

# Is the call to prayer a call to cooperate? A field experiment on the impact of religious salience on prosocial behavior

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## Abstract

While religiosity is positively correlated with self-reported prosociality, observational and experimental studies on the long-hypothesized connection between religion and prosocial behavior have yielded mixed results. Recent work highlights the role of religious salience for stimulating prosocial behavior, but much of this research has involved priming Christian subjects in laboratory settings, limiting generalization to the real world. Here I present a field study conducted in the souks in the medina of Marrakesh, Morocco, which shows that religious salience can increase prosocial behavior with Muslim subjects in a natural setting. In an economic decision making task similar to a dictator game, shopkeepers demonstrated increased prosocial behavior when the Islamic call to prayer was audible compared to when it was not audible. This finding complements a growing literature on the connection between cultural cues, religious practices, and prosocial behavior, and supports the hypothesis that religious rituals play a role in galvanizing prosocial behavior.

Keywords: decision making, prosocial behavior, cooperation, religion.

## 1 Introduction

Scholars have long argued that religious beliefs and practices facilitate prosocial behavior (e.g., Durkheim, 1912/2001; Wilson, 2002), but observational and experimental studies examining this connection have yielded mixed results (e.g., Batson, Schoenrade & Ventis, 1993; Darley & Batson, 1973). In recent years, research on the connection between religion and prosociality has highlighted the role of religious salience for stimulating prosocial behavior (for a meta-analysis see Shariff, Willard, Andersen & Norenzayan, 2015). For instance, Mazar, Amir & Ariely (2008) found that asking students to recall the Ten Commandments led to a reduction in cheating on a subsequent math test, and Shariff & Norenzayan (2007) found that subliminally priming religious concepts in a sentence-unscrambling task (e.g., with the words “divine” and “God”) led individuals to donate more to anonymous strangers in a dictator game. This line of work helps demonstrate a causal relationship between religious thoughts and prosocial behavior, and it also has implications for how we understand the role of religious symbolism and rituals such as ritualistic prayer. That is, religious rituals may promote prosocial behavior by reminding people of and reinforcing their commitment to prosocial religious beliefs, which is consistent with

theories that attempt to explain the evolution of costly ritualistic practices (Atran & Henrich, 2010; Henrich, 2009). This, in turn, lends support to theories that attempt to simultaneously explain two evolutionary puzzles: the rise of large-scale cooperation among strangers and the spread of prosocial religions (Norenzayan, 2013; Norenzayan & Shariff, 2008; Norenzayan et al., 2015; Wilson, 2002).

While this literature has grown considerably, most of this work has involved priming Christian subjects in Western, Educated, Industrialized, Rich and Democratic (WEIRD) societies, limiting the generalizability of claims about the effect of religious rituals on prosocial behavior (Galen, 2012; Henrich, Heine & Norenzayan, 2010). Some notable exceptions include studies with Hindu subjects in Mauritius (Xygalatas, 2012; Xygalatas et al., 2013) and a study by Aveyard (2014), which found that having Muslim students in the United Arab Emirates listen to an audio recording containing the Islamic call to prayer, or *athan*, produced higher rates of honesty. There are also concerns regarding the ecological validity of this body of research, since most studies have taken place in laboratory settings and/or utilized artificial stimuli. Perhaps the most notable exception is a study by Malhotra (2010), which found that Christians were more likely to respond to an appeal “for charity” in an online auction on Sundays. However, while this finding is compelling, the experimental design provided less control than other priming experiments. It is possible, for instance, that Christians are simply more likely to spend time relaxing with their families on Sundays and this – not increased religious salience – drove the observed effect.

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Figure 1: Spice seller in the medina of Fes, Morocco.



Lange, Philip / Shutterstock.com (2008).

Here I present findings from a field experiment conducted with shopkeepers in Marrakech, Morocco, that addresses these issues of generalizability and ecological validity. To be more specific, the study took place in the traditional markets – the souks – of the old city – the medina – in which the Islamic call to prayer can be heard five times each day when it is sounded out from minarets throughout the city. The hypothesis of this study was that shopkeepers would exhibit increased prosocial behavior on an economic decision making task when the call to prayer was audible compared to when it was not.

