

# Upward and Downward Prosocial Influence Across Levels of a Social Hierarchy: Field and Experimental Evidence About Authorities of U.S. Counties

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## Abstract

Although people often engage in prosocial behavior when witnessing prosocial others, little is known about whether and how prosociality spreads across different positions within a social hierarchy. One field study involving 79 U.S. counties found a positive association between the prosociality of community members and their authorities, providing preliminary evidence of similarity in willingness to improve community well-being across levels of a social hierarchy. A follow-up experiment testing the relative magnitude of downward and upward prosocial influence showed that participants playing the role of authorities were more responsive to the prosociality of community members. Findings further showed that the greater response to prosocial influence among authorities was due to their greater optimism. The article ends with a discussion of the theoretical and practical implications of these findings and directions for future research.

## Keywords

authorities, prosociality, social influence, social hierarchy, communities

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Prosociality covers a broad category of acts intended to benefit others (Penner et al., 2005), ranging from donating money and time to advocating policies that relieve people from poverty. It can disseminate across individuals, such that people who witness prosociality are more likely to also display it (see Greitemeyer, 2022 for a review), even engaging in behaviors that differ from the ones they observed. However, the extent to which prosociality propagates within a social hierarchy remains incompletely understood. Do the prosocial actions of people in authority positions motivate group members to behave in a similar way? Or does the influence flow from the bottom to the top? These questions are important for a more complete picture of the dynamics of prosocial influence and efforts to improve prosociality in communities. Consider, for example, vulnerable communities experiencing a health crisis. Addressing the crisis requires authorities to implement appropriate measures to safeguard community members. However, it also requires community members to help protect their fellow community members. Therefore, clarifying the relation between the behavior of authorities and community members is important to promote and coordinate efforts during a crisis.

In this research, the relation between the prosociality of authorities, those in a position of power, and community members who might elect or contribute to appointing authorities was investigated through a field study and an experiment. In the field study, authorities in 79 U.S. counties were invited to participate in a project to mitigate the effects of the opioid epidemic. Meanwhile, a sample of residents in the same counties reported the prosocial behaviors they witnessed in their communities, so that we could correlate the behavior of authorities with these reports. Following the field study, an online experiment was conducted to compare the prosocial influence from authorities to community members with the reciprocal influence from community members to authorities.

## Downward and Upward Prosocial Influence

The prosociality of individuals across levels of a social hierarchy can positively influence one another, such that prosocial authorities can promote similar behaviors in their members (i.e., downward influence), and prosocial members can also promote similar behaviors in their authorities (i.e., upward influence).

For example, in organizational contexts, managers who prioritize collective interests promote the same behavior among their group members (Van Knippenberg & Van Knippenberg, 2005). Managers who rate employees as more helpful have employees who rate managers as more ethical (Kalshoven & Boon, 2012), and those who treat employees in a caring and respectful manner have employees who cooperate with them and other employees (Choi & Mai-Dalton, 1999). In addition, positive interactions

between managers and members of organizations, such as those involving trust and fairness, can promote prosocial tendencies in both parties (e.g., Vasquez et al., 2021).

Nonetheless, the aforementioned effects may not reflect social influence but other factors that result in authorities and their members being similarly prosocial. Homophily, for example, involves people forming relationships with like others (McPherson et al., 2001), as a result of which prosocial authorities and members can also share traits. Homophily and social influence are generally confounded with each other, and their causal effects are best distinguished through controlled experiments (Shalizi & Thomas, 2011). In fact, most prior work examining prosocial influence across social hierarchies has relied on observational studies typically in organizational settings, limiting their ability to determine whether causal effects even exist. Thus, in this article, we propose a set of mechanisms that may differentially explain downward and upward prosocial influences, and test them in conjunction with an experimental approach that can compare downward and upward prosocial influences.

On one hand, pressure to conform may primarily drive downward (vs. upward) prosocial influence because followers typically access resources by conforming to authorities (Fennis & Aarts, 2012). In fact, compared with people in high power positions, those in lower power positions tend to be more dependent on others, more sensitive to situational cues, and more likely to conform to others as a result (Galinsky et al., 2008). Thus, pressure to conform is an important mechanism to consider.

On the other hand, perceived responsibility, feelings of efficacy, and optimism may primarily drive upward (vs. downward) prosocial influence. Specifically, authorities often have the imperative of taking responsibility for their group's fate (Kuye & Mafunisa, 2003; Peters, 2015) and experience more pressure to respond to collective concerns (Tyler & Jackson, 2014). Moreover, authority positions are often occupied by people with a greater sense of self-efficacy (Korman et al., 2022) and more optimism (Anderson & Galinsky, 2006), traits that are positively associated with prosocial motivation (Alessandri et al., 2009; Baumsteiger, 2017; Caprara & Steca, 2005). Indeed, being inspired by others' prosocial actions may not promote prosocial actions if people feel incapable and doubtful of producing positive change (e.g., Caprara & Steca, 2005). From this standpoint, although people across social hierarchies may be equally inspired by others' prosocial acts, those higher in the hierarchy may respond more because they feel more capable and optimistic. Therefore, perceived responsibility, self-efficacy, and optimism are important mechanisms to consider as well.

Although past research has suggested downward and upward influences, to the best of our knowledge, no prior work has directly compared them. The lack of direct comparisons is at odds with the fact that both influences could operate simultaneously in society, a dynamic that is investigated in this article by examining the mechanisms differentially impacting downward and upward influences. In

addition, the past literature has emphasized how access to resources translates to a greater ability to influence others (see Simpson et al., 2015), implying that downward social influences are more likely than upward ones. However, our research also considered the possibility of upward social influence in the prosocial domain, by examining whether perceived responsibility, self-efficacy, and optimism may promote authority prosociality.

