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The Influence of Transparency on Default Effects

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Applied Cognitive Psychology

Thesis: 27.5 ECTS

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Word Count: 6,024

Date: 17/07/20

Abstract

Nudge transparency has been proposed to protect decision makers from manipulation. Although most research shows disclosure not to influence default effects, recent findings suggest that disclosure may enhance default effects. The aim of the present research was to replicate and extend this positive transparency effect. Three conditions were assessed in an online experiment: a transparent default, a non-transparent default, and a control condition. Participants' feelings towards the nudge and researchers were assessed to understand the mechanisms associated with default compliance. Transparency did not influence default effects and none of the measures were associated with default compliance. Instead, the default setting was found to exert pressure and both default conditions were perceived to be less fair than the control condition. When the purpose of the default setting was disclosed, the researchers were perceived as less ethical. These findings suggest that, even with disclosure, decision makers are still unable to resist the influence of default settings.

The Influence of Transparency on Default Effects

Since Thaler and Sunstein's (2008) influential book, *Nudge*, nudging has become a popular but controversial means of influencing behaviour. A nudge is any aspect of a decision context (choice architecture) which predictably influences behaviour without limiting options or significantly changing their economic incentives (Thaler & Sunstein, 2008). Nudges should always benefit the decision maker (pro-self) and/or society (prosocial). Despite this, there is concern regarding the ethics of using behavioural insights to influence decision making and behaviour. Issues have been raised regarding the use of known biases and fallibilities in rationality in order to push decision makers towards options that are deemed to be best (Bovens, 2009; Hansen & Jespersen, 2013; Vugts, van den Hoven, De Vet, & Verweij, 2018; Wilkinson, 2013). Debate has centred around the question of whether it is manipulative to influence people's decision making without their knowledge or consent, even if the aim is prosocial or pro-self. Nudge transparency has been proposed to protect decision makers from manipulation, with research showing that disclosure does not reduce nudge effectiveness (e.g., Steffel, Williams, & Pogacar, 2016). Findings from Paunov, Wänke, and Vogel (2018; 2019) suggest that nudge disclosure may even enhance nudge effects, but this result has not been replicated.

Thaler and Sunstein reject criticisms of nudging, describing them as 'pointless' and a 'non-starter', citing two main reasons for this (Sunstein, 2015; Thaler & Sunstein, 2008). The first of these is the belief that it is impossible to create neutral choice architecture in the first place and nudging is therefore inevitable. From this stance, they conclude that because decisions must be framed in some way, they may as well be constructed according to the desires of a choice architect. However, critics contend that this assertion overlooks a significant difference between a purposely nudged decision and an untampered decision context: intention. Equating the two different scenarios disregards the intention behind nudging and therefore the responsibility of choice architects for the consequences of nudged decisions (Hansen &

Jespersen, 2013; Hausman & Welch, 2010; Schmidt, 2017). A key element in conceptualisations of manipulation tends to be the *intention* to influence a person (Hill, 1991; Wilkinson, 2013). The intention behind nudging not only gives rise to the issue of who has the authority to impose their will, but also how it is ensured that such an imposition is in the interests of the decision maker rather than the choice architect (Hansen & Jespersen, 2013; Hill, 1991). Manipulating decision makers according to the will of policy makers or government is of central concern to critics and is not satisfactorily addressed by Thaler and Sunstein's inevitability argument.

Thaler and Sunstein's second defence is that decision makers may reject nudges and select from non-costly alternatives (Thaler & Sunstein, 2008). However, although this may be sound in theory, this is not necessarily true in practice (Felsen, Castelo, & Reiner, 2013; Hansen & Jespersen, 2013). The effectiveness of nudging relies, in part, on automatic, system one decision making which tends to avert system two contemplation of alternative choices (Hansen & Jespersen, 2013; Kahneman, 2003). So, although alternative options may exist and hypothetically it is possible to reject a nudge, it is unlikely that these options will be considered or selected. Taking advantage of automatic processes in this manner is considered manipulative by some and to be inconsistent with autonomous decision making (Ivanković & Engelen, 2019; Jung & Mellers, 2016; Wilkinson, 2013). Threats to autonomy raise particular concern as autonomy is an important aspect of various measures of well-being (e.g., Howell, Chenot, Hill, & Howell, 2011; Ryan & Deci, 2000). Hence, these threats should be prevented or mitigated in nudging. However, nudging may also be used to enhance autonomy (Hausman & Welch, 2010; Vugts et al., 2018). Vugts and colleagues (2018) recommend that, to be ethical, the net impact of a nudge should enhance autonomy, even if the nudge reduces autonomy in one regard. Furthermore, to be consistent with autonomy, a nudge should not rely upon automatic

processes but should engage decision makers' reflective thinking (Hansen & Jespersen, 2013; Sunstein, 2015).

Nudge Transparency

Conceptualisations of manipulation tend to involve deception and a lack of transparency (Sunstein, 2015). So, nudge transparency has been proposed in response to concerns regarding manipulative nudges. A decision maker who is exposed to a nudge should be informed of its presence, purpose, or mechanisms through which it operates. This does not assert that disclosing a nudge necessarily assures its acceptability, but nudge transparency would alleviate at least some of the apprehension surrounding manipulation. Decision makers would have the opportunity to consciously consider the nudge and the opportunity to avoid it.

