Food Abstention, Religious Observance and Prosocial Behavior: Evidence from Ramadan

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Abstract

Does food intake affect prosocial behavior? Extant knowledge suggests that food intake increases prosocial behavior. But this may not be universally true, especially when religious fasting holidays are concerned. We investigate experimentally the impact of religious fasting in the Islamic holy month of Ramadan on prosocial behavior. Our sample consists of male factory workers in a manufacturing facility in Iran. Each worker is asked to allocate an amount of money between himself and a stranger. Strikingly, the effect of food intake is reversed during the holy month of Ramadan. Workers who are in the midst of their Ramadan fast are far more generous to recipients than workers who have had their evening meal, and more generous than fasting and non-fasting workers outside Ramadan. Interestingly, workers who have had their evening meal during Ramadan are statistically indistinguishable from non-fasting workers outside of Ramadan. Our findings suggest that it is the interaction of food abstention with the ritual of fasting and religious observance that amplifies prosocial behavior.

Keywords: Prosocial Behavior, Ramadan, Religiosity, Dictator Game

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1 Introduction

What is the relationship between food abstention, religious observance and prosocial behavior? The present study uses a controlled experiment to examine the prosocial behavior of male workers during the holy month of Ramadan, the ninth month of the Islamic lunar calendar. During Ramadan, Muslims engage in fasting and self-control (*Sawm*). Followers abstain from any food or water from dawn to sunset. Sawn is one of the five pillars of Islam, as is giving a portion of one's savings to the poor and needy (*Zakat*). The interaction between the two implies prosocial behavior during Ramadan fasting. Additionally, Ramadan consists of fast-breaking (*iftar*) meals, which are social events involving family, friends and co-workers, and may have further implications for prosocial behavior. We examine prosocial giving during and after the fast, as well as behavior outside the month of Ramadan, with the intent of inferring the impact of hunger on prosocial behavior, with and without the religious element.

Recent physiological research indicates that self control, which is necessary for prosocial acts, requires glucose intake (Gailliot and Baumeister (2007), Gailliot, Baumeister, DeWall, Maner, Plant, Tice, Brewer, and Schmeichel (2007), Gailliot (2015)). Aarøe and Petersen (2013) show that individuals with higher blood-glucose levels give more when it comes to redistributing an endowment between themselves and a recipient. This finding is consistent with the notion of the equimarginal principle, which suggests that a hungry individual who faces a tradeoff between his own immediate consumption and that of another person is going to place a higher weight on his own consumption (see a demonstration of that principle in Gneezy and Haruvy (2004)). Along similar lines, Harel and Kogut (2015) examine the influence of both hunger and the relief from hunger on the willingness to help others experiencing hunger. In their experiments, participants fasted for three hours and were subsequently asked to donate to an organization helping the poor to buy food. In the relief condition, hunger was relieved with an energy bar. Their study found that hunger reduced donations to the poor to buy food relative to the control, but in the relief condition donations to the poor to buy food increased. The most striking field evidence of the association between food intake and prosocial behavior is from a study on decisions by Israeli judges (Danziger, Levav, and Avnaim-Pesso (2011)). In the study, Israeli judges are shown more likely to grant a parole or a parolee's request after a meal break when controlling for the characteristics of the cases examined.

In summary, the literature has shown that food abstention is associated with lower prosocial giving. In the present study, we confirm this finding outside of Ramadan but find the reverse trend in the context of religious fasting. Specifically, we employ a standard Dictator

decision (Forsythe, Horowitz, Savin, and Sefton (1994)) to assess prosocial behavior as is common in the literature (see, for instance, Aarøe and Petersen (2013)). In this decision task, the decision maker is provided with a monetary endowment. The decision maker is then asked to allocate the endowment between himself and the passive recipient with the understanding that the allocation will be implemented immediately. This setup has been used extensively in the literature to test the basic economic premise of individuals behaving in their own self-interest. Experimental results, contrary to this premise, have indicated that only a minority of decision makers keeps the entire endowment to themselves (Forsythe, Horowitz, Savin, and Sefton (1994)). Researchers have attributed this behavior to prosocial preferences (Andreoni and Miller (2002)).

