

Supplemental Material

Who to Punish?

How observers sanction norm-violating behavior in ostracism situations

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Study 1

Responsibility

Responsibility in Study 1 was assessed with three items asking participants how responsible each of the three persons was for the course of the story ($1 = \text{not at all}$, $7 = \text{very strongly}$). We ran a 2 (person: target vs. sources) x 2 (ostracism: exclusion vs. inclusion) x 2 (target behavior: norm-consistent vs. norm violating) mixed ANOVA with repeated measures on the person factor on responsibility. There was a significant effect of the person showing that participants evaluated the target as more responsible for the course of the story than the sources, $F(1, 117) = 68.36, p < .001, \eta^2 = .37$. Moreover, there was a significant main effect of ostracism showing that participants attributed more responsibility to both targets and sources alike in the exclusion compared to the inclusion condition, $F(1, 117) = 7.98, p = .006, \eta^2 = .06$. Neither target behavior, $F(1, 117) = 1.91, p = .169, \eta^2 = .02$, nor any of the interactions had a significant effect on the attribution of responsibility, largest $F(1, 117) = 1.84, p = .169, \eta^2 = .02$.

Table X.1

Results for the Responsibility Measures in Study 1.

<i>Dependent Variable</i>	<i>Repeated Measure</i>	<i>Norm-violating Target</i>		<i>Norm-consistent Target</i>	
		<i>Exclusion</i>	<i>Inclusion</i>	<i>Exclusion</i>	<i>Inclusion</i>
Responsibility	Target	5.87 ^a (1.17)	5.22 ^c (1.37)	5.71 ^a (1.06)	5.63 ^{ac} (1.07)
	Sources	4.55 ^b (1.30)	3.65 ^d (1.47)	4.72 ^b (1.52)	4.25 ^{bd} (1.65)

Note. Means (and standard deviations) as a function of the four experimental conditions, separately for targets and sources of ostracism. The letters a - d represent significant differences between groups; all values in the same column or row that share the same letter do not differ significantly from each other, values with different letters do.

Study 2

Responsibility

Responsibility in Study 2 was assessed with three items asking participants how responsible each of the three persons was for the course of the story ($1 = \text{not at all}$, $7 = \text{very strongly}$). We ran a 2 (person: target vs. sources) x 2 (ostracism: exclusion vs. inclusion) x 2 (target behavior: norm-consistent vs. weak norm violation vs. strong norm violation) mixed ANOVA with repeated measures on the person factor on responsibility. There were significant main effects of all three independent variables (person: $F(1, 159) = 37.40$, $p < .001$, $\eta^2 = .19$, ostracism: $F(1, 159) = 7.18$, $p = .008$, $\eta^2 = .04$, target behavior: $F(2, 159) = 19.38$, $p < .001$, $\eta^2 = .20$), which were qualified by a significant person x target behavior, $F(2, 159) = 14.00$, $p < .001$, $\eta^2 = .15$, and a person x ostracism interaction, $F(1, 159) = 10.30$, $p = .002$, $\eta^2 = .06$. Neither the ostracism x target behavior interaction nor the three-way interaction was significant, $F(2, 159) = 0.13$, $p = .878$, $\eta^2 = .00$ and $F(2, 159) = 1.05$, $p = .351$, $\eta^2 = .01$.

Although the three-way interaction was not significant, we offer an independent analysis of the results separately for target behavior condition so as to ensure comparability with the results' sections of the other studies: When the target violated the social norm strongly, there was a main effect of the person insofar that the target was always perceived as more responsible, $F(1, 55) = 63.48$, $p < .001$, $\eta^2 = .54$. Moreover, there was a main effect of ostracism showing that there was generally more responsibility assigned to both target and sources in the exclusion group, $F(1, 55) = 5.67$, $p = .021$, $\eta^2 = .09$. The interaction was not significant, $F(1, 55) = 0.59$, $p = .447$, $\eta^2 = .01$.

When the target had committed only a weak violation, there was no effect of ostracism, $F(1, 52) = 1.48$, $p = .228$, $\eta^2 = .03$, but an effect of the person, $F(1, 52) = 12.18$, $p = .001$, $\eta^2 = .19$, being qualified by a significant person x ostracism interaction, $F(1, 52) = 4.73$, $p = .034$, $\eta^2 = .08$. Looking at the simple main effects, in the control group, the target was

perceived as more responsible than the sources, $F(1, 52) = 18.05, p < .001, \eta^2 = .26$, but not in the exclusion condition, $F(1, 52) = 0.78, p = .381, \eta^2 = .02$.

Finally, when the target acted in line with the social norm, there was neither a significant main effect of the person, $F < 1, \eta^2 = .00$, or ostracism, $F(1, 52) = 1.58, p = .214, \eta^2 = .03$, but a significant person x ostracism interaction, $F(1, 52) = 6.07, p = .017, \eta^2 = .10$. Looking at the simple main effects, there was no significant difference between target and sources in both exclusion and control group, $F(1, 52) = 3.18, p = .080, \eta^2 = .06$ and $F(1, 52) = 2.91, p = .094, \eta^2 = .05$, with a tendency of the target being seen as more responsible in the control group and the sources in the exclusion group.

