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SHORT REPORT

## The Role of Positive and Negative Gossip in Promoting Prosocial Behavior

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Gossip can promote cooperation via reputational concern. However, the relative effectiveness of positive and negative gossip in fostering prosociality has not been examined. The present study explored the influence of positive and negative gossip on prosocial behavior, using an economic game. Supporting previous evidence, it was found that individuals were more prosocial when gossip of any kind was possible, compared to when their behavior was completely anonymous. However, there was no significant difference in the efficiency in promoting cooperation between positive and negative gossip, suggesting that it is reputational concern elicited by gossip per se, rather than its valence, that stimulates prosociality.

### **Public Significance Statement**

Past research has found that gossip can promote prosocial behavior via reputational concern, but the role of gossip valence has been understudied. We, thus, investigated the relative effectiveness of positive and negative gossip in facilitating prosocial behavior. Our results suggested that it was reputational concern, rather than gossip valence, that played a vital role in shaping prosociality.

*Keywords:* gossip, reputation, prosocial behavior, cooperation

People often display prosocial behavior in various forms (Penner, Dovidio, Piliavin, & Schroeder, 2005; Schroeder & Graziano, 2014). However, this often involves costs to benefactors, and the prevalence of such costly behavior to benefit others has been a theoretical conundrum.

Evolutionary perspectives have provided various theories explaining human prosociality, such as indirect reciprocity (Alexander, 1987; Nowak & Sigmund, 1998, 2005), competitive

altruism (Barclay & Willer, 2007; Fudenberg, Rand, & Dreber, 1986; Hardy & Van Vugt, 2006; Roberts, 1998; Sylwester & Roberts, 2010; Van Vugt, Roberts, & Hardy, 2012), and costly signaling theory (Gintis, Smith, & Bowles, 2001; Smith & Bird, 2000; Zahavi & Zahavi, 1999). Although their foci are different, these approaches converge on the idea that reputation should play an essential role in shaping human prosociality (for review, see Van Vugt et al., 2012; Wu, Balliet, & Van Lange, 2016b). In fact, a number of studies have demonstrated that individuals are more generous when their reputation is at stake. Namely, people are more prosocial, when a positive reputation brings indirect benefits (Milinski, Semmann, & Krambeck, 2002; Simpson & Willer, 2008; van Vugt & Hardy, 2010), when mere, implicit reputational cues are present (Haley & Fessler, 2005; Nettle et al., 2013), and when a reputation may

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be used for partner selection (Hardy & Van Vugt, 2006).

Drawing upon the literature on reputation-based cooperation, researchers started investigating the potential role of gossip in cooperation (Dunbar, 2004). They repeatedly found that gossip promotes cooperation (Beersma & Van Kleef, 2011; Piazza & Berling, 2008; Sommerfeld, Krambeck, Semmann, & Milinski, 2007; J. Wu, Balliet, & Van Lange, 2015, 2016a, 2016c, 2019). Notably, Wu et al. (2015) revealed that gossip drove people to be more cooperative through reputational concern, rather than an expected indirect benefit. In addition, previous studies found that the influence of the potential to be gossiped about was present, when recipients of gossip could ostracize (Feinberg, Willer, & Schultz, 2014) and give a financial reward (Wu et al., 2015, 2016a, 2016c). This suggests that gossip can promote cooperation regardless of positive or negative outcomes; individuals display prosocial behavior when gossip is possible, not only to gain positive outcomes but also avoid negative outcomes.

However, despite the ample research on gossip valence (e.g., Ellwardt, Labianca, & Wittek, 2012; Grosser, Lopez-Kidwell, & Labianca, 2010; Kong, 2019; Tassiello, Lombardi, & Costabile, 2018; X. Wu, Kwan, Wu, & Ma, 2018; Xie, Huang, Wang, & Shen, 2019; Zhou, Liu, Su, & Xu, 2019), preceding research has understudied the potential influence of positive versus negative gossip in fostering cooperation. In other words, as noted by Wu et al. (2016b), the relative impact of positive and negative gossip in encouraging prosociality has not been studied yet. Past research employed a gossip manipulation in which participants were told that another person could send an evaluative message to their future interaction partner(s; Romano, Balliet, & Wu, 2017; Wu et al., 2015, 2016a, 2016c). Moreover, it is by no means inevitable that individuals only seek a positive reputation (Emler, 1990, 2019). Thus, it remains unclear whether individuals in Wu and colleagues' studies were more prosocial because of fear of negative gossip or desire for positive gossip, or whether it is simply reputational concern per se that matters. Therefore, investigating the role of positive versus negative gossip is of vital importance

to further elucidate the influence of gossip in cooperation.

