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Public Perceptions of Manipulations on Behavior Outside of Awareness

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The present study examined the role of individual differences (e.g., age, gender, education level, political affiliation, religiosity) and stance (general vs. personal) on contexts associated with manipulations without awareness. In all three studies, people were presented with several real-world contexts. They first rated the extent to which there was manipulation of behavior without awareness, and then provided additional ratings of agentic (e.g., free choice, Conscious Intentions, Conscious Control, responsibility) and affective (Certainty, satisfaction, concern) experiences. Study 1 ($N = 222$) replicated prior findings: When taking a general stance, the relationship between ratings of manipulation without awareness and ratings of agentic experiences was determined by context. These findings extended to Study 2 ($N = 377$) and Study 3 ($N = 283$) where people were asked to take a personal stance, that is, to consider situations of possible manipulation that they themselves have experienced, and provided ratings of their experiences. Across all three studies, people showed remarkable agreement, indicating that individual differences played no substantive role in the patterns of ratings, but stance and context did. People taking a general stance rated Research and Therapy as the most common contexts where they suspected manipulation without awareness, but for those taking a personal stance, Media and Marketing were the most common. The findings are discussed in reference to key theories (e.g., Dynamic monitoring and control theory, Reactance theory, Self-determination theory, Social learning theory) that explain why people place high such a premium on agentic experiences.

Keywords: unconscious, folk beliefs, manipulation without awareness, free choice, responsibility

Are there common beliefs about the critical factors that determine free will in people's day-to-day experiences? Are there common beliefs about the impact on free will and other related experiences when people suspect their behavior is being manipulated by others without their awareness? Of the few studies on folk beliefs examining free will in day-to-day contexts, most have addressed the first question (e.g., Deutschländer et al., 2017; Malle & Knobe, 1997; Monroe & Malle, 2010; Stillman et al., 2011), and only one has addressed the latter (Osman, 2020). The latter question, concerning common beliefs about situations where people believe they might be manipulated without their awareness, is also the main focus of the present study.

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Magda Osman developed the methods, materials, ran the study, conducted the data collection, and analyzed the data. Magda Osman and Christos Bechlivanidis wrote up the MS. The writing up of the manuscript was a joint effort between authors.

We have no conflicts of interest to disclose.

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All the raw anonymized data collected and analyzed for this study is made available through the following web link https://www.dropbox.com/sh/1gn1chmib67vl85/AAD_2l-w1WX51Ux9HGlc19KOa?dl=0

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Contextualizing Folk Views on Free Will (or Free Action)

A variety of methods have been used to probe folk beliefs on free will, including asking people for verbal descriptions of their own day-to-day experiences illustrating where a free choice was made (Stillman et al., 2011), reporting on their own definitions of the concept of free will (Monroe & Malle, 2010), and providing judgments of free will in fictitious (Deutschländer et al., 2017; Malle & Knobe, 1997; Shepherd, 2015) or genuine scenarios (Osman, 2020). Based on this work, for choices to be free, the general pattern of folk beliefs suggests that they must be unconstrained, goal oriented in line with intentions, and based on conscious deliberation. The factor or factors that constitute the essential criteria for an action to be free vary according to the scenarios that people are presented with. For instance, prior conscious deliberation to an action is judged as important for an action to be considered as free. However, Deutschländer et al. (2017) showed that people judge that spontaneous actions (e.g., picking up a pen, signing a contract) without consequences to be freer than actions with prior deliberation. The implication here being that unconstrained actions, that may even be perceived as unpredictable (Brembs, 2011), are also an indicator of whether an action is free.

Regardless of which combination of factors are essential, in general, based on the aforementioned conceptualizations, many researchers (e.g., Monroe & Malle, 2010; Shepherd, 2015; Stillman et al., 2011) have highlighted that the common folk view of free will is in fact more closely aligned to the concept of free action: acting in a way that is unhindered in pursuit of a personal self-set goal. However, the traditional philosophical meaning of free will (i.e., the ability to make choices that are not predetermined) is more encompassing and is the power to be the ultimate generator of ones' own ends and purposes (Kane, 1996). In fact, philosophy (e.g., Dennett, 1989; Levy, 2014; Pereboom, 2006), as well as some areas of psychology (e.g., Bargh, 2008; Wegner & Wheatley, 1999) and neuroscience (e.g., Gazzaniga, 2012; Haggard et al., 2002; Libet, 1999) raise serious challenges to the possession of free will. The arguments and evidence from this work make the case that free will is illusionary because Conscious Intentions have no causal efficacy. That is, whether or not we perceive that we have free choice, we nonetheless are not free because our actions are decided upon outside of our conscious awareness.

Irrespective of whether or not humans ultimately possess free will, as mentioned, public conceptions of free will have been characterized as more closely associated with free action (e.g., Monroe & Malle, 2010; Shepherd, 2015; Stillman et al., 2011). Moreover, Lumer (2019) has suggested that the folk conception is also aligned with psychological theories focused on describing the mechanisms that underpin intention and action, which are in turn closer to the conceptualization of free will as free action. Lumer (2019) refers to the psychological theories as intentional-causalist models, and examples of these include Social learning theory—Bandura (2001); Reactance theory—Brehm and Brehm (1981); Self-determination theory—Deci and Ryan (2012); Intention-action theory—Haggard (2017); Rubicon model of action phases—Achtziger and Gollwitzer (2018) and Heckhausen & Gollwitzer (1987); Dynamic monitoring and control theory—Osman (2010, 2014). These theoretical models outline psychological experience that can be used to identify that an action is free. For instance, they propose that the individual perceives that they are primary cause of the actions that are necessary for achieving a self-set goal. In this sense, the theoretical models outline the psychological mechanisms that give rise to agentic experiences that underpin experiences of free action. Here, agentic is taken to mean deliberative, purposeful behaviors that enable a sense of agency and control (Bandura, 2001). Given that folk beliefs and certain psychological theorizing align in treating free will as free action, hereafter we focus on the latter conceptualization.

Connection Between Expert and Folk Beliefs on Free Action and Agency

For instance, both Social learning theory, and Dynamic monitoring and control theory, claim that what brings about agentic experiences is self-efficacy which is critical to free action. Self-efficacy is the belief that one has the capacity to generate expected outcomes in line with personal goals (Bandura, 2001; Osman, 2010). In Self-determination theory people are motivated

to act in ways that maximize a sense of autonomy, even within social contexts where there is an interplay between personal actions and those of others. To achieve a sense of autonomy requires that individuals perceive themselves as the locus of causality: being able to attribute oneself as the primary cause of intended outcomes over and above the contributions that others might make in bringing about an outcome. Crucially, to be able to attribute personal responsibility, people have to feel free from external coercive influences of others over their own behaviors (Deci & Ryan, 2012). The Rubicon model of action phases focuses on the translation of goal setting to goal achievement as the basis on which people build up agentic experiences (Achtziger & Gollwitzer, 2018; Heckhausen & Gollwitzer, 1987). The phases are deliberation, planning, acting, and the evaluating, which also closely correspond to stage models of value-based decision-making models that have been applied to moral cognition (e.g., Osman & Wiegmann, 2017). The Rubicon model claims that completing these four steps enables goals to be converted to outcomes that, when achieved, engender a sense of autonomy. The intention–action theory describes the mechanism that brings about the agentic experience in neurobiological terms. The neurobiological mechanisms are divided into two critical ones: the frontal lobe is involved in preparation of actions, and the somatosensory system is involved in our experiences of agency (Haggard, 2017). For Reactance theory, agentic experiences depend on the possession of knowledge regarding the capability to behave in way they want and being free to choose the action to bring about a desired outcome, as well as being free to choose what the desired outcome should be.

As Brehm and Brehm (1981) succinctly describe "the freedoms addressed by the theory are not abstract considerations, but concrete behavioral realities" (p. 12) which is common to all the intentional-causalist theories discussed thus far. They share in common that free action depends on beliefs about the causal efficacy of one's actions to produce desired outcomes. More specifically, the belief that intentions and actions are causally associated, and that both are judged to be unimpeded by coercive external influences, means that people can expect that outcomes result from their intentions and actions. Moreover, the shared theoretical assumption is that people are aware that they have causal efficacy over the actions that bring about intended goal-directed outcomes. In addition, whether or not we ultimately possess the capacity for free action, there is also consensus over the claim that there is an adaptive advantage to having and maintaining beliefs that we have agency over our actions that produce self-set outcomes (Harris & Osman, 2012). Specifically, underestimating the chance of one's own actions in producing a necessary outcome (illusion of chaos) carries more costs than overestimating one's agency over the outcome (illusion of control). In the main, consciously perceived agency and control help to position us into situations where we can assert control compared to perceiving that we had no agency at all.

The next section considers in more detail what happens when people confront day-to-day experiences that present a challenge to the folk belief that conscious processes are the causal basis for free action.