Table X.2

Results for the Responsibility Measures in Study 2.

<i>Dependent Variable</i>	<i>Repeated Measure</i>	<i>Norm-violating Target (strong)</i>		<i>Norm-violating Target (weak)</i>		<i>Norm-consistent Target</i>	
		<i>Exclusion</i>	<i>Control</i>	<i>Exclusion</i>	<i>Control</i>	<i>Exclusion</i>	<i>Control</i>
Responsibility	Target	6.38 ^a (.90)	6.07 ^a (1.39)	4.92 ^b (1.91)	5.30 ^{ab} (1.60)	3.68 ^{cd} (2.08)	4.09 ^c (1.73)
	Sources	4.36 ^b (1.68)	3.63 ^c (1.29)	4.48 ^b (1.74)	3.42 ^c (1.07)	4.57 ^{bd} (1.59)	3.39 ^c (.99)

Note. Means (and standard deviations) as a function of the six experimental conditions, separately for targets and sources of ostracism. The letters a - d represent significant differences between groups; all values in the same column or row that share the same letter do not differ significantly from each other, values with different letters do.

Study 3

Responsibility

Responsibility in Study 3 was assessed with six items asking: “[*Player’s Name*] is responsible for how the interactions in the study went” and “[*Player’s Name*] is responsible for how the three participants got along during the study” (1 = not at all, 7 = very much). We ran a 2 (person: target vs. sources) x 2 (ostracism: exclusion vs. inclusion) x 2 (target behavior: norm-consistent vs. norm-violating) mixed MANOVA with repeated measures on the person factor on responsibility for the interaction and responsibility for how the players got along. The MANOVA showed a significant main effect of the person, Wilks’ $\lambda = .760$, $F(2, 194) = 30.68$, $p < .001$, $\eta^2 = .24$. There was no significant main effect of ostracism, Wilks’ $\lambda = .998$, $F(2, 194) = 0.22$, $p = .802$, $\eta^2 = .00$ or target behavior, Wilks’ $\lambda = .996$, $F(2, 194) = 0.41$, $p = .666$, $\eta^2 = .00$, or the ostracism x target behavior interaction, Wilks’ $\lambda = .999$, $F(2, 194) = 0.09$, $p = .914$, $\eta^2 = .00$. However, there was a significant person x ostracism interaction, Wilks’ $\lambda = .950$, $F(2, 194) = 5.11$, $p = .007$, $\eta^2 = .05$, and a significant person x target behavior interaction, Wilks’ $\lambda = .783$, $F(2, 194) = 26.87$, $p < .001$, $\eta^2 = .24$, that were both qualified by the significant three-way interaction, Wilks’ $\lambda = .937$, $F(2, 194) = 6.52$, $p = .002$, $\eta^2 = .06$.

To break down the three-way interaction, we ran the analysis separately for the target behavior conditions: When the target had acted norm-consistently, there were no significant differences in the attribution of responsibility, all $F < 1$. When the target had violated the social norm, there was a significant main effect of the person, Wilks’ $\lambda = .575$, $F(2, 99) = 36.57$, $p < .001$, $\eta^2 = .43$, that was qualified by the significant person x ostracism two-way interaction, Wilks’ $\lambda = .878$, $F(2, 99) = 6.86$, $p = .002$, $\eta^2 = .12$. The main effect of ostracism was not significant, $F < 1$, $\eta^2 = .00$. Looking at the simple main effects, the target was generally seen as more responsible than the sources, however, the effect was larger in the

exclusion group, Wilks' $\lambda = .582$, $F(2, 99) = 35.57$, $p < .001$, $\eta^2 = .42$, than in the inclusion group, Wilks' $\lambda = .871$, $F(2, 99) = 7.30$, $p = .001$, $\eta^2 = .13$.

Table X.3

Results for the Responsibility Measures in Study 3.

Dependent Variable	Repeated Measure	Norm-violating Target		Norm-consistent Target	
		Exclusion	Inclusion	Exclusion	Inclusion
Responsible for Interaction	Target	5.74 ^a (1.58)	5.27 ^a (1.57)	4.61 ^b (1.66)	4.93 ^{ab} (1.93)
	Sources	3.60 ^c (1.84)	4.17 ^{bc} (1.70)	4.64 ^{ab} (1.67)	4.77 ^{ab} (1.90)
Responsible for Getting Along	Target	5.20 ^a (1.75)	4.56 ^a (1.90)	4.31 ^b (1.75)	4.50 ^{ab} (1.92)
	Sources	3.12 ^c (1.76)	3.89 ^b (1.82)	4.31 ^b (1.75)	4.43 ^b (1.92)

Note. Means (and standard deviations) as a function of the four experimental conditions, separately for targets and sources of ostracism. The letters a - c represent significant differences between groups; all values in the same column or row that share the same letter do not differ significantly from each other, values with different letters do.