Initial concerns were raised that disclosure may reduce nudge effectiveness and trigger psychological reactance (Bovens, 2009; Reich & Robertson, 1979). However, despite suggestions that nudges may 'work best in the dark' (Bovens, 2009), research has shown disclosure not to trigger reactance (Bruns, Kantorowicz-Reznichenko, Klement, Jonsson, & Rahali, 2018) and not to attenuate nudge effectiveness (Bruns et al., 2018; Kroese, Marchiori, & de Ridder, 2015; Steffel et al., 2016). These studies also found both perceived ethicality and fairness to be higher for nudges with disclosure than without (Steffel et al., 2016); and perceived intention to be an important factor in nudge acceptability (Bang, Shu, & Weber, 2018). Recent evidence from Paunov and colleagues (2018; 2019) suggests that disclosure may even *enhance* nudge effects. Paunov and colleagues (2018) assessed the influence of full transparency (disclosing the default's presence, purpose, and behavioural means) on default effects, finding transparency to significantly reduce opt-out rates compared to non-transparent conditions. Their findings suggest that lower perceived deceptiveness may explain this positive transparency effect. Additionally, although not assessed, they suggested that the perceived voluntariness of a disclosure may influence compliance. Paunov and colleagues (2019)

investigated whether the positive transparency effect could be replicated when the default setting was costly for participants, assessing three types of disclosure. A positive transparency effect was found for purpose disclosure, followed by target behaviour disclosure. General effect disclosure neither enhanced nor reduced default compliance. Although negatively correlated with compliance, perceived deceptiveness was no longer significantly lower for the transparent condition. As participants found the nudge disclosures more convincing (argument strength), default compliance increased.

There are several possible explanations as to why previous studies have failed to find a positive transparency effect. For example, in Bruns and colleagues' (2018) study, the default setting was for participants to donate 80% of their experiment payment to charity. Three types of disclosures were assessed (knowledge of the potential influence of the default, its purpose, or both), but default effects were not significantly different between transparent and non-transparent conditions. Opt-out rates were high across all default conditions so it is possible that the costly default setting may have prevented a positive transparency effect. Steffel and colleagues (2016) ran a series of seven experiments, none of which showed a positive transparency effect. In one of these, baseline compliance rates without a disclosure were already quite high. This may indicate that there was a ceiling effect such that transparency could not increase compliance rates further. Lastly, in a field study by Kroese and colleagues (2015), healthy snack items were placed at the cash register of snack stalls with a sign disclosing the nudge. The positioning of the healthy snacks significantly increased how often they were purchased but there was no difference with or without the disclosure. This may have been because 75% of customers did not notice the manipulation. For transparency to influence nudge effects, the disclosure should be consciously observed.

The Present Research

In the present research, transparency is defined as disclosing the purpose of the nudge. Purpose disclosure had the highest compliance rates out of the three kinds of disclosure assessed by Paunov and colleagues (2019). Additionally, Bang and colleagues (2018) found intention to be an important factor in a nudge's acceptability. Therefore, it was expected that purpose disclosure would be more likely to produce a positive transparency effect than other disclosures. Furthermore, intention is important in understanding the potentially manipulative nature of nudging (Hill, 1991; Wilkinson, 2013).

This research aimed to replicate and extend the results from Paunov and colleagues (2018; 2019). Neither of their studies explored many possible mechanisms that may be associated with the positive transparency effect and those that were assessed produced inconsistent results. There is little existing research on these measures and default compliance. This being why they were assessed in the present research and also why they are not discussed in detail. Paunov and colleagues' (2018; 2019) findings lead to the first four hypotheses of the present research. Firstly, it is hypothesised that disclosing the default's purpose will enhance default compliance relative to a non-transparent default. Second, perceived endorser deceptiveness and trustworthiness will be negatively and positively associated with default compliance, respectively. Third, argument strength will be positively associated with default compliance. Fourth, perceived voluntariness of the nudge disclosure will be positively associated with default compliance.

Mechanisms which have been associated with nudge compliance or acceptability in previous research were also assessed and correspond to three further hypotheses. Firstly, that perceived intention will be positively associated with default compliance. Secondly, perceived ethicality will be higher for the transparent nudge than for the non-transparent nudge. Thirdly, perceived fairness will be higher for the transparent nudge than for the non-transparent nudge. In addition to these measures, expected autonomy, pressure, decision making competence, and

satisfaction with decision were also assessed. Respecting autonomous decision making is an important issue in the ethical debate around nudging. In order to protect autonomy from the pressure to choose in a certain way, decision makers can exhibit reactance (Reich & Robertson, 1979). Additionally, feelings of autonomy are associated with various well-being measures (e.g., Howell et al., 2011; Ryan & Deci, 2000). It is hypothesised that feelings of autonomy, satisfaction with decision, and decision making competence will be positively associated with one another and negatively associated with pressure.

Method

Participants

A total of 132 participants completed this study, recruited via a unique survey link shared on social media. The sample was 72.73% female ($n = 96$). Participants' ages ranged from 18 to over 85 years old ($Mdn = 25 - 34$ years). Exclusion criteria included: being under 18 years old, appearing to provide inappropriate or contradictory answers, and/or failing the manipulation check. On the basis of these criteria, one participant was excluded for providing contradictory answers. This participant selected that they did not wish to complete any surveys, but also selected to complete five surveys too.