Folk Beliefs on Contexts Where Free Action Is Under Threat

Studies examining folk beliefs on free action show that people assign conscious processes a pivotal role to it (Osman, 2020; Shepherd, 2015; Stillman et al., 2011). Typically, those processes concern the formations of goals, along with monitoring of internal motivational states (Shepherd, 2015), as well as proactive choice resulting from deliberation over which course of action to take (Stillman et al., 2011). There has been limited work investigating beliefs people share of real-world experiences where they suspect the presence of external influences outside of their own awareness. Given that folk beliefs attribute an important role to conscious processes for actions to be free, and the outcomes that ensue, in contexts where the causal associations between them are under threat, a straightforward prediction would be that people also believe free action is under threat. Moreover, this prediction is easily derived from the intentional-causalist models described, in particular Self-determination theory which explicitly discusses the reduction of personal agency if external influences (or coercive mechanisms) are perceived to have impacted one's actions. Furthermore, there is evidential support (Osman, 2020) that agency is a graded phenomenon (Osman, 2008a, 2008b), given that the presence of external influences in

some contexts decreases personal agency more than others.

To investigate this, Osman (2020) first presented people the opportunity to volunteer a real-world example of where they suspected manipulation of their behavior without their awareness. The concept was posed to them in the form of considering contexts where external factors influenced behavior outside of their awareness (Unconscious Manipulation). The cross country (Australia, Canada, U.K., U.S.) survey revealed common examples of where people believed that others were manipulating their behavior without awareness (e.g., marketing, therapy, politics, social media, research). In two further studies, these contexts were presented to other samples that were asked to rate them according to the amount of Unconscious Manipulation occurring. In addition, they gave ratings of how much free choice, Conscious Control, and Conscious Intentions influenced the behaviors in those contexts. For example, a specific scenario relating to the context of marketing was "Advertisement jingles that are used so that people think of the product when they hear the jingle and then buy the product." People judged the extent to which the jingle was a form of Unconscious Manipulation, as well as the extent to which the choice to buy the product was free, under Conscious Control, and consciously intended.

The findings revealed that individual differences (age, gender, education, political affiliation, religiosity) along with country differences did not substantively impact in the pattern of ratings, but were instead determined by the contexts themselves. In general, consistent across participants, the findings revealed a dynamic relationship between the amount of agentic experiences (e.g., free will, Conscious Control, Conscious Intentions) and levels of Unconscious Manipulation that depended on specific contexts. Where manipulation was judged to be high (e.g., psychological/medical research, therapy), agentic experiences were judged to be low, and where manipulation was judged to be low (e.g., political campaigning) agentic experiences were high. This supports the general prediction that when the causal role of conscious processes on behavior is undermined, so too are agentic experiences. Given the limited work exploring this topic using ecologically valid examples generated from participants themselves, the aim of the present study is to replicate and extend Osman's (2020) study along with past work on folk beliefs of free action.

The Present Study

In Osman's (2020) study people gave ratings of the contexts from a general perspective, and this may explain why there was such a high consensus across participants. By basing their ratings on a general perspective, people may have recruited what they thought were societal beliefs, and this might also explain the absence of demographic influences. Thus, rather than recruit their own beliefs based on Personal Experiences, they reported on how others can be manipulated without their awareness. To address this, in the present study, people are presented with the same scenarios used in Osman's (2020) study, but this time are explicitly asked to give ratings from a personal stance and their own experiences (Study 2). In addition, as a result of this, it was expected that this manipulation would likely expose the presence of individual differences in beliefs. For instance, age, education, or political affiliation might separate out those with, from those without direct exposure to particular scenarios, such as whether or not they have had hypnotherapy, or have been exposed to social media adverts. In turn, different levels of personal exposure may lead to different agentic and/or affective experiences, which is explored in Studies 2 and 3.

None of the previous studies on folk beliefs examined emotional experiences associated with ecologically valid scenarios where free actions are perceived as more or less under threat from external influences. Therefore, the present study addresses this by examining how concerned people are when they judge levels of manipulation of behaviors without their awareness (Study 2). In addition, the study also asks people to rate the amount of Certainty and satisfaction they will have over the actions where they judge levels of manipulation of behaviors without their awareness (Study 2). Previous work suggests that that people associate greater levels of personal responsibility with actions that they judge to be free (Deutschländer et al., 2017; Monroe & Malle, 2010; Shepherd, 2015; Stillman et al., 2011). To extend this work and Osman's (2020) study, the present study also includes two ratings related to responsibility. People are asked to judge the level of personal responsibility over choice of actions taken in the scenarios presented to them, as well as the level of responsibility others might have over those same choice of actions (Study 3).

The following predictions examined are derived from Osman's (2020) findings, and Self-determination theory (Deci & Ryan, 2012):

Prediction 1: As ratings of influences on actions without awareness increase (Rating of Unconscious Manipulation), ratings of agentic experiences will decrease (Ratings of free will, Conscious Intentions, Conscious Control).

Prediction 2: As ratings of influences on actions without awareness increase (Rating of Unconscious Manipulation), ratings of affective experiences will be impacted in the following ways: Ratings of Satisfaction and Certainty will decrease, and Ratings of Concern will increase.

Prediction 3: As ratings of influences on actions without awareness increase (Rating of Unconscious Manipulation), ratings of personal agentic experiences will decrease (Ratings of Personal Responsibility over choice of action), and ratings of agentic experiences of others will increase (Ratings of Others' responsibility over choice of action).

Study 1: Replication Study of Osman (2020, Study 2)

The aim of Study 1 was to replicate the original study by Osman (2020), and to test Prediction 1: as ratings of influences on actions without awareness increase (Rating of Unconscious Manipulation), ratings of agentic experiences will decrease (Ratings of free will, Conscious Intentions, Conscious Control). A comparison is conducted between the original data set from Osman's (2020, Study 2) study and the findings from the present replication.

Method

Participants

In Osman's (2020, Study 2) study there was a total of 198 participants from four different countries: Australia (Total $N = 49$), Canada ($N = 49$), U.K. ($N = 52$), and U.S. ($N = 48$; see Table 1). The average age of the sample was $M = 31.06$ ($SD = 8.93$), with 99 males, 99 females, 1 preferring not to say. The study was presented via Qualtrics (https://www.qualtrics.com/uk/) which is an online platform for hosting experiments, and a crowdsourcing system (Prolific https://www.prolific.co/) was used to recruit participants. Participants from over 30 countries sign up to Prolific academic to take part in online experiments, and the system allows experimenters to specify inclusion criteria, and if fulfilled and participants indicate interest in the study, the system allocates them to take part in the study. The process of participant recruitment via Prolific Academic was volunteer sampling. To take part in the study, the criteria were, that for each of the four countries, participants were born and currently reside there, that the age range was between 18 and 80, and their first language was English. All participants were financially compensated for their time (90 cents). When taking part in the study, participants were asked to provide responses to 5 demographic questions (age, gender, education level, political affiliation, religiosity), these are summarized in Table 1 for each country and for each study. In addition, they responded to 4 ratings for each of the 16 ecologically valid scenarios drawn from those volunteered by participants in Osman's (2020, Study 1) study. The present replication used Osman's (2020) same recruitment method, and online experimental platform. The replication included a total of 222 participants from Australia (Total $N = 56$), Canada ($N = 57$), U.K. ($N = 54$), and U.S. ($N = 55$; see Table 1). The average age of the sample was $M = 33.85$ ($SD = 11.39$), with 96 males, 122 females, and 4 preferring not to say. All participants were financially compensated for their time (2.5 USD). All of the studies (Studies 1, 2, and 3) included here received ethical approval from the Queen Mary University of London (QMUL) college ethics board, QMERC2018/54.

Design

In the replication Study 1, the samples were drawn from four countries, which were the same as in Osman's (2020, Study 2) study. There were two sets of dependent variables, the first was five demographic questions (i.e., Age, Gender, Education level, Political affiliation) and the second set was the four ratings for each of the 16 scenarios drawn from those volunteered by the subjects in Osman's (2020) study (see Table 2). For each of the demographic question, participants were provided with the option "prefer not to say." The four ratings were: Ratings of Unconscious Manipulation, Ratings of free will, Ratings of Conscious Intentions, and Ratings of Conscious Control, all of which were on a scale ranging from 0 to 10. The order of presentation of the 16 scenarios was