Furthermore, most prior work has concerned organizational settings where managers control the resources employees receive. Surprisingly, little work has examined contexts beyond organizations, limiting the generalizability of the prior findings on prosocial influence across a social hierarchy. Thus, this research considered prosocial influences in counties, a community setting where the prosocial behavior of community members is not under the direct control of authorities. This research also involved communities that are vulnerable to a health crisis, whose collective welfare depends on their authorities and members cooperating to overcome the crisis. Together, this research offers a significant contribution by simultaneously examining downward and upward prosocial influences in larger societal contexts and looking at a unique set of understudied processes within contexts where prosocial influences have real-world impact.

## Overview of Studies

Two studies were conducted to study prosocial influences across levels of a social hierarchy. Study 1 was a field investigation involving American rural communities affected by the opioid crisis (Meit et al., 2019). We observed authority readiness to serve their regions and surveyed cooperation among residents in these communities. Next, we conducted an experiment to gauge the relative impact of downward and upward prosocial influence. In the experiment, participants read about a community facing a health crisis that closely resembled the communities represented in the field study. Participants imagined themselves either being higher or lower in a social hierarchy and learned about the prosociality of their counterparts. We tested whether playing the role of an authority or a community member affected the impact of prosociality among individuals in the other position of the hierarchy, as well as whether influences were driven by pressure to conform, perceived responsibility, self-efficacy, and/or optimism.

### Study 1

Study 1 examined the relation between the prosociality of community authorities and residents in the Appalachian and Midwestern counties of the United States. These counties have been at the center of America's substance use disorder crisis, which has threatened public health and social welfare for close to a decade (Moody et al., 2017). This

field study was conducted in the context of building a program to address some of these vulnerabilities by reducing drug-associated stigma, increasing access to health services, and advocating health policies in these counties. The design involved inviting community authorities to participate in the program and also surveying residents of those communities. Actual participation in the program measured prosocial behavior among authorities and survey reports of community cooperation measured prosocial behavior among community members.

## Method

**Participants.** Participants involved a sample of authorities and residents from 79 counties across 12 states. The counties were selected to be among the top 5% most vulnerable to outbreaks of HIV and HCV in the United States (Van Handel et al., 2016).

**Sample of Authorities.** Authorities were recruited from 2019 to 2020 through our invitations to join a health-promotion program. During the recruitment period, the research team made 2,820 recruitment attempts (i.e., 1,534 emails, 715 mails, 496 phone calls, 59 online meetings, seven in-person meetings, five texts, three social media messages, and one fax) and contacted authorities in 1,338 organizations relevant to community health and well-being, including local health departments, police departments, coalitions, family services, hospitals, religious institutions, and prison/parole/drug courts.

**Sample of Community Members.** Eight hundred twenty-eight community members were recruited through Qualtrics Panels, an online survey company that can target specific geographic locations such as our counties, between November 2019 and May 2020. The demographics of our survey sample appear in Table 1. More information about how the Study 1 samples were determined appears in the online appendix.

## Procedures and Measures

**Authority Recruitment.** The recruitment followed a protocol reported in Jung et al. (2022). The process began with compiling a list of organizations related to community health. The authority of each organization first received formal invitations that explained the purpose of the project and requested their participation to build a program to improve health of their regions. The invitation was followed by emails and/or phone calls to arrange a meeting, which was typically a video conference during which our team discussed the program's goals and anticipated benefits. We repeated this process until at least one authority per target county was recruited, and systematically recorded all recruitment attempts, including date, medium, and outcome of each attempt (1 = *recruited*, 0 = *not recruited*).

**Table 1.** Demographic Composition of Merged Data in Study 1

Individual-level demographics	
N	828
%Female	65%
$M_{\text{age}}$ in years	47.72
$SD_{\text{age}}$ in years	16.12
Race/ethnicity	
White, not Hispanic or Latino	93%
Black or African American	2%
Hispanic or Latinx	2%
Asian American	0.7%
Other (American Indian, Alaska Native, Native Hawaiian, Pacific Islander)	2%
Median education level	Some college but no degree
Median income level	US\$30,000 to US\$39,999
No regular access to health care	25%
History of substance use	32%
County-level Demographics	
N	79
Average population	68,236.14
Average % Female	51%
Race/Ethnicity	
Average % White, not Hispanic or Latino	92%
Average % Black or African American	3%
Average % Hispanic or Latino	2%
Average % Other (Asian, American Indian, Alaska Native, Native Hawaiian, Pacific Islander)	3%
Average % in poverty	20%
Average % unemployed	6%
Average % uninsured under 65	30%

Once the recruitment period ended, we calculated the number of days it took to recruit authorities in each county by subtracting the date authorities were first contacted from the date authorities agreed to join the program (range = 9–282 days,  $M = 89.76$ ,  $SD = 57.66$ ). We also counted the number of communication attempts made to recruit authorities in each county (range = 5–78 attempts,  $M = 31.53$ ,  $SD = 17.04$ ). Thus, the number of days and communication attempts until recruitment only applied to counties where authorities agreed to serve within our predefined recruitment period. The number of days and communication attempts needed to recruit authorities served as our measures of *authority prosociality* in our analyses. The smaller the number of days and communication attempts, the more likely the authorities were to serve to benefit their community.