In the experimental design, we examine behavior in the Dictator task by Iranian factory workers during and outside of Ramadan. Within the Ramadan sample, we examine behavior before and after the break of the fast, which allows us to associate food abstention within Ramadan and prosocial behavior. Outside of Ramadan, we do not have the break of the fast as the natural time separation. Instead, we look at breakfast as a key meal that some workers skip as their shifts start before the time of breakfast. The study is conducted prior to the lunch break and so we treat skipping breakfast as akin to a long fast period. Thus, we can loosely think of this design as varying two dimensions: (a) whether the decision maker abstains from food or not, and (b) whether the calendar date of the experiment coincides or not with the holy month of Ramadan.

In line with standard economic theory, we confirm that outside Ramadan, decision makers who abstained from food consumption transfer less money to recipients relative to decision makers who have had food. Strikingly, this finding is reversed during the holy month of Ramadan; that is, fasting decision makers transfer more money to recipients relative to decision makers who did not abstain from food. Finally, we find that observance of Ramadan is not sufficient to lead to more prosocial giving as decision makers who consumed food in the two calendar dates transfer to recipients statistically the same amount of money.

2 Materials and Methods

The experimental sessions were run in a properly modified area in the Sepaahaan (car battery) manufacturing factory in the city of Isfahan in Iran. For all factory workers, this experiment was the first academic study they had ever participated in. The factory has 876 employees: 795 are men and 81 are women. Furthermore, around 60% of the employees were classified as white-collar employees and the remaining workers were classified as blue-collar

employees. A total of 312 employees participated in our experimental sessions: about 70% were white-collar employees and about 30% were blue-collar employees. All participants were men. We excluded women from the study as one of the sessions had to be conducted at 10:30pm when very few women work at the factory. The selection of male participants was done randomly on the day of the experiment from among all present male factory workers. The age of participants ranged from 23 to 51 with approximately half of the sample in the interval of 29-34. All experimental sessions were paper-and-pencil. Employees were allowed to participate in only one session. Once participants completed the consent form, they were presented with a single-shot Dictator task. In our setup, all participants had an active role in that they were all in the dictator's role. Moreover, the recipient was noted in the instructions to be a participant outside the factory. At the end of the experimental session, participants were paid their show-up fee, which amounted to 50,000 Rials (around $2). The total earnings of the participants consisted of the show-up fee and the amount kept in the dictator task.

In the dictator task, participants were given an envelope, which contained a form and an endowment of 10 notes of 10,000 Rials each for a total of 100,000 Rials. The endowment is equivalent to two hours of work at the minimum wage in Iran. Participants were instructed to remove the contents of the envelope and to place them in front of them. Participants were then informed that they had to make a single decision. In particular, participants were asked to decide how many Rials out of the 100,000 Rials given as an endowment they would like to keep, while noting that the remaining amount would be transferred to a person outside the factory. The recipients of the money were women who are under the supervision of the Seddigin Charity Foundation. The foundation's main purpose is to feed hungry women. Neither the gender nor the name of the foundation was disclosed to the decision makers. The latter were informed that the outside recipient would not be given any identifying information about them and that all information was completely anonymous. The decision makers were asked to write the amount they would like to transfer to the recipient on the form. Finally, they had to place the transferred amount inside the envelope and seal the envelope. The amount that was not transferred was theirs to keep. The envelopes and the forms were collected at the end of the experimental session.

In the experimental design, we focused on two dimensions: whether the decision maker abstained from food consumption or consumed food, and whether the calendar date of the experiment coincided or not with the holy month of Ramadan. Two of the sessions were conducted on July 16, 2014 during the holy month of Ramadan, although not all participants were observing the Ramadan fast as self-reported by them. The specific date was somewhat in the middle of the holy month, which commenced on June 28 and ended on July 28.

Another session was conducted outside Ramadan on March 3, 2015. Moreover, the date ensured a fair calendar distance from the two adjacent Islamic religious festivities (i.e. Milad un Nabi that was celebrated on January 08, 2015 and Lailat al Miraj that was celebrated on May 16, 2015). The characteristics of the sessions are shown in Table 1.