Design

A between-subjects design was used to compare three conditions. The independent variable was the transparency and default condition that participants were randomly assigned to. These conditions varied according to whether participants saw the decision scenario in an opt-in or opt-out format, and whether they were presented with a default disclosure or not. Specifically, the three conditions were: control (opt-in, no disclosure), non-transparent (opt-out, no disclosure), and transparent (opt-out, disclosure). The main dependent variable was default compliance rate. Participants were also asked a series of questions to investigate possible associations with default compliance.

Materials and Procedure

An online survey was created using Qualtrics. The decision scenario used was adapted from Steffel and colleagues (2016). In one of their experiments, participants were told that they would complete one paid survey, but were also presented with ten additional paid surveys in an opt-in or opt-out format. This paradigm was used in the present research but without payment, making the default setting costly (in terms of time and effort), as in Paunov and colleagues' (2019) study. Previous research with highly costly default settings has failed to produce a positive transparency effect (e.g., Bruns et al., 2018). Therefore, some aspects of Steffel and colleagues' (2016) design were adjusted to compensate for the lack of payment. Firstly, the present research offered five of the ten surveys: measures of mood, price consciousness, well-being, risk-seeking, and self-monitoring. Secondly, it was stated that the surveys were 'short one minute surveys' to try to reduce how time-consuming the default setting was perceived to be.

Participants could access the questionnaire through a unique link. Selecting the link automatically randomised participants into one of the three conditions. Participants were presented with a consent form but were not informed that the survey was investigating default effects or transparency. The first set of questions requested participants' age, gender, nationality, and occupation. Next, participants were presented with the five optional surveys. In all three of the conditions, participants saw one of the following messages:

Opt-in. Below is a list of optional short one minute surveys that you can complete in addition to the survey that you are about to do. Please select as many of the additional short surveys that you are willing to complete.

Opt-out. Below is a list of optional short one minute surveys that you can complete in addition to the survey that you are about to do. Please deselect as many of the additional short surveys that you are not willing to complete.

The disclosure was also presented on this page for the transparent default condition only. In order to maximise the likelihood of producing a positive transparency the wording of the disclosure closely mimicked that used by Paunov and colleagues (2019):

Please note the following: with choosing to complete all of the additional surveys, you guarantee that we will be able to accomplish our research objectives. Therefore, we have pre-selected all of the additional surveys.

After selecting or deselecting the additional surveys, participants were told these would be completed at the end of the questionnaire and that first, they would be asked some questions regarding their decision. These are listed below in ‘Measures’ (see the Appendix for individual questions). Following these assessments, participants completed a manipulation check and then saw a final debriefing page. Data was stored anonymously online to be analysed.

Measures

Perceived endorser deceptiveness was assessed using six statements from Paunov and colleagues (2019). Each question was assessed on a 7-point scale, ranging from ‘strongly disagree’ through to ‘strongly agree’.

Perceived trustworthiness of the researchers was assessed across four statements adapted from trust in organisations (Paine, 2003) and individual trust in online firms (Bhattacharjee, 2002). These were assessed on a 7-point scale (‘strongly disagree’ - ‘strongly agree’).

Disclosure argument strength was assessed in the transparent condition only, using six statements from Paunov and colleagues (2019). Each question was assessed on a 7-point scale (‘strongly disagree’ - ‘strongly agree’).

Perceived voluntariness of the nudge disclosure was assessed in the transparent condition only with one statement which was created for this research. This was assessed on a 7-point scale (‘strongly disagree’ - ‘strongly agree’).

Expected autonomy was assessed across four statements. These were adapted from the autonomy subscale of the Basic Psychological Needs in Exercise Scale (BPNES; Vlachopoulos & Michailidou, 2006). Each statement was assessed on a 7-point scale ('strongly disagree' - 'strongly agree').

Expected satisfaction assessed how satisfied participants felt with their choice of the number of additional surveys they would complete. This was adapted from the Decision Regret Scale (Brehaut et al., 2003) and was assessed across five statements. These were assessed on a 7-point scale ('strongly disagree' - 'strongly agree').

Decision making competence was assessed across six statements to establish participants' feelings of competency surrounding decision making. This was adapted from the competence subscale of the Intrinsic Motivation Inventory (McAuley, Duncan, & Tammen, 1989). These statements were assessed on a 7-point scale ('strongly disagree' - 'strongly agree').

Perceived intention assessed how positively or negatively participants perceived the intentions of the researchers and the nudge to be. This was assessed across five statements which were created for the present research. These were assessed on a 7-point scale ('strongly disagree' - 'strongly agree').

Perceived ethicality was adapted from Steffel and colleagues (2016). They assessed perceived ethicality of the researchers through one question. Two adapted versions of their question were used in the present research, assessing perceived ethicality of the researchers and perceived ethicality of the decision framing. Participants only saw one version of these two questions. Both were assessed on a 7-point scale, ranging from 'completely unethical' to 'completely ethical'.

Perceived fairness was adapted from Steffel and colleagues (2016). They assessed perceived fairness of the researchers through one question. As with perceived ethicality, two

adapted versions of their question were used in the present research. Participants only saw one of these. These were assessed on a 7-point scale, ranging from ‘completely unfair’ to ‘completely fair’.

Pressure was assessed by one question where participants rated how much pressure they felt to choose to complete the additional surveys. This was assessed with a slider scale, ranging from zero to a hundred, with zero being ‘none at all’ and 100 being ‘extreme pressure’.