Thus, the present study aimed to examine the relative impact of positive and negative gossip on prosocial behavior. It was hypothesized that individuals would be more cooperative when their behavior could be gossiped about to their future partner, regardless of its valence. We had no a priori hypotheses about the comparison between positive and negative gossip, and the study was designed to explore whether any differences would arise. In addition, following previous studies (e.g., Wu et al., 2015), we also measured reputational concern so that we could test the mediating role of reputational concern in the cooperation-promoting role of gossip.

## Method

### Participants and Design

The study followed a  $1 \times 4$  (condition: positive gossip vs. negative gossip vs. control gossip vs. no gossip) between-subjects design. A priori power analysis (G\*Power 3.1; Faul, Erdfelder, Buchner, & Lang, 2009) revealed that 232 participants were required to detect a medium effect size to have a statistical power of .90. To account for any exclusions, 240 students at a British University were recruited to take part in an online experiment in exchange for credits. Twenty-eight participants did not fully complete the study, leaving 212 participants for analyses.

### Procedure

We followed the procedure in (Wu et al., 2015, Study 1). Participants (Person A) were told that they would complete two scenarios with two other participants (Person B and Person C): a dictator game (DG) and a trust game (TG). However, in actuality, participants were not matched with anybody online and Person B and C were hypothetical confederates. In the DG, participants were endowed 100 lab points (1 point = £0.1) and asked to decide the division of the points between themselves and Person B. The number points that they decided to give to Person B was the indicator of prosocial behavior.

Participants (Person A) were instructed to act as a trustee in the TG with Person C as a trustor.

In the TG, the trustor (Person C) was given 100 lab points and asked to decide how many points they would like to transfer to Person A (participants). Any amount of money that they sent was tripled, and Person A then had an opportunity where they could return some money to Person C.

In the no gossip condition, participants did not get any instruction about gossip. In the control gossip condition, the instruction read, "Person B can send any messages regarding your decision to Person C." In the positive gossip condition, it read, "Person B can tell Person C how kind, cooperative, and trustworthy you are." Lastly, in the negative gossip condition, these three adjectives for the positive gossip condition were replaced with mean, selfish, and untrustworthy, respectively. After participants read the instruction about the DG, TG, and the gossip manipulations, they were presented comprehension questions (e.g., "what kind of evaluative message can Person B send to Person C?" with four choices "how kind, cooperative, and trustworthy you are," "how mean, selfish, and untrustworthy you are," "Person B cannot send any messages to Person C," and "Person B can send any feedback on your allocation decision to Person C"). Then, they proceeded to the DG.

After the DG, participants completed a reputational concern measure. Reputational concern was measured by five items ( $\alpha = .82$ , adapted from Wu et al., 2015). They were five-point scales ranging from 1 = "Totally disagree" to "Totally agree" (e.g., "It's important that others will accept me"). They also indicated how much they thought Person C would transfer in the TG, which was used as the measurement of expected indirect benefit. The TG did not take place, and they were debriefed and thanked.

## Results

First, using a comprehension question, "what kind of evaluative message can Person B send to Person C?" we strictly excluded 35 participants who failed to provide the right answer from the dataset, as the question was crucial for the gossip manipulation. This left 177 participants for the subsequent analyses. The exclusion rate reached 17% which should not substantially deviate from the normal rate, as Hauser and Schwarz (2016) found that students'

passing rate of instrumental manipulation checks at various universities varied from roughly 70% to 80%.

## Prosocial Behavior

Hypothesis-relevant contrasts were created: Contrast 1 (no gossip condition vs. the remaining three gossip conditions), Contrast 2 (positive and negative gossip condition vs. control gossip condition), and Contrast 3 (positive vs. negative gossip condition). A one-way ANOVA on prosocial behavior in the DG revealed that the main effect of the gossip manipulation was significant,  $F(3, 173) = 3.66, p = .01$ , partial  $\eta^2 = .06$ , 95% CI for the effect size [.002, .13] (see Table 1 for means and standard deviations for each condition). Post hoc power analysis indicated that the study was sufficiently powered after the exclusion (statistical power = 0.81).

The planned comparison indicated that individuals in the three gossip conditions gave a significantly larger amount of money to the receiver compared to those in the no gossip condition,  $t(173) = 3.09, p = .002$ . However, Contrast 2 and 3 were not significant, Contrast 2:  $t(173) = 0.82, p = .42$ ; Contrast 3:  $t(173) = 0.55, p = .58$ . This suggested that gossip promotes cooperation regardless of whether its content is positive or negative.

