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Can You Feel it? How Asking Influences Reports of Psychophysiological States

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Can You Feel it? How Asking Influences Reports of Psychophysiological States

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Can you feel it? How Asking Influences Reports of Psychophysiological States

Without direct access to another person's mind, it can be very difficult to obtain information regarding their internal mental experiences (Ryle, 1949; Wittgenstein, 1980). As such, individuals are in the unique position of being able to access, monitor, and integrate information about their own emotions, attitudes, and beliefs. Thus, individual self-reports serve as the gold standard for measuring subjective internal experiences (Gilbert, 2009; Larsen & Prizmic-Larsen, 2006). Because self-reports provide the best way to assess what a person is experiencing, they are pervasively used and widely studied across numerous fields in science involving human subjects (Cook, Hepworth, Wall, & Wart, 1981; Price & Mueller, 1986).

Despite their gold standard status, self-reports are not without flaws. The wording used to obtain self-reports from others has the capacity to influence respondents' cognitive processes (Cartwright, 1959; Harrison & McLaughlin, 1993), which in turn have the potential to influence the reports that individuals provide (Wu, 2000; Murphy, 1987). Recent research has shown that the responses people provide can be dramatically influenced by minor variations in the wording employed to obtain responses (Gilovich & Griffon, 2010; Kahneman & Tversky, 1979; Levin & Gaeth, 1988; Shafir, 1993; Slovic & Lichtenstein, 1983). For example, Davidai, Gilovich, and Ross (2012) have demonstrated the power that subtle differences in wording can have on our behavior by showing that people are more likely to consent to being an organ donor simply when the wording on the form they fill out is an 'opt-out' policy compared to one in which individuals must 'opt-in' (Davidai, Gilovich & Ross, 2012). With such significant

differences resulting from mere changes in wording, we must consider the capacity that wording and question presentation can have on shaping our attitudes, behaviors, and beliefs.

Historically, using self-report measures to obtain measures of internal states has been controversial (Howard, 1994). This debate is fueled in part by the subtle influences that the wording of such measures may have on the reports that are provided (Cartwright, 1969; Nisselson, 1959; Dholokia, 2010). It has been shown among a variety of methods that different procedures of acquiring reports of the same internal state can result in dramatically different responses based on the structure, wording, and context of the survey (Tourangue et al., 2000). For example, researchers have shown within a medical context that responses to patient self-report surveys for chronic conditions can differ dramatically depending on whether the questions are presented in a way that asks patients to list their symptoms (i.e., volunteer information), or to check off listed symptoms that they are experiencing (i.e., respond to solicitation). In this study, respondents exposed to the solicitation method were nearly four times more likely to report a medical condition than those exposed to the volunteer method (Bielecky & Smith, 2014).

Bielecky and Smith (2014) speculate that this is due to the fact that respondents in the unsolicited condition may be motivated to report fewer chronic conditions than they actually have in order to reduce response time and reserve cognitive resources, while respondents that were solicited for their conditions would not be motivated for this reason because they are *asked* about each chronic condition regardless of whether

it is endorsed. In addition, the act of reporting inaccurate information would create greater cognitive dissonance for solicited respondents than unsolicited respondents, since the former would have to actively lie (“lie by submission”) to deny the presence of a chronic condition, while the latter would only have to passively lie (“lie by omission”).

Furthermore, a variety of other factors exist that can prevent one from providing information to others in the absence of solicitation. For example, within the advice literature it has been shown that providing information that has not been asked for may cause the advice giver to come off as “bossy” or critical, which is threatening to a recipient’s situated social identity (Goldsmith, 2000; Goldsmith & Fitch, 1997). Similarly, within the context of professional organizations, Morrison and Milliken (2000) have shown how certain types of normative structures create an environment that discourages employees from reporting their concerns because doing so is perceived as dangerous or futile. While it may seem obvious that we are less likely to go out of our way to speak up and provide information compared to when we are asked for it, it is critical to empirically investigate the influence that the power of solicitation holds within the domain of self-reports.

Question-asking directs conversations by encouraging another person to answer (Dillon, 1988). Indeed, most questions function to solicit information from others (Chafe, 1970; Dillon, 1982; Kearsley, 1976). In contrast to the case of unsolicited information, if the person being asked a question fails to follow with a response that abides by basic maxims of normative social interaction, it is possible that they may come

off as rude or aloof (Grice, 1975). Clearly, the act of solicitation has the potential to lower the threshold at which we are willing to provide information to others.