Personal relevance was assessed by one question which required participants to rate how important it was for them to complete the survey quickly. This was assessed with a slider scale ranging from zero to a hundred, with zero being ‘not at all’ and 100 being ‘extremely’.

Manipulation check. This was assessed by one question asking participants to recall whether they had seen a disclosure and whether the additional surveys were pre-selected or not. Participants selected one of three descriptions of the conditions.

Results

Participants were randomly assigned to one of the three conditions. There were 40 participants in the control condition, 44 participants in the non-transparent condition, and 48 participants in the transparent condition. Seventy-three participants failed or did not reach the manipulation check, leaving a sample of 59 participants who passed the manipulation check. For this pool of participants, there were 18 participants in the control condition, 24 participants in the non-transparent condition, and 17 participants in the transparent condition. Where the results are the same between the participants who did and did not pass the manipulation check, the results from the whole sample will be reported. Including participants who did not correctly remember or notice the decision framing may be considered more akin to everyday nudging. Where the results differ between these two groups of participants, the results from those who passed the manipulation check will be reported.

Default Compliance

It was hypothesised that disclosing the default's purpose would enhance default compliance relative to the non-transparent default. Mean survey selections were similar between the transparent ($M = 4.52$, $SD = 1.38$) and non-transparent ($M = 4.45$, $SD = 1.49$) conditions. The control condition had the lowest mean number of survey selections ($M = 2.83$, $SD = 2.16$; see Figure 1). A Kruskal-Wallis test showed that there were significant differences in the number of survey selections across the conditions, $H(2) = 24.42$, $p < .001$. Dunn's test with Bonferroni-adjusted correction showed a significant difference in survey selections between the control and non-transparent conditions ($z = -26.99$, $p < .001$), and between the control and transparent conditions ($z = -27.89$, $p < .001$). However, there was not a significant difference between the transparent and non-transparent conditions ($z = -.90$, $p > .05$).

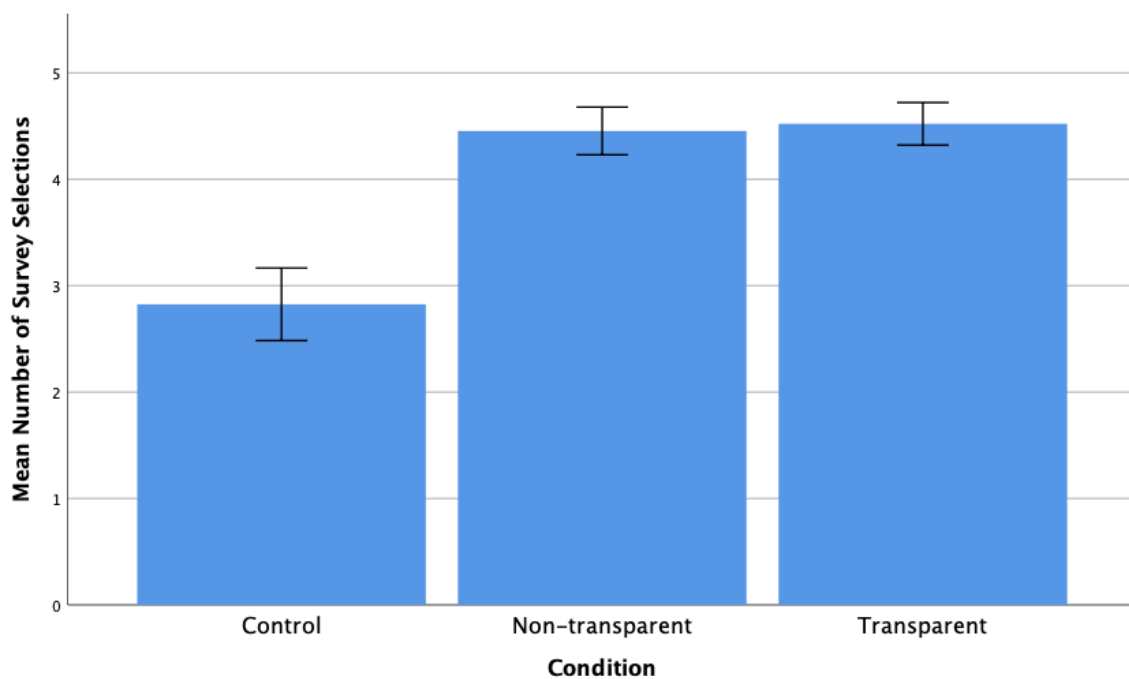


Figure 1. Mean survey selections across the conditions, amongst the whole sample. Error bars represent one standard error.

When considering only the participants who passed the manipulation check, mean survey selections were highest for the transparent condition ($M = 4.71$, $SD = 1.21$), followed by the non-transparent condition ($M = 4.33$, $SD = 1.69$), and the control condition ($M = 3.44$,

$SD = 1.92$; see Figure 2). There were significant differences in the number of survey selections across the three conditions, $H(2) = 6.79$, $p = .03$. Dunn's test with Bonferroni-adjusted correction showed a significant difference in survey selections between the control condition and the transparent condition ($z = -10.59$, $p = .04$). However, unlike when considering the whole sample, there was not a significant difference between the control condition and the non-transparent condition ($z = -7.39$, $p = .17$). There was no significant difference between the transparent and non-transparent conditions ($z = -3.20$, $p > .05$).

