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Effects of Eye Images and Norm Cues on Charitable Donation: A Field Experiment in an Izakaya

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Abstract

Laboratory and field experiments have shown that people are more likely to be prosocial in the presence of watching eyes images. This "watching eyes effect" may be explained by the reputation-based partner choice model or a norm-compliance model suggesting that eye images elicit conformity to locally specific behavioral norms. A previous laboratory study that investigated the effects of local norms on charitable donations by using watching eye images and manipulating money visible in a collection box found that the presence of eye images significantly increased overall donations; however, the images did not make people more likely to conform to the apparent local norm. Here, we report the results of a field study examining the effects of watching eyes and the amount of money in transparent collection boxes on charitable giving in an izakaya (a Japanese-style tavern) setting. Contrary to the previous study, we found that the amount donated increased more under the large- than the small-norm treatment. The presence of eye images increased the overall amount donated but was more salient under the small-norm treatment. We found that participants were more likely to increase the amount of money in the box than to conform to the local norm of a small donation when the eye images were present. The results of this study suggest that an appropriate combination of eye images and normative information can alter people's behavior without changing their economic incentives.

Keywords

prosociality, eyes effect, norms, charitable giving, donation

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Growing evidence from laboratory and field studies suggests that the presence of eye images increases prosocial behavior toward unrelated strangers, a phenomenon known as the ''watching eyes effect.'' Since the pioneering work of Haley and Fessler (2005) and Burnham and Hare (2007), several laboratory experiments have confirmed the observation that individuals are more generous in economic games when the presence of artificial eyes suggest that they are being watched (e.g., Baillon, Selim, & van Dolder, 2013; Keller & Pfattheicher, 2011; Mifune, Hashimito, & Yamagishi, 2010; Oda, Niwa, Honma, & Hiraishi, 2011; Rigdon, Ishii, Watabe, & Kitayama, 2009; see Nettle et al., 2013, and Sparks & Barcley, 2013, for reviews). Previous field experiments have shown that watching eyes induce prosocial behavior in real-life situations. In the presence of eye images, people are more likely to pay via an honesty box (Bateson, Nettle, & Roberts, 2006), refrain from littering (Ernest-Jones, Nettle, & Bateson, 2011), recycle appropriately (Francey & Bergmüller, 2012), and make charitable donations (Ekström, 2011; Powell, Roberts, & Nettle, 2012).

The watching eyes effect may be explained by the ''reputation-based partner choice'' model or a norm-compliance model, suggesting that eye images elicited conformity to locally specific behavioral norms. Theoretical models and empirical studies have shown that prosocial behavior toward unrelated strangers has evolved through reputation-

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based partner choices (e.g., Barclay & Willer, 2007; Bereczkei, Birkas, & Kerekes, 2010; Roberts, 1998), which predicts that generosity in the presence of watching eyes is based on the providers' expectation of a future reward. Alternatively, altruism is a social norm, and humans tend to conform to social norms and to sanction departures from these norms (Chudek & Henrich, 2011). Thus, eye images may promote conformity by increasing awareness of the presence of others.

