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Does Illusion of Control Have a Function to Appeal to Others?

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Illusion of control is a form of self-deception in which individuals overestimate their ability to control events and have inappropriately higher expectations of success than is justified by objective probability. It is unclear why this illusion occurs in cases where obtaining accurate information is adaptive. The module hypothesis posits that obtaining accurate information and signaling one's usefulness involve distinct modules. These modules are in operation separately when it is important to make accurate decisions and when it is advantageous to signal one's own usefulness to others. According to this hypothesis, the illusion of control is involved in signaling one's ability to control events. We examined this in the context of individual differences. We measured the sense of control in a task in which performance was randomly determined and manipulation had no effect. Then, we analyzed the correlations of sense of control with the degree of praise seeking and need to avoid rejection. In contrast to the hypothesis, our results demonstrated that the degree of praise seeking and need to avoid rejection were not associated with the sense of control.

Keywords
illusion of control, self-deception, module, praise seeking, rejection avoidance

Introduction

Self-deception has been thought to help maintain and restore happiness (Gilbert et al., 1998; Taylor & Brown, 1988). From the perspective of natural selection, however, happiness itself is unlikely to increase fitness. Pleasant feelings, such as happiness, are merely proximate factors that promote adaptive behavior and facilitate its repetition. In addition, the risks of accepting false events as true through self-deception should be considered. Kurzban (2010) proposed the module hypothesis, which posits that the human mind is not a single entity, but rather an assembly of modules optimized to perform specific functions. The hypothesis insists on the distinction between modules that are optimized to obtain accurate information and modules that signal one's usefulness to others. Von Hippel and Trivers (2011) suggested that the modules used to signal one's usefulness do not have to contain information disadvantageous to the self, and that the modules can prevent giving cues to lying by not having two contradictory pieces of information in one's consciousness. They insisted that thus there is no such thing as the phenomenon of self-deception, and that distinct modules are involved in cases where accurate decisions are advantageous and when it is important to signal one's usefulness to others.

The illusion of control is an example of self-deception involving overestimation of one's ability to control events; this leads to inappropriately high expectations of success relative to the objective evidence (Langer, 1975). The ability to control events is beneficial for obtaining resources and competing with others. Kurzban (2010) stated that signaling one's ability to control and convincing others of one's competence via signals of control ability would be effective to build collaborative relationships with others and induce investment from them. However, to our knowledge, this interesting hypothesis has not been tested. In the present study, we evaluated individual differences in the illusion of control. If the illusion of control is involved in signaling one's ability to control, people who seek self-presentation outcomes would have a stronger sense of control.

First, individual differences in the illusion of control were measured. We used the contingency task based on Hori (2013), in which participants are asked to control the flickering of a light using buttons but the contingency was set to be random by the experimenter. Participants were asked to report how they were able to control the light. As a measure of individual differences in the need for self-presentation outcomes, we used the Praise Seeking and Rejection Avoidance Need Scales (Kojima et al., 2003). These scales were developed based on the concept that there are two independent behavioral goals of making impressions on others: praise seeking and avoidance of rejection. High scores on the Praise Seeking Scale indicate the tendency to seek positive evaluations from others, whereas high scores on the Rejection Avoidance Need Scale indicate a tendency to avoid negative evaluations. We expected that the degree of illusion of control would be positively correlated with both of these scores.

Methods

Procedure

The illusion of control was measured using an online contingency task based on Experiment 4 of Study 3 by Hori (2013). A light, as well as icons beneath it representing the left and right buttons, were displayed on a PC monitor (Figure 1). Participants clicked on one of the two buttons within 3 s, after which the light turned on according to a fixed probability. The same procedure was repeated 40 times at 2-s intervals. If the light turned on, the score was increased by one point; if the light

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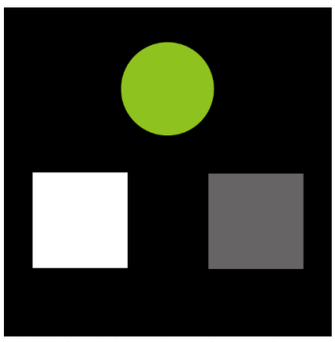

Figure 1. A light (above) and two buttons (below) displayed on a PC monitor. The figure shows a situation in which the right button was clicked, then the light turned on.