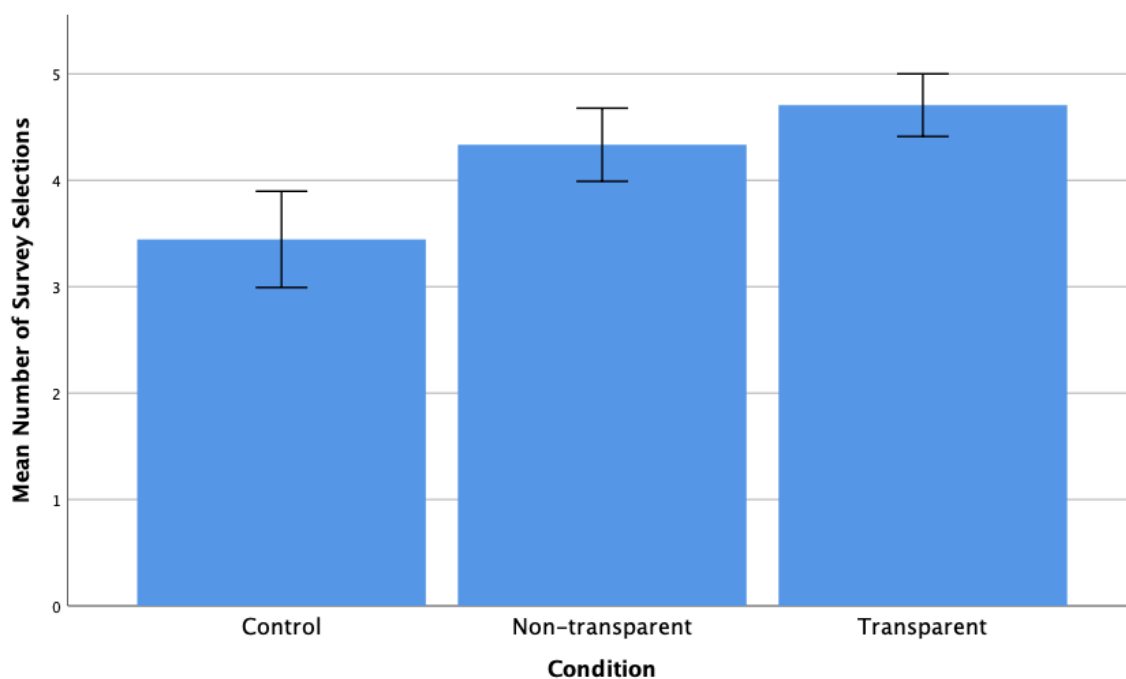


Figure 2. Mean survey selections across the conditions, excluding participants who failed or did not reach the manipulation check. Error bars represent one standard error.

Measures of Trust

It was expected that the two trust-related measures would be associated with default compliance. Specifically, that perceived endorser deceptiveness would be negatively associated with default compliance, and trustworthiness would be positively associated with default compliance. Spearman's correlations were run to investigate whether these measures were associated with participants' survey selections. Participants in the control condition were

not included in these correlations as these participants did not see the default setting. Correlations showed no association between trustworthiness ($r_s(71) = .05, p = .70$) or perceived endorser deceptiveness ($r_s(71) = .05, p = .67$) and survey selections. Trustworthiness and perceived deceptiveness were significantly negatively correlated ($r_s(71) = -.39, p = .001$). Two Mann-Whitney U-tests were run to compare trustworthiness and perceived deception between the transparent and non-transparent default conditions. There was no significant difference between the transparent ($Mdn = 2.50$) and non-transparent ($Mdn = 2.67$) conditions in terms of perceived endorser deceptiveness, $U(N_{\text{transparent}} = 35, N_{\text{non-transparent}} = 36) = 658.00, p = .75$. There was also no significant difference between the transparent ($Mdn = 4.00$) and non-transparent ($Mdn = 4.00$) conditions for ratings of trustworthiness, $U(N_{\text{transparent}} = 35, N_{\text{non-transparent}} = 36) = 577.50, p = .54$. The same results were found across all of these tests when excluding the participants who failed or did not reach the manipulation check.

Argument Strength and Voluntariness

For the transparent condition only, argument strength and perceived voluntariness of the nudge disclosure were assessed. It was expected that these measures would both be positively associated with default compliance. Default compliance was positively associated with argument strength ($r_s(29) = .37, p = .05$), but not with voluntariness ($r_s(29) = .11, p = .56$). When excluding those participants who failed or did not reach the manipulation check, neither argument strength ($r_s(17) = .33, p = .19$) nor voluntariness ($r_s(17) = -.11, p = .68$) were associated with default compliance. When considering all of the participants in the transparent condition, there was a positive correlation between voluntariness and argument strength, $r_s(29) = .50, p = .01$. This relationship was no longer significant amongst the participants who passed the manipulation check, $r_s(17) = .37, p = .14$.