The findings of several previous studies support the reputation-based partner choice model. In a field study that involved manipulating the amount of litter, Bateson, Callow, Holmes, Redmond Roche, and Nettle (2013) found that images of watching eyes posted on nearby bicycle racks did not facilitate norm compliance. Fathi, Bateson, and Nettle (2014) conducted an experimental study in which participants were invited to donate money earned in a previous task to a charity and observed the amount donated under conditions of large and small amounts of money already present in the transparent donation jars in the presence and absence of watching eyes images on the walls. The authors found that the local norm did not affect overall donations and that, although the presence of eye images significantly increased overall donations, watching eyes did not make people more likely to conform to the apparent local norm. Oda, Niwa, Honma, and Hiraishi (2011) investigated this issue through the participants' interpretations of the situation. They conducted the dictator game in the presence and absence of a painting of stylized eyes. The participants were asked to complete a postexperimental questionnaire designed to determine what they were thinking when they decided on the amount of money to offer the recipient and how they perceived the experimental situation. The results suggested that the watching eyes effect was mediated by the expectation of a reward rather than by the fear of punishment. The results of these studies appear to support the reputation-based partner choice model. Nevertheless, support also exists for the norm-compliance model. Oda, Kato, and Hiraishi (2015) compared the tendency to tell a ''prosocial lie'' in the presence and absence of stylized eyes. Contrary to previous studies, they found that prosocial behavior and norm compliance contradicted each other. Participants tended to tell lies that benefited others when eye images were not present, whereas the tendency toward prosocial lying disappeared in the presence of the stylized eyes, suggesting that the desire to avoid violating norms by being honest was stronger than the desire to pursue a good reputation by demonstrating generosity. Further studies of the watching eyes effect in various settings are needed to settle this issue. Moreover, several studies have found no effect of eye images on behavior (e.g., Fehr & Schneider, 2010; Raihani & Bshary, 2012; Tane & Takezawa, 2011; Matsugasaki, Tsukamoto, & Ohtsubo, 2015). Thus, replication studies are needed to investigate the robustness of the watching eyes effect.

Here, we report the results of a field study examining the effects of watching eyes and the amount of money in transparent collection boxes on charitable giving in an izakaya (a Japanese-style tavern) setting. Our aim was to replicate the findings of Fathi et al. (2014) with high ecological validity.

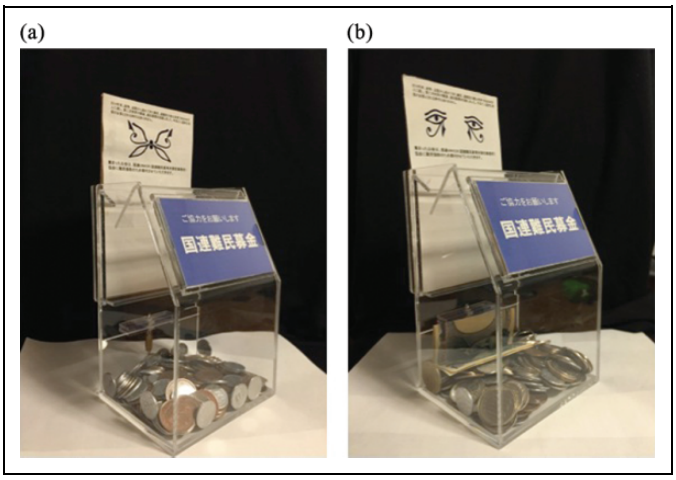

Figure 1. (a) The collection box of small-norm treatment with control stimulus. (b) The collection box of large-norm treatment with eyes stimulus.

Based on the findings of Ekström (2011), Powell et al. (2012), and Fathi et al. (2014), we predicted that the presence of watching eyes would increase charitable donations, whereas the prosocial norm would not affect the amount donated.

Materials and Method

Study Location

The study was conducted in an izakaya, a Japanese-style tavern, located near a terminal station in Nagoya, Japan. The izakaya contained 12 low tables, each of which sat 4 people, 3 low tables that sat 6, and a counter for 17 people.

Materials

We used three ready-made transparent collection boxes with a money slot (Plasart, Inc.; 120 × 97 × 179 mm, W × D × H; Figure 1). Cardholders were mounted on the front and back of the boxes. We inserted a blue card (100 × 65 mm, W × H) on the front of the box indicating that the donation would be sent to the United Nations High Commissioner for Refugees (UNHCR) to aid refugees. On the back, we inserted a white card (100 × 170 mm, W × H) with a brief written explanation of the refugee crisis and the watching eyes stimulus image (50 × 30 mm, W × H) in the upper portion. The eyes treatment stimulus employed the same stylized eyes image as used by Haley and Fessler (2005). The control treatment stimulus was a reconstructed version of the same image, in which the eyes were not identifiable (Figure 1). Under the small-norm treatment, we placed 150 coins in the box including ¥1, ¥10, ¥50, and ¥100, amounting to a total value of 4,050 Japanese yen (JPY). Under the large-norm treatment, the box contained 149 coins including ¥1, ¥10, ¥50, ¥100, and ¥500 and a ¥1,000 banknote amounting to a total value of 15,930 JPY (Table 1).