Table 1
Participants Profiles for Studies 1, 2, and 3

Exp.	Sample	No.	Age	Gender	Education	Religiosity	Political affiliation
1	Australia	56	*M* 32.65 (*SD* = 11.42) ranging from 18 to 70	Male 57%, female 39%, prefer not to say 4%	Graduate/postgrad 74%, Nonuniversity 25%, prefer not to say 1%	Religious 29%, nonreligious 48%, Prefer not to say/other 23%	Liberal 43%, center 4%, conservative 7%, prefer not to say/other 46%
	Canada	57	*M* 35.52 (*SD* = 12.53) ranging from 18 to 64	Male 37%, female 61%, prefer not to say 2%	Graduate/postgrad 74%, nonuniversity 25%, prefer not to say 1%	Religious 51%, nonreligious 39%, Prefer not to say/other 10%	Liberal 54%, center 14%, conservative 11%, prefer not to say/other 21%
	U.K.	54	*M* 35.76 (*SD* = 11.47) ranging from 19 to 66	Male 39%, female 60%, prefer not to say 1%	Graduate/postgrad 65%, nonuniversity 33%, prefer not to say 2%	Religious 41%, nonreligious 43%, prefer not to say/other 16%	Liberal 24%, center 4%, conservative 6%, prefer not to say/other 46%
	U.S.	55	*M* 31.38 (*SD* = 9.54) ranging from 18 to 57	Male 40%, female 60%	Graduate/postgrad 64%, nonuniversity 35%, prefer not to say 1%	Religious 31%, nonreligious 53%, prefer not to say/other 16%	Liberal 55%, center 9%, conservative 9%, prefer not to say/other 27%
2	Australia	100	*M* 33.51 (*SD* = 12.23) ranging from 18 to 76	Male 42%, Female 57%, prefer not to say 1%	Graduate/postgrad 74%, nonuniversity 23%, prefer not to say 3%	Religious 31%, nonreligious 48%, Prefer not to say/other 21%	Liberal 49%, center 5%, conservative 7%, prefer not to say/other 39%
	Canada	93	*M* 34.37 (*SD* = 11.30) ranging from 18 to 64	Male 58%, female 41%, prefer not to say 1%	Graduate/postgrad 66%, nonuniversity 27%, prefer not to say 7%	Religious 34%, nonreligious 43%, Prefer not to say/other 23%	Liberal 45%, center 6%, conservative 9%, prefer not to say/other 40%
	U.K.	92	*M* 34.46 (*SD* = 14.01) ranging from 18 to 71	Male 34%, female 66%	Graduate/postgrad 63%, nonuniversity 33%, prefer not to say 4%	Religious 28%, nonreligious 52%, prefer not to say/other 20%	Liberal 42%, center 5%, conservative 11%, prefer not to say/other 42%
	U.S.	92	*M* 33.18 (*SD* = 10.08) ranging from 18 to 63	Male 49%, female 49%, prefer not to say 2%	Graduate/postgrad 59%, nonuniversity 35%, prefer not to say 6%	Religious 45%, nonreligious 31%, prefer not to say/other 24%	Liberal 42%, center 21%, conservative 11%, prefer not to say/other 26%
3	Australia	72	*M* 36.66 (*SD* = 12.46) ranging from 18 to 69	Male 35%, female 65%, prefer not to say 1%	Graduate/postgrad 59%, nonuniversity 33%, prefer not to say 8%	Religious 28%, nonreligious 47%, Prefer not to say/other 25%	Liberal 33%, center 4%, conservative 10%, prefer not to say/other 53%
	Canada	71	*M* 33.47 (*SD* = 11.49) ranging from 18 to 62	Male 35%, female 65%	Graduate/postgrad 65%, nonuniversity 31%, prefer not to say 4%	Religious 32%, nonreligious 49%, Prefer not to say/other 18%	Liberal 41%, center 7%, conservative 15%, prefer not to say/other 37%
	U.K.	70	*M* 34.00 (*SD* = 11.50) ranging from 18 to 67	Male 31%, female 69%	Graduate/postgrad 63%, nonuniversity 30%, prefer not to say 7%	Religious 16%, nonreligious 61%, Prefer not to say/other 23%	Liberal 44%, center 6%, conservative 6%, prefer not to say/other 44%

Table 1 (*continued*)

Exp.	Sample	No.	Age	Gender	Education	Religiosity	Political affiliation
	U.S.	70	*M* 32.84 (*SD* = 10.32) ranging from 18 to 61	Male 37%, female 59%, prefer not to say 4%	Graduate/postgrad 57%, nonuniversity 39%, prefer not to say 4%	Religious 33%, nonreligious 47%, Prefer not to say/other 20%	Liberal 54%, center 6%, conservative 9%, prefer not to say/other 31%

randomized for each participant as well as the order of presentation of the four ratings accompanying each scenario.

Materials

The 16 scenarios were those used in Osman's study (2020, Study 2; see Table 2). The four main dependent measures used to assess judgments of the 16 examples were as follows, each of which had a response scale ranging from 0 = not at all to 10 = completely.

- Rating of the Unconscious Manipulation: To what extent do you think that [reference to method of influence] influences [reference to the choice behavior] unconsciously?
- Ratings of Free Will: To what extent do you think that [reference to the choice behavior] under the influence [reference to method of influence] is the result of free choice?
- Ratings of Conscious Intentions: To what extent do you think that [reference to the choice behavior] under the influence [reference to method of influence] is the result of Conscious Intentions formed before [reference to the choice behavior]?
- Ratings of Conscious Control: To what extent do you think that [reference to the choice behavior] under the influence [reference to method of influence] is under Conscious Control?

Procedure

Participants were first asked to provide their consent in order to take part in the study. Once consent was provided, participants were then given instructions informing them that they would be presented with 16 real-world scenarios they needed to read carefully, and then for each scenario they would be asked to make four ratings (Ratings of the Unconscious Manipulation, Ratings of free will, Ratings of Conscious Intentions, Ratings of Conscious Control). They were informed that after they had completed all four ratings for each of the 16 scenarios, and provided their responses to the five demographic questions, the study was complete.

Results and Discussion

Since this experiment was a replication of Osman (2020), we computed the average rating per participant for the four dependent variables (Unconscious Manipulation, free will, Conscious Intentions, Conscious Control), and compared those averages by Study (Study 1, Osman (2020, Study 2) and by Country (Australia, Canada, U.K., U.S.). As shown in Figure 1, neither Study nor Country had any noticeable effect on the ratings. Using JASP (https://jasp-stats.org/), and following current conventions for reporting Bayesian statistics (American Psychological Association, 2020: Dienes, 2021) we conducted four Bayesian ANOVAs (one per dependent variable). These analyses supported the patterns indicated in Figure 1. The null hypothesis model was $BF_{01} = 6.513$ times more likely than the best alternative model for Unconscious Manipulation, $BF_{01} = 7.471$ for free will, $BF_{01} = 2.453$ for Conscious Intentions, and $BF_{01} = 3.753$ for Conscious Control. In each case, the best alternative model was the one containing only the Study variable ($BF_{10} < 0.266$), except from Conscious Intentions, where the best alternative model contained only the Country variable ($BF_{10} = 0.408$).

Overall Pattern of Ratings

We conducted one-tailed Bayesian Pearson's correlation tests, in order to examine whether, as predicted, Unconscious Manipulation ratings would be negatively correlated with the other three ratings,

Table 2
Contexts and Scenarios (From Osman, 2020)

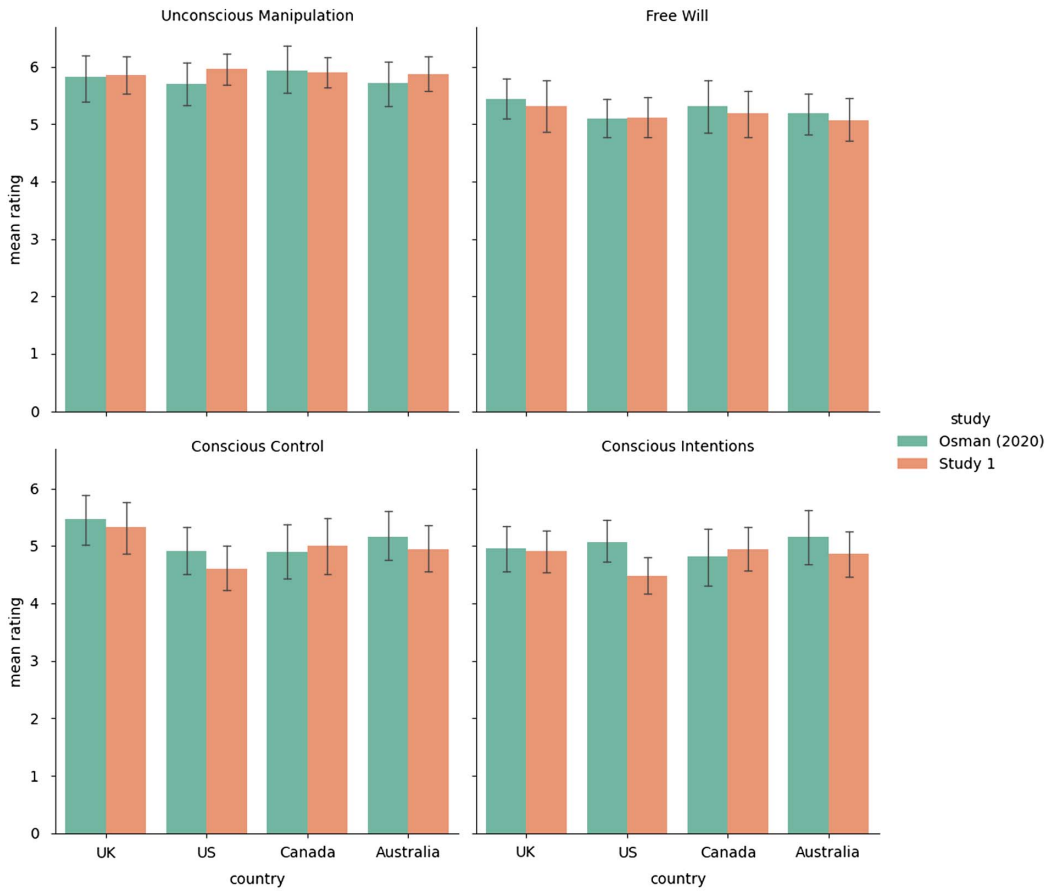
Context	Scenarios
Advertising marketing	Advertisement jingles that are used so that people think of the product when they hear the jingle and then buy the product.
	Advertisers that increase their chance of selling to people when using "buy two get one free" sales on products so that people think that they are getting a great deal.
	Supermarkets that present goods at eye level and at the end of row displays so that they are more eye catching to people to influence their purchasing of particular products.
	Car Dealerships that employ staff to steer people by the way that they pose certain questions so that people spend more money.
	Subliminal adverts (messages flashed so quickly that people are not aware of seeing them) that show a product so that it stays in people's mind and they then go and buy the product.
Management	When those in senior management in an organization are interviewing candidates to join a team and making judgment calls on who best suits the job.
	When those in senior management positions are considering who from the team should be nominated for promotion.
Research	Research that involves showing people a picture of something before a study so that it is in their minds, in order to study the influences on their choice when asked to select between the same picture and another picture.
	Research studying people sleeping that involves playing messages to them while they are asleep to examine the influence on their mind.
	Research that involves giving people sugar cubes posing as pills to study the influence on peoples' mental belief that the pills will have a positive effect on their health.
	Research that flashes up positive or negative information so quickly that people are not aware of seeing it, and then studying the effect on peoples' attitudes toward the quickly flashed up information.
	Research that examines biases by creating either positive or negative links with a neutral piece of information, and then studying how it effects the way people then perceive the information.
Therapy	Hypnotic methods that are used on people while they are in a relaxed state so that it is possible to influence their choices while they are under that state.
	Hypnotic methods that are used on people to uncover hidden memories so that it is possible to heal them from past traumas.
Political campaigning	Political campaigning that helps political party leaders to dress and speak in a certain way so that it is possible to influence people's voting choice.
	Political campaigning that uses political advertisements targeted toward specific groups of people in such a way as to influence them toward one political candidate over another.
Social media	Social Media that use advertisements targeted toward specific groups of people in such a way as to influence their opinions.
	Social Media that is designed in such a way so that the people experience it in such a way that it influences the way that they think.