Despite the fact that there are several factors that may influence responses to self-report measures, the honest, real time report of attentive individuals is still the least flawed method of measuring subjective experiences (Schwarz & Strack, 1999). After all, any other method of measuring internal experiences is based on capturing corresponding effects that resemble the self-reports that individuals provide (Gilbert, 2009). Measurements of brain activity obtained using an fMRI machine are only significant when there is corresponding consensus with the reports of experience that individuals report along with neural activity. Although self-report measures are the best tool that we have for measuring internal experiences, it is critically important that we examine whether or not the powerful influence of solicitation extends to the domain of self-reports about psychophysiological states.

Consequences of Soliciting Versus Volunteering Information

Different methods of measuring the same internal state have the potential of yielding different responses (Wu, 2000; Tourangeau, 2000; Bleckly & Smith, 2014), and while this may have serious implications for the validity of scientific endeavors, the ramifications become even more severe when considering the effects that reporting one's internal states has on attitudes, beliefs, and experience of the internal state itself. Bem (1970) has shown that individuals often come to "know" their own internal states by inferring them from observations about their own behavior, including self-reports of those states. Internal observation of our specific states can often be elusive and difficult

to identify (Schacter & Singer, 1962), thereby amplifying our reliance on evidence from our behaviors to infer our mental states (Bem, 1972).

According to the findings of Bem (1970, 1972) and Schacter & Singer (1962), when an individual reports that they are experiencing a particular state, the experience of that state becomes amplified as a result of the action of reporting the state (Bem, 1970). It is probable that individuals are much more likely to provide information about their internal states when they are directly solicited for that information compared to when they are not. Following this logic, I hypothesize that individuals who are directly asked to report their internal states will experience that state with greater intensity than individuals who are left to speak up and volunteer the same information on their own, due to the fact that they will be referencing that experience more frequently through the act of reporting.

DISGUST

We have decided to focus on the psychophysiological state of disgust to test these ideas through the study described in this thesis. Disgust is one of the most widely studied states in all of psychology (Haidt, McCauley, & Rozin, 1994), and is ubiquitous to the human experience (Darwin, 1965; Rozin & Fallon, 1987). Disgust has been shown to be easily elicited in the laboratory in ecologically valid, but ethically justifiable ways, making it the ideal candidate for the purposes of this study (Marzillier & Davey, 2004). In comparison to other emotions usually considered negative (e.g. shame, sadness,

embarrassment, etc.) the elicitors, consequences, and individual differences of disgust have been extensively studied (Rozin, McCauley, Dunlop, & Ashmore, 1999).

Disgust is considered to be a basic response to a wide range of stimuli, and evolved primarily as a response to protect us from poisonous and foul foreign objects from entering our body (Angyal, 1941; Rozin, Fallon, & Mandell, 1987). Disgust indicates that a substance should be avoided. As a social species, it is critical that we are able to communicate to our kin that we have identified threats such as uncleanness, contamination, and the potential for disease in order to increase the likelihood of group survival and reproduction (Rozin, Haidt, & McCauley, 2000). Every day, we encounter experiences of disgust, and nearly just as frequently we report those experiences of disgust to others.

Furthermore, disgust is not only pervasive in our day to day experience, but it has recently been shown to have a wide variety of behavioral and attitudinal influences. Importantly, disgust has been shown to have a strong influence on moral reasoning (Inbar, Pizarro, Knobe, & Bloom, 2009). Although moral reasoning is often based on conscious deliberation, it is frequently overrun by our moral intuitions, which are the result of gut feelings and motivated by emotional responses, such as disgust (Haidt, 2001). Further, the notion that affective processes influence judgements and evaluations has also been systematically investigated within the affect-as-information framework (Schwarz & Clore, 1983, 1988). For example, individuals provide much harsher evaluations of public policy proposals, engagement in various activities, and other people when sitting at a desk that is dirty enough to elicit disgust (Schnall, S.,

Haidt, J., Clore, G. L., & Jordan, A. H., 2008). Thus, the way that we form opinions and make judgements is often dictated by and susceptible to the negative influence of the psychophysiological experience of disgust.

