

# On the dynamics of disobedience: experimental investigations of defying unjust authority

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**Abstract:** Across six Experimental conditions with university student participants (N=600), we examined some of the dynamics underlying expressed defiance to unjust authority. Results revealed disobedience was best enacted by participants low in right-wing authoritarianism and was more likely to occur when: 1) in physical proximity of other rebels, 2) the authority made two demanding requests instead of one, and 3) there had been an earlier opposition to injustice. Results are discussed within the theoretical framework of bounded rationality.

**Keywords:** defiance, unjust authority, obedience, disobedience

## Introduction

On December 1, 1955, in Montgomery, Alabama, an African-American seamstress refused to obey the bus driver's order to give up her seat in the "colored people's" section to a white passenger. For such a refusal, which violated Alabama laws, this middle-aged woman was immediately sent to jail for her offense. However, soon after, she became an icon for open, public resistance to racial segregation. Her name was Rosa Parks, and she became a prototype for civil rights proactive disobedience to unjust laws and authorities.

This is just one of the more famous examples of disobedience to official laws that can be considered unjust. Strictly speaking, since Parks did not do what she was supposed to do, her behavior can be seen as a case of disobedience by omission. Conversely, disobedience by commission can be illustrated by the actions of those people who violate the social norm to refrain from disclosing illegal practices in their work setting. Well-known examples in this regard are those of whistleblowers Frank Serpico and Jeffrey Wigand, who respectively exposed corruption within the New York Police Department and fraudulent practices in the American tobacco industry.

Let us next move our narrative from the abstract to the personally subjective; imagine that a powerful authority commands you to take an action that violates your sense of moral conscience. Can you imagine any conditions under which you would obey and harm an innocent person? Consider the alternative personal scenario under which you would openly disobey and challenge that authority's unjust command. These provocative issues were first raised by social psychologist Stanley Milgram as a prelude to his 1960s experimental investigations of conditions that might make the vast majority of adult respondents behaviorally conform, despite verbally disagreeing.<sup>1</sup> It is important for us to recall the alleged prosocial purpose of this research as presented by the experimenter-authority to each participant. Their decisions and actions



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as “teachers” would help science understand better if and how memory is enhanced by punishing errors of their students. So initially, the scientific researcher in the gray lab coat had no personal investment in the participants’ decisions, other than to record reactions and remind them of the rules – to give the next higher shock level for each new error. He only acts unjustly later on in the scenario when despite the “learner’s” demands to quit participating, he insists on continuing to up the shock level to the maximum possible voltage.

Although the general focus of academics, the media, and the public was on the surprising finding of the majority who obeyed, 65%, on average – in contrast to the prediction of only 1% by psychiatric experts – two of Milgram’s most important variations have been generally ignored. In one condition, obedience soared to over 90%, while in a contrasting condition, obedience declined to only 10%. When participants, playing the role as teacher, were told to watch another person like them who was just finishing his session, what they observed determined whether they obeyed or disobeyed. If they witnessed someone administering the maximum level of 450 V shock, then 92% also did so (Experiment 18). In contrast, watching several others rebelling and refusing to obey that same authority, then 90% similarly rebelled (Experiment 17).

These twin findings mean that obedience and disobedience are to a considerable degree influenced by social situational variables – the power of the observed actions of others on our own action tendencies. A second takeaway message should be on the awareness of the “ripple effect” of our public actions on others who observe both what we do and how we do it. Doing the wrong thing, the evil action, impacts observers to follow suit and do harm. However, doing the right thing, the moral action, impacts the observers to do the right thing, inspiring them to act heroically.

These noble, moral behaviors have long been associated with a process of conscious reasoning.<sup>2,3</sup> However, findings from a growing body of research suggest that they are generally the result of fast, effortless, and automatic evaluations.<sup>4-6</sup> This newer perspective builds on the seminal work on bounded rationality by Herbert Simon,<sup>7-9</sup> who argued that human action is shaped by the combination of the task environment constraints coupled with the cognitive resources of the agent. Thus, in an uncertain world, decision makers compensate for these constraints by relying heavily on heuristics, as judgmental short cuts.

