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The Impact of Comedy on Altruistic Behavior in Rural Nepal**

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A Laugh and a Burst of Kindness: The Impact of Comedy on Altruistic Behavior in Rural Nepal*

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Abstract

Altruistic behavior plays a crucial role in the enhancement of spontaneous transfer of goods. This behavior is even more important in developing countries, where government assistance is low and precautionary savings are almost null. Moreover, our study is located in an extremely marginalized and inaccessible area of Nepal, where villagers cannot always rely on external aid. We conducted a randomized controlled trial, where we display either a comedy or a neutral video clip to villagers. Then, villagers played the dictator game: we provided cash and the opportunity to share their cash to an unknown villager in the community. We show that the comedy group became more altruistic compared to the placebo group. Moreover, an analogous result holds true when measuring the effect of participants' own perception of how funny the video was.

Keywords: Dictator Game; RCT; Field Experiment; Inaccessible Village

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1 Introduction

Altruism is a desirable behavior in every society, it is especially important in low-income areas, and even more so in remote and geographically marginalized communities. Around 13% of the world population lives in mountainous areas, and 90% of them are in developing countries.¹ Moreover, among those mountain inhabitants, 70% of them live in the rural area. What is worse, the incidence of poverty rates is usually high among these isolated communities due to the geographical characteristics and transportation inaccessibility. They are often beyond the government civil service's coverage areas, and are provided minimal or virtually no public goods at all. Unfortunately, due to the remoteness and inaccessibility, to date, the research interventions conducted among mountainous marginalized communities is very limited.²

[Rose-Ackerman \(1996\)](#) states that free-rider problems could be mitigated when individuals experience greater satisfaction of being altruistic. Previous literature had studied the motives of altruism and the development of altruism, including those who examine altruism from an economic point of view (See, for example, [Simon, 1993](#); [Robson, 2017](#)). Based on these studies, we claim that altruism could boost other desirable behaviors, such as the trust and cooperation between individuals, as well as enhance the feeling of group or kinship inclusion.

The mainstream of altruism origin's theory lies in reciprocal altruism; reputation-seeking (indirect); and gene-culture and co-evolution ([Fehr and Fischbacher, 2003](#); [Gintis et al., 2003](#); [Nowak and Sigmund, 2005](#); [Bernhard et al., 2006](#)). The former two explanations are more tightly linked to repeated interaction in a game theory approach. On the other hand, the later one can be linked to two expla-

¹[FAO \(2015\)](#) using 2012 data.

²Observational studies and large-scale household surveys conducted by Demographic Health Survey, Poverty and Vulnerability Assessment, and Living Standard Measurement Study are not included as research intervention in this context. Some of the existing examples are [Choudhary et al. \(2013\)](#); [Bernet et al. \(2018\)](#), see below.

nations from economic theory: (i) people are altruistic because there is some ‘satisfaction’ for others’ ‘happiness,’ (classical choice theory) or (ii) to a complex behavior that does not necessarily give satisfaction, but instead is a response to psychological or neurological stimulus (behavioral economics). In this study, we identify the behavioral component.

We study altruism in Taplejung District, located in rural Nepal. To date, there are only two research studies focusing in this region, and they are neither interventions nor studies on altruism. They focus on health care facilities workers ([Banstola et al., 2019](#)), and rural households’ perception on climate change ([Uprety et al., 2017](#)). In general, thoroughly checking the existing literature about mountain communities (not limited to Nepal), we found the focal point was mainly on their livelihood and productivity improvement. In contrast, our study is the first one to examine a psychological intervention (a brief laugh) and its effect on people’s behavior.³

In this study, we test the effect of a laugh on altruism in rural Nepal. We first display one of two available short video clips to villagers. One of those videos is a short comedy clip, which will be our treatment. The other video is a neutral clip, which is the placebo (or control).⁴ Then, we conduct a one-shot dictator game (DG): the subjects are given cash, and then are offered the opportunity to share some of that money to an anonymous next ‘player.’ With our randomized controlled trial (RCT), we attempt to measure the immediate effect of a comedy video on the amount of money transferred in the DG. We find that a brief laugh makes people more altruistic. Namely, people in the treatment group (comedy) share about 5% more altruistic compared to the placebo group (neutral video).