which were expected to be pairwise positively correlated. Contrary to expectations, but consistent with Osman's (2020) findings, we also found mixed support for Prediction 1. There was no support for the relationship between Unconscious Manipulation and free will ($r^2 = -0.111$, $BF_{-0} = 0.615$), or between Unconscious Manipulation and Conscious Intentions ($r^2 = -0.085$, $BF_{-0} = 0.330$). There was very strong evidence for the negative correlation between Unconscious Manipulation and Conscious Control ($r^2 = -0.224$, $BF_{-0} = 46.930$) suggesting that, in this case, there was support for Prediction 1. Consistent with Osman's (2020) findings all the other three variables were positively correlated: Free will and Conscious Intentions, $r^2 = 0.368$, $\log(BF_{10}) = 13.351$, free will and Conscious Control, $r^2 = 0.480$, $\log(BF_{10}) = 26.009$, and Conscious Intentions and Conscious Control, $r^2 = 0.591$, $\log(BF_{10}) = 44.269$.

Pattern of Ratings by Context

Looking at the type of context in more detail, the findings indicate effects of Context (Figure 2). We conducted one-way Bayesian ANOVAs that provide strong evidence for Context predicting the degree of Unconscious Manipulation, $\log(BF_{10}) = 7.203$, free will, $\log(BF_{10}) = 74.676$, Conscious Intentions, $\log(BF_{10}) = 32.236$, and Conscious Control, $\log(BF_{10}) = 59.874$. In addition, there was evidence that the difference between

Figure 1
Study 1. Mean Ratings for Each of the Four Questions, by Study (Replication Study 1, Osman, 2020) and by Country (Australia, Canada, U.K., U.S.)



Note. The error bars represent 95% confidence intervals. See the online article for the color version of this figure.

Unconscious Manipulation and the mean of the three correlated variables was also predicted by Context, $\log(BF_{10}) = 59.874$.

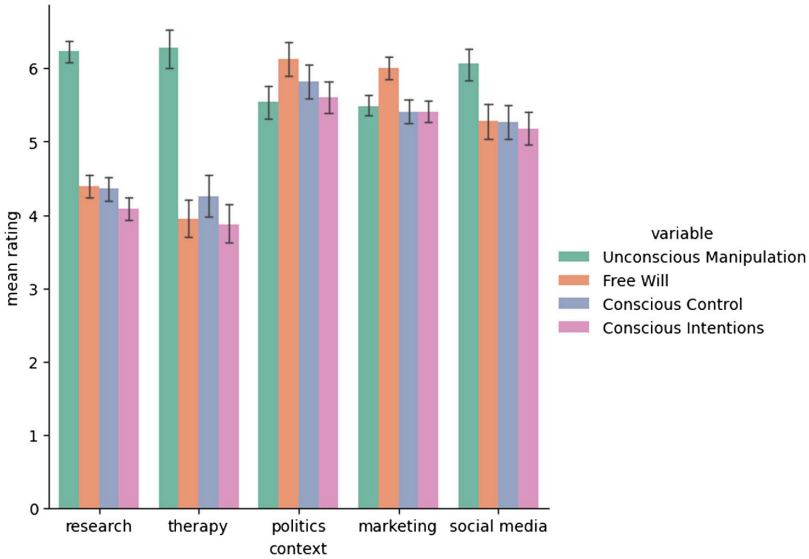
Individual Differences

As was the case with the study we replicated here (Osman, 2020, Study 2), Bayesian ANOVAs showed that the demographics (county, age, gender, political affiliation, religion, education) had no reliable influence on Unconscious Manipulation ($BF_{01} > 3.674$), free will ($BF_{01} > 2.153$), or Conscious Control ($BF_{01} > 1.396$). However, we did find some evidence for gender influencing the ratings of Conscious Intentions ($BF_{10} = 4.409$).

Study 2: Affective Experiences (Concern, Satisfaction, Certainty)

Study 1 was able to successfully replicate the key findings from Osman's (2020, Study 2) study. Overall, there was mixed support for Prediction 1, namely that as ratings of external influences on actions without awareness increase (i.e., Unconscious Manipulation) ratings of agentic experiences decrease (free will, Conscious Control), with support only located for ratings of Conscious Intentions. However, consistent with Osman's (2020, Study 2) findings, we observed that this relationship is strongly affected by Context: In Research and Therapy, participants judged that unconscious influences

Figure 2
Mean Ratings by Context (Therapy, Research, Politics, Marketing, Social Media) in Study 1



Note. The error bars represent 95% confidence intervals. See the online article for the color version of this figure.

decrease their agentic experiences, but in politics and marketing they judged that agentic experiences were retained, despite external influences. Moreover, as was found in Osman's (2020) Study 2, in most cases, demographics had no reliable effect on ratings, suggesting a remarkable agreement between participants who differed in terms of country, age, gender, political affiliations, education, and religiosity.

The aim of Study 2 was to extend the findings from Study 1 and Osman's (2020, Study 2) study in three ways. First, in the replication (Study 1) and the original study participants were invited to give four ratings of agentic experiences for 16 scenarios from a general perspective. This frame of reference may have limited the possibility of revealing the impact of individual differences on the findings reported in Study 1. Thus, the present study investigated the impact on the relationship between the judged level of manipulation without awareness and affective experiences, when considered from a personal stance. Thus, the frame of reference was changed so that participants were explicitly instructed to take a personal stance. By changing the frame of reference in this way, we also give greater opportunity for individual differences to be revealed in the patterns of responses. For instance, those with direct experience of the different scenarios, which might depend on age or education, may reveal more extreme ratings of level of external influences on behavior without awareness, and their affective experiences. To explore this, participants rated the extent to which they had Personal Experiences of each scenario, and now gave ratings of affective experiences (Ratings of Satisfaction, Ratings of Certainty, Ratings of Concern). From this, it was possible to explore the second aim of Study 2, which was to test Prediction 2. As ratings of influences on actions without awareness increase (Unconscious Manipulation), ratings of affective experiences will be impacted in the following way: Ratings of Satisfaction and Certainty will decrease, and Ratings of Concern will increase. Third, there has been considerable media attention drawn toward the role of the unconscious biases in personnel decisions in professional contexts (Osman, 2021). To explore this, the examples volunteered by participants in Osman's (2020,

Study 1) study were revisited in case scenarios associated with managerial contexts were generated. Two managerial contexts were identified from the original set (see Table 2). Thus, to advance understanding of folk beliefs concerning potential influences on behavior outside of awareness, two new scenarios concerning managerial contexts were added to the original set of 16 scenarios.

Method

Participants

In Study 2, a total of 377 participants from Australia ($N = 100$), Canada ($N = 93$), U.K. ($N = 92$), and U.S. ($N = 92$; see Table 1) took part in the study. The average age of the sample was $M = 33.85$ ($SD = 11.97$), with 172 males, 201 females, and 4 preferring not to say. The same sampling and recruitment method used in Study 1 was applied to Study 2. All participants were financially compensated for their time (2.5 USD).

Design and Materials

As with Study 1, the presentation of each of the 18 scenarios was randomized for each participant, along with the order of each of the five ratings. Unlike Study 1, participants were given 5 instead of 4 ratings, for 18 instead of 16 scenarios (see Table 2). The five ratings were as follows:

- Rating of the Unconscious Manipulation: To what extent do you think that [reference to method of influence] influences [reference to the choice behavior] you unconsciously? [0 = *not at all* to 10 = *completely*].
- Rating of Personal Experience: To what extent have you personally experienced something like what is described in the scenario? [0 = *not at all* to 10 = *all the time*].
- Ratings of Concern: To what extent do you care that [reference to the choice behavior] you could make is based unconsciously? [0 = *Do not care at all* to 10 = *Care hugely*].
- Ratings of Satisfaction: How satisfied would you be in your [reference to the choice behavior], if you believed that [reference to the choice behavior] you could make it unconsciously? [0 = *not at all satisfied* to 10 = *completely satisfied*].
- Ratings of Certainty: How uncertain would you be in your [reference to the choice behavior], if you believed that [reference to method of influence] could have led to it being made unconsciously? [0 = *not at all certain* to 10 = *completely certain*]

Procedure

The procedure was the same as Study 1, with the only difference being the inclusion of new ratings of agentic experiences and affective experiences for 18 instead of 16 scenarios.