The term heuristics has been used in many different ways; for us, following Simon,<sup>9</sup> heuristics are here described as “methods for arriving at satisfactory solutions with modest amounts of computation”. Some clarification is also needed

regarding the definition of “cue”, by which we mean a piece of information that serves to trigger the heuristic (e.g., in the absence of people whose behavior can be observed, the imitate-the-majority heuristic cannot be activated). As noted by Gigerenzer,<sup>4</sup> far from being irrational or second-best to optimization, heuristics can lead to more accurate decisions than strategies that use more information and computation, a “less-is-more effect” that has been well documented in literature.<sup>10-13</sup>

This study investigates disobedience within the theoretical framework of bounded rationality. More specifically, our aim is to examine the dynamics of disobedience to unjust authority through an experimental paradigm recently introduced by Bocchiaro et al.<sup>14</sup> Under the cover story of a writing task, Dutch university student participants were asked by the experimenter-authority to engage in a clearly unethical action that would personally benefit him. More specifically, they were invited to compose a persuasive message to help him recruit students from their college for an alleged separate study that, once described, reveals clear elements of personal risks to all of them. Moreover, the experimenter further informs participants of his intention to conceal such potential dangerous reactions from those “subjects”, thereby further increasing the unethical nature of this scenario. Remarkably, the vast majority of these college students (77%) complied fully with this totally unethical request from this unjust authority.

This study follows up on this earlier research by posing three basic questions: 1) What psychologic/personality orientations might best predict disobedience to an unjust authority? 2) What circumstantial cues or situational information might participants utilize in disobeying such a challenging, dominating individual? 3) How do person and situation factors interact to influence participants’ decision to disobey an unjust authority-experimenter?

Regarding personal factors, we focused on the ideology of right-wing authoritarianism (RWA), which is assumed to be theoretically related to our target behavior – obedience/disobedience to authority – and thus potentially useful in predicting its occurrence. RWA has received considerable attention by both social and personality psychologists.<sup>15-17</sup> According to Altemeyer,<sup>18</sup> “authoritarian followers [...] have submissive attitudes toward established authorities, show a general aggressiveness toward persons ‘targeted’ by those authorities, and adhere tightly to social conventions”. Previous research using various methodologies has demonstrated that high levels of authoritarianism were significantly predictive of obedience to unjust authority.<sup>19,20</sup> A similar pattern

of results was expected within the present experimental paradigm, with greater disobedience to the experimenter's unethical request by those participants low in authoritarianism than by high authoritarians.

For our focus on situational factors, we designed a set of Experimental conditions that, compared with the Control condition, should make it easier for participants to disobey the unjust authority figure. Based on previous research<sup>21–23</sup> demonstrating that people are generally unwilling to question a legitimate authority, it was expected that in the Control condition, disobeying the experimenter would be an unlikely decision for participants to make. Accordingly, across five Experimental manipulations, we “offered” participants various easy-to-access cues and heuristics that were thought to make them more likely to disobey the authority figure than participants in the Control condition. In line with Gigerenzer,<sup>4</sup> we reasoned that potential candidate heuristics underlying moral behavior, far from having a specific moral connotation, might be those that govern daily social life. Simple socially based heuristics, not moral ones, may provide satisfactory solutions even in an ethical challenging situation.

We focused on three of the most basic social heuristics: imitate-the-majority (“Do what the majority does”),<sup>24,25</sup> tit-for-tat (“Start cooperatively, then imitate your counterpart's last behavior”),<sup>26,27</sup> and commitment-and-consistency (“Be consistent with what you have already done”).<sup>28,29</sup> Each of them was intended to provide an appropriate means to counteract the power of the authority, thereby pushing participants toward taking a moral/disobedient action. In this way, we predicted that noble behaviors would be generated by the simple application of any one of the three social heuristics they were given.

Although we examined the Person  $\times$  Situation interaction (participants' level of authoritarianism and the several Experimental conditions), no specific hypotheses were formulated in this primarily empirical investigation.

## Overview of this study

The Control condition served as the baseline against which to compare the other five varied Experimental conditions. The primary goal was to examine how participants would spontaneously behave when confronted with an ethically challenging situation. Using a paradigm very similar to that of Bocchiaro et al<sup>14</sup> reported above, it was predicted that only a minority of participants would defy the powerful authority figure. These participants were thought to use the content of the experimenter's request as a cue to activate the affect heuristic (“If I feel bad about something, it must be

wrong”).<sup>30,31</sup> We propose that between the cue and the activation of the heuristic, participants will experience a moral intuition, namely, the sudden appearance in consciousness of an evaluative feeling (like–dislike, good–bad) about the content of the experimenter's request. They will do so without awareness of having gone through steps of cognitive searching or inferring a conclusion.<sup>32</sup>

Through the “Hypothetical Scenario” condition, we aimed to determine whether, as expected, the majority of participants considered the experimenter's request unfair. The methodology was modeled after that used by Milgram<sup>1</sup> in his preliminary study on expected behavior of hypothetical subjects.