did not turn on, the score did not change. The score was not displayed during the trial. Contingency refers to the relationship between the change in one variable according to the change in another variable. Jenkins and Ward (1965) defined the objective contingency between a response and its outcome as the difference between the probability (O|R) of the outcome if there is a response and the probability P(O|~R) of the outcome if there is no response; this is described by the contingency value ΔP, which has a value between −1 and +1, with positive and negative values indicating positive and negative contingencies, respectively, and 0 indicating no contingency between two variables. In this study, the contingency value was set to 0 and the probability of the light changing [(O)] had a normal distribution with a mean of 75% in which participants in Hori (2013) reported a moderate sense of control. In other words, the light was randomly turned on an average of 30 times, regardless of which of the two buttons was clicked by the participants. Because the contingency value was set to 0, button clicks had no effect on the light's status. The task continued even if participants did not press the button, although they were informed beforehand that they would not be paid if they did not press the button more than five times. After 40 trials, participants rated their control over the light on a scale ranging from 0 to 100. The scale had five anchors: "I couldn't do it at all" (0), "I could do it a little" (25), "I could do it to some extent" (50), "I could do it pretty well" (75), and "I could do it perfectly" (100). Participants moved the marker on scale bar on the monitor according to the positions of the anchors and were also asked to estimate their score.

The Praise Seeking and Rejection Avoidance Need Scales, which have acceptable reliability and validity, were used in this study (Kojima et al., 2003). Items on the Praise Seeking Scale include the following: ''When I talk to people, I want to make my presence known as much as possible'' and ''To gain a high level of trust, I want to actively promote my abilities.'' The Rejection Avoidance Need Scale includes items such as ''When I speak my mind, I worry that people will disagree with me'' and ''When I act conspicuously, I worry that people around me will look at me funny.'' Each scale consists of nine items, which were presented in a random order. Each item was responded to on a 5-point Likert scale ranging from 1 (not applicable) to 5 (applicable).

After providing demographic information, participants completed the contingency task, followed by the Praise Seeking and Rejection Avoidance Need Scales.

Participants

Japanese adults were recruited through Cross Marketing, Inc. (Tokyo, Japan), a research agency that maintains a panel of more than 2 million individuals who have consented to participate in web-based surveys. After excluding 33 participants who did not correctly respond to the scale items and/or who did not click the button more than five times, data from 103 participants (36 females, 66 males, and 1 unknown; median age, 58 years; range: 21–80 years) were included in the analyses.

Data analysis

We calculated correlation coefficients to infer the relationships of sense of control with the degree of praise seeking and need to avoid rejection. We set the alpha level at .025 (.05/2; Bonferroni correction) to control for family-wise type I error. Power analysis performed using G*Power 3.1 indicated that 99 participants were required for the t-test of linear bivariate regression, with an effect size of 0.30, power of 0.8, and alpha of .025. Thus, our sample size was sufficient for the analyses.

Results and discussion

The mean sense of control score was 44.9 ± 22.6 (range: 0–100; 95% confidence interval: 40.5–49.3) (Figure 2). The mode of response was 50 and 31 of 103 participants (30.1%) answered "I could do it to some extent", indicating that participants had some sense of control even though clicking on the button did not affect the light's status; the mean score indicated that the sense of control was intermediate between "I could do a little" and "I could do it to some extent." There were also individual differences in the sense of control.

We explored whether the probability of the light's status changing (i.e., the score of the participants) affected the sense of control. The participants achieved a score of 30.0 ± 2.7 (range: 22–35), whereas the estimated score was 20.5 ± 9.8 (range: 0–40). The estimated scores of the participants were significantly lower than the actual scores (t = 9.71, df = 102, p < .001; Cohen's d = 1.33). The

Table 1. Correlations between each parameter.

Parameter	2	3	4	5
1. Sense of control	.031	−.005	.218*	.227*
2. Praise seeking		.380**	.034	−.040
3. Rejection avoidance need			.014	−.084
4. Actual score				.060
5. Estimated score				-

* p < .05, ** p < .01

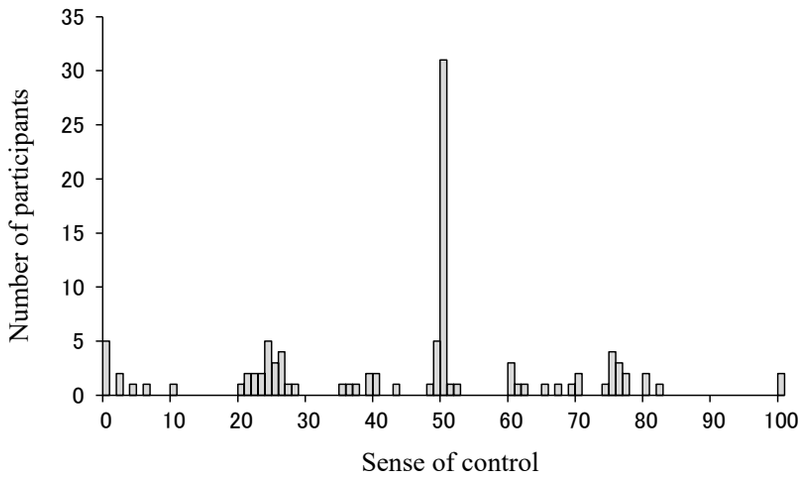

Figure 2. Distribution of the degree of sense of control.

estimated score did not correlate with the actual score (Table 1). The correlation coefficients between the sense of control and the actual and estimated scores were .22 and .23, respectively (Table 1). The sense of control was weakly correlated with both of the actual and estimated scores.