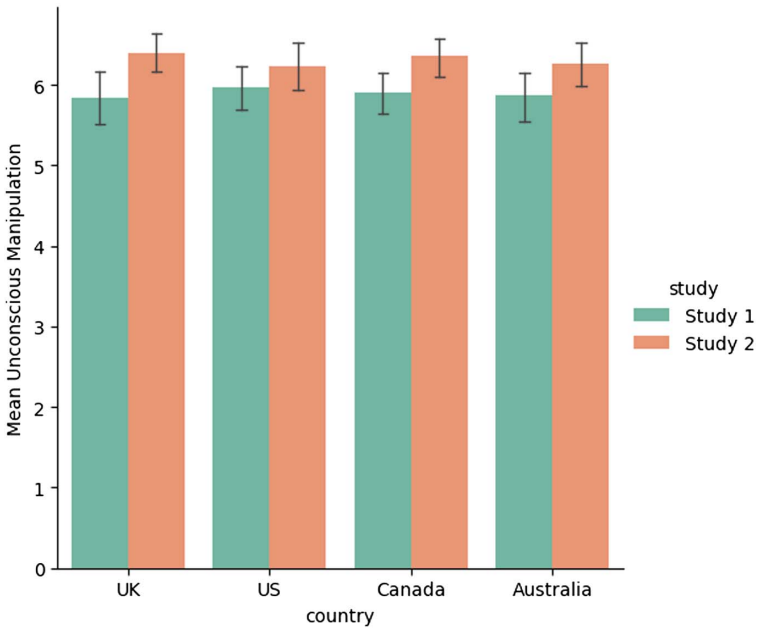
Results and Discussion

Overall Pattern of Ratings for Manipulation without awareness: Comparing the Ratings of Unconscious Manipulation by Country (Australia, Canada, U.K., U.S.) and Study (Study 1, Study 2), Figure 3 suggests minor differences between countries, but generally higher values in Study 2, where participants were asked to take a personal perspective. This impression was supported by a Bayesian analysis of variance (ANOVA), showing that the model containing only the Study variable was approximately 170 times more likely than the null model ($BF_{10} = 174.776$), while the evidence for the null model was stronger when compared to a model with only the Country variable ($BF_{01} = 141.408$). This suggests that the manipulation regarding the framing of the questions had an impact. When explicitly instructed to adopt a personal stance (Study 2) Ratings of Unconscious Manipulation increased compared with a general stance (Study 1).

Overall Pattern of Ratings

Looking at the correlations between the ratings for Study 2, revealed mixed support for Prediction 2. There was a positive relationship between Ratings of Unconscious Manipulation, Ratings of Concern, $r^2 = 0.484$, $\log(BF_{10}) = 47.026$, and Ratings of Personal Experience, $r^2 = 0.437$, $\log(BF_{10}) = 36.720$. However, there was weaker evidence for the relationship between Unconscious Manipulation and Ratings of Certainty ($r^2 = 0.140$, $BF_{10} = 2.622$) and no support for a relationship between Unconscious Manipulation and Ratings of Satisfaction ($r^2 = 0.091$, $BF_{01} = 3.313$). Regarding the correlations between the other ratings, Certainty was positively correlated with Satisfaction, $r^2 = 0.449$, $\log(BF_{10}) = 39.163$,

Figure 3
Study 2. Mean Ratings of Unconscious Manipulation by Study (Replication Study 1, Study 2) and Country (Australia, Canada, U.K., U.S.)



Note. The error bars represent 95% confidence intervals. See the online article for the color version of this figure.

and Personal Experience, $r^2 = 0.267$, $\log(BF_{10}) = 11.072$, and more weakly with the Concern rating ($r^2 = 0.173$, $BF_{10} = 18.613$). Finally, there was strong evidence for a positive correlation between Concern and Personal Experience. The more Personal Experiences people reported they had, the more they were concerned that their choices were unconsciously manipulated, $r^2 = 0.471$, $\log(BF_{10}) = 44.082$.

Pattern of Ratings by Context

As with Study 1, Figure 4 shows that context had a strong effect on most ratings. One-way Bayesian ANOVAs provided strong support for context impacting Unconscious Manipulation, $\log(BF_{10}) = 242.437$, Concern, $\log(BF_{10}) = 92.065$, Satisfaction, $\log(BF_{10}) = 9.792$, and Personal Experience, $\log(BF_{10}) = 422.665$, though not Certainty ratings ($BF_{01} = 65.222$).

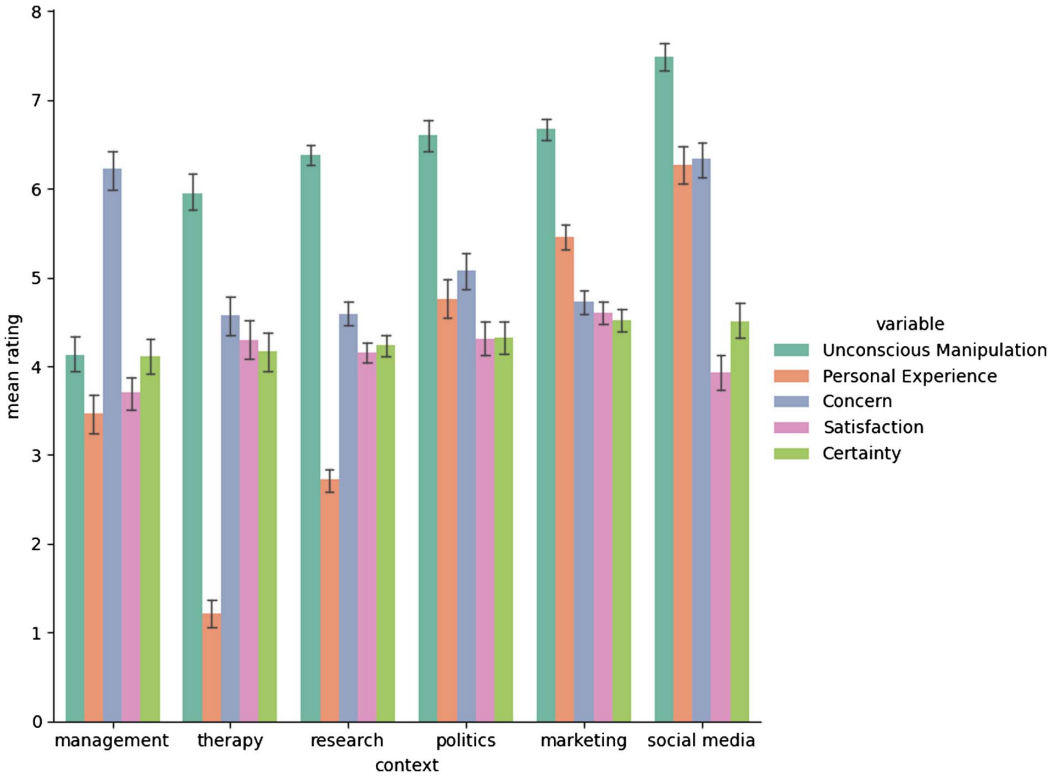
Individual Differences

Finally, we once again observed no effect of demographics on Unconscious Manipulation ($BF_{01} > 4.463$), Concern ($BF_{01} > 1.426$), or Satisfaction ($BF_{01} > 1.218$). There was weak support for gender influencing ratings of Personal Experience ($BF_{10} = 1.171$), and ratings of Certainty ($BF_{10} = 2.344$).

Study 3: Agentic Experiences (Free Will, Responsibility)

Study 2 revealed that changing the framing of the questions so that the personal stance was emphasized changed the ratings for Unconscious Manipulation which increased relative to taking a general stance. In addition, Study 2 found some support for Prediction 2. More specifically, the findings revealed that there was a positive relationship between Unconscious Manipulation and Concern, and Unconscious Manipulation and the amount of Personal Experience that people had, but no strong relationship between Unconscious Manipulation with ratings of Satisfaction or Certainty. Consistent with Study 1, Study 2 did not reveal a substantive role of individual differences on the pattern of ratings, whereas context played a key role.

Figure 4
Mean Ratings by Context (Management, Therapy, Research, Politics, Marketing, Social Media) in Study 2



Note. The error bars represent 95% confidence intervals. See the online article for the color version of this figure.

More specifically, context strongly impacted the pattern of ratings for Unconscious Manipulation, Concern, Satisfaction, and Personal Experience, but not Certainty. Study 3 also investigated the relationship between the judged level of manipulation and agentic experiences when considered from a personal perspective. Here, the agentic experiences were free will and responsibility. Previous work on folk beliefs on free action has revealed are associated (Deutschländer et al., 2017; Monroe & Malle, 2010; Shepherd, 2015; Stillman et al., 2011). The less influenced by potentially coercive external factors, the easier it is for people to assume personal responsibility over their actions. Therefore, Study 3 was designed to test Prediction 3. As ratings of influences on actions without awareness increase (Rating of Unconscious Manipulation), ratings of personal agentic experiences will decrease (Ratings of Personal Responsibility over choice of action), and ratings of agentic experiences of others will increase (Ratings of Others' Responsibility over choice of action).