Table 1. Number of Coins and Banknotes Contained in Boxes of Small- and Large-Norm Treatments.

	Denomination (JPY)					
Norm	1	10	50	100	500	1,000
Small	50	50	30	20	0	0
Large	30	40	20	40	19	1

Note. JPY = Japanese yen.

Procedure

The collection boxes were placed in three locations around the izakaya: on the checkout counter, near the entrance to a room with 11 low tables, and on a low table in a private dining room for six. The boxes were left in place for 84 days between November 1, 2015, and February 19, 2016. One of the four combinations of the eyes/control and small-/large-norm treatments was randomly allocated to each day during the study period; thus, each combination was tested for a total of 21 days. The izakaya was open between 5:30 p.m. and 12:30 a.m. The collection boxes were emptied by an author or an izakaya staff member each day during the experimental period after the izakaya closed, and the amount donated was counted. The staff provided the number of patrons and groups who visited the izakaya on each experimental day.

Data Analysis

The R statistical software package (R Core Development Team, 2011) was used to conduct the statistical tests. The distribution was highly skewed to the right because most individuals donated a small amount of money, and large donations were rare; thus, the dependent variable was modeled using the Poisson distribution. A general linear model was used to analyze the effects of the predictor variables of eyes, norm, and their interaction on the dependent variable (amount donated).

Results

Donations by Treatment

Donations were made on 74 of the 84 experimental days. Of the 10 days during which no money was donated, 7 were small-norm/no-eyes condition days, and each of the other conditions was represented on 1 no donation day, that is, 1 day was the small-norm/with-eyes condition, 1 was the large-norm/no-eyes, and 1 was the large-norm/with-eyes condition. The difference was statistically significant ($\chi^2 = 10.80$, $df = 3$, $p = .012$). The total amount donated was 10,174 JPY, and the median amount donated per day was 90 JPY (range: 0–530). A total of 8,269 patrons visited the izakaya during the experiment, and the median number of patrons per day was 92.5 (range: 46–176).

A Poisson regression model was fitted using the number of patrons who visited the izakaya each day as an offset term (Akaike information criterion [AIC] = 4,866.2) because it was correlated with the amount donated (Kendall $\tau = .61$, $z = 8.07$, $p < .001$). The main effects of watching eyes and norm were significant (eyes: $B = .132$, $SE = .034$, $z = 3.936$, $p < .001$; norm: $B = .554$, $SE = .030$, $z = 18.417$, $p < .001$), but the interaction between eyes and norm was not significant ($B = -.041$, $SE = .042$, $z = -.986$, $p = .324$). More money was donated under the large-norm than under the small-norm treatment. Furthermore, the presence of watching eyes increased the overall amount donated.

The largest donation in a day was 530 JPY, which was made under the large-norm/no-eyes condition. We considered this donation an outlier and excluded it from the following analyses because the amount was 1.5 times the interquartile range (202.1 JPY) above the third quartile (178.5 JPY). A total of 8,189 patrons visited the izakaya during the remaining 83 experimental days, and the median number of patrons per day was 93 (range: 46–176). The total amount donated was 9,644 JPY. Table 2 shows the amount donated and number of patrons according to condition.

A Poisson regression model was fitted using the number of patrons who visited the izakaya each day as an offset term (AIC = 4,027.4) because it was correlated with the amount donated (Kendall $\tau = .63$, $z = 8.31$, $p < .001$). The main effects of watching eyes and norm were significant (eyes: $B = .132$, $SE = .034$, $z = 3.936$, $p < .001$; norm: $B = .414$, $SE = .031$, $z = 13.328$, $p < .001$) as was the interaction between eyes and norm ($B = .099$, $SE = .042$, $z = 2.343$, $p = .019$). More money was donated under the large-norm than under the small-norm treatment. Furthermore, the presence of watching eyes increased the overall amount donated; however, the effect of the eye images was more salient under the small-norm than under the large-norm treatment (Figure 2).