“Social Modeling” and “Remote Social Modeling” conditions were designed to test the effect of others' behavior on the participants' response to the experimenter's unfair request. With the “Social Modeling” condition, in particular, the focus was on the role of dissenting others physically present in the situation, while with the “Remote Social Modeling” condition, we wanted to test the effect of being aware of the disobedience performed by others who were not physically present in their same situation. It should be noted that while previous research has shown that, when compared with the baseline: 1) the presence of a social supporter reduces conformity<sup>33,34</sup> and 2) the disobedience of two confederates increases defiance against unjust authority,<sup>35,36</sup> no studies have been conducted to our knowledge on the role of physically absent disobedient peers on the participants' response to the experimenter's unfair request.

“Double Request” and “Two Unjust Authorities” conditions were carried out to test the participants' reaction to the unjust authority after having received a separate, personally aversive request. Through the “Double Request” condition, we investigated whether disobedience could be triggered by a “hit below the belt” by the authority figure.<sup>26,27</sup> Unlike the other Experimental conditions, the experimenter in this case surprised the participants by making two requests instead of the expected one – that is, writing the promotional message and, in addition, helping him in his own separate research work. This other request, a move motivated exclusively by the experimenter's self-interest, served as the cue to activate the tit-for-tat heuristic. In the last Experimental condition (“Two Unjust Authorities”), our goal was to test whether a small act of prior overt assertiveness would lead participants to make a similar reaction in a related and temporally proximal situation. The participants' first act of assertiveness served as the cue to activate the commitment-and-consistency heuristic.<sup>28,29</sup>

## Method

### Participants

Potential participants were approached on the campus of the University of Palermo (Italy) and asked to partake in the study in return for €4. Of the 609 undergraduates who agreed to participate, 9 were excluded from the analyses due to withdrawal of consent ( $n=3$ ) or methodological issues ( $n=6$ ), leading to a final sample of 600 (304 females, mean age=22.6,  $SD=2.9$ ). Participants were randomly and equally assigned to one of six conditions, although care was taken to ensure that males and females were approximately balanced across conditions. Psychology students were excluded a priori from participation in order to guard against possible biases (e.g., familiarity with topics similar to the one under investigation or expectation of being deceived).

### Procedure

Because the Experimental conditions did not differ significantly from the Control condition, only the Control condition procedure will be described in detail, limiting the descriptions of the other conditions to their specific procedural variations (the entire experimental script is included in the Supplementary material).

#### Control condition

Using a procedure closely modeled after that of Bocchiaro et al.,<sup>14</sup> each participant was greeted by a male experimenter and asked to sign a preliminary consent form which informed participants about 1) what their task was, 2) the potential benefits and risks of participation, 3) the right to withdraw at any time with no economic penalty, and 4) the confidentiality of the information collected. After the form had been signed, the experimenter paid the participant and introduced the study as one concerned with persuasive writing. It was explained that the task involved their creating a message to convince fellow students to take part in “sensory deprivation” research to be conducted shortly by the experimenter himself. The rationale for this request was the obvious reluctance by students to participate in this kind of high-risk research.

The cover story was constructed with the aim of making immediately clear to each participant both the experimenter’s cynicism and also the dangers of sensory deprivation. It began with the experimenter, a psychologist in his early 30s, referring to the anxiety, depression, and hallucinations observed among participants in his previous study after 24 hours of sensory isolation. He also mentioned that he had forbidden some participants to withdraw from the study even when they asked him to be released.

The experimenter continued by saying that his goal was to replicate that previous research, this time for a much longer period of 72 hours. “In all honesty,” he added, “I am a little worried myself, but... if I were to put the safety of a human being in one pan of the scales and my career in the other, this latter would certainly carry the greater weight.”

The focus then shifted onto the duty of scientists to inform potential participants of foreseeable risks associated with the study. The experimenter, however, consistent with his unfair practices of doing research, reasoned that he would instead just tell prospective participants how exciting a sensory deprivation experience could be. Then, turning to each participant with his formal request for his or her assistance in this deceptive and unethical program of research: “You will help me with this study by writing an enthusiastic message. My idea is to publish it in our University newspaper.”

At this point, the experimenter left the room on some reasonable pretext that provided the participant time to reflect in solitude on the decision s/he was now facing. He returned 2 minutes later and invited the participant to sit in front of the computer and type out their persuasive message. Instructions were displayed on the monitor and paraphrased by the experimenter; they read as follows: “To complete the task, you are required to use at least one of the following adjectives: exciting, incredible, great, superb. Also, you can’t make reference to the negative effects of sensory deprivation.”

The participant was then left alone for five minutes, after which the experimenter reentered the room with a woman introduced as a colleague, and he then left the scene. This second psychologist completed the procedure by administering the RWA scale followed by an extensive debriefing. Each session lasted about 40 minutes.

