implications for psychological and social science research in general. These data support changes to the Common Rule that require a short synopsis of all critical information at the beginning of the consent form. However, our data also suggest that participants are not fully considering critical aspects of research studies. Even when there was a high rate of noticing the target phrase, over a third of participants still did not notice it. If participants are to be fully informed, more needs to be done in order to improve participant understanding. Beyond ethics, many researchers use the consent form in order to present cover stories or critical information, which if not properly understood could compromise research integrity. As psychology and other disciplines make more strenuous efforts toward replicability, consent form comprehension cannot be overlooked. Finally, when we investigated which sections participants were most likely to investigate, we found that confidentiality was one of the least likely to be scrutinized. As the field increases the availability of anonymized public data it seems that participants would have little awareness of if their data was being shared in that manner. If it is indeed the case that some participants may not feel comfortable sharing their data (Cummings et al., 2015), then more needs to be done to emphasize these sections.

Our study has several limitations that should be noted. First, in all studies, if a participant reached for a pen within the first 5 s of sitting with the consent form, they were asked to make sure they read the consent form. We implemented this procedure to make sure that all participants at least tried to read the form, and this likely increased consent form reading compared with what would occur naturally. However, the fact that rates of reading were low even with this procedure provides even greater support that this issue is quite pervasive. Additional limitations include conducting the same consent study across multiple different experiments and the potential for a participant to be included more than once in any of the above studies. We have taken multiple steps to account for this problem, including using multiple checks, creating separate analyses with and without flagged participants, and comparing results across various experiments. Finally, a limitation specific to Study 3 was the size of our confidence intervals. Because we had large confidence intervals, drawing more precise conclusions about the extent to which having a researcher present increases the chances of a person reading a form requires future studies.

Our research opens the way for numerous future directions. First, our unique statement method can be used by future researchers as a way to subtly test for the totality of reading of the consent form as it presents a full sentence that is easily noticed when paying close attention but blends in during a quick skim. Investigators should also consider changing the order of important information to understand if participants are reading simply the beginning of the form or rather sections that carry conceptual weight. In addition, our research suggests that the presence of the experimenter may increase comprehension. We strongly suggest that psychologists, especially social psychologists, spend more time investigating how consent reading can be increased. This finding should be replicated and expanded, and social psychologists are especially skilled to find specific situations or concepts regarding authority that may increase consent form reading.

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