We quantified the frequency of coin denominations donated under each condition to determine the effects of watching eyes, norm, and the norm/eyes interaction on individual donations (Table 2). We found no significant difference in coin denominations across conditions ($\chi^2 = 16.25$, $df = 12$, $p = .180$).

Changes in Donations by Treatment

To estimate the effects of patrons' consciousness of the recipients and their habituation to the experimental treatments, we plotted the amount donated per patron each day (Figure 3). The amount donated in the small-norm/no-eyes condition tended to decrease as the days passed (Figure 3a; Kendall $\tau = -.43$, $z = -2.62$, $p = .008$). However, no significant decrease in the amount donated was detected under the other three conditions (Figure 3b–d; Kendall $\tau = .25$, .16, and .16, respectively).

Discussion

We found that both the prosocial norm and watching eyes affected charitable donations and that the effect of the norm was stronger than that of watching eyes. No decrease in the amount donated was detected as a function of days elapsed under the large-norm or with-eyes treatments. Although we have no data on the regularity of the patrons, the results suggest

Table 2. Amount of Donation, Number of Patrons, and Number of Coins Donated in Each Condition.

Condition	Amount of Donation (JPY)	No. of Patrons	Denomination (JPY)					Total No. of Coins
			1	5	10	50	100	
Small norm/no eyes	1,667	1,981	12 (10.9)	21 (19.1)	60 (54.5)	15 (13.6)	2 (1.8)	110
Large norm/no eyes	2,742	2,154	17 (11.7)	13 (9.0)	86 (59.3)	22 (15.2)	7 (4.8)	145
Small norm/eyes	1,893	1,971	13 (9.5)	24 (17.5)	86 (63.8)	10 (7.3)	4 (2.9)	137
Large norm/eyes	3,342	2,083	17 (10.1)	23 (13.7)	91 (54.2)	26 (15.5)	11 (6.6)	168

Note. Percentages are in parentheses. JPY = Japanese yen.

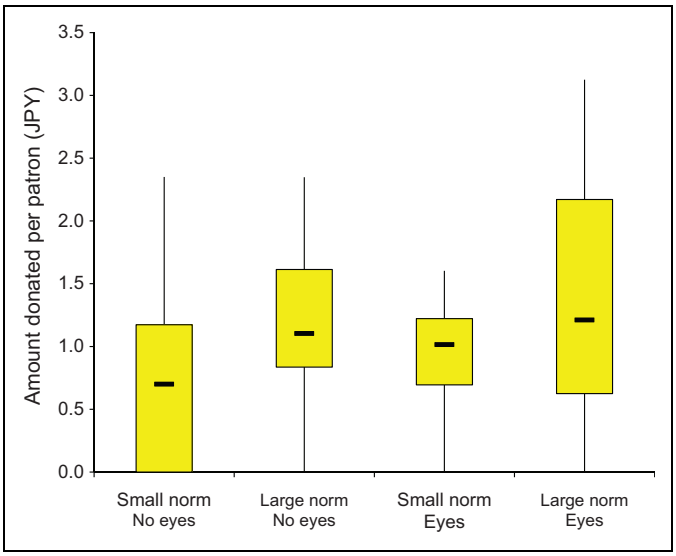

Figure 2. Boxplot of amount donated per patron by condition. Bold bars represent the median.

that few patrons visited the izakaya on a regular basis and that no patron, even among the few regulars, habituated to the stimulus. However, the amount donated decreased as a function of days elapsed under the small-norm/no-eyes treatment. This could reflect trends in the news coverage of the refugee crisis. According to Google Trends, the search volume index for the word "*nanmin*" ("refugee" in Japanese) was at its peak (100) in September 2015, and it then decreased to 32 in November 2015, when we started the experiments. The index values in December, January, February, and March were 22, 31, 19, and 17, respectively. That is, consciousness of the refugee crisis tended to decrease in Japan during the study period. The transition analysis suggested that the decrease in donations later in the period was probably caused by the lack of concern about the refugee crisis, which was prevented by the large-norm or eye-stimulus treatments and led to differences in total donations among conditions.