We also obtained supplementary data to validate whether our measures of authority prosociality reflected their actual concerns for the community. Specifically, when applicable, the recruiters recorded their impressions of the authorities with whom they interacted, including how

**Table 2.** Items Used to Measure Theoretical Variables in Community Resident Survey in Study 1

Variable/Items	Cronbach's $\alpha$ ; $M$ ( $SD$ )
<b>Resident prosociality</b>	
a) People in my community help each other when needed	.91; 3.72 (0.96)
b) People in my community watch out for one another	
c) If I sensed trouble in my community, I could get help from people living here	
d) People in my community can be trusted	
e) There are people in my community that I think of as friends	
<b>Collective identification</b>	
a) I feel like I belong in my community	.89;
b) Being a part of my community is important to how I think about myself as a person	3.44 (1.10)
c) Being a part of my community is meaningful to me	
<b>Trust in community authorities</b>	
a) I trust [local government/health care providers/religious leaders] to do their best to take care of people in the community where I live	.80; 3.15 (0.81)
b) I trust [local government/health care providers/religious leaders] to address people's health care needs	

Note. All items were measured from 1 = *strongly disagree* to 5 = *strongly agree*. Participants were asked to answer the questions about their community, which could be categorized as a "town," "city," "county," "incorporated community," or "other," whichever was most meaningful to them. Most of our sample (71%;  $n = 591$ ) listed "town" or "county" as their geographic unit with others including city (23%,  $n = 190$ ), incorporated community (4%,  $n = 33$ ), and others (2%,  $n = 14$ ).

concerned the authorities appeared to be about substance use in their community, their overall awareness of the current substance use disorder epidemic, and their willingness to encourage others (e.g., authorities in adjacent counties and/or other staff members) to also participate in the program. The impression ratings were recorded on a 7-point scale from 1 (*none at all*) to 7 (*a great deal*).

**Community Resident Survey.** We measured resident prosociality using the items presented in Table 2. In addition, as past work has shown that group cooperation is positively linked to group identity (Kramer et al., 2014) and trust within a group (Balliet & Van Lange, 2013), we measured and treated these variables as covariates (items appear in Table 2). Finally, we measured demographic variables and their items appear in the online appendix.

**Structural County-Level Data.** To account for possible differences in the communities across our target counties, we also obtained county-level information on poverty rate, unemployment rate, and access to health care. More

**Table 3.** Effects of Community Predictors on the First Indicator of Authority Prosociality (i.e., the Number of Days Until Recruitment) in Study I

	B (SE)	HR	p	95% CI
<b>Theoretical predictors</b>				
Resident prosociality	0.07 (.03)	1.07	.03	[0.006, 0.13]
Collective identification	−0.04 (.04)	0.97	.38	[−0.11, 0.04]
Trust in authorities	0.09 (.05)	1.09	.09	[−0.01, 0.19]
<b>Demographic covariates</b>				
Race/Ethnicity White	−0.14 (.23)	0.89	.62	[−0.56, 0.33]
Race/Ethnicity Black	−0.05 (.28)	0.95	.84	[−0.60, 0.49]
Race/Ethnicity Asian	0.56 (.38)	1.75	.14	[−0.18, 1.30]
Race/Ethnicity Hispanic	0.95 (.27)	2.58	.002	[0.43, 1.47]
Sex/female	0.01 (.09)	1.01	.91	[−0.17, 0.19]
Age	0.005 (.04)	0.99	.90	[−0.09, 0.08]
Education level	−0.07 (.04)	0.94	.07	[−0.13, 0.003]
Income level	0.02 (.04)	1.02	.61	[−0.06, 0.10]
Regular access to health care	0.02 (.08)	1.02	.80	
History of substance use	−0.02 (.09)	0.98	.85	
<b>Structural covariates</b>				
County-level poverty rate	−0.05 (.16)	1.05	.78	[−0.28, 0.37]
County-level unemployment rate	0.50 (.23)	1.65	.05	[0.05, 0.95]
County-level uninsured rate under 65	−0.14 (.17)	0.87	.39	[−0.48, 0.19]
<b>Methodological covariates</b>				
Number of organizations contacted	−0.02 (.23)	0.98	.94	[−0.47, 0.44]
Number of community residents per county in community survey	0.22 (.20)	1.24	.29	[−0.18, 0.62]

Note. B are standardized estimates. SE are standard errors. HR are hazard ratios. CI are confidence intervals. Positive coefficients (B) indicate fewer number of days until recruitment. HR > 1 (vs. HR < 1) reflects a predictor increasing (vs. decreasing) the likelihood of recruitment. All continuous variables were standardized before analysis and standard errors were clustered around the county of participants (Therneau et al., 2020). The correlations among all variables in our models appear in the online appendix. Demographic covariates include sex, age, race and ethnicity, education, income, regular access to health care, and history of substance use without a prescription or more than prescribed.

information about how this information was obtained appears in the online appendix.

**Methodological Considerations.** We also considered several methodological factors that could potentially affect the results. Specifically, our efforts to recruit community authorities were inevitably affected by the number of available agencies related to public health and welfare as some counties had more resources than others. Likewise, although our community resident survey targeted participants residing in the same counties as our sample of authorities, the number of participants recruited from each county was not always evenly distributed. Therefore, we controlled for the number of organizations contacted per county as well as the number of resident participants in the community survey for each county.

**Merging the Data.** To conduct our main analyses, we merged the recruitment data, the community resident survey data, and the structural data into a single data set based on the county FIPS (Federal Information Processing Standards) codes.<sup>1</sup>

## Results

**Main Analyses.** We conducted a survival analysis to examine the relation between resident and authority prosociality.

We conducted assumption checks to select the appropriate model for our data, which appear in the online appendix. We separately regressed behavioral indicators of authority prosociality, namely, the number of days and communication attempts until the authorities joined the project, on the survey reports of resident prosociality.

As shown in Table 3, the higher cooperation reported by community residents, the fewer the number of days required to mobilize authorities to serve their community.