The rest of the paper is organized as follows: in section 2, we discuss the theory that motivates our

³Moreover, in general, there are only a few studies that focus on remote areas. See for example [Choudhary et al. \(2013\)](#); [Bernet et al. \(2018\)](#); [Shah et al. \(2018\)](#); [Adégbidi et al. \(2004\)](#); [Tessema et al. \(2012\)](#); [Chen and Démurger \(2014\)](#); [Schütte and Kreutzmann \(2011\)](#); [Cuong et al. \(2015\)](#).

⁴The decisions for the exact video clips and the location of the experiment were based on an early pilot. See section 4 for further details.

experiment; in section 3, we describe our intervention, the game, the payoffs, and the survey following the game. In section 4, we explain how and why we chose the geographic region for our study, and how the data was collected. In section 5, we describe our findings. Finally, we conclude in section 6.

2 Theoretical Background

Altruistic and pro-social behavior are essential for the provision of public goods (Bruner et al., 2017). Echazu and Nocetti (2015) show that altruism itself can diminish the free-riding incentives. In the field of behavioral medicine, Post (2005) summarized the strong correlation of altruism with well-being, happiness, health and longevity. Following this, Schwartz et al. (2012) shows the correlation of physical and mental health with altruism among lumbar spine disorder patients. Using the functional magnetic resonance imaging, Park et al. (2017) shows the commitment to spend money on others induce the neural mechanism in human brain and leads to greater happiness.

Previous literature has already established some of the psychological factors that induce altruism. Joye and Bolderdijk (2015) and Ibanez et al. (2017) measured the effect that different natural scenery images have on altruism. North et al. (2004) finds that music also has an effect on people’s willingness to help. Nie et al. (2020) shows that blue background color enhance the donation amount. Iwamoto et al. (2020) finds that mindfulness mediation videos makes people willing to donate more for charity. Piff et al. (2015) shows that the enhancement of ‘awe’ feelings arouse altruistic behavior, by lowering participant’s self-prominence. More closely related to our study, there are lab experiments showing the effect of comedy on altruistic behavior (Kirchsteiger et al., 2006). Nevertheless, the comedy effect has not been tested on a field experiment yet.

In general, subjects in ‘good mood’ induced interventions tend to take actions towards a more

generous outcome. [Kirchsteiger et al. \(2006\)](#) found that, in the gift-exchange game, second movers were more generous when induced into positive moods than into negative moods. In [Capra et al. \(2010\)](#), subjects induced into a good mood overbid (perhaps inefficiently) in auctions, relative to those who are induced into a neutral and bad moods. [Hertel et al. \(2000\)](#) shows that a good mood led to less free-riding, compared to the bad mood group.⁵ On a public goods game, [Drouvelis and Grosskopf \(2016\)](#) found that subjects with induced happiness contributed more than subjects with induced anger.

As mentioned above, following economic theory, there are three (experimental) takes on measuring altruistic behavior. In game theory, unexpected generosity can be attained in equilibrium by repetitive interactions. In classical microeconomics choice theory, altruism can be modeled by simply including the consumption of others to the someone's happiness (utility function). Finally, from a behavioral economics point of view, altruism is a complex behavior that depends on psychological factors; it does not necessarily imply optimality conditions.

In this paper, we identify the behavioral component of altruism. We play a one round DG, to rule out the possibility of an equilibrium rationalized by repetitive interaction. Moreover, even though our entire sample of subjects may be influenced by the choice theory explanation, the difference between treatment and placebo groups cannot be explained by choice theory. Thus, any statistically significant difference is explained by psychological factors.

3 Experimental Design and Randomization

Our goal is to identify the effect of a brief laugh on people's altruistic behavior. To evaluate it, we conduct a RCT, where we measure the outcome of a DG right after showing one of two video clips to

⁵The game used was a *chicken game*, where everyone's profit keeps increasing over time, and a player can defect and get a high payoff, but giving everyone else a bad payoff.

the subjects. The timing of the experiment consists on three stages: showing video, play the DG, and a questionnaire.