#### Hypothetical Scenario

In this condition, the only one conducted outside of the laboratory, participants were asked to sit in a quiet place and were individually given a detailed written description of the procedure used in the Control condition (described above). On completion of the task of indicating how they believed they would react, participants were thanked and dismissed.

#### Social Modeling

One naive participant and two female confederates entered the laboratory. The procedure was identical to that described in the Control condition until the experimenter announced that his career was more important to him than the safety of a human being. At that point, the first confederate said that she did not want to have anything to do with this study.

“I will give you your money back... here they (the euro payment) are. What you say is unfair, it is totally wrong!” The experimenter went on to explain that he would tell prospective participants how exciting a sensory deprivation experience could be. It was then that the second confederate intervened: “Your way of doing research is not ethical at all.” As the procedure progressed, the second confederate took the floor again to say she would not sit in front of the computer and, later on, that she would rather leave than write a deceptive message. The last difference with the Control condition was that the naive participant, unless her/his disobedience had openly occurred, spent the period assigned for the task sitting alongside the two confederates, who once more expressed their ethical concerns and, of course, refused to write the message.

### Remote Social Modeling

In this condition, at the end of the cover story, the experimenter informed participants that some other students had refused to write the message: “These days we are collecting messages from students like you. However, people are not always willing to cooperate, and in fact some of them refused to write the message. This is what happened with the student who preceded you.” Also, task instructions on the computer screen were followed by a highlighted note indicating that the previous participant had decided not to write the message as requested.

### Double Request

The experimenter informed participants that by complying with his initial request, they would in addition also commit themselves to attending a series of long preliminary meetings with the prospective participants who would take part in his sensory deprivation study.

### Two Unjust Authorities in sequence

When participants arrived at the experimental room, they found a professor instead of the experimenter. He said: “Hi, please have a seat. My colleague is coming; he is the one who is conducting the study. I am just giving him my room today because he shares his with two people and needed a quieter place.” A couple of minutes later, after having asked what the study was about, the professor said:

I’m going to take advantage of you being here to ask you a favor. I know this may sound weird... I intend to file a complaint against a colleague and I need witnesses. It is a complaint for defamation. Obviously, the more witnesses the better.

If I am being completely honest... this colleague didn’t really do anything to me, but... I don’t want to go into detail... anyway, I don’t want her here because she may become an obstacle to my career. She’s very smart. So I came up with this complaint for defamation. If I find enough people willing to testify in my favor, I’ll report her to the authorities. In practice, what I am asking you is to declare that she has defamed me publicly. Just a few words, I’ll help you. That’s how I can frame this person.

At that point, if participants refused to testify (as expected, given that the request was absurd, excessive, unethical, and costly at a personal level), the experimenter arrived and carried out the procedure described in the Control condition (of course, the professor left). The five participants who complied with this initial unethical request were debriefed and excluded from the sample.

### Measures

Participants’ (dis)obedience was measured by the experimenter himself based on their reaction (refusal/acceptance) when requested to write the message. It was a firm request, as the experimenter did not give participants the explicit option to prematurely terminate the study. In order to both respect the participants’ right to withdraw and minimize possibilities for uncontrolled interactions with the experimenter, the procedure was immediately stopped if the participant refused to write. Also, it should be noted that the absence of escalating prods allowed us a less subjective process of categorization than in Milgram’s study.<sup>1</sup>

In the “Hypothetical Scenario” condition, disobedience was operationalized as participants’ imagined refusal to comply with the experimenter’s request to write the message. Participants were asked, “What would you do in a situation like this?” An open-ended question then gave them the opportunity to explain the reasons behind their hypothetical behavior.

### Right Wing Authoritarianism

With the exception of the “Hypothetical Scenario” condition, a 14-item version of Altemeyer’s<sup>15</sup> ( $\alpha=0.83$ ) RWA scale was used in the current study. This one-dimensional instrument, which was previously found to be suitable for Italian respondents,<sup>37</sup> measures the covariation of three attitudinal clusters within a person: authoritarian submission, authoritarian aggression, and conventionalism. The participants’ task was to rate their agreement with each item on a five-point scale ranging from  $-2$  (strongly disagree) to  $+2$  (strongly agree) (sample item: “Our country will be great if we honor the ways

of our forefathers, do what the authorities tell us to do, and get rid of the ‘rotten apples’ who are ruining everything”). Previous research has provided evidence of good reliability and validity of this instrument.<sup>38</sup>

We also controlled for the effect of participants’ gender on the decision to (dis)obey the experimenter.