Furthermore, as shown in Table 4, the higher cooperation reported by community residents, the smaller number of communication attempts required to mobilize authorities. The results, therefore, showed that resident prosociality was positively associated with authority prosociality.

**Supplementary Analyses.** Although our analyses showed a positive association between authority and resident prosociality, it was important to verify that the lack of authority readiness to join the community health initiative did not reflect something other than their willingness to address community issues. For example, authorities could have been hesitant because they had already established similar programs and therefore did not feel the need to build another one. Contrary to this possible concern, our supplementary analyses showed that authorities who took longer to join displayed lower concern about the substance use in

**Table 4.** Effects of Community Predictors on the Second Indicator of Authority Prosociality (i.e., the Number of Communication Attempts Until Recruitment) in Study 1

	B (SE)	HR	p	95% CI
Theoretical predictors				
Resident prosociality	0.10 (.04)	1.11	.01	[0.03, 0.18]
Collective identification	-0.005 (.06)	0.99	.93	[-0.13, 0.11]
Trust in authorities	0.03 (.05)	1.03	.53	[-0.07, 0.12]
Demographic controls				
Race/Ethnicity White	-0.55 (.21)	0.58	.01	[-1.02, -0.19]
Race/Ethnicity Black	-0.41 (.29)	0.66	.16	[-1.03, 0.12]
Race/Ethnicity Asian	0.33 (.46)	1.40	.46	[-0.63, 1.17]
Race/Ethnicity Hispanic	0.08 (.20)	1.08	.71	[-0.32, 0.47]
Sex/Female	0.06 (.07)	1.06	.46	[-0.09, 0.19]
Age	-0.03 (.05)	0.97	.60	[-0.14, 0.07]
Education level	0.08 (.04)	1.08	.06	[-0.01, 0.14]
Income level	-0.03 (.05)	0.97	.54	[-0.06, 0.11]
Regular access to health care	-0.01 (.07)	0.99	.91	
History of substance use	0.09 (.08)	1.10	.27	
Structural controls				
County-level poverty rate	-0.02 (.13)	0.98	.90	[-0.26, 0.24]
County-level unemployment rate	-0.05 (.22)	0.96	.83	[-0.48, 0.38]
County-level uninsured rate under 65	0.11 (.11)	1.12	.29	[-0.09, 0.33]
Methodological covariate				
Number of organizations contacted	-2.68 (.30)	0.07	<.001	[-3.27, -2.07]
Number of community residents per county in community survey	0.73 (.21)	2.07	<.001	[0.30, 1.12]

Note. B are standardized estimates. SE are standard errors. HR are hazard ratios. CI are confidence intervals. Positive coefficients (B) indicate fewer number of communication attempts until recruitment.  $HR > 1$  (vs.  $HR < 1$ ) reflects a predictor increasing (vs. decreasing) the likelihood of recruitment. All continuous variables were standardized before analysis and standard errors were clustered around the county of participants (Therneau et al., 2020). The correlations among all variables in our models appear in the online appendix.

their community ( $r = -.51, p < .001$ ), had less awareness about the epidemic ( $r = -.49, p < .001$ ), and were less willing to encourage others to join the program ( $r = -.48, p < .001$ ). Likewise, authorities who enrolled after more communication attempts displayed lower concerns ( $r = -.61, p < .001$ ), had less awareness ( $r = -.53, p < .001$ ), and were less willing to encourage others ( $r = -.49, p < .001$ ). These findings suggest that authorities' delay in joining the health-promotion program reflected less engagement and interest in the health issues of concern for their community.

## Discussion

Study 1 found that authorities from communities where residents cooperate more were also more easily mobilized to work on behalf of their community. This relation was evident even after controlling for several related community variables as well as after controlling for several structural differences. The relation was also consistently observed across two separate indicators of authority prosociality, both of which were validated by ratings of the disposition of authorities made by our recruiters.

Despite finding an association between authority and resident prosociality, our study was correlational.

Therefore, we next conducted an experiment whereby we directly manipulated both participants' position on a social hierarchy (authority or member) and the level of prosociality they are exposed to (prosocial or non-prosocial). Specifically, participants were assigned to imagine being either authorities or community members and learned about their counterparts who were prosocial or non-prosocial. This manipulation allowed us to compare the magnitude of upward and downward prosocial influence.

Although we did not have a clear prediction on whether the magnitude of downward prosocial influence is greater than the upward one, or vice versa, we measured variables that might explain downward and upward prosocial influence should we observe any. Specifically, we measured participants' pressure to conform, perceived responsibility, feelings of efficacy, and optimism and explored their roles in prosocial influence across social hierarchies. Pressure to conform tends to be higher among those with less authority (Galinsky et al., 2008) and thus could explain a stronger downward (vs. upward) prosocial influence. In contrast, perceived responsibility (Tost & Johnson, 2019), feelings of efficacy (Korman et al., 2022), and optimism about future outcomes (Anderson & Galinsky, 2006) predominate among those with more authority and thus could explain a stronger upward (vs. downward) prosocial influence.