The experiment was conducted in rural Nepal. Nepal is divided in 75 districts (figure 1(a)). Each district is divided in Village Development Committees (VDCs), and each VDC is subdivided in several wards.⁶ Our experiment was conducted in Taplejung district (figure 1(b)). We visited two VDCs: Change and Hangpang. These two VDCs have a total of total 18 wards. We first eliminated nine of them, because of accessibility issues.⁷ From the remaining nine wards, we randomly picked five of them for our intervention: wards number 3 and 4 from Change VDC, and wards number 6, 8 and 9 from Hangpang VDC.(figure 1(c)).⁸

Accompanied by local surveyors, we visited each household one by one, and only conducted the experiment on either the household head or the spouse (in that order of preference to avoid cultural issues). This geographic region was selected because, based on a pilot conducted also in a different district of Nepal, we established that showing a video on an electronic device to people who do not even have access to electricity had undesirable outcomes.⁹

We randomly assigned subjects to either a treatment group or a placebo group. The treatment group was shown a one-minute comedy video clip, while the placebo group was shown an equal length neutral video clip. We selected the comedy video clip based on participants feedback from a pilot.¹⁰ The selected comedy video was extracted from *Meri Bassari*, which is one of the most famous Nepali

⁶Usually nine wards per VDC on average.

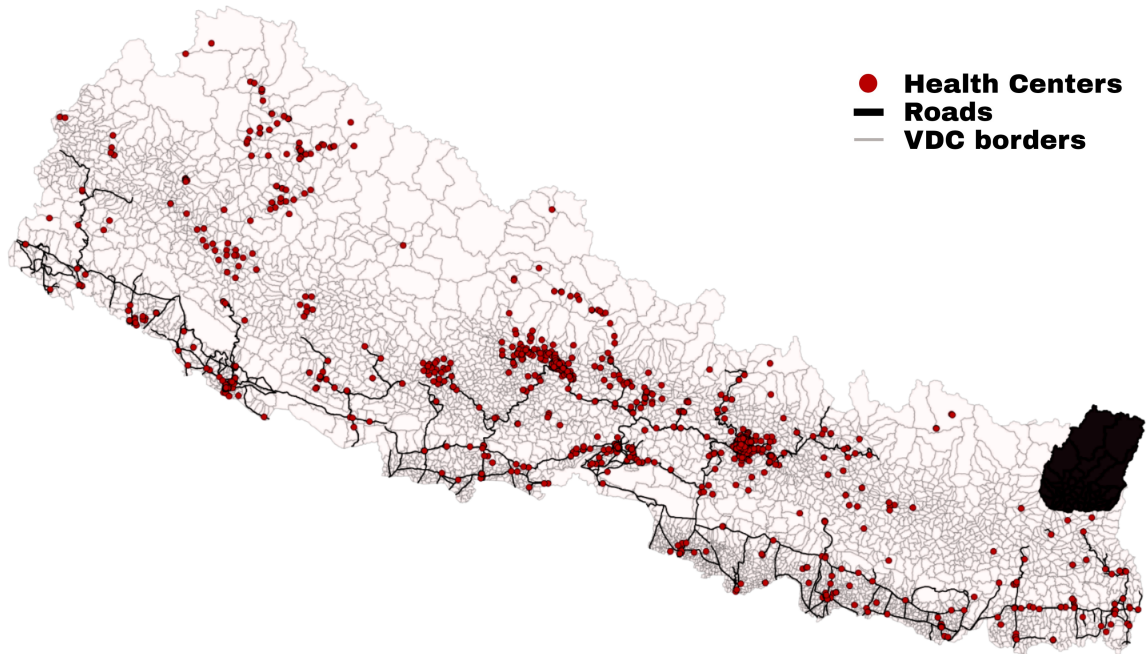
⁷Nevertheless, the visited wards are still very difficult to access.

⁸Our target of five wards is based on a minimum sample size of 441 individual. This minimum sample size was derived from a power calculation with an expected ATE of 8, standard deviation of 30, power of 80% and significance level of 5%. Both the ATE and standard deviation were estimated based on a pilot study.

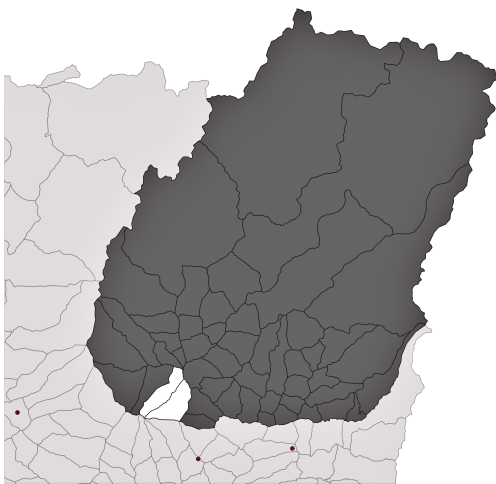
⁹The pilot was conducted in Sindhuli district, Nepal; where we visited two VDCs, one with access to electricity and another one without access to it.