## 2 Methods

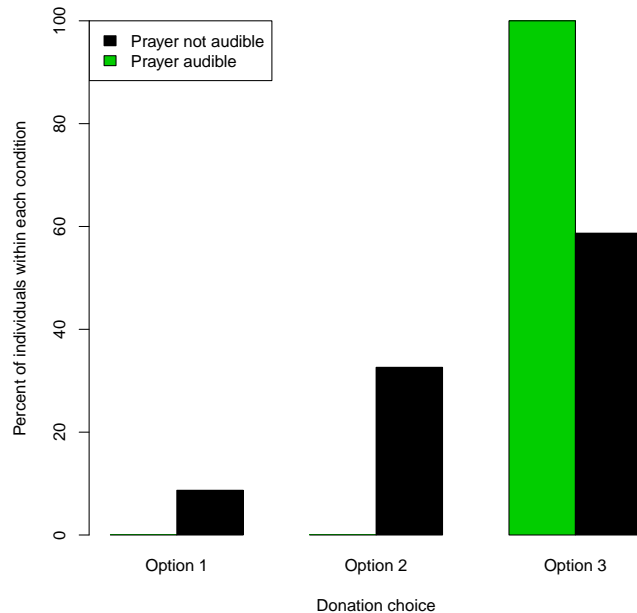
Participants were 63 shopkeepers (like the one in Figure 1) who sold items like dried fruits, crafts and rugs at shops that predominately targeted tourists and where haggling was commonplace. Potential participants were approached and shown a consent form in Berber (the local dialect) if they were in front of their shop and neither busy with customers nor accompanied by friends or family members. The consent form asked the shopkeepers if they would like to participate in a research study “about how people decide to give to charity” and informed them that they might be paid up to 20 dirhams for participating, which, for reference, is the equivalent of over \$2 and can reasonably pay for a fifteen-minute taxi ride, several kilos of fruit, or a lunch in Marrakech. No-

tably, the shopkeepers skillfully negotiate over amounts less than 20 dirhams throughout the day. 6 shopkeepers declined the invitation to participate in the study.

While potential participants were approached when they were alone in front of their shops, oftentimes the novelty of the study attracted others to come observe. If a friend, family member, or nearby shopkeeper joined the interaction prior to the economic decision making task, then they were also invited to participate. In these cases, the presence of another person was recorded because past research suggests that religious prosocial motivations may be driven by social-desirability bias (e.g., Batson et al., 1989). In total, 40 of the 63 shopkeepers participated while another person was present.

All participants were recruited at various times in the afternoon or evening over a 5-day period, which naturally limited the sample size of the study, particularly at times when the call to prayer was audible ( $n = 17$ ). This is because the call to prayer is audible only for approximately 5–10 minutes and because no participants were recruited during the earliest prayer, which is at dawn before the shops have opened. Furthermore, while an effort was made to locate a potential participant when the call to prayer was audible, it was not always possible to find an unaccompanied shopkeeper in such a short time. However, the short duration of the call to prayer also ensured that it was well isolated as the experimental variable. Thus, this design offered a high level of experimental control, especially for a field ex-

Figure 2: Donation choices of shopkeepers when the call to prayer was not audible compared to choices of shopkeepers when it was audible, from least charitable option (Option 1) to most charitable (Option 3).



periment: all participants were adult males, Muslim, from the same city, from extremely similar socioeconomic backgrounds, and all participated in front of their (oftentimes indistinguishable) shops where they spend the majority of their day.<sup>1</sup>

A brief economic decision making task was used as a measure of prosocial behavior. Specifically, participants were shown a form, also translated into Berber, which asked them to choose one of the following three options: 1) I give you 20 dirhams and I give charity 0 dirhams, 2) I give you 10 dirhams and I give charity 30 dirhams, or 3) I give you 0 dirhams and I give charity 60 dirhams.