**Table 5.** Items Used to Measure the Dependent and Mediating Variables in Study 2

Variable	Items	Cronbach's $\alpha$ ; M (SD)
<b>Manipulation check</b>		
a)	I believe the county mayor/resident care for the county	.96;
b)	I believe the county mayor/resident would do their part to help more vulnerable residents	2.95 (1.39)
<b>Prosociality</b>		
a)	I would support more drug treatment in my county	.84;
b)	I would support more programs to help people who use drugs in my county	4.48 (0.78)
<b>Pressure to conform</b>		
a)	I feel that I would be judged negatively if I do not take actions to make things better for my county	.75;
b)	I feel that I would be punished if I do not take actions to make things better for my county	2.98 (1.16)
<b>Perceived responsibility</b>		
a)	I would feel responsible to do something for my county	.86;
b)	I would feel responsible for the current conditions of my county	3.71 (1.07)
c)	I would feel responsible to improve the well-being of my county	
<b>Feelings of efficacy</b>		
a)	I would feel that my actions can make a difference in my county	.90;
b)	I would feel capable of creating positive change in my county	3.98 (0.87)
c)	I would feel capable of doing my part in my county	
<b>Optimism</b>		
a)	I would feel confident that the current conditions of my county can improve	.82;
b)	I would feel hopeful that things can improve in my county	4.05 (0.88)

Note. All items were measured from 1 = *strongly disagree* to 5 = *strongly agree*. Participants were asked to answer all questions assuming that they were either the authority (i.e., mayor) or the member (i.e., resident) except the manipulation check items. For manipulation check items, participants who were assigned to the authority condition answered the questions about county member, and participants who were assigned to the member condition answered the same questions about authority.

## Study 2

### Method

**Participants and Procedures.** We recruited 804 participants from Prolific (399 females,  $M_{\text{age}} = 36.95$ ,  $SD_{\text{age}} = 14.37$ ). The experiment employed a 2 (social hierarchy: authority or member)  $\times$  2 (level of prosociality: prosocial or non-prosocial) between-subjects design. The study was preregistered on aspredicted.org (<https://aspredicted.org/ce3at.pdf>).<sup>2</sup>

All participants were instructed to imagine themselves living in a rural county in the United States. Information about the rural county closely resembled the situation of the communities represented in the field study (Study 1) undergoing an opioid crisis that may worsen into new HIV outbreaks. We manipulated social hierarchy by randomly assigning participants to imagine themselves being a mayor of the county (i.e., an authority), who represents the county and has the ability to make various policy decisions. We asked the remaining participants to imagine themselves as county residents (member).

Then, we manipulated the level of prosociality by providing additional information about the county. Participants who were assigned to the authority condition read about actions carried out by the members, and participants who were assigned to the member condition read about actions carried out by the authority. Specifically, those assigned as the authority (i.e., county mayor) either

read about prosocial or non-prosocial members, whereby prosocial members cared for those affected by the health crisis and supported more health clinics and programs to address the issue, and non-prosocial members neglected those affected by the health crisis and opposed more health clinics and programs to improve the health of individuals who use substances. Likewise, participants assigned to be the member either read about prosocial or non-prosocial authority using almost identical descriptions as those shown to participants assigned to be the authority.

We next assessed participants' prosociality using the items in Table 5. These items gauged the extent to which participants were supportive of actions that help people who use drugs. We considered these measures as indicators of prosociality as they reflect participants' concerns for and willingness to help people who use drugs, a group that is often highly stigmatized. We also measured participants' pressure to conform, perceived responsibility, feelings of efficacy, and optimism. Items used to measure these variables appear in Table 5.

**Manipulation Checks.** Finally, we administered a manipulation check to verify whether participants who learned about prosocial (vs. non-prosocial) counterparts indeed perceived them to be such. Items in the check appear in Table 5. Participants then answered several demographic questions and were debriefed.<sup>3</sup>

## Results and Discussion

**Manipulation Checks.** Table 6 presents all descriptive statistics, *F* ratios for main and interaction effects, and *t* tests for all pairwise contrasts conducted on the variables measured in Study 2. As shown, participants who read about prosocial (vs. non-prosocial) others perceived them to be more caring and more likely to be doing their part. This effect was qualified by an interaction. Accordingly, although prosocial targets were always perceived as such, this difference was greater when participants were assigned to be members than authorities.

**Test of Hypothesis.** We next examined the prosociality index, which was our main dependent variable. As shown in Table 6, participants in the authority (vs. member) condition were generally more supportive of prosocial actions, and participants who read about prosocial (vs. non-prosocial) others were more supportive. Importantly, however, we found a significant interaction. As shown in Table 6, participants in the authority condition were more supportive of prosocial actions after reading about the prosocial (vs. non-prosocial) members. In contrast, participants in the member condition were similarly supportive irrespective of whether they read about the prosocial or non-prosocial authority. The effects showed hierarchical differences in responses to others' prosociality, with those higher in the hierarchy following the level of prosociality of those lower, but not vice versa.

**Mediating Mechanisms.** We next examined our mechanism measures. As shown in Table 6, participants in the authority (vs. member) condition felt more pressure to conform, felt more responsible for the current situation of the community, had higher self-efficacy, and were more optimistic that the current situation of the community would improve.

Given that participants' position in a social hierarchy meaningfully affected each of the mechanism variables in Table 6, we explored whether these variables mediated our effects as shown in Table 7. To do so, we conducted mediated moderations with the variables in Table 6 simultaneously entered as mediators of the influence of social hierarchy and counterpart's prosociality with 10,000 bootstrap samples. Among the mechanisms we measured, optimism, the extent to which participants were confident that the situation could improve, successfully mediated the interaction between social hierarchy and counterpart's prosociality. Specifically, being an authority (vs. member) produced greater optimism. However, that optimism led to more support for prosocial actions only when authorities were exposed to prosocial members ( $ab = .09$ , 95% confidence interval [CI] = [0.03, 0.16]). This path was not significant when participants were exposed to non-prosocial members ( $ab = -0.01$ , 95% CI = [-0.06, 0.04]). These

findings suggested that even though being in a position of authority made participants confident that the dire situation can improve, they still needed to perceive community support to enact positive policies.