Autonomy, Satisfaction, Competence, and Pressure

It was hypothesised that expected autonomy, satisfaction with decision, and decision making competence would be positively associated with one another, and negatively associated with pressure. As expected, decision making competence was positively associated with satisfaction ($r_s(84) = .57, p < .001$) and autonomy ($r_s(84) = .48, p < .001$), and autonomy was positively associated with satisfaction ($r_s(85) = .43, p < .001$). Pressure was negatively associated with autonomy ($r_s(76) = -.35, p = .002$) and decision making competence ($r_s(76) = -.23, p < .05$). However, pressure was not significantly negatively associated with satisfaction with decision ($r_s(76) = -.19, p > .05$). When excluding the participants who failed or did not reach the manipulation check, pressure was no longer associated with decision making competence ($r_s(59) = -.21, p = .10$), but was negatively correlated with satisfaction ($r_s(59) = -.31, p = .02$). A Kruskal-Wallis test showed significant differences in pressure across the conditions, $H(2) = 8.70, p = .01$. Dunn's test with Bonferroni-adjusted correction showed a significant difference in pressure between the control ($Mdn = 12.00$) and non-transparent ($Mdn = 61.00$) conditions ($z = -17.94, p = .01$). Although pressure was lower for the transparent condition ($Mdn = 22.50$) than the non-transparent condition, this was not significant ($z = 10.17, p = .29$). Additionally, pressure was not significantly associated with survey selections ($r_s(76) = .17, p = .14$). These results were the same when excluding the participants who failed or did not reach the manipulation check.

Intention

It was expected that intention would be positively associated with default compliance. Instead, this relationship was negative ($r_s(53) = -.27, p = .049$), although non-significant when only considering the participants who passed the manipulation check ($r_s(41) = -.21, p = .18$). There was not a significant difference in perceived intention between the non-transparent ($Mdn = 4.20$) and transparent conditions ($Mdn = 4.40$), $U(N_{transparent} = 24, N_{non-transparent} = 29) = 359.00, p = .84$. There was also no significant differences in perceived intention between all three

conditions, $H(2) = .06$, $p = .97$. Amongst all participants, there was a significant negative correlation between intention and pressure ($r_s(76) = -.28$, $p = .01$). These results were all the same when only considering those who passed the manipulation check.

Ethicality and Fairness

It was expected that perceived ethicality and perceived fairness would both be higher for the transparent nudge than the non-transparent nudge. However, there was no significant difference between the non-transparent ($Mdn = 6.00$) and transparent ($Mdn = 5.00$) conditions for perceived ethicality of the researchers, $U(N_{transparent} = 12, N_{non-transparent} = 12) = 73.50$, $p = .93$. There was also no difference between the non-transparent ($Mdn = 5.50$) and transparent ($Mdn = 5.50$) conditions for perceived ethicality of the nudge, $U(N_{transparent} = 12, N_{non-transparent} = 16) = 90.50$, $p = .80$. There was no significant difference between the non-transparent ($Mdn = 4.00$) and transparent ($Mdn = 5.00$) conditions for perceived fairness of the nudge, $U(N_{transparent} = 9, N_{non-transparent} = 21) = 119.50$, $p = .26$. There was also no significant difference between the non-transparent ($Mdn = 6.00$) and transparent ($Mdn = 5.00$) conditions for perceived fairness of the researchers, $U(N_{transparent} = 15, N_{non-transparent} = 7) = 48.50$, $p = .78$. All four of these results were the same when excluding participants who failed or did not reach the manipulation check.

Perceived ethicality and fairness were compared across all three conditions. Amongst the entire sample, there were significant differences in perceived fairness of the nudge, $H(2) = 15.98$, $p < .001$. Dunn's test with Bonferroni-adjusted correction showed a significant difference in perceived fairness of the nudge between the control ($Mdn = 7.00$) and the non-transparent ($Mdn = 4.00$) conditions ($z = 17.39$, $p < .001$). When excluding the participants who failed or did not reach the manipulation check, there were significant differences in perceived fairness of the nudge ($H(2) = 18.11$, $p < .001$) and also perceived ethicality of the researchers ($H(2) = 8.85$, $p = .01$). For perceived ethicality of the researchers, there was a

significant difference between the control ($Mdn = 7.00$) and transparent ($Mdn = 5.00$) conditions ($z = 11.02, p = .01$). For perceived fairness of the nudge, there was a significant difference between the control ($Mdn = 7.00$) and non-transparent ($Mdn = 4.00$) conditions ($z = 16.27, p < .001$) and also between the control and transparent ($Mdn = 5.00$) conditions ($z = 14.98, p = .01$).

Discussion

The aim of this research was to assess whether disclosing the purpose of the default setting enhanced default compliance relative to a non-transparent default. Amongst the whole sample, both the transparent and non-transparent conditions produced default effects. However, there was no difference in default compliance between these two conditions. Therefore, the present research failed to replicate the positive transparency effect found by Paunov and colleagues (2018; 2019). When excluding the participants who failed or did not reach the manipulation check, there was still no significant difference between the transparent and non-transparent conditions. Thus, the lack of a transparency effect cannot be attributed to participants not seeing or remembering the disclosure.

When considering only those participants who passed the manipulation check, there were some differences in the results. Even though the difference between the default conditions was still non-significant, it should be noted that, amongst the participants who correctly remembered whether they saw a disclosure, nudge effectiveness was higher with disclosure and lower without. Over half of the participants failed or did not reach the manipulation check, resulting in low statistical power when excluding these participants. Additionally, with this smaller sample, there was no default effect for the non-transparent condition. Default effects are a robust finding and so the absence of one here raises questions about the design of the experiment. For example, the default setting was chosen to be five additional surveys so as not to be too costly as in Bruns and colleagues' (2018) study. Mean survey selections across the

default conditions were close to the maximum, possibly indicating a ceiling effect. These results are in line with those of Steffel and colleagues (2016) who, using the same decision scenario, also found high compliance rates for the transparent and non-transparent defaults. These findings suggest that Paunov and colleagues' (2018; 2019) positive transparency effect may only be produced when the default setting doesn't already have high compliance.