Disgust also has the capacity to shape how we perceive individuals and groups. Recent studies have shown that individuals high in disgust sensitivity showed more negative intuitive moral evaluations of homosexuals and same-gender sexual behavior (Inbar, Pizarro, Knobe, and Bloom, 2009). Additionally, it has been shown that experiencing disgust can influence political conservatism and voting behaviors (Inbar, Pizzaro, Iver & Haidt, 2012). With such a vast capacity to influence the way that we think about events in our lives and the world around us, it is essential that we further explore the mechanisms that determine the experience and reporting of disgust.

Within the specific context of the psychophysiological experience of disgust, I hypothesize that individuals that are asked (i.e., solicited) if they are experiencing disgust will report feeling disgust more frequently than those who are prompted to volunteer their experience in a way that does not involve being directly asked. Furthermore, I predict that not only will solicitation lower the threshold at which disgust is reported, but that the individuals in the solicited condition will report more intense experiences of disgust due to the fact that they will be self-referencing this internal state more frequently than the individuals in the unsolicited condition. As suggested by previous research, I have also included variables (e.g., political orientation) in this study to examine if demographic factors would be associated with differences in reporting and experiencing disgust.

METHOD

Overview

Two studies were conducted. The first was a pretest study designed to ensure the series of pictures used as stimuli in the primary study evoked increasing levels of disgust. The second was the primary study in which participants were exposed to a series of increasingly disgusting pictures. Participants were either solicited to indicate or asked to volunteer at what point they felt disgusted.

Study 1: Pretest

Participants

30 participants (8 Female, 22 Male) were recruited through Amazon Mechanical Turk (MTurk) by agreeing to complete a five to ten-minute survey in exchange for \$1.00. The average age of participants in this sample was 31, and the sample included 5 individuals who identified as Republican, 13 as Democratic, and 12 as Independent. MTurk allows for expeditious recruitment of a diverse sample of participants at a much lower cost than other professional online panels (Berinsky et al., 2012). Furthermore, studies that have examined the efficacy of MTurk as a sample recruitment tool have shown that data from MTurk samples meet common psychometric standards (Buhrmester et al. 2011; Shapiro et al., 2013). Additionally, it has also been shown that MTurk respondents pay as much or more attention to online surveys compared to respondents from other populations (Weinberg et al., 2014).

Materials

Images were selected from the International Affective Picture System (IAPS). The IAPS is a well-established, normed and widely used system of pictures that are intended to elicit a wide variety of emotional responses in participants ranging along valence, arousal, and/or dominance dimensions (Lang, Bradley & Cuthbert, 1999). Recent research has extended the study of this set of images in order to identify which pictures elicit specific types of discrete emotion, such as disgust (Mikels et al., 2005). The purpose of this pretest was to allow us to confirm the IAPS ratings of disgust on a series of pictures, allowing us to create a sequence of increasingly disgusting images for the primary study. For this pretest, we selected 20 different images from a subset of over 400 IAPS images that were studied by Mikels (2005). These images were selected because they elicited disgust, and because they included a wide range of disgust ratings (from 1 to 5 on a 5-point Likert scale). This survey was designed on Qualtrics, and participants were able to access it through Amazon Mechanical Turk by clicking on a one-time use anonymous link.

Procedure

After consenting to participate in the study, participants viewed a sequence of 20 different images and rated them for disgust on a 7-point Likert scale ranging from “Not at All Disgusting” to “Extremely Disgusting”. The images were presented in a random order to eliminate order effects in the ratings. Each image appeared one at a time, and the next image did not appear until a rating was provided on the Likert scale on the screen just below each image. After providing a rating for the final (20th) image in the

sequence, participants answered demographic questions regarding age, gender, and political affiliation. Participants were then debriefed and provided with an ID number that was created through a random number generator that allowed them to receive their payment for completing the survey. All scores for disgust were analyzed for their average rating and standard deviation, allowing us to select which images would be optimal for use in the primary study.

Results

After analyzing each image for average rating of disgust, theoretical range 1 to 7, we were able to select five images from the IAPS that allowed us to create a systematic, increasingly disgusting sequence of images. From our findings, we selected image 9360 ($M=1.33$, $SD=0.60$), 1051 ($M= 1.80$, $SD=1.37$), 9830 ($M=3.30$, $SD =1.70$), 9140 ($M=4.90$, $SD=1.62$), and 3000 ($M=6.73$, $SD=0.78$). The first image was a picture of an old and moldy empty swimming pool. The last image in the sequence was a gory and bloody picture of man with his face half blown off.