## Reputational Concern

A one-way ANOVA on reputational concern revealed the significant effect of the condition,  $F(3, 173) = 5.78, p = .001$ , partial  $\eta^2 = .09$ , 95% CI for the effect size [.02, .17]. Contrast 1 was also significant,  $t(173) = 3.99, p < .001$ . Contrast 2 and 3 did not have significant effects,  $t(173) = 1.17, p = .24$ ;  $t(173) = -0.33, p =$

Table 1  
*Mean and Standard Deviation of Endowment in the DG and Reputational Concern by Condition*

	Prosocial behavior	Reputational concern
	<i>M (SD)</i>	<i>M (SD)</i>
Positive gossip	49.60 (15.91)	3.77 (0.85)
Negative gossip	47.44 (14.54)	3.83 (0.10)
Control gossip	45.73 (16.75)	3.61 (1.11)
No gossip	38.30 (22.45)	3.18 (0.74)

.74, respectively (see Table 1 for means and standard deviations for each condition). Thus, gossip, regardless of its content, significantly elicited reputational concern.

### Mediation Analysis

Following Wu et al. (2015), we tested whether gossip promoted prosocial behavior via reputational concern and expected indirect benefit, using Contrast 1 as the independent variable. The total effect of Contrast 1 on prosocial behavior was significant,  $b = 2.36$ ,  $p = .001$ . The direct effect was also significant,  $b = 1.96$ ,  $p = .009$ . The path coefficients between Contrast 1 and reputational concern was significant,  $b = 0.56$ ,  $p < .001$ . The path between reputational concern and prosocial behavior was marginally significant,  $b = 2.84$ ,  $p = .07$ . For indirect effects, the bias-corrected bootstrapping method was employed to compute 95% confidence intervals. The indirect effect through reputational concern did not reach statistical significance, yet it was marginally significant,  $b = 0.40$ ,  $p = .09$ , 95% CI  $[-0.07, 0.87]$ . The effect through expected indirect benefit, by contrast, was not significant,  $b = .006$ ,  $p = .97$ , 95% CI  $[-0.31, 0.32]$ . Although the conventional threshold for statistical significance did not allow us to provide full support for the influence of gossip via reputational concern on cooperation (Wu et al., 2015), the pattern seemed to be consistent with the previous finding.

### Discussion

We investigated whether positive or negative gossip would differently promote cooperation. To our knowledge, this was the first study that has directly compared the relative effect of positive and negative gossip. As expected, participants were more generous when any kind of gossip was possible, compared to when there was no potential to be gossiped about. Thus, the present study added further support for Wu and colleagues' previous findings. However, the content of gossip, positive or negative, did not alter individuals' motivation to display prosocial behavior.

Our findings suggest that risks to both negative and positive reputation systems have equivalent effects, promoting cooperation despite the

possibility that potential outcomes of positive or negative reputation might be quite different. Specifically, individuals are willing to incur costs to gain a positive reputation to the same extent as they are to avoid a negative reputation. This is in line with research indicating that honor and shame can both drive cooperation (Jacquet, Hauert, Traulsen, & Milinski, 2011), as well as the idea that individuals are not necessarily motivated only to establish a positive reputation with all types of observer (Emler, 2019).

Furthermore, our findings imply that individuals are less sensitive to how others construe and gossip about their behavior than to the simple fact that their reputation is open to review. In other words, it seems that the influence of the potential of being gossiped about is independent of one's expectation about how intermediaries (i.e., gossipers) may comment. What drives cooperation is apparently the fact that a future interaction partner will be given a characterological context in advance of responding to the participant's behavior.

It should be noted, however, that the instruction for participants in the control condition did not mention gossip and the observed effect of gossip on prosocial behavior could be partly explained by this; one could argue that the mere reference to gossip promoted prosocial behavior. We demonstrated that gossip exerted the influence via reputational concern, but future studies could eliminate the alternative explanation by employing a control condition that at least mentions gossip (e.g., the gossip-to-unrelated-persons condition; Wu et al., 2015).

In addition, the generalizability of the finding might be limited to the abstract setting. In reality, people live in groups, and negative reputation accompanied by negative consequences such as ostracism loom larger than positive reputation in real life (Haselton & Buss, 2000; Yamagishi, Terai, Kiyonari, Mifune, & Kanazawa, 2007). Furthermore, the significance of negative reputation might be more pronounced, for example, in cultures where social exclusion has a serious consequence (Uskul & Over, 2017; Yamagishi, Hashimoto, & Schug, 2008). Thus, future research should address the role of positive and negative reputation in relation to ecological

and cultural contexts, extending our findings from the abstract setting. Additionally, the use of economic games of different nature (e.g., involving social dilemma) should also provide additional value to our findings in terms of the generalizability (Milinski, 2019).

Overall, despite potential limitations, the present study has established a sound method with which to test the effect of gossip contents and has provided the first empirical test of the relative influence of positive versus negative gossip. Further studies should shed light on the potential impact of the valence of gossip content in a variety of contexts to replicate, extend and qualify this new evidence.

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