## Debriefing

The debriefing took place after participants had been probed for suspicion (i.e., “What was this study about?”). None of the 500 debriefed participants expressed any awareness of the purpose of the study, a result that may be related to the characteristics of our sample, that is, nonpsychology students, much less likely, compared to psychology students, to be familiar with the topic of (dis)obedience to authority and to expect to be deceived in the context of a psychologic study. Participants were first informed of the reasons why it was necessary to include deception in the design, after which each one was fully debriefed about the purpose of the study. On average, each participant’s debriefing session lasted 10 minutes. To avoid contamination of data, participants were asked not to discuss the purpose or details of the study with others. Then they were asked to provide a written informed consent for use of their data, this time fully informed, in which they also declared they had not been psychologically disturbed in any way by this experience. At that point, participants were thanked and dismissed. Of course, all of these procedures were approved by the University of Palermo institutional review board, and in addition, they complied with the ethical standards outlined in the Declaration of Helsinki (1964).

## Results and discussion

### Preliminary analyses

As a preliminary step, we tested for differences in the participants’ level of authoritarianism across conditions. As expected, results of a one-way analysis of variance (ANOVA) revealed no significant differences in the RWA mean scores between the five groups,  $F(4, 495)=1.30, p=0.27$ . The mean values and standard deviations are presented in Table 1.

We also wanted to assess whether there were differences between obedient and disobedient participants in the scores obtained in the RWA scale. As predicted, results of a one-way ANOVA showed a statistically significant difference between the two groups,  $F(1, 498)=14.02, p<0.001$ . The mean values and standard deviations are presented in Table 2.

Participants’ responses to the request to write the message were also examined. Consistent with the expectations, results from the Control condition show that only a minority

**Table 1** Mean values and standard deviations for right-wing authoritarianism across six Experimental conditions

Condition	n	Mean	Standard deviation	Minimum	Maximum
1	100	19.16	10.51	0	48
3	100	18.32	10.05	0	44
4	100	19.96	8.90	1	37
5	100	19.39	9.78	0	44
6	100	17.10	9.41	0	46
Total	500	18.79	9.76	0	48

**Table 2** Mean values and standard deviations for right-wing authoritarianism between obedient and disobedient participants

Participants	n	Mean	Standard deviation	Minimum	Maximum
Obedient	276	20.24	9.72	0	48
Disobedient	224	17.00	9.52	0	44
Total	500	18.79	9.76	0	48

of participants (21%) disobeyed the experimenter. Across the Experimental conditions, the level of disobedience varied as follows, from most to least: Hypothetical Scenario: 86%; Social Modeling: 76%; Double Request: 59%; Two Unjust Authorities: 42%; and Remote Social Modeling: 26%. A chi-square analysis showed a statistically significant difference in the proportions of disobedience between these experimental groups,  $\chi^2(5)=140.85, p<0.001$ .

When the contents of the messages were checked, it was found that none of the obedient participants wrote a negative text. In other words, once in front of the computer, participants in all conditions strictly followed the instructions displayed on the monitor and used the enthusiastic language provided to them.

Although the situation described in the Control condition can generally be regarded as highly questionable from an ethical standpoint, the experimental design adopted did not allow us to rule out the possibility that participants who obeyed did so by virtue of only focusing on a request they saw as reasonable. This possibility, however, seems rather unlikely, given the results of the “Hypothetical Scenario” condition. In this condition, the vast majority of participants (86%) not only stated that they would defy the experimenter, but also clearly centered their predictions on moral–ethical grounds. However, as the “Hypothetical Scenario” and the Control condition were not exactly equivalent, we cannot exclude that demand characteristics may have played a role in the former condition. The question “What would you do?” might have “suggested” to the respondents that there was something wrong or extraordinary in the situation and that some extraordinary action should be taken. Similarly, the

experimenter's attitude might have made him appear as a kind person to the participants, who may have viewed their task as a way of helping him personally rather than as engaging in an immoral act. For these reasons, the findings of this study should be interpreted with some caution.

## Main analyses

To assess the main and interaction effects of individual and situational factors on disobedience, we conducted a binary logistic regression with gender, authoritarianism, and Experimental conditions ("Social Modeling", "Remote Social Modeling", "Double Request", and "Two Unjust Authorities") as predictors of participants' dichotomous choice to obey (coded as 0) or disobey (coded as 1) the authority figure. The Control condition served as the reference category.

The test of model effects revealed a significant main effect of both condition,  $\chi^2(4)=13.33, p<0.05$ , and authoritarianism,  $\chi^2(1)=15.50, p<0.001$ . No significant effects were found for gender,  $\chi^2(1)=0.002, p=0.96$ , and for the interaction between condition and authoritarianism,  $\chi^2(4)=7.16, p=0.13$ . Results of a second test of model effects (without the interaction term) showed a significant main effect of both condition,  $\chi^2(4)=76.15, p<0.001$ , and authoritarianism,  $\chi^2(1)=13.81, p<0.001$ . Gender was not significantly associated with disobedience,  $\chi^2(1)=0.003, p=0.96$ ; therefore, this variable was removed from the final model. A final test of model effects (without "gender") again revealed a significant main effect of both condition,  $\chi^2(4)=76.16, p<0.001$ , and authoritarianism,  $\chi^2(1)=13.83, p<0.001$ .