Primary Study

Participants

Participants ($N=213$) were recruited through Amazon Mechanical Turk by agreeing to complete a two- to four-minute online survey in exchange for \$0.75 cents. The average age of participants in this sample was 34, and the sample included 52 Republicans, 95 Democrats, and 54 who identified as independent. Of the 213 participants that began the survey, 12 of them failed to successfully complete it and

therefore their data were excluded from analysis, leaving us with a final sample of N=201 (80 Female, 121 Male).

Design

Participants were randomly assigned to one of two conditions: 1) solicited and 2) unsolicited (i.e., volunteer).

Materials

The survey for this study was created using Qualtrics and distributed online via Amazon Mechanical Turk. Participants were presented with a sequence of five, increasingly disgusting images. These images were arranged in ascending order based on ratings of disgust that were obtained from the pretest study.

After viewing the sequence of five images, all participants were administered the most recent version of the Disgust Scale. The Disgust Scale is a self-report personality scale that was developed as a general tool for the study of disgust. It is used to measure individual differences in sensitivity to disgust and to examine the relationships among different kinds of disgust (Haidt, McCauley & Rozin, 2008). The version of the Disgust Scale that we used for this study is known as the Disgust Scale – Revised (DS-R). The DS-R is the most recently updated and widely accepted version of the Disgust Scale. The DS-R contains 25 items and includes three subscales: Core disgust, which assesses disgust towards food, animals, and body products, Animal-Reminder disgust, which assesses disgust toward death and body envelop violations, and Contamination disgust, which measures concerns about the interpersonal transmission of essences (Olatunji et al.,

2007). We included the DS-R in our survey as an exploratory measure to help identify factors (i.e., dispositional disgust sensitivity) that might moderate the impact of the manipulation.

We presented the 25-item DS-R to participants using two different pages of the survey, the first containing 14 items, the second containing 13 items. This was done to prevent repetitive response patterns in participants and minimize participant attrition. Participants responded to the first group of 14 questions by providing responses on a 5-point Likert scale indicating how much they agreed or disagreed with a given statement, ranging from “Strongly Disagree” to “Strongly Agree”). For example, a person who indicates that they “strongly agree” with a statement such as “I would go out of my way to avoid walking through a graveyard”, is likely to have a relatively higher sensitivity to disgust than a person that responds with “strongly disagree”.

After completing the first 14 items, participants were taken to another page that included the final 13 items of the DS-R. In this section of the survey, participants responded to various hypothetical situations using a 5-point Likert scale to indicate how disgusting they believed each situation would be, ranging from “Not at all disgusting” to “Extremely Disgusting”. This allowed us to capture individual differences in sensitivity to disgust, in that a person who finds the hypothetical situation of, “you take a sip of soda, and then realize that you drank from the glass than an acquaintance of yours had been drinking from” to be extremely disgusting would have a relatively higher sensitivity to disgust compared to a person that responds to that situation as “not disgusting at all”.

The final component of the survey included demographic questions regarding age, gender, and political affiliation. We included these measures in our survey particularly because previous literature indicates several variations in responses to disgust among gender and political affiliation. For example, women have a lower threshold for reporting disgust compared to men (Haidt, McCauley, & Rozin, 1994), and conservatives relative to liberals are more susceptible to the experience of socially elicited disgust (Inbar, Pizarro, Iyer & Haidt, 2012).

Procedure

After reading and agreeing to an online consent form, participants were randomly divided into one of two conditions and presented the same sequence of five increasingly disgusting images. For each image, the image appeared on the screen for three seconds then disappeared, after which a probe for disgust appeared on the screen. For participants in the solicited condition, the probe asked “Did you feel disgusted by that image?”. Participants were given the option of checking one of two boxes that indicated a response of either “yes”, or “no”. In the unsolicited (i.e., volunteer) condition, participants were brought to a screen in which they were prompted to *volunteer* the information of whether or not they were feeling disgusted by the image they had just seen. Participants in this condition were shown the descriptive text “I felt disgusted by that image” and were given the option to check one of two boxes that indicated a response of either “yes”, or “no”.