Realism

In Study 3, participants were asked how realistic they felt the behavior of the three players was as well as their willingness to cooperate ($1 = \text{very unrealistic}$, $7 = \text{very realistic}$). A 2 (ostracism: inclusion vs. exclusion) x 2 (target behavior: norm-consistent vs. norm-violating) MANOVA on both variables showed a significant effect of target behavior, Wilks' $\lambda = .958$, $F(2, 194) = 4.28$, $p = .015$, $\eta^2 = .04$ that was qualified by the ostracism x target behavior interaction, Wilks' $\lambda = .958$, $F(2, 194) = 4.20$, $p = .016$, $\eta^2 = .04$. The effect of ostracism was not significant, $F < 1$.

Looking at the simple main effects, following norm-violating behavior of the target, there was a slight, though non-significant tendency to rate the situation as more realistic when the players excluded compared to included the target, Wilks' $\lambda = .958$, $F(2, 194) = 4.28$, $p =$

.015, $\eta^2 = .04$. There was no respective effect following norm-consistent behavior of the target, $F(2, 194) = 1.71, p = .182, \eta^2 = .02$.

Table X.4

Realism in Study 3.

<i>Repeated Measure</i>	<i>Norm-violating Target</i>		<i>Norm-consistent Target</i>	
	<i>Exclusion</i>	<i>Inclusion</i>	<i>Exclusion</i>	<i>Inclusion</i>
Realism player behavior	6.12 ^a (1.02)	5.56 ^a (1.43)	5.16 ^b (1.52)	5.39 ^{ab} (1.74)
Realism interaction	5.78 ^a (1.23)	5.10 ^b (1.56)	4.98 ^b (1.53)	5.54 ^a (1.72)

Note. Means (and standard deviations) as a function of the four experimental conditions. The letters a - d represent significant differences between groups; all values in the same row that share the same letter do not differ significantly from each other, values with different letters do.

Study 4

Realism

In Study 4, participants were asked how realistic they felt the behavior of the three players was as well as their willingness to cooperate ($1 = \text{very unrealistic}$, $7 = \text{very realistic}$).

A 2 (ostracism: inclusion vs. exclusion) x 2 (target behavior: norm-consistent vs. norm-violating) MANOVA on both variables showed neither a significant effect of target behavior, Wilks' $\lambda = .999$, $F(2, 413) = 0.20$, $p = .815$, $\eta^2 = .00$, nor of ostracism, Wilks' $\lambda = .995$, $F(2, 413) = 1.07$, $p = .344$, $\eta^2 = .01$, yet there was a significant ostracism x target behavior interaction, Wilks' $\lambda = .836$, $F(2, 413) = 40.61$, $p < .001$, $\eta^2 = .16$. Following norm-violating behavior of the target, participants found exclusion to be more realistic than inclusion, Wilks' $\lambda = .912$, $F(2, 413) = 19.93$, $p < .001$, $\eta^2 = .09$. In contrast, following norm-consistent behavior, inclusion was perceived as more realistic than exclusion, Wilks' $\lambda = .905$, $F(2, 413) = 21.75$, $p < .001$, $\eta^2 = .10$.

Table X.5

Realism in Study 4.

<i>Repeated Measure</i>	<i>Norm-violating Target</i>		<i>Norm-consistent Target</i>	
	<i>Exclusion</i>	<i>Inclusion</i>	<i>Exclusion</i>	<i>Inclusion</i>
Realism player behavior	5.64 ^a (1.23)	5.21 ^b (1.43)	5.38 ^{ab} (1.45)	5.43 ^{ab} (1.55)
Realism interaction	5.74 ^a (1.21)	4.49 ^b (1.47)	4.59 ^b (1.63)	5.79 ^a (1.39)

Note. Means (and standard deviations) as a function of the four experimental conditions. The letters a - d represent significant differences between groups; all values in the same row that share the same letter do not differ significantly from each other, values with different letters do.

Serial Mediation

We originally assumed and consequently pre-registered a serial mediation analysis, assuming that participants first make a moral judgement about how fairly the target and sources have acted within the situation, which should subsequently affect their evaluation of the targets and the sources, and eventually be associated with the severity of the sanctions they impose on them. We thus ran two serial mediation models with MPLUS (Muthén & Muthén, 1998-2015), using 5,000 bootstrap estimates: (a) a mediation model for the effect of conformity on punishment of the target via fairness via evaluation of the *target* and (b) a mediated moderation model for the effect of the ostracism x conformity interaction on punishment of the sources via fairness via evaluation of the *sources*.

As for model (a), there was a significant indirect effect of conformity on punishment of the target via fairness via evaluation of the target, $b_{\text{indirect}} = 1.11$, 90% CI = [0.74; 1.49]. Norm-violating targets were rated as behaving less fairly, were thus evaluated more negatively, and as a result, participants subtracted more money from the target's bonus. There was no indirect effect via fairness only, $b_{\text{indirect}} = 0.04$, 90% CI = [-0.08; 0.17].

As for model (b), the indirect effect of the ostracism x conformity interaction on punishment of the sources via fairness via evaluation of the sources was not significant, $b_{\text{indirect}} = -0.12$, 90% CI = [-0.26; 0.01]. There was, however, an indirect effect of the interaction on punishment via fairness only, $b_{\text{indirect}} = -0.28$, 90% CI = [-0.45; -0.11].