The model parameters are shown in Table 3. As can be seen, the main effect of authoritarianism was found to be significant,  $\chi^2(1)=13.83, p<0.001$ , with an odds ratio of 0.961. As regards the role of the specific situation on the decision to write/not to write the persuasive unethical message, when

compared with the Control condition (reference category), we found a significant main effect of the "Social Modeling" condition,  $\chi^2(1)=53.57, p<0.001$ , with an odds ratio of 12.59; a significant main effect of the "Double Request" condition,  $\chi^2(1)=29.22, p<0.001$ , with an odds ratio of 5.81; and also a significant main effect of the "Two Unjust Authorities" condition,  $\chi^2(1)=8.78, p=0.003$ , with an odds ratio of 2.60. Finally, no significant effect was found of the "Remote Social Modeling" condition,  $\chi^2(1)=0.95, p=0.331$  (odds ratio=1.39). The results of the likelihood ratio test indicated that our predictors contributed significantly to the model,  $\chi^2(5)=103.08, p<0.001$ . Based on the Hosmer and Lemeshow test, the model fit is acceptable,  $\chi^2(8)=13.55, p=0.094$ .

A first conclusion that can be drawn from these results is that, as expected, participants' ideologies play an important role in how they respond to an ethically challenging situation, such as the one to which we exposed them. When the other variables were held constant, every one-unit increase in participants' RWA score decreased the odds of disobeying the experimenter by a factor of 0.96. These findings, therefore, provided experimental evidence supporting the prediction that, across conditions, participants with low scores on the RWA scale would be more likely to disobey the experimenter than those with high scores.

Aside from showing a low degree of submission to established authority, previous research<sup>38</sup> has demonstrated that low RWAs, among other things, tend to condemn abuse of power and to be unconventional, unaggressive, independent, and sensitive to human right issues. When confronted with an unfair request from an authority, then, it is relatively easier for people with this response tendency to oppose injustice.

A second general conclusion from the findings of this study is that, as expected, the social situation matters as well. Taking a closer look at the data, it appears that the physical

**Table 3** Parameter estimates for logistic regression model predicting disobedience from Experimental conditions and right-wing authoritarianism measure

Parameter	B	Standard error	Wald chi-square	df	p-value	Exp(B)
(Intercept)	-0.616	0.3060	4.051	1	0.044	0.540
Authoritarianism	-0.040	0.0106	13.830	1	0.000	0.961
Condition 1	0	-	-	-	-	1
Condition 3	2.533	0.3460	53.569	1	0.000	12.588
Condition 4	0.331	0.3399	0.946	1	0.331	1.392
Condition 5	1.759	0.3254	29.223	1	0.000	5.807
<b>Test</b>			$\chi^2$	<b>df</b>	<b>p-value</b>	
Likelihood ratio			103.075	5	0.000	
Goodness-of-fit test						
Hosmer and Lemeshow			13.552	8	0.094	

**Abbreviation:** df, degrees of freedom.

presence of two rebel peers was sufficient to lead a substantial majority of participants in the “Social Modeling” condition to disobey the authority figure. More specifically, it was found that the odds of disobeying the experimenter for these participants were more than 12 times higher than for fellow student participants in the Control condition.

Similarly, participants in the “Double Request” condition were more likely to defy the experimenter than those in the Control condition. In this case, participants were informed that by writing the message, they would commit themselves to attending some additional meetings preliminary to the sensory deprivation study, a second unfair request that eventually led many of them to disobey the authority.

With respect to the “Two Unjust Authorities” condition, results showed that defiance to unjust authority was more likely to occur if preceded by a similar, even much smaller, act of opposition to injustice. Such an act, therefore, served as the situational cue that eventually pushed more participants to disobey the experimenter. Perhaps, it acted as a primer for critical thinking in our setting.

Finally, results of the “Remote Social Modeling” condition did not support our hypothesis. Although we found that for participants in this condition, the odds of disobeying the experimenter were 1.39 times higher than for those in the Control condition, this difference was not found to be great enough to be statistically significant. To explain this result, it may be helpful to refer back to the “Social Modeling” condition and explore the similarities and differences with the present condition. Recall that in both cases, defying the authority – whose power appeared weakened by the students’ refusal to write – was portrayed as a normative response without any negative consequences. However, one of the differences between the two conditions lies in the channel used to convey this message, being both concrete and vivid in the “Social Modeling” condition, but more abstract informationally in the “Remote Social Modeling” condition. Equally important, the “Remote Social Modeling” condition’s setting, unlike the “Social Modeling” condition, prevented participants from being directly exposed to the confederates’ disapproval if they obeyed the authority.