In both conditions, when participants clicked the box “yes” indicating that they were disgusted by an image, they were then asked to provide a rating of how disgusting

they thought the image was on a 7-point Likert scale that ranged from “Minimally Disgusting” to “Extremely Disgusting”. After providing a rating for how disgusting they thought the image was, they were then shown the next image in the sequence. When participants selected the “no” box indicating that they were not disgusted by an image, they were shown the next image in the sequence without the presentation of a Likert scale. This process continued following all five images until the end of the sequence.

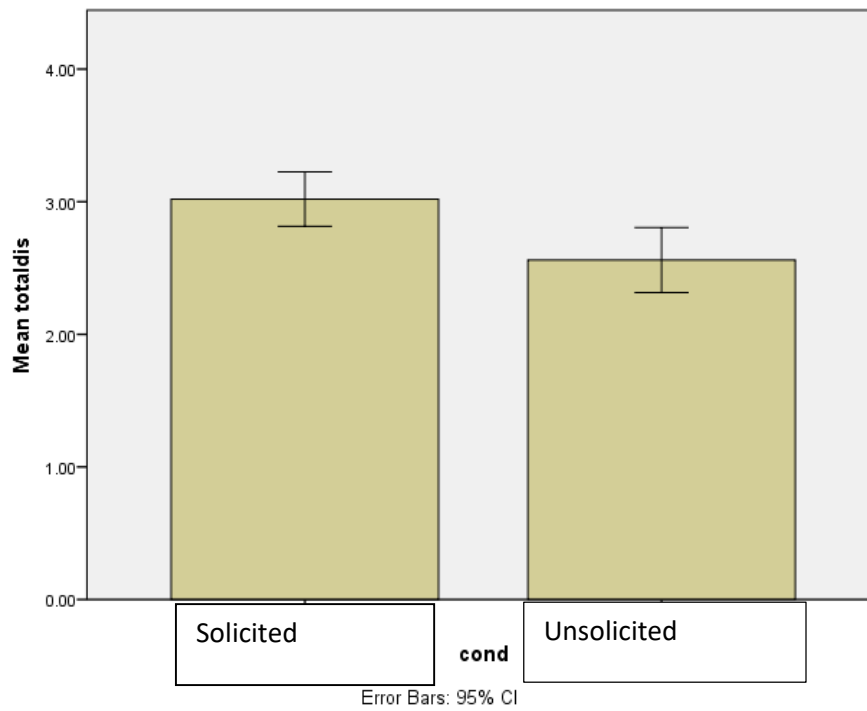
Once participants had viewed and responded to all five of the images in the sequence, participants in both conditions were then given the DS-R Likert. After completing this section, participants completed the demographic questions regarding age, gender, and political affiliation. Participants were required to respond to all questions before they were permitted to advance to the next page throughout the entire survey. Following the completion of the demographics section, participants were debriefed and thanked for their participation in the study.

RESULTS

Almost all of the participants (i.e., 96.5%) indicated that they felt disgusted by at least one image in the sequence, suggesting the images were appropriate for the study. More importantly and as expected, an independent samples t-test indicated that participants in the solicited condition ($M=3.02$) rated more images in the sequence as disgusting than in the unsolicited condition ($M=2.56$). This difference was significant ($F=11.52$, $df=199$ $p<.005$). Soliciting self-reports of disgust appeared to increase the reporting of disgust. Figure 1 illustrates this effect.

Figure 1

Number of Images Reported as Disgusting



If solicitation lowers the threshold at which an individual reports information, participants should have first reported disgust *earlier* in the sequence compared to participants in the unsolicited condition. To find out, we conducted a Mann-Whitney test, using condition as the independent variable and the rank of the specific image (i.e., first, second, etc.) in the sequence that first evoked disgust as the dependent variable. We found that in the solicited condition participants were more likely to indicate disgust earlier in the sequence ($M=2.56$) than in the unsolicited condition ($M=3.00$). This difference was significant (Mann-Whitney $U = 3895.00$, $p < .029$). Table 1 presents the total number of participants that indicated disgust for the first time for each image across both conditions.