Table 1: Characteristics of the Sessions

Date	Time	# of Participants	Observing Ramadan Fast	Ramadan?	Recently Consumed Food?
July 16, 2014	3:00pm	77	55	Yes	Mixed
July 16, 2014	10:30pm	155	94	Yes	Mixed
March 3, 2015	1:30pm	80	-	No	Mixed

Notes: The table indicates the characteristics of the sessions. In the first two columns, we provide information on the calendar date and time of the sessions. In the third column, we provide the total number of participants. The fourth column indicates the number of participants who observed the Ramadan fast. The fifth column indicates whether the session took place during the holy month of Ramadan, whereas the last column indicates whether the participants consumed food recently.

3 Results

In Table 2, we report the frequency in percentage terms for each monetary transfer of the decision makers. Frequencies in each condition sum up to 100%. To simplify the exposition, the transfers are displayed in terms of the number of notes out of a total of 10 notes. The summary statistics are classified by the calendar date, time and participant type. One calendar date takes place during the holy month of Ramadan and another takes place outside of Ramadan. Furthermore, within Ramadan, we differentiate between 'Mid-Fast' and 'Post-Dinner.' Participants outside of Ramadan are classified based on self-reporting as either 'Did Not Eat' or 'Ate.' In the Ramadan sessions, participants are classified by self-reported religious observance; that is, those who observed the Ramadan fasting on that day and those who did not. These classifications are exogenous and were not manipulated experimentally.

First, by the strictest economic principle of self-serving economic agents, an individual should transfer nothing to an anonymous recipient. That principle we can reject outright. Even in our most extreme group, the hungry people outside Ramadan, the mean and the mode are strictly positive. Next, relaxing the self-serving principle, by the equimarginal

Table 2: Summary Statistics

	Outside Ramadan		In Ramadan Observant		In Ramadan Non-Observant	
Transfer	Did Not Eat	Ate	Mid-Fast	Post-Dinner	Mid-Fast	Post-Dinner
0	10.9	8.8	5.8	10.6	12.0	3.3
1	23.9	11.8	1.9	1.1	4.0	8.2
2	19.6	17.7	7.7	13.8	32.0	27.9
3	23.9	17.7	7.7	7.5	4.0	14.8
4	4.4	2.9	7.7	4.3	0.0	1.6
5	13.0	23.5	21.2	39.4	28.0	34.4
6	0.0	0.0	3.9	3.2	0.0	0.0
7	0.0	0.0	0.0	1.1	0.0	0.0
8	0.0	0.0	3.9	0.0	0.0	0.0
9	2.2	0.0	0.0	0.0	0.0	1.6
10	2.2	17.7	40.4	19.2	20.0	8.2
Mean	2.6	4.1	6.3	4.8	4.2	3.8
St. Dev.	2.1	3.2	3.4	3.1	3.4	2.5
Mode	1, 3	5	10	5	2	5

Notes: In the table, we indicate the percentage of participants making a given transfer.

principle, a hungrier participant will transfer less money to recipients. That principle is preserved outside of Ramadan. Specifically, those who self-reported as not having eaten transferred less (M = 2.6, SD = 2.1) than those who self-reported as having eaten (M = 4.1, SD = 3.2), t = 2.48, DF = 79, P = 0.02. This is consistent with the findings of Harel and Kogut (2015) with fasting student subjects. Among Ramadan-observing participants, the trend is completely reversed. Participants in the mid-fast session gave more (M = 6.3, SD = 3.4) than participants gave in the post-dinner session (M = 4.8, SD = 3.1), t = 2.75, DF = 144, P < 0.01. For participants not observing the Ramadan fast, the difference in giving mid-fast (M = 4.2, SD = 3.4) and post-dinner (M = 3.8, SD = 2.5) is not statistically significant, t = 0.55, DF = 84, P = 0.58. Therefore, we can say that the effect of food abstention on giving is reversed on Ramadan. The comparison with non-observing participants rules out a time-of-the-day effect (afternoon vs. nighttime). The time-of-day is insignificant for non-fasters.

We then check whether those who ate out-of-Ramadan are comparable to the non-observant who ate in the Ramadan sample. Indeed, the majority of those who ate in the

out-of-Ramadan sample would be Ramadan-observant (this information was not available for the out-of-Ramadan sample but the proportion is inferred from the Ramadan sample[1]), which may or may not be comparable in terms of the propensity to transfer money. The amount given by those who ate pre-dinner in the out-of-Ramadan sample (M = 4.1, SD = 3.2) and by those non-observant who ate post-dinner in the Ramadan sample (M = 3.8, SD = 2.5) is not statistically different, t = 0.38, DF = 93, P = 0.71. This is taken as evidence that religious observance absent fasting is not enough to increase giving.