Method

Participants

In Study 3, a total of 283 participants from Australia ($N = 72$), Canada ($N = 71$), U.K. ($N = 70$), and U.S. ($N = 70$; see Table 1) took part in the study. The average age of the sample was $M = 34.39$ ($SD = 11.50$), with 102 males, 177 females, and 4 preferring not to say. The same sampling and recruitment method used in Studies 1 and 2 was applied to Study 3. All participants were financially compensated for their time (2.5 USD).

Design and Materials

As with Studies 1 and 2, the presentation of each of the 18 scenarios was randomized for each participant, along with the ordering of each of the five questions. The same 18 scenarios used in Study 2 were used in Study 3. The key difference

between Studies 2 and 3 were the five ratings used, which were as follows:

- Rating of the Unconscious Manipulation: To what extent do you think that [reference to method of influence] influences [reference to the choice behavior] you unconsciously? [0 = *not at all* to 10 = *completely*].
- Rating of Personal Experience: To what extent have you personally experienced something like what is described in the scenario? [0 = *not at all* to 10 = *all the time*].
- Ratings of Free Will: To what extent do you think that [reference to the choice behavior] under the influence [reference to method of influence] is the result of free choice? [0 = *not at free* to 10 = *all completely free*].
- Ratings of Personal Responsibility: To what extent do you think that you are responsible [reference to the choice behavior], if you believed that [reference to the choice behavior] that you could make is based on unconscious processes? [0 = *not at all responsible* to 10 = *completely responsible*].
- Ratings of Responsibility of Others: To what extent do you think that [Agent identified in the scenario] are responsible for [reference to the choice behavior], if you believed that [reference to the choice behavior] that could be made is based on unconscious processes? [0 = *not at all responsible* to 10 = *completely responsible*].

Procedure

The procedure in Study 3 was the same as Studies 1 and 2 (Table 3).

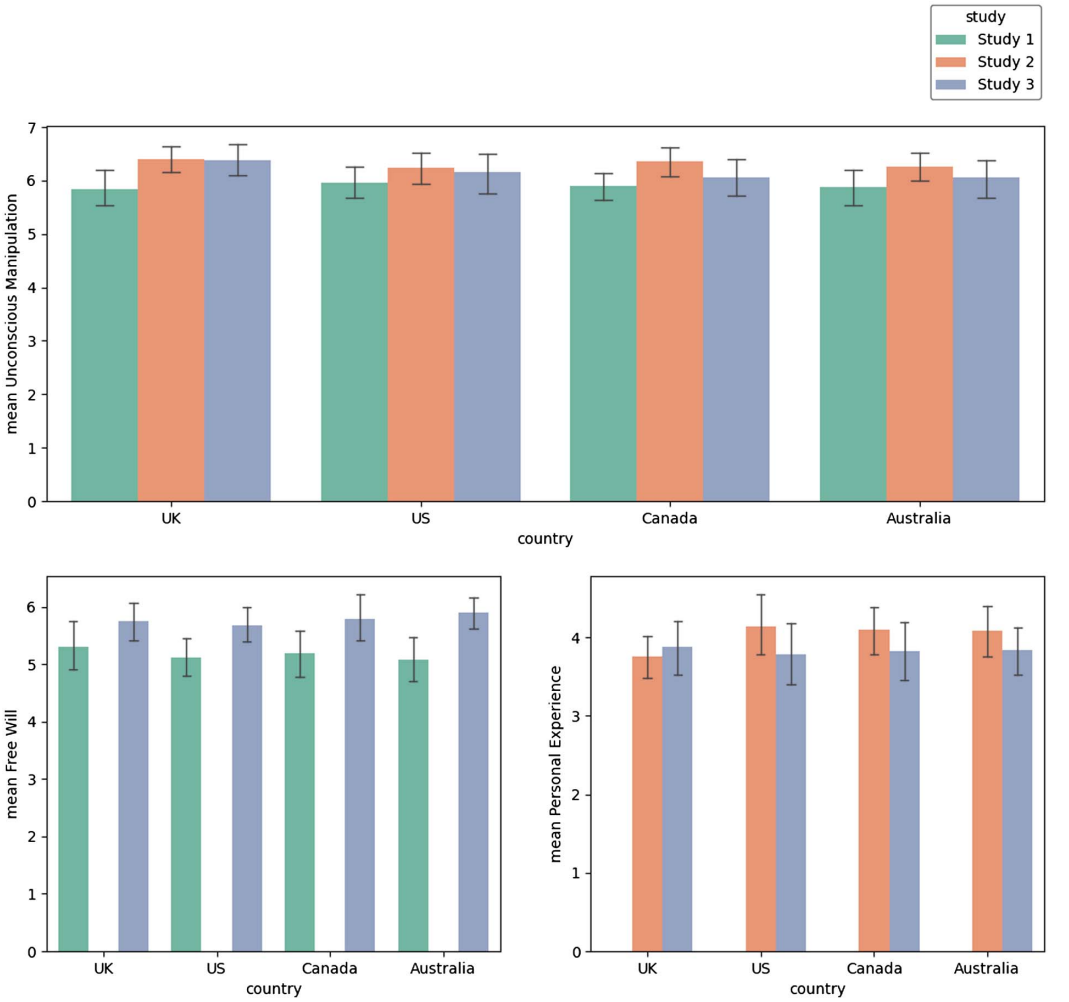
Results and Discussion

Comparison of ratings across studies: Figure 5 shows the mean ratings for the variables that were common between the three studies. Bayesian ANOVAs show that Ratings of Unconscious Manipulation were not affected by Country (BF_{01} = 134.641), while Study did have an effect (BF_{10} = 9.867). This effect was specifically due to the framing which was personal in Studies 2 and 3 (BF_{01} = 4.442) and general in Study 1. The type of framing had an effect on Ratings of free will that was included in Studies 1 and 3, $\log(BF_{10})$ = 8.202, while there were again no differences by Country (BF_{01} = 101.462). Neither Study nor Country affected ratings of Personal Experience in Studies 2 and 3 ($BF_{01} > 3.674$). Finally, neither of the two responsibility ratings (Ratings of Personal and Other's Responsibility) that were specific to Study 3 were affected by Country, Personal Responsibility (BF_{01} = 6.779), Others' Responsibility (BF_{01} = 21.369).

Table 3
M (SD) Ratings by Country by Study

Study	Rating	Australia	Canada	U.K.	U.S.
Osman (2020)	Unconscious Manipulation	5.73 (1.45)	5.93 (1.50)	5.83 (1.52)	5.72 (1.38)
	Free will	5.17 (1.29)	5.34 (1.59)	5.46 (1.38)	5.12 (1.22)
	Conscious Control	5.14 (1.60)	4.91 (1.84)	5.48 (1.61)	4.94 (1.54)
	Conscious Intentions	5.15 (1.68)	4.82 (1.78)	4.98 (1.40)	5.10 (1.35)
Study 1	Unconscious Manipulation	5.87 (1.18)	5.90 (1.00)	5.84 (1.25)	5.97 (1.07)
	Free will	5.07 (1.46)	5.19 (1.55)	5.31 (1.70)	5.11 (1.31)
	Conscious Control	4.94 (1.60)	4.99 (1.87)	5.33 (1.75)	4.61 (1.45)
	Conscious Intentions	4.87 (1.49)	4.94 (1.54)	4.91 (1.42)	4.48 (1.20)
Study 2	Unconscious Manipulation	6.26 (1.35)	6.36 (1.23)	6.40 (1.17)	6.24 (1.45)
	Personal Experience	4.08 (1.60)	4.10 (1.46)	3.75 (1.35)	4.14 (1.87)
	Care	5.12 (1.55)	4.89 (1.75)	5.19 (1.36)	5.01 (1.84)
	Satisfaction	4.33 (1.42)	4.11 (1.50)	4.37 (1.22)	4.23 (1.78)
	Uncertainty	4.33 (1.40)	4.18 (1.61)	4.26 (1.36)	4.57 (1.59)
Study 3	Unconscious Manipulation	6.05 (1.51)	6.05 (1.52)	6.38 (1.31)	6.17 (1.57)
	Personal Experience	3.83 (1.28)	3.82 (1.29)	3.88 (1.40)	3.79 (1.61)
	Care	5.90 (1.19)	5.79 (1.71)	5.75 (1.38)	5.67 (1.34)
	Personal responsibility	6.61 (1.23)	6.19 (1.63)	6.40 (1.56)	6.09 (1.50)
	Other's responsibility	5.97 (1.52)	5.56 (1.63)	5.88 (1.63)	5.77 (1.74)

Figure 5
Mean Ratings of Unconscious Manipulation by Study (Replication Study 1, Study 2, Study 3) and Country (Australia, Canada, U.K., U.S.)



Note. Ratings of free will (Replication Study 1, Study 3) and Personal Experience (Study 2, Study 3). The error bars represent 95% confidence intervals. See the online article for the color version of this figure.