Our finding that the presence of eye images increased the overall amount donated supports those of Ekström (2011), Powell et al. (2012), and Fathi et al. (2014). The watching eyes effect was more salient under the small-donation treatment after excluding an outlier. The interaction between the eyes and norm treatments was not significant when we included a day in which an extreme donation was made, which raises questions on the robustness of the interaction effect. However, similar to Nettle et al. (2013), we found that the watching eyes effect appeared to be driven by a change in the probability of giving anything at all (7 days with no donations under the control treatment vs. 1 day under the eyes treatment) under the small-norm treatment, whereas no such tendency was observed under the large-norm treatment (1 day with no donations under each eye treatment). In any case, the eye image did not boost conformity to local norms, which supports the reputation-based partner choice model.

Contrary to the findings of Fathi et al. (2014), the participants in our study donated more money under the large-norm than under the small-norm treatment, which supports the findings of Martin and Randall (2008, 2009). Fathi et al. (2014) reported that the median donation under the large-norm/no-eyes treatment was zero and suggested that this was caused by a relative excess of zero donations, suggesting that the norm cues provided an indication of an acceptable minimum level of prosociality. However, no donations were seen during only 2 days under the large-norm treatment of our experiments. Several differences between these studies may account for the disparity. First, the study settings differed: Ours was conducted in the field, whereas that of Fathi et al. was a laboratory study. Second, differences in the manipulation of money in the collection boxes may have significantly affected local norms; for instance, the norm cues in our experiment may have been stronger than those used by Fathi et al. In the Fathi et al. study, the amount of money in the large-norm jar was about twice as much as that in the small-norm jar, whereas in our study, the large-norm collection box contained approximately 4 times more money than the small-norm box. Moreover, our large-norm boxes contained banknotes. Third, cultural differences may have contributed to the disparity between studies. Fathi et al. recruited participants from a volunteer database held by a university in England, whereas our subjects were patrons of a Japanese izakaya. Japanese individuals are more likely than Westerners to conform to norms. Studies of the culturally construed self suggest that the East Asian cultures adhere to the fundamental relatedness of individuals to one another (interdependent self), whereas European and American individuals seek to maintain their independence from others (independent self; e.g., Markus & Kitayama, 1991).

Furthermore, the money to be donated was provided by the experimenter as payment for the completion of a task in the Fathi et al. (2014) study, whereas our subjects were required to