## General Discussion

This article examined whether and how prosociality disseminates across levels of a social hierarchy. Specifically, we explored the relations between the prosociality of those in different social hierarchical positions and the relative magnitude of downward and upward prosocial influence among them. Our field study involving 79 vulnerable U.S. counties found a positive association between authority and resident prosociality, providing preliminary evidence for prosocial influence across social hierarchies. Our follow-up experiment further showed that the magnitude of upward influence is larger than that of the opposite direction. Specifically, when people considered themselves as either an authority or a member of a community, those in the authority position were more supportive of prosocial actions after witnessing prosocial (vs. non-prosocial) members, whereas those in the member position were similarly supportive regardless of whether their authorities were prosocial. We also found that the effects on the prosociality of the authorities were related to effects on optimism with respect to the possibility of improving the crisis. Specifically, being an authority (vs. a member) produced more optimism about improvements, which subsequently produced more support for prosocial actions upon seeing prosocial members. Nevertheless, authorities' optimism did not lead to more support for prosocial actions when their members were not prosocial themselves.

## Implications

This research makes a novel contribution to literature in several ways. Past work has examined downward and upward prosocial influences but has not directly compared them when they operate simultaneously. Furthermore, most of this work has focused on organizational settings, where managers typically have direct control over employees' behaviors through rewarding desirable actions (e.g., bonuses) and punishing undesirable ones (e.g., missing a promotion). This could have resulted in more frequent detection of downward prosocial influence in past work, thus requiring studying prosocial influence in other settings as well. Accordingly, this research explored how prosociality disseminates across social hierarchies in community settings, where members' pressure to conform to authorities is less pronounced and the power asymmetry is less salient due to members' ability to elect or contribute to appointing authorities. In such a context, those in the role of authorities are more sensitive to the prosociality of their constituents than the other way round, to the extent that



**Table 6.** The Effects of Social Hierarchy (Authority, Member) and the Level of Counterparts' Prosociality (Prosocial or Non-Prosocial) on Participants' Prosociality, Mechanism, and Manipulation Check Measures in Study 2

**Dependent variable: Prosociality**

		Counterpart's level of prosociality, <i>M</i> ( <i>SD</i> )		
		Prosocial	Non-prosocial	Overall
Social hierarchy, <i>M</i> ( <i>SD</i> )	Authority	4.66 (0.56)	4.41 (0.73)	4.54 (0.66)
	Member	4.39 (0.88)	4.44 (0.88)	4.41 (0.88)
	Overall	4.52 (0.75)	4.43 (0.81)	
Main effect of social hierarchy		$F(1, 800) = 5.07, p = .02, \eta_p^2 = .006$		
Main effect of counterpart's prosociality		$F(1, 800) = 3.24, p = .07, \eta_p^2 = .004$		
Two-way interaction		$F(1, 800) = 8.08, p = .005, \eta_p^2 = .01$		
Authority: prosocial vs. non-prosocial		$M_{DIFF} = 0.25, SE_{DIFF} = .08, t(800) = 3.28, p = .001, 95\% CI = [0.10, 0.41]$		
Member: prosocial vs. non-prosocial		$M_{DIFF} = -0.05, SE_{DIFF} = .08, t(800) = -0.73, p = .46, 95\% CI = [-0.21, 0.09]$		
Prosocial: authority vs. member		$M_{DIFF} = 0.28, SE_{DIFF} = .08, t(800) = 3.60, p = .0003, 95\% CI = [0.13, 0.43]$		
Non-prosocial: authority vs. member		$M_{DIFF} = -0.03, SE_{DIFF} = .08, t(800) = -0.42, p = .67, 95\% CI = [-0.19, 0.12]$		

**Mechanism: Pressure to conform**

		Counterpart's level of prosociality, <i>M</i> ( <i>SD</i> )		
		Prosocial	Non-prosocial	Overall
Social hierarchy, <i>M</i> ( <i>SD</i> )	Authority	3.75 (0.91)	3.56 (0.95)	3.66 (0.93)
	Member	2.36 (0.93)	2.24 (0.98)	2.30 (0.96)
	Overall	3.06 (1.15)	2.90 (1.17)	
Main effect of social hierarchy		$F(1, 800) = 416.27, p < .0001, \eta_p^2 = .34$		
Main effect of counterpart's prosociality		$F(1, 800) = 5.49, p = .02, \eta_p^2 = .007$		
Two-way interaction		$F(1, 800) = 0.29, p = .59, \eta_p^2 = .0003$		
Authority: prosocial vs. non-prosocial		$M_{DIFF} = 0.19, SE_{DIFF} = .09, t(800) = 2.03, p = .04, 95\% CI = [0.01, 0.38]$		
Member: prosocial vs. non-prosocial		$M_{DIFF} = 0.12, SE_{DIFF} = .09, t(800) = 1.28, p = .20, 95\% CI = [-0.06, 0.30]$		
Prosocial: authority vs. member		$M_{DIFF} = 1.39, SE_{DIFF} = .09, t(800) = 14.82, p < .0001, 95\% CI = [1.21, 1.57]$		
Non-prosocial: authority vs. member		$M_{DIFF} = 1.32, SE_{DIFF} = .09, t(800) = 14.03, p < .0001, 95\% CI = [1.13, 0.50]$		