¹⁰Namely, we chose which video that was voted as the funniest.

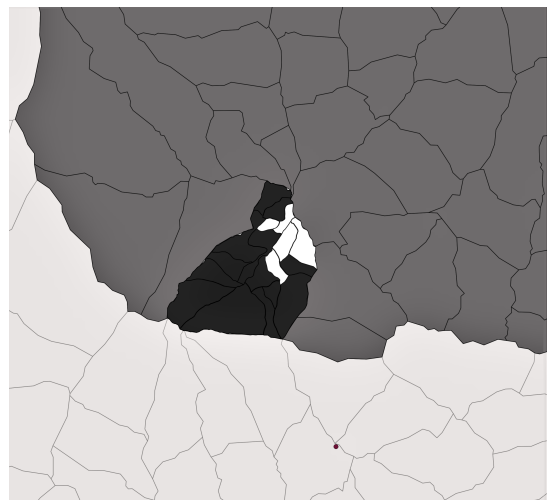
Figure 1: Maps



(a) Map of Nepal. The dots are health centers, the light lines are VDC subdivisions, and the darker lines (mostly in the south) are roads. Taplejung District is colored in black.



(b) Map of Taplejung District. Change and Hangpang VDCs are colored in white.



(c) Map of Change and Hangpang VDCs. The final five selected wards are colored in white.

Source: Authors computation, based on data from the Global Administrative Data Base and the Humanitarian Data Exchange

comedy TV shows. For the neutral video, we showed them a natural scenery clip.¹¹

Immediately after the video clip, we explained to the subjects about the DG, how to play it, the possible actions, the payoffs, and numerical examples. Moreover, we confirmed with them whether they understood. To avoid repeated interactions, at the risk of a fraction of subjects not perfectly understanding the DG, subjects were only allowed to play the game once. However, any distortion created from the lack of a perfect understanding should affect both groups equally.

Subjects were given 80 Nepali Rupee (NPR) in cash. Then, they were able to share 0, 20, 40, 60 or 80 NPR to an anonymous ‘next player’ in the same ward. Moreover, to encourage altruistic behavior, any amount shared towards the next player would be doubled. After their decision on how much to share, the subjects receive the double of the amount shared from the ‘previous player.’ The shared money was assigned by a spacial lag of two households. That is, the altruistic behavior of, say, household number one affects the payoff of household number three.¹²

The DG was played at a very slow pace, because we visited households one by one; and only one person from each household can participate. Moreover, households are far away from each other.¹³ Because of the large distances, the two-subjects spacial lag on the DG, and (in many cases) unclear roads/paths, it is nearly impossible for subjects to guess who the ‘next player’ would be. Right after the DG, we conducted a survey. In order to guarantee respondents anonymity, the questionnaire was conducted confidentially and a unique serial number was assigned to each subject.

¹¹The TV company who owns the copyrights allowed use to use the clips for research purposes.

¹²The first and second subjects were visited twice, and received the sharing of the two last subjects, on a second visit.

¹³The average GPS-based distance to the nearest house on a plane is 185 meters. Moreover, the area is mountainous and highly steep. In addition, since donations from person i were allocated to person $i + 2$, the beneficiary was never the nearest neighbour.

4 Data Collection

As previously mentioned, we aim to identify altruistic behavior in a geographically marginalized area where neighbours' generosity can substitute external aid and government assistance. Because of that, we attempted to conduct this experiment in the most inaccessible, yet not dangerous to our surveyors, area of rural Nepal. In figure 1(a) above, we can see that there are neither roads nor health centers inside Taplejung district. From the 18 districts in Change and Hangpang VDCs, we deliberately eliminated nine wards from our study, because those regions are high mountainous lands, dangerous to access, and where landslides often occur upon sudden rainfall.

Our intervention was conducted from September 8 to September 16, 2018, with the help of four Nepali surveyors. We targeted all the household in the five randomly selected wards from the two chosen VDCs. Although we had to skip some households due to the absence of residents, we were able to contact most of them. Based on official population information, there are 462 households in our selected region. From these 462 households, we contacted 450 (97.4%) of them.¹⁴ From those 450, 225 were assigned to the treatment group (comedy video) an 225 were assigned to the control group (placebo video).