Nonetheless, most research shows transparency not to influence nudge effects and the present findings support this. The disclosure used in this research closely mimicked the wording of Paunov and colleagues' (2019) purpose disclosure but still did not replicate their results. Their positive transparency effect is yet to be replicated by any other research. In the present research, transparency did not influence default effects and this is in line with findings from Bruns and colleagues (2018), Kroese and colleagues (2015), and Steffel and colleagues (2016). Further support that transparency has no influence on default effects comes from the assessed measures. Just as there were no differences in default compliance between the default conditions, none of the results from the assessed measures were significantly different between these two conditions either. Altogether, these results support most previous research that transparency does not influence default effects. There are two possible explanations for the lack of differences between these two conditions. Firstly, these results may indicate that participants do not mind being nudged in the manner investigated here. Therefore, when the nudge was disclosed, participants still complied. Alternatively, these results may indicate that, even when the manipulation is disclosed, participants are still unable to resist the default setting (Ivanković & Engelen, 2019).

Results from the measures of pressure, perceived fairness of the nudge, and ethicality of the researchers suggest that the second account may be more likely. Participants exposed to the default setting felt more pressure to choose all of the additional surveys and participants in both default conditions also perceived the decision framing to be less fair than participants who

were given a nudge-free choice. Yet, participants still complied with the default, even when explicitly informed it was there. It therefore seems that the default setting was not easily resistible, with or without disclosure (Ivanković & Engelen, 2019). These results suggest that transparency does not settle the ethical issues around nudging. Particularly as the researchers were perceived to be less ethical when the default setting was disclosed. It is concerning that the default setting itself did not lead the researchers to be perceived as unethical, but when participants were made aware of the default, the researchers were then perceived as unethical. This suggests that the use of defaults would be perceived as unethical if decision makers were aware of what they were being exposed to. These results are inconsistent with Steffel and colleagues' (2016) findings that perceived ethicality and fairness were both higher for nudges with disclosure than without. Decision makers may only find nudging to be ethical when the motives behind the nudge are in their interests. Correspondingly, Steffel and colleagues (2016) found that perceived ethicality varied according to intention, but was not influenced by defaulting in and of itself. Future research should assess whether a less self-interested purpose disclosure leads to higher perceived ethicality of the researchers

Based on Paunov and colleagues (2018; 2019), trustworthiness, perceived deception, argument strength, and voluntariness were assessed. As found by Paunov and colleagues, neither trustworthiness (Paunov et al., 2018) nor perceived deception (Paunov et al., 2019) were significantly different across conditions. However, unlike Paunov and colleagues (2018; 2019), perceived deception was not correlated with default compliance either. Although, intuitively, it may seem that trust in the default setter should lead to default compliance (Ivanković & Engelen, 2019), trust did not seem to influence decision making here. The fact that perceiving the researchers to be deceptive or untrustworthy was not associated with lower compliance may be indicative of the irresistible nature of default settings. In addition to measures of trust, Paunov and colleagues (2018) suggested that perceived voluntariness of the

nudge disclosure may influence default compliance, but no association was found for this measure either. This could possibly be because voluntariness was assessed by a statement created for this research rather than using a validated scale, but no other known research exists for comparison. Unlike Paunov and colleagues (2019), argument strength and default compliance were not associated when considering the participants who passed the manipulation check. Altogether, the lack of any associations or differences across these four measures is in line with the absence of a positive transparency effect. Furthermore, these findings suggest that perceived voluntariness, argument strength, and measures of trust are not mechanisms associated with default compliance.

Participants' perceptions of the researchers and decision scenarios did not seem to influence choices across any measures, including perceived intention. Bang and colleagues (2018) and Steffel and colleagues (2016) found intention to be an important factor in nudge acceptability, but acceptability may not necessarily be associated with subsequent decision making. Although choice outcomes were not affected by the assessed measures, participants experienced pressure when exposed to the default setting, relative to the control. This is concerning because pressure was negatively associated with feelings of autonomy. According to self-determination theory (SDT), autonomy is one of three psychological needs, in addition to competence and relatedness, which needs to be fulfilled in order to support positive well-being (Ryan & Deci, 2000). Correspondingly, the extent to which nudges impact autonomy is relevant to the acceptability of their use (Felsen et al., 2013). As predicted by SDT, decision making competence, satisfaction, and autonomy were all positively associated with one another, and pressure to choose the default was negatively associated with satisfaction. Unlike the non-transparent condition, the difference in pressure between the transparent and control conditions was not significant. Although this may indicate that nudge disclosure possibly relieves some of the pressure generated by the default, this also indicates that the default

influenced behaviour irrespective of the amount of pressure exerted. Together these results suggest that default effects occurred, regardless of participants' impressions of argument strength, voluntariness, ethicality, fairness, trustworthiness, deceptiveness, and intention; or participants' feelings of pressure, autonomy, satisfaction, and competence.

Future Research

While the present research is aligned with most research that transparency does not influence default effects, Paunov and colleagues' (2018; 2019) decision scenarios should be replicated more closely to validate this. The decision scenario assessed in this piece of research should also be reassessed. Firstly, future research should assess whether a less self-interested purpose disclosure leads to higher perceived ethicality of the researchers. Secondly, when considering the participants who passed the manipulation check, survey selections were high across the conditions. A surplus of time and energy on behalf of the participants unable to engage in social activities owing to the COVID-19 pandemic could possibly be related to greater willingness to complete the additional questionnaires. Alternatively, defaults are considered by some as one of the most powerful ways to nudge (Johnson et al., 2012). There may be more pronounced differences between transparent and non-transparent nudges when the non-transparent nudge does not already have such high compliance. Future research could investigate transparency effects with nudges other than default settings.