After making their choice, participants were paid in cash the amount specified if they chose either Option 1 or Option 2. No particular charity was specified on the form, but all donations (a total of ~\$400, the equivalent of over 3,090 dirhams at the time of donation) supported the Moroccan operations of the SOS Children's Fund.

<sup>1</sup>These are assumptions, since the shopkeepers were not explicitly asked to provide information about themselves. However, I contend that they are reasonable assumptions based on the context of the study. For instance, with regard to religion, the vast majority of Moroccans are Muslim and this is especially likely to be true of the shopkeepers in the souks, most of whom wore traditional religious clothing.

### 3 Results

In total, 4 participants (6%) chose the option with no donation (Option 1), 15 participants (24%) chose the option with a 30 dirham donation (Option 2), and 44 participants (70%) chose the option with the 60 dirham donation (Option 3). All 17 shopkeepers who participated when the call to prayer was audible chose the 60 dirham donation, the most charitable option. Thus, among the shopkeepers who participated when the call to prayer was not audible ( $n = 46$ ), 4 (9%) chose the option with no donation, 15 (33%) chose the option with a 30 dirham donation, and 27 (59%) chose the option with the 60 dirham donation (see Figure 2).

In order to determine whether the audibility of the call to prayer and/or being accompanied significantly increased participants' likelihood of choosing the most charitable option, I employed Firth logistic regression (Firth, 1993), which is a penalized likelihood estimator suitable for small datasets with separation (Heinze, 2006) such as this one (i.e., because all participants who responded when the call to prayer was audible selected the most charitable option). I find that participants were significantly more likely to choose the most charitable option when the call to prayer was audible,  $b = 3.18$ ,  $\chi^2(2) = 11.56$ ,  $p < .001$ , 95% CI = [1.08, 8.05] and that being accompanied had no effect  $b = -.60$ ,  $\chi^2(2) = 0.95$ ,  $p > .25$ , 95% CI = [-1.90, 0.60]. Interestingly, data collected on the amount of time that had passed since the most recent call to prayer suggests that this effect is short-lived. While 100% of participants who responded while the prayer was audible chose the most charitable option, less than 50% of those who responded in the 20 minutes following the call to prayer did. However, it is worth noting that only 12 shopkeepers responded in this time interval and, of those, only 2 shopkeepers participated in the 10 minutes immediately after the call to prayer. Thus, while these results show that the effect of the call to prayer on prosocial behavior is brief, it is possible – perhaps even likely – that the effect of the call to prayer on prosocial behavior extends for several minutes after the prayer is over.

### 4 Discussion

The results of this experiment clearly demonstrate that the call to prayer led to increased prosocial behavior among the Moroccan shopkeepers in the economic decision making task. Thus, this paper contributes to a growing body of research on the connection between religious salience and prosocial behavior, and is particularly noteworthy for improving the generalizability and ecological validity of this literature. Of course, it is also not without limitations. For one, it remains unclear whether the call to prayer would

increase other forms of prosocial behavior or if there was something unique about the economic decision making task utilized in this experiment. Second, the sample size, particularly within the call to prayer condition, was quite small ( $n = 17$ ). Nonetheless, I found a highly significant effect of the call to prayer on prosocial behavior in the economic decision making game, which suggests that there is a large underlying effect of the call to prayer on prosocial behavior.

In a sense, the fact that the call to prayer has an effect on prosocial behavior is unsurprising. After all, the call to prayer is intended to bring to mind the substance of Islamic beliefs, of which charity is an extremely important aspect. What the experiment shows, then, is that the call to prayer is an effective reminder. Furthermore, the fact that the effect of the call to prayer is a transient phenomenon highlights the role that such reminders play in promoting prosocial behavior. Thus, this finding supports the hypothesis that one effect of religious rituals such as ritualistic prayer is that they galvanize prosocial behavior through increasing religious salience. This, in turn, supports the longstanding hypothesis that religion facilitates prosocial behavior, and is consistent with theories that attempt to explain both the evolution of large scale cooperation and the spread of prosocial religions.

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