Although we assigned groups randomly, there is a statistically significant difference between the education of the treatment and the control groups, as show in table A1. Thus, we also controlled our results using this difference in education.

Finally, in addition to keeping track of the money shared on the DG, we also collected demographic information of our subjects as well as their assessment of how funny the video was, on a scale from 1 (not funny) to 4 (very funny). See figure A1.

¹⁴The Government of Nepal's National Planning Commission Secretariat Central Bureau of Statistics, 2014.

5 Results

We want to measure the Average Treatment Effect (ATE) of our intervention as well as the effect of the general perception of funniness. Let us define the dummy variable *Comedy* to be equal to one if the subjects watched the comedy clip and zero if they watched the neutral video. In addition, we define the variable *Funny* $\in \{1, 2, 3, 4\}$ as a measure of subjects' assessment of how funny they think the video was, which we asked regardless of the randomly assigned group.¹⁵ Finally, let the monetary transfer from the DG be denoted as *Transfer*. Then, we are interested in estimating the following model:

$$Transfer_i = \beta_0 + \beta_1 Comedy_i + \epsilon_i \quad (1)$$

Where we can also replace *Comedy* by *Funny* or the interaction of them. Table 1 shows our estimations. We also control equation (1) by the level of *Education*, since there was a statistically significant difference of this variable between the treatment groups.¹⁶

As figure 2 shows, the first relevant result is that people in the treatment group shared almost 4 NRP (5% of the 80 NPR gained) more than people in the placebo group. That is, we see evidence that the comedy treatment significantly increased altruism. Moreover, this effect is slightly higher (4.6 NRP) after controlling for education. Both results are significant at 1% level (see columns (1) and (2) in table 1).¹⁷

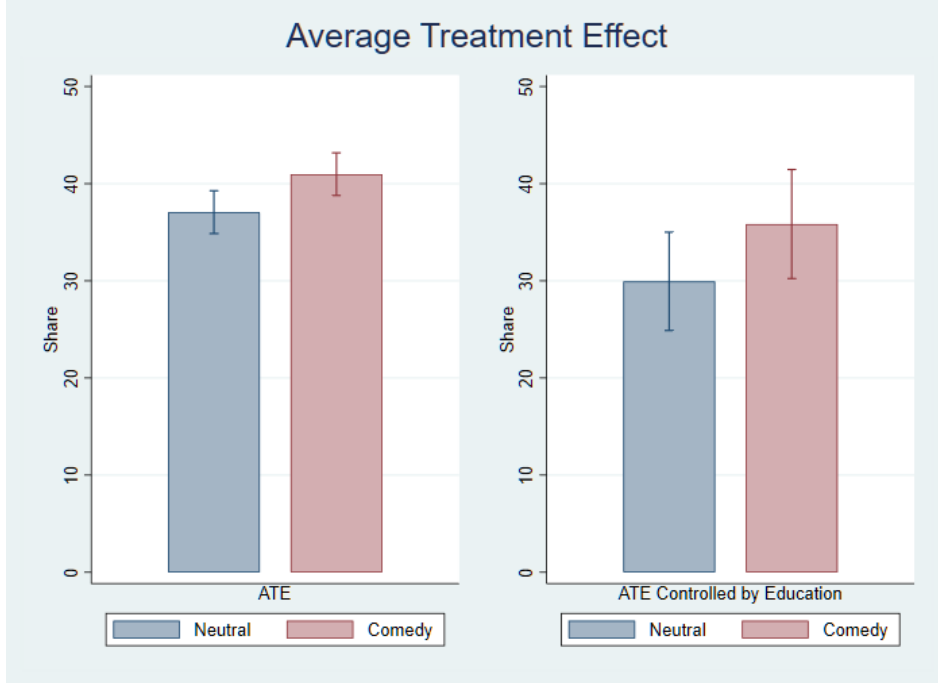
We also estimated the effect that the level of the measure *Funny* (subjects' assessment of how funny

¹⁵Three people did not report this measure, so all analysis using the variable *Funny* are missing three observations. See table 1.

¹⁶See table A1.

¹⁷Because education is correlated with the treatments, the confidence intervals displayed on the right panel of figure 2 may look large at the naked eye. However, the difference of the means between the treatment and the placebo groups is still significant at 1% level. See table 1.