No significant interaction effect was found between RWA and the Experimental conditions. In other words, the probability of disobeying the experimenter changes with authoritarianism at a constant rate that is not influenced by the nature of these social–Experimental conditions. Finally, findings showed that males and females were equally likely to refuse or to obey the experimenter’s request to write the

unethical message; thus, gender differences do not limit our conclusions.

## General discussion

Our objective was to investigate the dynamics of defiance to unjust authority. More specifically, the aim was to examine whether and to what extent an ideology such as RWA and a set of social–situational cues played a part, individually or in combination, in the participants’ decision to (dis)obey the experimenter’s request to write a deceptive, clearly unethical message.

As expected, findings indicated that, across conditions, low authoritarian participants were more likely to disobey the experimenter than high authoritarian ones. This different behavioral response was the inevitable result of specific psychologic orientations that differentiated the two groups. Compared with high authoritarians, participants with low scores on the RWA scale showed on average three interrelated processes: 1) a lower degree of submission to established and legitimate authorities, 2) a lower degree of aggressiveness toward whomever these authorities target, and 3) a lower degree of acceptance of and commitment to traditional social norms. What may have occurred in our laboratory is that low RWAs, being less inclined to follow authority, were more focused on the content of the experimenter’s verbal request rather than on his formal role as university professor. From this perspective, similar to that of participants in the “Hypothetical Scenario” condition, as regards the nonsalience of the experimenter, the unfairness of the request stood out from all the rest of the background setting, and thus, disobeying the experimenter became an easier decision to make for those participants. This possibility, however, needs to be examined systematically in future research.

Given the short amount of time available to them, and the limited cognitive resources in terms of attentional capacities and working memory, low authoritarian participants were not in an ideal condition to apply logical or statistical principles when faced with our ethically challenging situation. For these reasons, they are thought to have reached their decision by relying on an easy-to-access cue, namely, the content of the experimenter’s request, a piece of information that triggered, such as an esthetic judgment, a moral intuition<sup>5</sup> (i.e., a general negative feeling) and, in rapid succession, the affect heuristic (“If I feel bad about something, it must be wrong”). The participants’ decision to disobey the experimenter was at that point perfectly consistent with the nature of such a psychologic process. To sum this up in the language of



bounded rationality, participants chose the path of satisficing rather than aiming for the optimal solution, thereby reducing the cognitive effort associated with making choices.<sup>39</sup> Future research is needed, however, to confirm our inferences and rule out alternative causal explanations.

This study also provided evidence for the key role of several situational factors in promoting disobedience in which participants were “offered” easy-to-access cues. The ones that were sufficiently powerful to counteract the weight of the authority were: disobedience evidenced by other peers, experimenter’s double unjust request, and each participant’s previous act of opposition to injustice. Compared with those in the Control condition, participants in the Experimental conditions found themselves in a less conflicting social situation. The additional cue they could rely on, in fact, made salient a behavioral option that was not only morally upright – that is, disobeying the unjust experimenter – but also was in line with basic unwritten moral rules that coordinate human interaction.

In fact, the act of disobeying the authority allowed participants to indirectly follow rules such as (depending on the specific experimental situation): “Do what the majority does,” “Start cooperatively, then imitate your counterpart’s last behavior,” “Be consistent with what you have already done.” Put another way, if we exclude low and high RWAs, whose personality characteristics strongly predisposed them to respectively disobey and obey the experimenter, these cues might have represented for the majority of participants a hint on how to solve quickly and efficiently the ethical dilemma they were facing.

From anecdotal evidence, it also seems that our experimental manipulations promoted disobedience even among those who were willing to comply with the experimenter’s request. In this regard, three participants said: “I would have wanted to write but the two girls did not want to ... I was much affected by them” (“Social Modeling” condition), “I would have written the message if the girls had not opposed the researcher’s request” (“Social Modeling” condition), “The sensory deprivation research is useful and valuable but I refused to write the message because I did not want to attend the meetings” (“Double Request” condition). Although noble in its appearance, the behavior of these participants, and probably that of some (or many) others, far from being driven by moral concerns, seems to have been triggered by cues that, in different circumstances, might have led them to engage in very different, even evil, actions.