Overall Pattern of Ratings

As in Study 1 there was no evidence for a correlation between Unconscious Manipulation and free will ($r^2 = 0.045$, $BF_{01} = 10.105$) but similar to Study 2, the former was correlated with Personal Experiences, $r^2 = 0.393$, $\log(BF_{10}) = 20.849$. There was mixed support for Prediction 3. There was no support for a negative correlation between ratings of Unconscious Manipulation and Ratings of Personal Responsibility ($r^2 = 0.063$, $BF_{-0} = 0.063$). There was for a positive correlation between Unconscious Manipulation and Ratings of Others' Responsibility, $r^2 = 0.547$, $\log(BF_{+0}) = 47.784$. The more participants believe that their behavior is unconsciously manipulated, the more they assign responsibility to third parties. In addition, ratings of Personal Responsibility were negatively correlated with ratings of Others' Responsibility ($r^2 = -0.159$, $BF_{-0} = 5.186$). Ratings of free will were strongly positively correlated with Personal Responsibility, $r^2 = 0.863$, $\log(BF_{10}) = 180.080$, and negatively correlated with Others'

Responsibility, $r^2 = -0.262$, $\log(BF_{10}) = 7.341$, while there was no evidence for a relationship between ratings of free will and Personal Experiences ($r^2 = 0.050$, $BF_{01} = 9.519$). Finally, although the latter was not correlated with ratings of Personal Responsibility ($r^2 = 0.037$, $BF_{01} = 11.072$), there was substantial evidence for a positive correlation with Others' Responsibility ($r^2 = 0.334$, $BF_{10} = 13.900$).

Pattern of Ratings by Context

The context in which unconscious influences were suspected, was once again a strong determinant of participants' ratings (Figure 6), with evidence for context being able to predict all five ratings, $\log(BF_{10}) > 53.508$.

Individual Differences

Out of the demographics variables, none predicted free will, Personal Experiences, Personal or Others Responsibility, while there was weak evidence for education predicting ratings of Unconscious Manipulation ($BF_{10} = 1.537$) as well as a model containing both education and age ($BF_{10} = 1.222$).

General Discussion

The aim of this study was twofold. The first was to replicate the findings presented in Osman's (2020) study, which Study 1 was able to do. In particular, in the replication study, as well as Studies 2 and 3, there was no strong, or consistent, evidence for the role of demographics on the patterns of ratings, and no country differences. This goes some way to suggesting that there are generic aspects of people's beliefs and experiences of contexts where behavior is influenced without awareness, that cuts across demographics, and countries.

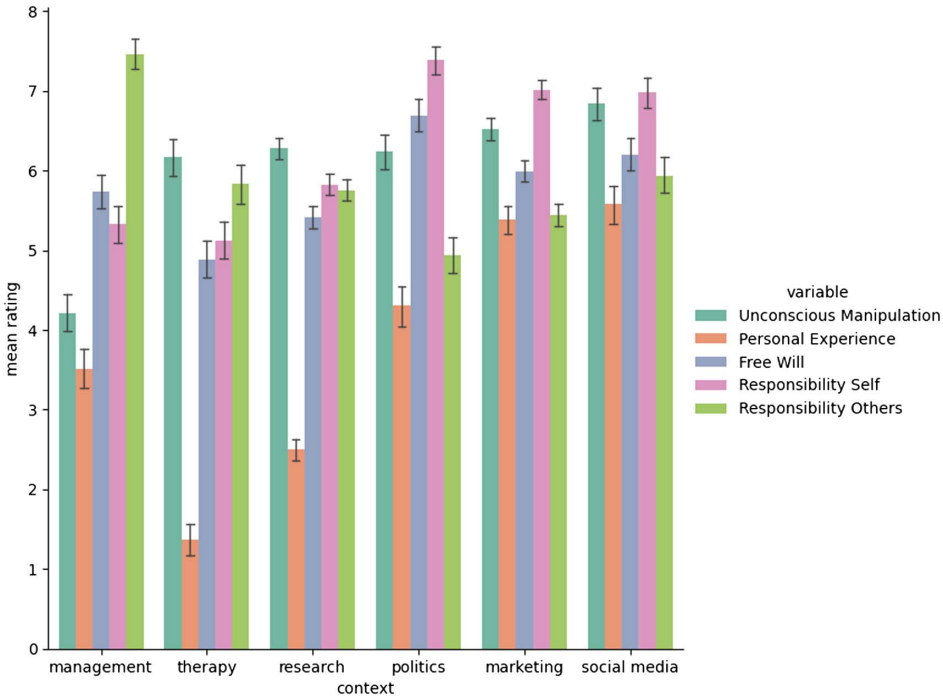
The second aim was to examine the impact of framing questions to encourage a personal stance. When taking a personal stance (Study 2, Study 3), overall ratings of the influence on behavior without awareness (Ratings of Unconscious Manipulation) increased when compared to taking a general stance (Study 1). That is, people generally rated the contexts they were presented with as more influential on their actions without their awareness, even though the amount of direct experience people had varied by context. For instance, approximately 60% of participants in each study (Study 2, Study 3) reported they had no experience of therapeutic contexts, as indicated by selecting 0 on the scale ranging from 0 (*none at all*) to 10 (*absolutely*) have Personal Experience. Also, changing the framing resulted in differences for ratings of free will, where ratings were higher under a personal stance (Study 3) compared to a general stance (Study 1). This strongly suggests that while judged manipulation from a personal stance was higher, people tended toward maintaining even greater agentic experiences over their behaviors, further explaining why there was a lack of association between the two. We discuss this in more detail later in this section.

Support for Predictions From Overall Ratings of Agentic and Affective Experiences

The present study tested three predictions. Informed by previous work (e.g., Deci & Ryan, 2012; Osman, 2020), and consistent with Osman's (2020) study, Study 1 found weak support for a negative correlation between Rating of Unconscious Manipulation and Conscious Control (Study 1, Osman, Study 3), but not for Ratings of free will (Study 1, Study 3), or Conscious Intentions (Study 1). Also, the findings did not fully support Prediction 2. There was no relationship between Ratings of Unconscious Manipulation and Rating of Satisfaction, and Ratings of Certainty. However, in partial support of Prediction 2, Studies 2 and 3 revealed a positive relationship between Ratings of Unconscious Manipulation and Ratings of Concern (Study 2), and Ratings of Personal Experience (Study 2, Study 3). These positive relationships suggest that Concern might also be informed by the amount of Personal Experience one has of contexts where influences without one's awareness occur. In support of this speculation, there was a strong correlation between the amount of concern people had for situations where influences on behavior without awareness occurred, and the amount of direct experience people had of these situations.

The findings did not fully support Prediction 3. There was no relationship between Rating of Unconscious Manipulation and Ratings of Personal Responsibility. However, there was a positive relationship between Ratings of Unconscious

Figure 6
Mean Ratings by Context (Management, Therapy, Research, Politics, Marketing, Social Media) in Study 3



Note. The error bars represent 95% confidence intervals. See the online article for the color version of this figure.

Manipulation and Ratings of Other's Responsibility, and in turn, a negative relationship between Ratings of Personal Responsibility and Other's Responsibility.

Other Findings of Interest From Ratings of Agentic and Affective Experiences

We turn to other patterns of interest from examining overall ratings of agentic and affective experiences. For Study 1, and consistent with Osman's (2020) study, ratings of Conscious Control, Conscious Intentions, and free will were positively correlated with one another. This suggests that, while there were different relationships that each had with Ratings of Unconscious Manipulation, nonetheless, people viewed these three as strongly related agentic constructs. This is also consistent with past literature examining folk beliefs of free will (Deutschländer et al., 2017; Malle, 2004; Malle & Knobe, 1997; Stillman et al., 2011). In addition, the lack of reliable relationship between Rating of Unconscious Manipulation and Ratings of free will is in line with previous research suggesting folk beliefs are consistent with a compatibilist approach (Clark et al., 2019; Vonasch et al., 2018). The compatibilist view is one where free will and determinism can be conceived of as reconcilable positions even though they appear to be mutually exclusive. By extension, one speculation here, and in line with Osman's (2020) findings, is that people still want to retain beliefs in free action irrespective of the possibility of external influences over those actions because asserting their own choice matters in places where they want to assert personal responsibility for their actions taken.

Following on from this point, Ratings of free will were associated with the responsibility people judged they had over the actions described in the scenarios. As Ratings of free will increased so did Ratings of Personal Responsibility, but Ratings of Responsibility of Other's decreased. This finding is also in line with the theoretical claims

made by Deci and Ryan's (2012) Self-determination theory. The theory claims that when people judge they are making free actions, they should also make stronger attributions of personal responsibility over those actions because the actions are not determined by external coercive influences of others. The role of responsibility, particularly moral responsibility (Clark et al., 2019; Monroe & Malle, 2010; Nahmias et al., 2005; Turri, 2017) has received considerable attention, but less attention has been directed toward natural examples where influences on behavior without awareness occur. The present study did not examine value judgments of the outcome of the behavior, or moral evaluations of agents that might be responsible for manipulating choice behavior (e.g., marketeers, political campaigners, hypnotherapists), though this would be an avenue to further explore. Instead, what was found in Study 3 shows that personal responsibility diminishes where there are grounds to infer stronger external influences on one's choice behavior, and this in turn reduces the extent that they are judged to be free.