Figure 2: Results



the video was) had on the amount of money shared, as shown in figure 3. We estimate that a higher level of *Funny*, on a scale from 1 to 4, increases the transfer by 1.9 NRP, or even 2.3 NRP after controlling for education.¹⁸ Although there may be reasons to believe that the measure for *Funny* is no longer exogenous, even if we instrument it using *Comedy*, the propensity for sharing as a function of *Funny* does not change.¹⁹

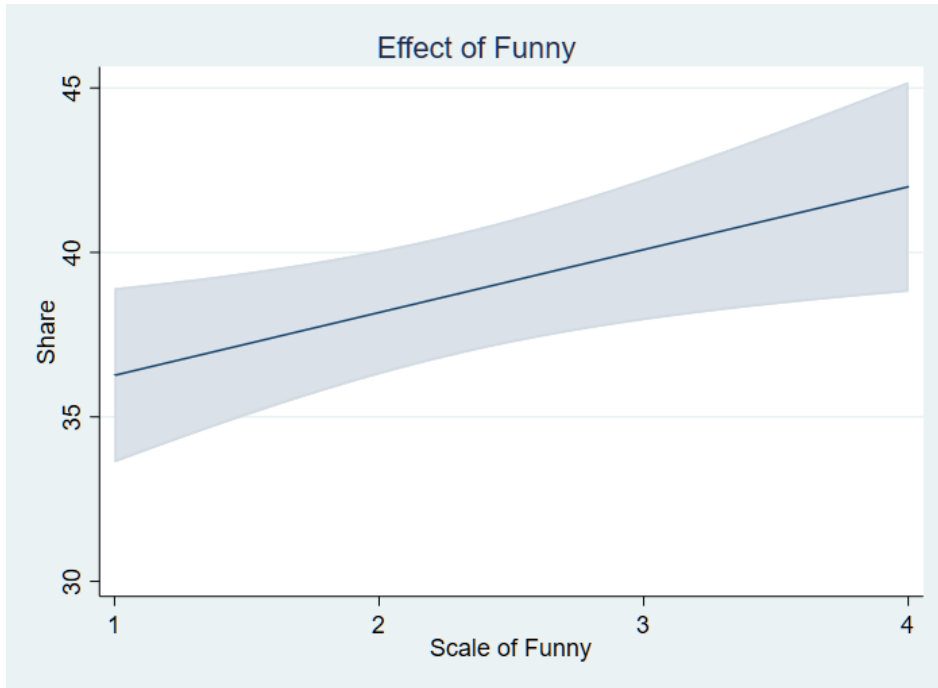
In addition, we also measure how this propensity for sharing as a function of subjective funniness depends on whether the subjects were in the treatment or control group (figure 3(b)). The assessment of how funny the video was increases the transfer by 2.4 NRP among subjects in the treatment group, and 3.6 NPR among subjects in the placebo group.²⁰ Interestingly, conditional on receiving the placebo group, the level of *Funny* has a higher marginal effect compared to the comedy treatment group. We

¹⁸see columns (3) and (4) in table 1.

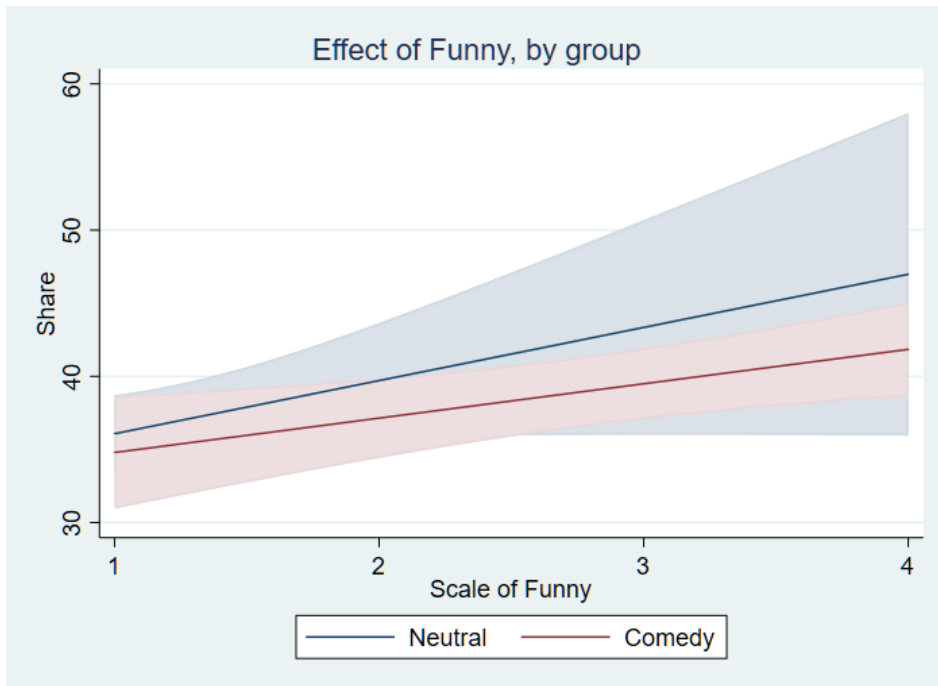
¹⁹Column (5) in table 1.