Table 1**Number of Participants Indicating Disgust for the First Time**

	Image (1=least disgusting; 5=most disgusting)					Total
	1	2	3	4	5	
Solicited	17	23	42	11	6	99
Unsolicited	9	19	44	0	23	95
Total	26	42	86	11	29	194

Examining the frequencies indicated that, consistent with the Mann Whitney test, solicited participants were generally more likely to first report disgust after exposure to the images appearing earlier in the sequence and unsolicited participants were generally more likely to do so with images appearing later. A chi-square test of independence conducted on the frequency data indicates that these differences in ratings were significant, $X^2(4, N=201) = 23.78, p < .0005$. Although the expected patterns are relatively easy to observe, the frequencies for image four are somewhat puzzling for the unsolicited group, with zero participants indicating that image evoked disgust for the first time. Although this is likely due to chance, to ensure this cell is not driving the significant chi-square, we ran the same test excluding data for image four. This test was also significant, indicating that despite the strange responses to image four, participants still were more likely to indicate their first experience of disgust earlier in the sequence

when they were in the solicited condition compared to the unsolicited condition $\chi^2(3, N=183) = 12.61, p < .006$.

To examine why our manipulation increased reports of disgust, we also examined participants' actual disgust ratings for each image, which were measured on a Likert scale whenever a participant indicated a particular image was disgusting. To do so, we conducted a series of t-tests, using the disgust ratings for each image as the dependent variable and the condition (solicited or unsolicited) as the independent variable. Of the five t-tests, none were significant (p 's $> .35$). Disgust ratings for the images did not differ by condition. For example, for all participants that indicated that they were disgusted by the first image in the sequence, while there were clearly more people who thought it was disgusting in the solicited condition ($N=17$) than in the unsolicited condition ($N=9$), there was no difference in how disgusting the groups rated the image to be ($M_{\text{solicited}} = 3.12$; $M_{\text{unsolicited}} = 3.33$). This lack of a difference in ratings was consistent for all images in the sequence.

Exploratory Analyses

To examine the potential impact of gender on reports of disgust, which previous work has sometimes found, we conducted a 2 x 2 analysis of variance (ANOVA), using condition (solicited or unsolicited) and gender (male or female) as the independent variables and the total number of images participants found disgusting as the dependent variable. No main or interaction effects were found for gender (p 's $> .16$). We also conducted a series of parallel analyses using scores from the DS-R to divide up

our sample into groups differing in level of dispositional sensitivity to disgust. Again, no main or interaction effects were found (p 's > .10).

To examine the impact of political orientation, we also conducted a 2 x 3 ANOVA using condition (solicited or unsolicited) and political affiliation (conservative, liberal or independent) as the independent variables and the number of images that participants indicated as disgusting as the dependent variable. No main effect emerged for political affiliation ($p=.55$), but the interaction between condition and political affiliation was significant, $F(2, 195) = 5.56, p = .013$. See Figure 2. Examining the interaction suggests that republicans ($N=52$) in the solicited and unsolicited conditions did not differ in number of images they found disgusting, ($M_{\text{solicited}} = 2.92$; $M_{\text{unsolicited}} = 2.96$). Independents ($N=54$) also appeared to be unaffected by condition, ($M_{\text{solicited}} = 2.75$; $M_{\text{unsolicited}} = 2.56$). In sharp contrast, however, participants that identified themselves as democrats ($N=95$) were more likely to report their experience of disgust in the solicited condition ($M = 3.24$) than in the unsolicited condition ($M = 2.28$).

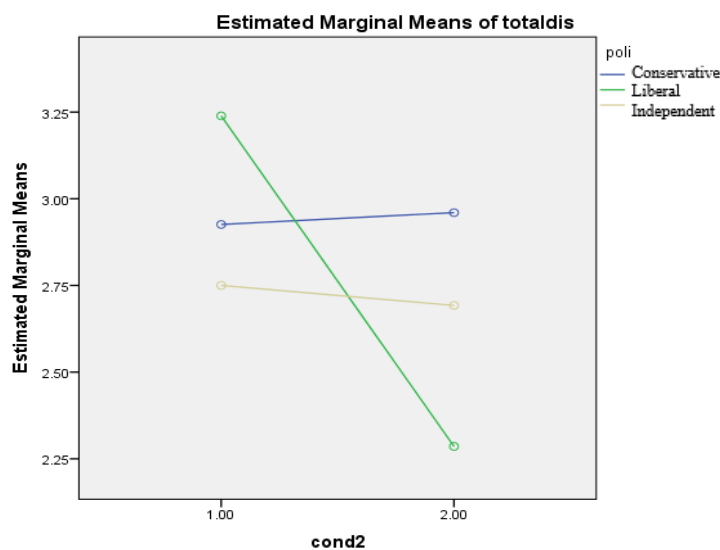


Figure 2

DISCUSSION

The primary hypotheses of this project were that (1) participants in the solicited condition would indicate that they are experiencing disgust more frequently and earlier than participants in the unsolicited condition; and (2) that participants in the solicited condition would report that they experienced disgust with greater intensity than participants in the unsolicited condition. While the first hypothesis was supported by our findings, the second hypothesis was not.