Lastly, we would like to know whether the mere impact of eating after the fast is sufficient to completely eliminate all the increased prosocial behavior generated by the fast. That is, we would like to know whether the transfer by the observant post-dinner during Ramadan (M = 4.8, SD = 3.1) is higher than the amount given by those who ate outside of Ramadan (M = 4.1, SD = 3.2). The difference is insignificant, t = 1.24, DF = 126, P = 0.22. This suggests that it takes one meal to bring prosocial behavior back to normal non-Ramadan levels. The amount given post-dinner by observant Muslims in the Ramadan sample (M = 4.8, SD = 3.2) and by those non-observant post-dinner in the Ramadan sample (M = 3.8, SD = 2.5) is statistically different, t = 2.12, DF = 153, P = 0.04. This is taken as evidence that dinner does not blur the difference between observant and non-observant - it merely reduces the difference between Ramadan and non-Ramadan giving.

4 Discussion

We presented evidence to suggest that food abstention is related to lower prosocial behavior outside of religious fasting in accordance with the existing literature. However, during the religious month of Ramadan, those who fast exhibit more prosocial behavior during the ritual of fasting than those who do not fast. However, once they break the fast, they appear to revert back to normal levels of prosocial behavior. Therefore, religious fasting does not appear to have long lasting effects, but the short-term relationship is substantial, remarkable, and in the exact opposite direction to the relationship of food abstention and prosocial behavior outside of Ramadan.

Charity is an important tenet of many established religions, including Islam. Our findings, however, indicate that charitable behavior varies based on the calendar date and time as

[1]Specifically, we asked participants outside of Ramadan if they had observed the Ramadan fast. 100% indicated that they did in some form. Socially, there is no taboo in admitting lapses in fasting, for medical, travel or other reasons. Hence, we had no difficulty in getting a large minority portion of the sample during Ramadan admitting to not fasting on that given day, without fear or stigma. Placing the question more broadly outside of Ramadan did not sit well with respondents and we are therefore unable to compare these two samples in terms of Ramadan observance.

well as the religious observance of the individual. Other religions have notable fast days as well, which are often tied with charity. However, fasting is most central in Islam where it is considered an obligation for all believers and the foundation of Muslim life. Consequently, the holy month of Ramadan was the natural setting to test the basic impact of food abstention on prosocial behavior. Moreover, Ramadan fasting is the longest period of food abstention of any major religion and affects a large portion of the world population with likely substantial economic impact yearly on the world economy. Indeed, recent research finds that longer Ramadan periods have an adverse effect on economic output (Campante and Yanagizawa-Drott (2015)). The current evidence suggests that the economic impact needs to be better understood in light of prosocial implications.

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Appendix

Experimental Instructions

[The experimental instructions are translated from Farsi.]

Welcome!

The purpose of this experiment is to study how people make decisions in a particular situation. For your participation in the experiment, you will receive 50,000 Rials to be paid at the end of the experiment. The instructions are simple, yet if you have a question please raise your hand. Aside from these questions, any communication with other participants is not permitted and will lead to your immediate exclusion from the experiment.

In front of you there is an unsealed envelope. Inside the envelope there is a form and 10 $\times$ 10,000 Rials = 100,000 Rials. Please take out the contents of the envelope and place them in front of you.

You are asked to make one and only one decision. It is important to note that none of the other participants in this room will be informed of your decision, and likewise you will not be informed of the decisions of others. In other words, this experiment is done completely anonymously.

You are asked to decide how many Rials out of the 100,000 Rials given to you, you would like to keep. The remaining amount will be transferred to a participant outside the factory. The recipient of the money does not know and will not be told of the task that is taking place right now in this room. With the completion of this experiment, the other participant will be delivered the sealed envelope with the money you placed without being given any information whatsoever of the task that you participated in.

Please make your decision as to how much money you would like to transfer to the other participant. Indicate the amount of money on the form provided and place the money you would like to transfer inside the envelope. Please seal the envelope well. The form will be collected. The money that you did not place in the envelope is yours to keep.