²⁰Column (6) in table 1.

Figure 3: Results



(a) Effect of the *Funny* measure on altruism, not controlled by education.



(b) Effect of the *Funny* measure on altruism, by treatment group and not controlled by education. The slopes are 3.6 for the placebo group and 2.4 for the treatment group.

interpret these results as follows: people who are still able to declare having found joy from a neutral video are in general nice, so probably also more altruistic.

Finally, we repeat the above result, but controlling for education. We observe that the marginal effect for *Funny* conditional on the placebo group remains at about 3.6 NPR. On the other hand, that same marginal effect conditional on the comedy treatment group has slightly increased from 2.4 to 2.6 NPR.²¹ Although there can be a few different interpretation, we believe that the most interesting one would be that higher education makes people less likely to enjoy ‘cheese comedy.’ This effect is no longer being captured by the marginal effect of the funny measure after controlling for education. On the other hand, this does not affect the placebo group, because they watched a neutral nature scenery video clip.

Table 1: Effect of Comedy on Altruism

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Comedy	3.911** (1.883)	4.554** (1.839)					
Education		0.738*** (0.200)		0.794*** (0.200)	0.796*** (0.198)		0.786*** (0.198)
Funny			1.910** (0.767)	2.269*** (0.758)	2.340*** (0.875)		
Funny*Comedy						2.351*** (0.872)	2.598*** (0.856)
Funny*Control						3.635* (1.959)	3.570* (1.848)
Constant	37.07*** (1.334)	32.70*** (1.677)	34.35*** (1.974)	29.11*** (2.249)	28.93*** (2.499)	32.44*** (2.692)	27.72*** (2.932)
Observations	450	450	447	447	447	447	447

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Huber-White robust errors are displayed in parenthesis. All columns are OLS estimations, except column (5), which is a 2SLS, using *Comedy* as an instrument for *Funny*. Three people did not report their assessment for *Funny*.

Lastly, there are two potential issues that we want to discuss. The first one is intentional: as

²¹Column (7) in table 1.

mentioned before, we do not have a ‘practice session’ to confirm whether participants understood the DG. However, if this was to affect our experiment, it would influence both of our groups. Since we are interested in the difference between the treatment and the control groups, this first point is not a problem.

The second potential issue is that participants have to directly tell the surveyor how much money they wish to share, rather than doing it anonymously. However, anonymity in DG significantly reduced the shared transfers ([Engel, 2011](#)). Nevertheless, this is also not a problem to our purpose, because we are not interested in the amounts shared per-se, but on the difference between the placebo and treatment groups.

6 Conclusions

We have conducted a field experiment in rural Nepal, to study the effect of comedy on altruism. Using a DG, we show that indeed, our comedy video clip has increased the amount of money shared. On average, this increment was higher than 5%. Although there are similar results in lab experiments, we provide the first evidence of this effect on a field experiment. Moreover, our result is especially relevant because of the selected geographical region.

One interesting, but unintentional, result of our experiment was the relationship between altruism and education. First, we see that education is positively correlated with altruism, which is not so surprising. Then, we measured subjects perception of how funny the video was, and separated the effect of this measure by treatment group. We show that declaring the video clip as funny, even in the placebo group, has a significant effect on the money shared. More importantly, we observed that education was capturing some of the effect of ‘funny video’ only in the treatment group, not on the

placebo group. This is an interesting point to take up for future studies.

Another point that may be worth studying in the future is to identify whether the effectiveness of comedy differs between rural and urban areas. Perhaps families living in near-isolation can more easily be amused (provided the right comedy intervention). Moreover, our result regarding the effect of the level of funny on the share, and its relationship to education, may be related to this hypothesis.