Conclusion

The present research did not find evidence to support the positive transparency effect found by Paunov and colleagues (2018; 2019). Rather, the findings are in line with research showing that nudge disclosure does not influence default effects. Further support for this comes from the fact that none of the assessed measures were significantly different between the transparent and non-transparent conditions. Instead, the default setting exerted pressure, the researchers were perceived as less ethical when the default setting was disclosed, and both

default conditions were perceived to be less fair than the control condition. These findings suggest that, even when disclosing a nudge, decision makers are still unable to resist its influence, despite perceiving the framing to be unfair and the researchers to be unethical.

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Appendix

Assessed Measures

Perceived endorser deceptiveness - Paunov et al. (2019)

When I consider how the additional surveys were presented to me, I think that the experimenters...

- ... were open with me.
- ... were trying to mislead me.
- ... approached me in a sincere way.
- ... were honest with me.
- ... tried to manipulate me.
- ... tried to trick me.

Perceived trustworthiness - Bhattacharjee (2002) and Paine (2003)

Please indicate to what extent you agree with the following statements.

- I am willing to let the researchers help me to make decisions.
- I think that it is important to watch the researchers closely so that they do not take advantage of people like me.
- The researchers can be relied upon to do as they say.
- Overall, the researchers are trustworthy.

Disclosure argument strength - Paunov et al. (2019)

The argument which the experimenters made for pre-selecting all of the additional survey options...

- ... was convincing.
- ... was compelling.
- ... was cogent.
- ... was defensible.

- ... was logically sound.
- ... gave me good reason to choose the pre-selected options.

Voluntariness

Please indicate to what extent you agree with the following statement.

- The researchers voluntarily chose to disclose that they had pre-selected all of the additional survey options.

Expected autonomy - Vlachopoulos & Michailidou (2006)

Please indicate how you feel about your choice regarding how many surveys to complete.

- My choice is highly compatible with my goals and interests.
- I feel very strongly that my choice perfectly fits my taste.
- I feel that my choice is definitely an expression of myself.
- I feel very strongly that I had the opportunity to have influence on my choice.

Expected satisfaction questionnaire - Brehaut et al. (2003)

Please indicate how you feel about your choice regarding how many surveys to complete.

- It was the right decision.
- I regret the choice that I made.
- I would go for the same choice if I had to do it over again.
- The choice did me a lot of harm.
- The decision was a wise one.

Decision making competence - McAuley et al. (1989)

Please indicate to what extent you agree with the following statements.

- I think I am pretty good at making these kinds of decisions.
- I think I did pretty well at making this decision, compared to other people.
- After making this decision, I feel competent.
- I am satisfied with my performance at this decision.

- I was pretty skilled at making this decision.
- This was an activity that I couldn't do very well.

Perceived Intention

Please indicate to what extent you agree with the following statements.

- The researchers had my interests in mind.
- The researchers did not consider what was best for me.
- The researchers only had their own interests in mind.
- The researchers wanted me to choose to complete the number of additional surveys that I wanted.
- The goal of the decision framing is positive.

Perceived ethicality - Steffel et al. (2016)

- How ethical or unethical do you think it was for the researchers to make the additional survey options 'OPT-OUT' ['OPT-IN'] with the consequence that those options would be MORE [LESS] likely to be chosen (instead of making the additional survey options 'opt-in' ['opt-out'] so they would be less [more] likely to be chosen)?" on a scale ranging from 1 = "completely unethical" to 7 = "completely ethical."
- How ethical or unethical do you think it was for the decision framing to make the additional survey options 'OPT-OUT' ['OPT-IN'] with the consequence that those options would be MORE [LESS] likely to be chosen (instead of making the additional survey options 'opt-in' ['opt-out'] so they would be less [more] likely to be chosen)?" on a scale ranging from 1 = "completely unethical" to 7 = "completely ethical."

Perceived fairness - Steffel et al. (2016)

- How fair was it to you, as a participant, for the researchers to make completing all of the surveys/none of the surveys the default?" on a scale ranging from 1 = "completely unfair" to 7 = "completely fair."
- How fair was it to you, as a participant, for the decision framing to make completing all of the surveys/none of the surveys the default?" on a scale ranging from 1 = "completely unfair" to 7 = "completely fair."

Pressure

How much pressure did you feel to select as many questionnaires as possible?

None at all 0 10 20 30 40 50 60 70 80 Extreme pressure 90 100



Personal relevance

How important was it for you to finish the questionnaire quickly?

Not at all 0 10 20 30 40 50 60 70 80 90 Extremely 100



Manipulation Check

This question is to check your attention. At the beginning of this survey, you were asked whether you would like to participate in some additional surveys. Did you also see the following message:

"Please note the following: with choosing to complete all of the additional surveys, you guarantee that we will be able to accomplish our research objectives. Therefore, we have pre-selected all of the additional surveys."

- Yes, I saw this message and the surveys were pre-selected.
- No, I did not see this message but the surveys were pre-selected.
- No, I did not see this message and the surveys were not pre-selected.