Future research is needed to further explore several important, but neglected issues. First, to what extent disobedience

to unjust authority can be, as anecdotal evidence seems to suggest, the simple product of conformism to an emergent social norm.<sup>40</sup> A study could be set up including an Experimental condition in which only one person, in a group of four or five obedient confederates, disobeys the authority. To whom (minority or majority) will these participants conform? Although such a study would not rule out the possibility that the participants’ decision to disobey was not influenced by the rebel, it might help to shed some light on the dynamics of this behavior. Equally important, future studies should investigate whether participants’ disobedience is more influenced by observing others’ disobedience (modeling) or by a more direct pressure exerted on participants (peer pressure). From anecdotal evidence, it seems that the vast majority of our participants made their decision to disobey immediately after the confederates had defied the experimenter.

We also think that, in some other cases, such a seemingly noble behavior may actually be nothing more than the simple noncooperative response to a noncooperative behavior or the simple search for consistency with one’s past behaviors. It is our hope that future researchers can design more comprehensive studies to explore these and other social heuristics potentially involved in the occurrence of disobedience, in order for us to develop a deeper theoretical understanding of this important social behavior. If teaching noble values is definitely a key task for all societies, then education about the power of certain social situations is as important, and probably more effective, in promoting disobedience. As noted by Herbert Simon<sup>9</sup> with his scissors analogy, “Human rational behavior (and the rational behavior of all physical symbol systems) is shaped by a scissors whose two blades are the structure of task environments and the computational capabilities of the actor”. One of the two blades, the environment, has so far been largely neglected.

We, therefore, strongly believe that now is the time to start to think about how this blade can be sharpened to help ordinary people to act as more effective agents of positive social change. In this respect, this study has demonstrated that even a small variation in the social situation can make a significant difference by creating the right conditions for many participants to oppose an unjust authority figure. We – parents, educators, employers – need to recognize the power of social situations in influencing human behavior and the key role of disobedience in promoting change. As noted by Chaleff,<sup>41</sup> any organization can benefit from “intelligent” disobedience, a behavior typical of individuals who have the courage to speak up when they realize that certain positions are wrong or that obedience would produce harm.

Intelligent disobedience may occur when candor is invited and respected and when people are listened to and encouraged to express their dissatisfaction. It is important to empower children, students, and employees by making it everyone's responsibility to bring attention to emergent social-political problems and local injustices. Even a small change in the current situation can bring out the best from everyone – the hero we all have inside– and in turn may have a big impact on the organizational climate and its productivity. We should encourage obedience to just authority, while promoting defiant disobedience against all forms of unjust authority.<sup>42</sup>

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The authors report no conflicts of interest in this work.

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## Supplementary material

On arriving at the laboratory, each participant is greeted by an experimenter dressed in formal attire and displaying a rather authoritarian, stern manner. He presents the cover story:

In the study today you will be asked to write a simple statement that, hopefully, will convince students to take part in my research. I am using this strategy because, as you might know, people are not so willing to take part in certain research, and mine is one of these.

I am investigating the effects of sensory deprivation on brain function. Recently I conducted an experiment on six subjects, in Rome, who spent 24 hours completely isolated unable to see or hear anything. There were dramatic and unexpected effects on participants: all of them panicked, some experienced visual and auditory hallucinations. I did not stop when a couple of participants who felt bad asked me to do so, because such a decision would have implied collecting invalid data.

Now, my aim is to start to collect data in a month here at the University of Palermo. This time, I would like to use a different sample, college students, who will be sensory deprived for a much longer period, 72 hours instead of 24. It is difficult to predict what will happen, and in all honesty I am a little worried myself but... if I were to put the safety of a human being in one pan of the scales and my career in the other, this latter would certainly carry the greater weight.

Although we scientists have the duty to inform participants of foreseeable risks associated with the study, I need

to find people... so I will just tell potential participants how exciting a sensory deprivation experience could be. You will help me with this by writing an enthusiastic message. This message, along with a few others from your fellow students, is going to be published as a testimonial in our University newspaper.

I'll be back. (The experimenter out for 2 minutes. Time for the participant to think about what is going on.) So please follow me, you can use one of our computers to write the statement. (Second room.) Of course you have to be "enthusiastic" in writing the statement; also, try to imagine what expressions could be more persuasive for your peers. (In the computer screen, participants found this: "Please follow these instructions: your statement must contain at least one of these words: "exciting", "incredible", "great", "superb"; also, make sure to not mention the potential negative effects of sensory deprivation). You have to follow these instructions, so use at least one adjective among "exciting", "incredible", "great", "superb": these are the words that work better in an advertisement. Be careful to not mention the negative effects of sensory deprivation.

The participant was then left alone for 5 minutes, after which the experimenter reentered the room with a woman introduced as a colleague, and he then left the scene. This second psychologist completed the procedure by administering the Right-Wing Authoritarianism scale followed by an extensive debriefing.

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