We have shown that an almost zero-cost intervention generates a burst of kindness and makes people more altruistic. Moreover, we argue that a short-term effect may be what is needed for two reasons: First, it may be difficult to create long-term behavioral change in adults. Second, and more importantly, comedy interventions can be constantly repeated at an almost zero cost.

The previous point may also connect our results to standard game theory predictions. In repeated games, cooperation can be part of a strictly rational (selfish) equilibrium. As long as everyone else is 'nice,' it can be in one's best interest to also be nice. Then, the claim that we cannot make people laugh, or in general induce a good mood, during the entire day may not be a problem to sustain long-term cooperation. Perhaps it is possible to find a low-cost intervention that happens frequently enough such that, in addition to any complex repeated game being played, it will allow to create long-term desirable behavior (equilibria).

Finally, our results are especially relevant because of the selected location. Nepal is currently recognized as one of the least-developed countries ([UNCDP, 2018](#)). Many may agree that it is a government's responsibility to provide basic living standards. However, in addition to budgetary restrictions, there may be geographical constraints, which increase the cost of aid. These constraints may be even more binding in situations where a prompt response is needed. We believe that altruism can, at least partially, substitute aid from outsiders. Thus, geographically marginalized and inaccessible rural areas can greatly benefit from altruistic behavior.

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A Additional Tables and Figures

Figure A1: Subjects' assessment of the video

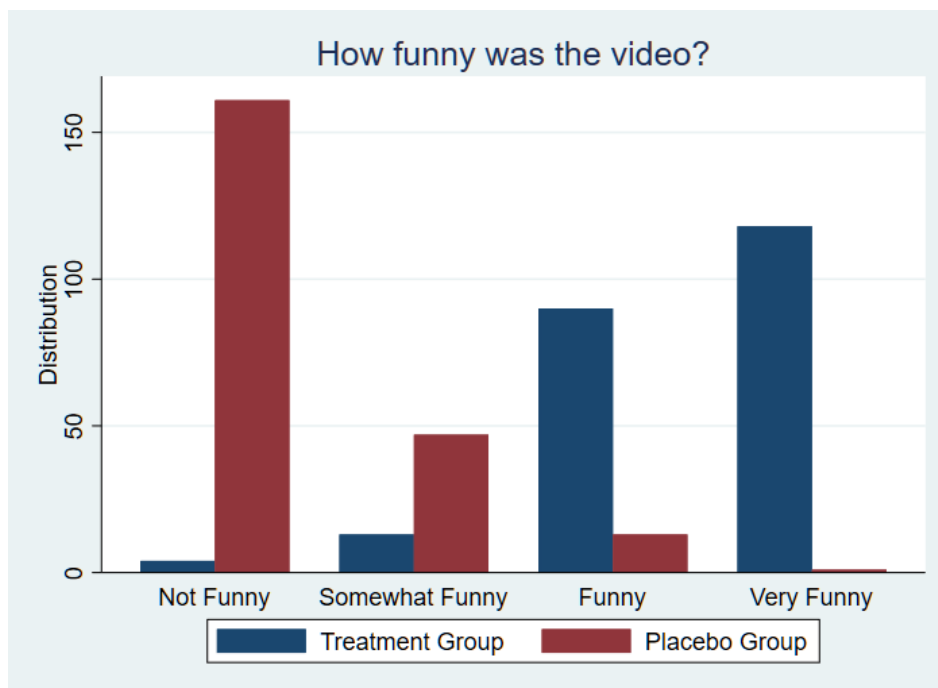


Table A1: Balance Check

Variable	Mean Diff	SD
Education (Years)	-0.871*	0.444
Age	1.506	1.523
Income (1000NRP)	-5.135	4.738
Female	0.0222	0.047
Family Size	0.124	0.203
Religion = Hindu	-0.0262	0.047
Religion = Muslim	-0.00448	0.004
Religion = Sikh	-0.00448	0.004
Religion = Jain	-0.00448	0.004
Religion = Christian	-0.00452	0.008
Religion = Buddhist	0.0343	0.035
Religion = Kirat	0.00444	0.004
Religion = Others	0.00542	0.046
Caste = Brahmin	-0.0185	0.024
Caste = Kshatriya	-0.000319	0.018
Caste = Janajati	0.0154	0.040
Caste = Dalit	0.00785	0.031
Caste = Others	-0.00448	0.004

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Huber-White robust errors are displayed on the rightmost column.