The present study also found that the level of Personal Experience was positive associated with Ratings of Satisfaction (Study 2) and Ratings of Certainty (Study 2), where the latter of the two ratings were also positively correlated. The latter association is also consistent with past literature examining the relationship between satisfaction and uncertainty (e.g., Choi et al., 2018; Cullen et al., 2014; Knobloch & Solomon, 1999; Nelson et al., 1995; Paul et al., 2011; Politi et al., 2011; Reutskaja & Hogarth, 2009; Sharabi, 2021). Moreover, the metacognition literature also relates the concept of uncertainty and satisfaction, especially in consumer contexts (Bagozzi et al., 2016; Luo et al., 2012; Qian et al., 2015). This indicates that affective experiences are positively correlated, though curiously these increase with more exposure to situations that people believe they have experienced influences without their awareness. If we look specifically at the way the questions in the present study were phrased, then we can speculate as to why this pattern was found. People were asked about how satisfied they were in their behaviors, even if they believed these were influenced without their awareness. Here, the implication is that people still want to assert some personal fulfillment and/or derived pleasure from their actions, even if those actions were generally governed by influences outside of their awareness. Maintaining affective experiences in association with personal agency is consistent with previous empirical work in the domain of positive psychology. The findings show that the motivation to maintain agentic experiences, such as emotional self-efficacy, are strong, and in turn, have a positive impact on experiences associated with well-being, and self-esteem (Çutuk & Aydoğan, 2019; Dogan et al., 2013; Kirk et al., 2008). As for the Certainty question, people were asked how certain they would be in the action taken if they believed the action was influenced without one's awareness. As mentioned, there is work to suggest that there is an adaptive advantage to maintaining personal agency over actions and inferred outcomes from them (Harris & Osman, 2012). This is an especially important factor under circumstances where inferring a causal association between intended actions and outcomes becomes difficult, such as conditions of dynamic uncertainty (Osman, 2010). The response ratings in the present study suggest that consistent with this position, even when influences over actions outside of one's awareness might occur, Certainty over those actions is still maintained to some degree.

The Impact of Context on Ratings of Agentic and Affective Experiences

The present study also examined the extent to which different contexts, where behavior is influenced outside of awareness, impacted ratings of agentic experiences (Studies 1, 2, 3), and affective experiences (Study 2). The findings are consistent with Osman's (2020) study, revealing a dynamical relationship between Ratings of Unconscious Manipulation and agentic experiences (free will, Conscious Control, Conscious Intentions). In addition, the findings were extended to other agentic experiences (Personal Responsibility, Other's Responsibility) and affective experiences (Concern, Satisfaction), with only Certainty not varying substantially by context. Here also we find some support for Predictions 1, 2, and 3, but these were located in specific contexts. In Study 1, in the contexts Therapy, Research, and Social Media, Ratings of Unconscious Manipulation were much higher than agentic experiences (free will, Conscious Control, Conscious Intentions). In Study 2, in the contexts Therapy, Research, Social Media,

Marketing, and Political Campaigning, Ratings of Unconscious Manipulation were much higher than affective experiences (Concern, Satisfaction). In Study 3, consistent with Study 1, in the contexts Therapy, Research, and Social Media Ratings of Unconscious Manipulation were much higher than free will. In addition, in Therapy and Research contexts, Ratings of Unconscious Manipulation were much higher than Personal Responsibility. Though for Political Campaigning, Social Media, and Marketing, where Ratings of Unconscious Manipulation were still high Personal Responsibility was still judged to be high, and in fact higher than Other's Responsibility.

There are two areas of discussion that we consider in more depth. The first concerns an apparent paradox. People are volunteering ratings about situations where they might be unconsciously manipulated, but, how would they know this, given that the influences on their behavior is occurring outside of their awareness? One possible explanation for this is that people are recruiting common folk beliefs about influences of external actors or mechanisms are occurring (e.g., Osman, 2020). For instance, whether or not common beliefs about advertising, such as subliminal methods (e.g., Broyles, 2006; Martin & Morich, 2011), or therapy (e.g., Johnson & Hauck, 1999; Lynn et al., 2020; Reategui, 2020), or unconscious bias (Osman, 2021) are warranted, nonetheless there are shared common beliefs about them. This might also underpin the remarkable agreement we observed in spite of the lack of demographic differences. Even when asked to consider these contexts from a personal stance, it is still likely that people recruit generally held beliefs about the degree of influence occurring without awareness. The critical difference when asked to judge them from a personal stance, rather than a general one, is that people can judge personal familiarity with each of the contexts (e.g., exposure to social media, political campaigning, therapy).

Following on from this, a further question this research raises is: What beliefs do people have about the causal mechanisms that are used to influence behavior outside of awareness? It is likely that there is variability in folk understanding about how people might be influenced without their awareness. For some contexts the mechanism might be known or easily inferred, for example, using jingles to induce a particular mood that raises the chances of selecting a particular product (e.g., Herget et al., 2020), or unknown, for example, the use of placebos in clinical trials to induce positive effects on mental, and physical health (e.g., Benedetti et al., 2018). There is likely to be variability in the understanding of where along the process the mechanism operates, for example, at the stage of choosing (i.e., which option to attend to), or the stage of implementing an action (i.e., how the action is expressed). These are fruitful lines of empirical investigation, and by investigating them further, we can extend our nuanced understanding of why people retain free choice and a sense of agency in some contexts, but and less so in others.

Limitations

Two issues of concern with any survey work is the reliability and validity of responses to the questions posed. In fact, the latter is an issue recently discussed by Berniūnas et al. (2021). In their work, Berniūnas et al. (2021) examined folk beliefs on free will to determine whether it is a universal psychological construct, and the implications of this. Their sample consisted of Western, Educated, Industrialized, Rich, Democratic (WEIRD) countries (U.S., Lithuania) and non-WEIRD countries (Mongolia, India, China). They showed that when asked to list five things associated with free will, there was strong agreement between the WEIRD sample, but not between WEIRD and non-WEIRD samples. The lack of consistency between WEIRD and non-WEIRD findings leads to the conclusion that free will is not a universal construct. The authors also raised concerns about construct validity because the materials used to probe folk beliefs are typically based on a WEIRD conceptualization of free will. However, looking at the examples generated by the non-WEIRD samples, there is still room for interpretation that the concept of free will is indeed a universal construct. Common examples that were provided by non-WEIRD samples (e.g., dancing, singing) still adhere to some of the critical criteria of free action (e.g., Deutschländer et al., 2017; Malle & Knobe, 1997; Monroe & Malle, 2010; Osman, 2020; Stillman et al., 2011). Nonetheless, the main point here is that the samples included in studies on folk beliefs matters for claims about the universality of psychological constructs. In Osman's (2020) study and the present study, the samples

were restricted to WEIRD countries. So, to be able to confidently say whether the remarkable agreement between countries reported in these studies extends more generally requires that other samples from non-WEIRD countries are examined in future studies.

Another issue related to validity is whether judgments about choice behavior generalize to actual choice behavior. In this regard, Osman's (2020) study and the present study provides only general insights into the association between the two. This has been discussed earlier in relation to how people infer manipulation in the absence of awareness. A more precise test of this would require eliciting subjective assessment of manipulation outside of awareness under conditions where this is experimentally manipulated. To this point, the accuracy of detection of manipulations on choice behavior, such as subliminal and supraliminal priming, has a long history, and to date, debates rage as to how successful manipulations outside of detection can be reliably demonstrated (e.g., Newell & Shanks, 2014; Shanks et al., 2013; Sherman & Rivers, 2021). In the present set of studies, the main focus was on what people think, not what they actually do, but exploring the link between folk beliefs and choice behavior would be a ripe area of future research.

Whether or not people's choices are actually frequently manipulated without their awareness, the present study tried to determine if there are common subjective experiences attached to the possibility of this happening, and where these experiences are most commonly located. This comes onto the issue of reliability. The high level of consistency between the present findings and Osman's (2020) study either reflect genuine reliable patterns of ratings, or are artifacts of demand characteristics. One indication that might be convincing of the former interpretation is that people were drawing from Personal Experiences. The findings show that taking a personal stance instead of a general one led to higher ratings of unconscious manipulation, and free will, and impacted the relationship between ratings and context. Furthermore, two different measures have been used to examine where manipulation without awareness most occurs, and the findings converged on the same contexts. In Osman's (2020, Study 1) people volunteered contexts where they personally experienced manipulations on their behavior without awareness. In Studies 2 and 3, based on a personal stance, people rated all contexts by the level of manipulation without awareness. For both types of measures, direct (Osman, 2020) and indirect (Study 2, Study 3), Marketing was revealed to be one of the most common. Nonetheless, we accept that demand characteristics can never be ruled out, and future studies are needed to further attenuate the possibility of this by using a variety of measures that probe the same psychological constructs.

Conclusion

The present study is the first of its kind to provide insights into the way in which folk beliefs of real-world Personal Experiences are viewed with respect to judged influences on behavior outside of awareness. To this end, the present study was able to show that across samples from different countries (Australia, Canada, U.K., U.S.) and varying in demographic variables (e.g., age, gender, educational level, religiosity, political affiliation) the pattern of responses was similar for ratings of unconscious manipulation, free will, Conscious Control, and Conscious Intentions. To extend this, the present study examined other ratings of agentic (Personal Responsibility, Other's Responsibility), and affective (Concern, Satisfaction, Certainty) experiences, where country and demographics had equally little impact. In addition, comparisons were made between providing ratings from a general stance and a personal stance. Overall, a personal stance increased ratings of the influence on behavior outside of awareness. In addition, the relationship between ratings of the extent of influence on behaviors outside of awareness and agentic and affective experiences vary strongly by context.

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