**Mechanism: Perceived responsibility**

		Counterpart's level of prosociality, <i>M</i> ( <i>SD</i> )		
		Prosocial	Non-prosocial	Overall
Social hierarchy, <i>M</i> ( <i>SD</i> )	Authority	4.41 (0.68)	4.27 (0.72)	4.34 (0.70)
	Member	3.07 (0.95)	3.08 (1.06)	3.08 (1.01)
	Overall	3.74 (1.06)	3.67 (1.08)	
Main effect of social hierarchy		$F(1, 800) = 426.29, p < .0001, \eta_p^2 = .35$		
Main effect of counterpart's prosociality		$F(1, 800) = 1.05, p = .31, \eta_p^2 = .001$		
Two-way interaction		$F(1, 800) = 1.37, p = .24, \eta_p^2 = .002$		
Authority: prosocial vs. non-prosocial		$M_{DIFF} = 0.13, SE_{DIFF} = .09, t(800) = 1.55, p = .12, 95\% CI = [-0.04, 0.31]$		
Member: prosocial vs. non-prosocial		$M_{DIFF} = -0.01, SE_{DIFF} = .09, t(800) = -0.10, p = .92, 95\% CI = [-0.18, 0.16]$		
Prosocial: authority vs. member		$M_{DIFF} = 1.34, SE_{DIFF} = .09, t(800) = 15.44, p < .0001, 95\% CI = [1.17, 1.51]$		
Non-prosocial: authority vs. member		$M_{DIFF} = 1.19, SE_{DIFF} = .09, t(800) = 13.75, p < .0001, 95\% CI = [1.02, 1.36]$		

**Mechanism: Feelings of efficacy**

		Counterpart's level of prosociality, <i>M</i> ( <i>SD</i> )		
		Prosocial	Non-prosocial	Overall
Social hierarchy, <i>M</i> ( <i>SD</i> )	Authority	4.41 (0.68)	4.21 (0.68)	4.31 (0.69)
	Member	3.73 (0.87)	3.59 (0.94)	3.66 (0.91)
	Overall	4.07 (0.85)	3.90 (0.88)	
Main effect of social hierarchy		$F(1, 800) = 131.84, p < .0001, \eta_p^2 = .14$		
Main effect of counterpart's prosociality		$F(1, 800) = 8.94, p = .003, \eta_p^2 = .01$		
Two-way interaction		$F(1, 800) = 0.29, p = .59, \eta_p^2 = .0004$		

(continued)

Table 6 (continued)

		Counterpart's level of prosociality, <i>M</i> ( <i>SD</i> )		
		Prosocial	Non-prosocial	Overall
<b>Dependent variable: Prosociality</b>				
Authority: prosocial vs. non-prosocial		$M_{DIFF} = 0.20, SE_{DIFF} = .08, t(800) = 2.49, p = .01, 95\% CI = [0.04, 0.36]$		
Member: prosocial vs. non-prosocial		$M_{DIFF} = 0.14, SE_{DIFF} = .08, t(800) = 1.74, p = .08, 95\% CI = [-0.02, 0.30]$		
Prosocial: authority vs. member		$M_{DIFF} = 0.68, SE_{DIFF} = .08, t(800) = 8.51, p < .0001, 95\% CI = [0.52, 0.84]$		
Non-prosocial: authority vs. member		$M_{DIFF} = 0.62, SE_{DIFF} = .08, t(800) = 7.73, p < .0001, 95\% CI = [0.46, 0.78]$		
<b>Mechanism: Optimism</b>				
		Counterpart's level of prosociality, <i>M</i> ( <i>SD</i> )		
		Prosocial	Non-prosocial	Overall
Social hierarchy, <i>M</i> ( <i>SD</i> )	Authority	4.35 (0.72)	4.19 (0.72)	4.27 (0.73)
	Member	4.01 (0.90)	3.66 (1.01)	3.84 (0.97)
	Overall	4.18 (0.83)	3.93 (0.91)	
Main effect of social hierarchy		$F(1, 800) = 52.41, p < .0001, \eta_p^2 = .06$		
Main effect of counterpart's prosociality		$F(1, 800) = 18.59, p < .0001, \eta_p^2 = .02$		
Two-way interaction		$F(1, 800) = 2.60, p = .11, \eta_p^2 = .003$		
Authority: prosocial vs. non-prosocial		$M_{DIFF} = 0.16, SE_{DIFF} = .08, t(800) = 1.90, p = .06, 95\% CI = [-0.01, 0.33]$		
Member: prosocial vs. non-prosocial		$M_{DIFF} = 0.35, SE_{DIFF} = .08, t(800) = 4.19, p < .0001, 95\% CI = [0.19, 0.52]$		
Prosocial: authority vs. member		$M_{DIFF} = 0.34, SE_{DIFF} = .08, t(800) = 3.99, p = .0001, 95\% CI = [0.17, 0.50]$		
Non-prosocial: authority vs. member		$M_{DIFF} = 0.53, SE_{DIFF} = .09, t(800) = 6.25, p < .0001, 95\% CI = [0.36, 0.69]$		
<b>Manipulation check</b>				
		Counterpart's level of prosociality, <i>M</i> ( <i>SD</i> )		
		Prosocial	Non-prosocial	Overall
Social hierarchy, <i>M</i> ( <i>SD</i> )	Authority	3.98 (0.90)	1.95 (0.72)	2.97 (1.30)
	Member	4.18 (0.86)	1.69 (0.73)	2.94 (1.48)
	Overall	4.08 (0.88)	1.82 (0.73)	
Main effect of social hierarchy		$F(1, 800) = 0.23, p = .63, \eta_p^2 = .0003$		
Main effect of counterpart's prosociality		$F(1, 800) = 1,578.42, p < .0001, \eta_p^2 = .66$		
Two-way interaction		$F(1, 800) = 16.87, p < .0001, \eta_p^2 = .02$		
Authority: prosocial vs. non-prosocial		$M_{DIFF} = 2.02, SE_{DIFF} = .08, t(800) = 25.15, p < .0001, 95\% CI = [1.86, 2.18]$		
Member: prosocial vs. non-prosocial		$M_{DIFF} = 2.49, SE_{DIFF} = .08, t(800) = 31.03, p < .0001, 95\% CI = [2.33, 2.65]$		
Prosocial: authority vs. member		$M_{DIFF} = 0.21, SE_{DIFF} = .08, t(800) = 2.56, p = .01, 95\% CI = [-0.36, -0.05]$		
Non-prosocial: authority vs. member		$M_{DIFF} = -0.26, SE_{DIFF} = .08, t(800) = 3.25, p = .001, 95\% CI = [0.10, 0.42]$		

authorities are more willing to support actions to promote collective well-being when surrounded by prosocial (vs. non-prosocial) members.