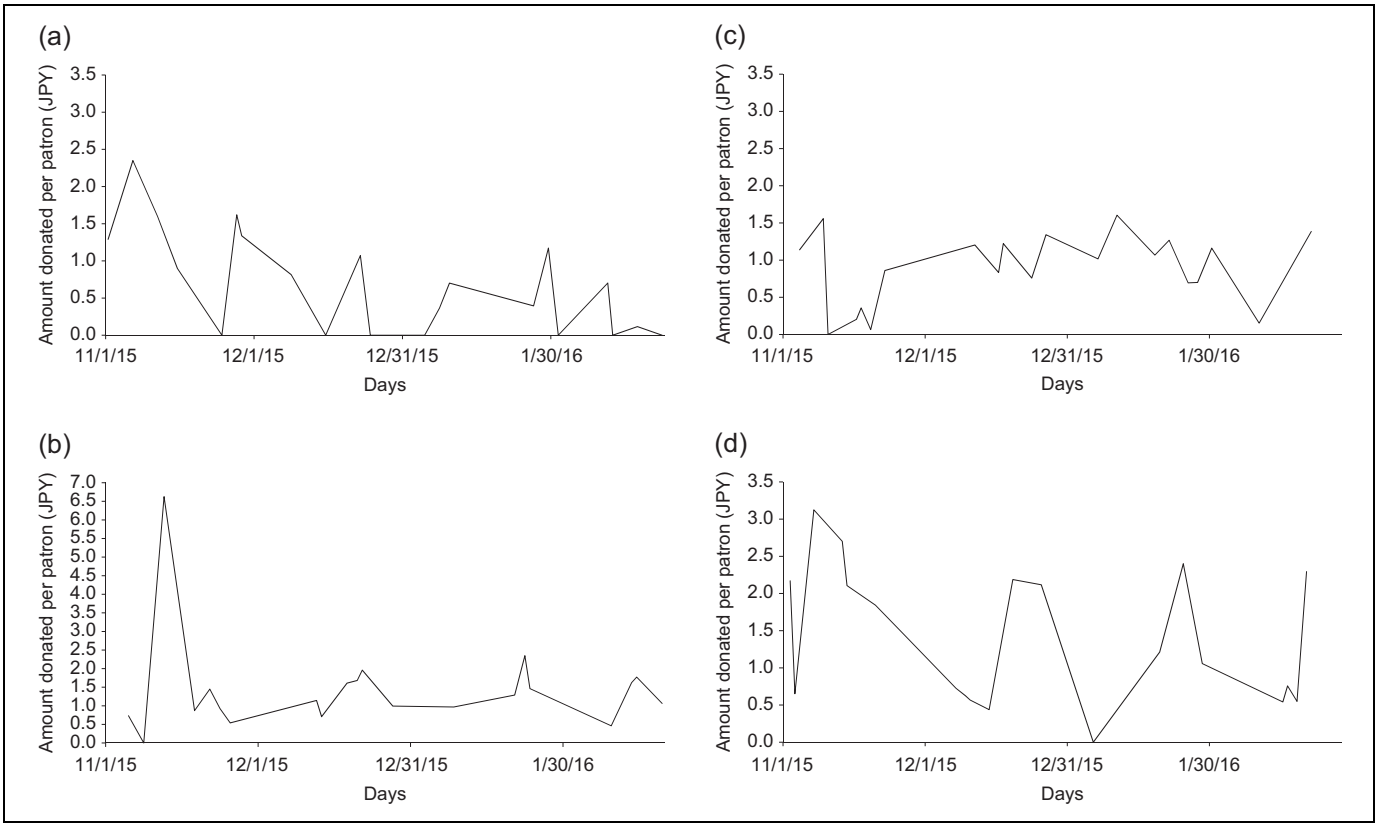

Figure 3. Transition of the amount donated per patron during the study period (a) in the small-norm/no-eyes condition, (b) in the large-norm/no-eyes condition, (c) in the small-norm/with-eyes condition, (d) in the large-norm/with-eyes condition.

donate their own money. Participants in the Fathi et al. study were told that their donations went to a local organization that provided air ambulance services in the North of England, which could be classified as an ''in-group.'' Conversely, our participants were told that the donations were for refugees, which could be classified as an ''out-group.'' Furthermore, the watching eyes stimulus used by Fathi et al. was an image of male eyes, whereas our stimulus image was Horus eyes. Finally, alcohol intoxication may have affected behavior in our study because most of the patrons consumed alcoholic beverages during the evening. Any one of these factors alone or interactions among them may account for the differences observed between our findings and those of Fathi et al. Further studies that control for each confounding factor are needed for clarification.

Although the proportions of ¥50 and ¥100 coins were larger under the large-norm treatment than under the small-norm treatment, no significant difference in the type of coin denominations was observed among the conditions. Moreover, the total number of coins was larger under the large-norm treatment than under the small-norm treatment. These results suggest that the larger amount of money donated under the large-norm treatment was not due to large individual donations. It is likely that differences in the amount donated among the four conditions resulted from differences in the total number of coins donated. This finding suggests that the large amount of money in the large-norm box served to draw more attention to the written information about UNHCR activities than did the small amount of money. Indeed, we included a banknote in the large-norm box, which is unusual in charity boxes. Similarly, it may be that the presence of eye images drew attention to the collection box, as Ernest-Jones et al. (2011) suggested. Alternatively, it is possible that although the frequency of coin throwing did not differ between the large- and small-norm treatments, people who saw a large amount of money in the boxes donated more coins at a time to conform to the norm, leading to the same result. The use of a video camera to confirm the number of donations made under each condition, similar to that used by Martin and Randall (2008), would help clarify this issue.

In conclusion, both an eye image and normative information facilitated prosociality, and there may be some interaction between these factors. The results of this study suggest that an appropriate combination of eye images and normative information can alter people's behavior without changing their economic incentives.

Declaration of Conflicting Interests

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