In regards to the first hypothesis, as can be seen in Figure 1, participants in the solicited condition indicated that they felt disgusted by significantly more images in the sequence than did participants in the unsolicited condition. Not only did they report disgust more often, but as indicated by the Mann-Whitney and chi-square analyses, they also reported disgust earlier in the sequence of pictures. This supports our hypothesis that the specific act of *asking* someone for information is likely to lower the threshold at which that information is provided. Our findings are consistent with the findings of previous research on the influence of solicitation across numerous domains (Bielecky & Smith, 2014; Wu, 2000; Tourangue, 2000). In this case, the act of solicitation directly influenced the self-reports given by participants about their internal psychophysiological states.

In regards to the second hypothesis, the lack of differences in the disgust ratings suggests that solicitation does not intensify the experience of an internal state. It is important to note the lack of a difference between groups was probably not caused by a

lack of power, as the mean disgust ratings across groups were nearly identical. Thus, the solicited and unsolicited groups appeared to have perceived each image very similarly. Although these findings fail to support the second hypothesis, they actually serve to strengthen the first. If the 'disgustingness' of each image was about the same for both groups, the differences between groups in terms of self-reports of feeling disgusted must have been due to a lowered threshold for reporting in the solicitation group.

These findings have potentially serious implications in a variety of contexts. For example, imagine an individual that goes to the doctor for pain in his back. As the doctor assesses his pain level, she might ask him about his pain (e.g., "Does this hurt?"), or she might instruct him prior to beginning the exam to tell her about his pain (e.g., "Tell me whenever something I'm doing hurts.>"). In the former example, information is being directly solicited by the doctor; in the latter, information is being volunteered by the patient. According to the findings of the current study, the patient would be significantly more likely to report experiencing pain when being solicited for that information than when not. Furthermore, as suggested by the findings presented in Table 1, not only would the patient be more likely to report pain when they are being solicited, they would also be more likely to do so *sooner*. This suggests that two patients being examined for the *exact same* level of pain would provide reports to their doctor about their experience of pain at different points in time due to the influence that solicitation has on the threshold at which the patients are willing to report that information. For some conditions, such as ovarian cancer, reports of pain are one of the primary

symptoms that physicians rely upon to make a medical diagnosis. Reporting pain accurately, or failure to do so, can have literal life-or-death consequences.

The implications of these findings extend beyond the context of self-reports in the field of medicine. In today's political climate, voters are frequently polarized on policy issue, driven in part by their emotional reactions, including their experiences of disgust. The findings of this study may have interesting implications for the dissemination of opinions related to controversial political subjects such as gay marriage and abortion. Based on our findings, it is possible that individuals who are asked if they are disgusted by a given topic are much more likely to voice that disgust than if they are not asked.

Interestingly, our findings suggest that this effect is more pronounced in democrats than it is in both republicans and independents. As can be seen in Figure 2, liberals were the primary demographic group driving the solicitation effect in our study. As such, it is possible that conservatives and independents are simply more likely to report when they are experiencing the feeling of disgust, regardless of whether they are solicited for that information or not. In contrast, liberals showed a pronounced difference by condition, suggesting that liberals are considerably less likely to voice their experience of disgust unless they are directly solicited. These findings suggest that there is a relationship between where one falls on the political spectrum and one's inclination to report (and perhaps react to) feelings of disgust.

Self-report measures are the best tool that we have for gaining knowledge about others' internal states (Gilbert, 2009), but that does not mean they are flawless

indicators of individuals' emotions (Cartwright, 1959). As demonstrated in the current study, subtle differences in phrasing can have significant consequences (Tourangue, et al., 2000). Directly soliciting information may not alter what an individual is experiencing but can affect what is reported. While these findings do not serve to discredit the validity of self-reports for psychophysiological states, they do imply that one should carefully evaluate the methods used to elicit such self-reports.

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