This is not to say, however, that those lower in the social hierarchy are completely insensitive to their authorities' prosociality. Specifically, as shown in our manipulation checks in Study 2, members correctly perceived authorities as being more caring and more likely to be doing their part when they learned that the authorities were prosocial (vs. non-prosocial). These differences, however, did not motivate corresponding support for prosocial actions among community members. Here, the lack of downward prosocial influence may be due to community members being less optimistic, as found in our research. It may also be due to members becoming more dependent on authorities when

Table 7. The Role of Mechanism Measures in Producing Differential Susceptibility to Prosocial Influence Across Levels of a Social Hierarchy

Variable	Index of mediated moderation (difference between conditional indirect effects)
Social pressure	Index: .13, 95% CI = [-0.02, 0.27]
Self-efficacy	Index: -.05, 95% CI = [-0.19, 0.09]
Social responsibility	Index: -.12, 95% CI = [-0.32, 0.07]
Optimism	Index: .13, 95% CI = [0.03, 0.24]

they are seen as effectively engaging in community issues (e.g., Liu et al., 2024). This possibility could be further examined in future work.

Our findings highlight the ability of grassroots social movements to mobilize authorities in a positive direction, which subsequently can increase the overall welfare of communities. In our case, community residents who regularly help one another during a health crisis could effectively mobilize their leaders to strengthen the social safety net for those who are negatively impacted. Nonetheless, prosocial action can take many forms, ranging from investing objective resources to help vulnerable community members to reducing social stigma and promoting social equity. Thus, one important avenue for future research is to explore the dynamics of upward and downward prosocial influence with respect to other pressing societal issues.

Our findings may also shed light on the link between prosociality and well-being more broadly. Specifically, past work has shown that engaging in prosocial behavior promotes well-being (Aknin et al., 2013), although well-being can also promote prosocial behavior (Aknin et al., 2018; see also Rhoads & Marsh, 2023). From this standpoint, vulnerable communities in a health crisis might provide a conservative context to test prosocial influence because their well-being is undermined. Still, we found that those who stay optimistic even in dire situations, in our case those in higher positions in a social hierarchy, respond to others' prosociality by supporting similar actions. Alternatively, prosocial influence may affect authorities more because, being in control, they experience a greater sense of well-being (Jayawickreme et al., 2012) and this sense of well-being influences their support for prosocial actions, as suggested by previous work (Korndörfer et al., 2015). However, given that authorities' optimism was not associated with more support for prosocial actions when they witnessed non-prosocial (vs. prosocial) members, a heightened sense of well-being may not always promote prosociality unless people regularly witness or learn about others' prosocial behavior.

### Limitations and Future Directions

As this research is the first attempt testing the simultaneous effects of downward and upward prosocial influence, more empirical work is needed to test moderating conditions, including the type of relationship between people across a social hierarchy as well as the type of group they belong to. When the relationship between people across a social hierarchy is authoritarian, to the extent that authorities have omnipotent control over important resources and the behaviors of others, perhaps the pressure to conform among people with less power promotes downward social influence.

Likewise, although this article tested prosocial influence across social hierarchies, it speaks little about how people across a social hierarchy respond to others' antagonistic behaviors. For example, in Study 2, although participants in the authority (vs. member) position reacted more positively after learning about their counterparts helping

people in need, participants in either position reacted similarly after learning about their counterparts being against helping others in need (see pairwise comparisons in Table 6). This suggests that our findings may be specific to prosocial influence, while antagonistic social influence may involve separate mechanisms. Indeed, communities often see support for socially detrimental actions, as is the case when prejudice spreads. Thus, a more comprehensive picture of social influence across social hierarchies might involve extending our experimental paradigm to test the relative magnitude of downward and upward social influence in non-prosocial or antagonistic settings.


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### Supplemental Material

Supplemental material for this article is available online.

### Notes

1. To protect the confidentiality of Study 1 participants, the data and codes used in this study are not posted in a public repository.
2. We conducted a pilot study ( $N = 268$ ) that had an identical design to Study 2 without the mechanism measures. The pattern of results was consistent with Study 2 and their results are reported in the online appendix. We conducted a power analysis based on the pilot results to determine the sample size for Study 2. Study 2 data and codes are available at OSF (<https://osf.io/pmwxh/>).
3. Along with several demographic questions, we also measured participants' trust in their local government by asking, "To what extent do you trust your local government?" (1 = none at all, 5 = a great deal). We added this measure to explore whether participants' baseline trust in authorities affected their response to our manipulations. Trust in authorities did not affect our main outcome (i.e., prosociality), nor did it interact with the manipulated factors to affect the outcome. Rather, the manipulated levels of social hierarchy and prosociality affected trust in authorities, such that participants generally reported more trust after learning about prosocial (vs. non-prosocial) others. We also found a significant interaction,

such that participants in the member condition reported more trust after learning about prosocial (vs. non-prosocial) authorities, but participants in the authority condition reported similar trust regardless of members' level of prosociality. The full results of the trust measure are presented in the online appendix.

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