The summed score for the nine items of the Praise Seeking Scale was 23.6 ± 6.5 (α = .89), whereas that for the Rejection Avoidance Need Scale was 28.1 ± 6.7 (α = .89). The scores on the two scales were significantly correlated (Table 1). The correlations between sense of control and the two scores on the two scales were almost 0 (Table 1). Moreover, the scatter plots showed no clear pattern regarding the relationship between the sense of control and two scale scores (Figure 3).

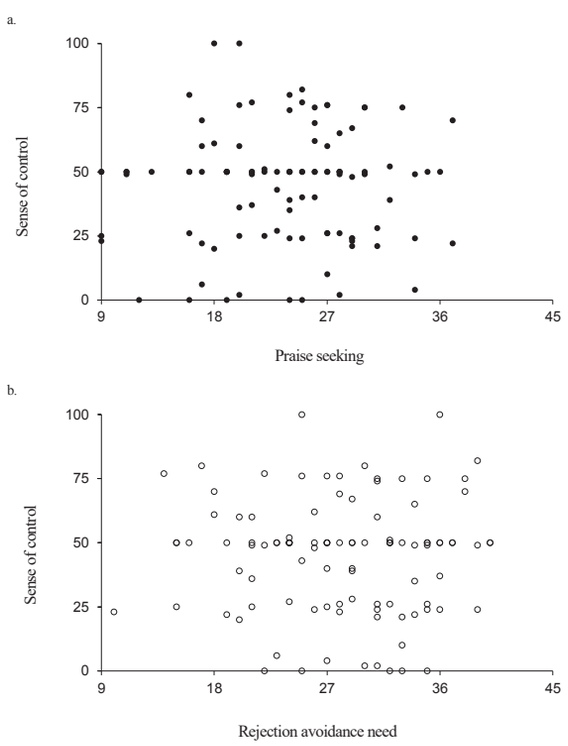

Figure 3. Scatter plots showing the relationship between the degree of sense of control and the degree of praise seeking (a) and rejection avoidance need (b).

For exploratory purposes, a multiple regression analysis was conducted to examine how the two scale scores and the actual and estimated scores of performance predicted the sense of control (adjusted R^2 = .057). While the actual and estimated scores significantly contributed to the degree of sense of control, neither the degree of praise seeking nor the degree of rejection avoidance need significantly contributed to the degree of sense of control even after controlling for the effects of the actual and expected scores (Table 2).

Table 2. Multiple regression of sense of control.

	Sense of control		
Parameter	β	t	p
Praise seeking	.034	0.32	.747
Rejection avoidance need	−.003	0.03	.978
Actual score	.204	2.12	.037
Estimated score	.216	2.23	.028

df = 98

Our results showed that the degree of praise seeking and need to avoid rejection did not predict the sense of control. A limitation of our study was that we used a single scale to assess the sense of control. Multiscale assessments should be used to evaluate the sense of control in future studies. In addition, although there were individual differences in the sense of control, the middle value of 50 (“I could do it to some extent”) was selected most frequently (n = 31, 30.1%). These results might be explained by the response style of East Asians, who tend to choose the middle value of scales (Chen et al., 1995). Future studies should perform cross-cultural comparisons to address this issue.

In the present study, we only examined correlations between individual differences, which is not sufficient to deny an advertising function of the illusion of control. There may be within-individual variations in the illusion of control, and the illusion may be stronger in contexts where one has to “advertise” oneself. This issue could also be explored from the point of view of the receiver of the signal. For example, it might be useful to compare the perceptions of others of a person who claims to be

able to control random events and a person who does not. The illusion of control is a form of cognitive bias; several such biases have been explained from an adaptive perspective (Gigerenzer et al., 1999). Although our results do not support the hypothesis that the illusion of control is involved in the signaling of one's usefulness, we could not exclude the possibility that self-deception is a form of adaptation. Further studies should explore this issue from an evolutionary perspective.

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Author contribution

RO and SW developed the study concept and design, and SO collected and analyzed data. RO wrote the manuscript.

Ethical statement

This study was approved by the Bioethics Review Committee of Nagoya Institute of Technology (No. 2021-4).

Data accessibility & program code

All the data is accessible as a supplemental file.

Supplementary material

Electronic supplementary materials are available online.

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