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ORIGINAL PAPER

When socially excluded people prefer moralizing to anti- and prosocial behavior: Support for a goal-directed account

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Abstract

According to the temporal need-threat model, different responses toward social exclusion stem from the fact that different needs are threatened. Because evidence for this account is mixed, we tested a goal-directed account in which the chosen behavior depends not only on the threatened need but also on the behavior that has the highest expectancy of repairing that need. In two experiments, participants were excluded using the cyberball paradigm. They were then either assigned to a condition in which they could choose to send aggressive or prosocial messages to the other players or to a condition in which they could send aggressive, prosocial, or moralizing messages. We hypothesized that the expectancy to repair threatened needs would be higher for moralizing behavior than for aggressive and prosocial behavior, which would result in moralizing behavior in the second condition. Both experiments provided partial support for our hypothesis, suggesting that the reactions to social exclusion might be goal directed.

Keywords Social exclusion · Temporal need-threat model · Goal-directed · Stimulus-driven

Remember the last time your colleagues ignored your suggestions in a meeting or your partner gave you the silent treatment after a dispute. While mild experiences of social exclusion can already elicit uncomfortable feelings and motivate behavior to change the situation, strong and repeated experiences of social exclusion have been associated with affective disorders (Ayduk et al. 2001) and dramatic reactions such as school shootings, homicides, and sexual assaults (Leary et al. 2006).

Social exclusion refers to situations in which people are physically or psychologically kept apart from others (Riva and Eck 2016) and has been shown to elicit both antisocial and prosocial behavior. This holds true irrespective of the type of social exclusion studied or the experimental paradigm used (Gerber and Wheeler 2009). In some studies, excluded participants delivered more aversive auditive stimuli (Buckley et al. 2004; Twenge et al. 2001), more hot sauce (Warburton et al. 2006), and more unappealing snacks (Chow et al. 2008) to the perpetrator or an innocent bystander. In other studies, excluded participants conformed more to a subsequent request (Williams et al. 2000) and donated more money to social charity (Carter-Sowell et al. 2008).

The temporal need-threat model of ostracism (e.g., Williams 2009) explains both antisocial and prosocial behavior by proposing three consecutive stages. In the reflexive stage, social exclusion simultaneously threatens the fundamental needs for control (Williams 2009), meaningful existence (Greenberg et al. 1997), self-esteem (Donnellan et al. 2011), and belonging (Baumeister and Leary 1995). In the reflective stage, efforts are made to repair these needs, and each need is repaired with a specific type of behavior: the needs for control and meaningful existence with antisocial behavior and the needs for self-esteem and belonging with prosocial behavior. The relative strengths of the need threats determine whether antisocial or prosocial behavior is elicited. In the resignation stage, a person who is persistently socially excluded abandons the efforts to repair the threatened needs and experiences helplessness and despair (Wortman and Brehm 1975).

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Evidence in favor of the temporal need-threat model comes from experimental studies that manipulate the relative strength of the four need threats by adding an extra manipulation (after the exclusion manipulation) that satisfies one of these needs. For instance, studies found that satisfying the need for control decreased aggressive behavior (Warburton et al. 2006) whereas satisfying the need to belong reduced prosocial behavior (Knausenberger et al. 2015). Support also comes from correlational studies in which it was found that self-reported threats to the needs for self-esteem and belonging but not to the needs for control and meaningful existence mediated between social exclusion and affiliative behavior (Bernstein et al. 2010).

Evidence against the temporal need-threat model is provided by studies indicating that threats to the needs for self-esteem and belonging also lead to aggressive behavior (Baumeister et al. 1996; Ernst and Cacioppo 1999) and threats to the needs for meaningful existence and control also lead to prosocial behavior (Burke et al. 2010; Keltner et al. 2003). In addition, some studies showed that social exclusion also elicit behaviors beyond the antisocial-prosocial dichotomy such as increased withdrawal (Ren et al. 2016), ecological (Poon et al. 2015), and gambling behavior (Pancani et al. 2019).

In an attempt to bring these conflicting findings in line with the temporal need-threat model, investigators have searched for contextual factors and individual differences that moderate the reactions to social exclusion such as the unexpectedness of the rejection (Wesselmann et al. 2010), whether the target person was involved in the exclusion as a perpetrator (Maner et al. 2007), and the cultural context of the rejected person (Uskul and Over 2017).

We propose an alternative way to explain these findings. In particular, we propose to explain behavioral reactions to social exclusion with a goal-directed process. In such a process, the expected utilities of different behaviors are compared and the behavior with the highest expected utility is selected. Expected utility is a function of the value of the outcome of the behavior (i.e., value of repairing a need) and the expectancy that the behavior will lead to this outcome (Savage 1954/1972). Goal-directed processes are often contrasted with stimulus-driven processes (e.g., Heyes and Dickinson 1990; Moors 2017; Moors et al. 2017; Strack and Deutsch 2004). In a stimulus-driven process, a behavior is elicited when a stimulus activates a mental association between the representation of the stimulus or stimulus features and the representation of the behavior. These stimulus features are not restricted to perceptual features, but can also refer to abstract features such as the type of need threat imposed by a stimulus. The crucial difference with the goal-directed process, however, is that the stimulus–response associations in a stimulus-driven process do not contain information about the outcome of the responses.

The mechanism proposed by the temporal need-threat model to explain anti- and prosocial behaviors takes the form of a stimulus-driven process. Here social exclusion threatens the needs for control, meaningful existence, self-esteem, and belonging. These threats count as abstract stimulus features that each give rise to a type of behavior: threats to the needs for control and meaningful existence (S) to antisocial behavior (R), and threats to the needs for self-esteem and belonging (S) to prosocial behavior (R). According to a goal-directed explanation, on the other hand, a socially excluded person evaluates different behavior options to repair the need threats and selects the behavior option with the highest expectancy for doing so. Here the same need threat can be repaired with antisocial or prosocial behavior if this behavior has the highest expectancy for repairing the need. In contrast to the explanation of the temporal need-threat model, the goal-directed explanation does not associate specific threatened needs with specific behaviors and therefore can account for the findings that the same need threat can lead to different behaviors (e.g., Baumeister et al. 1996; Burke et al. 2010) and that need threats can lead to other than antisocial and prosocial behaviors (see Pancani et al. 2019; Poon et al. 2015).

Theoretical and empirical support for the goal-directed nature of antisocial and prosocial behavior can be found outside the domain of social exclusion (e.g., Bushman and Anderson 2001; Cherek et al. 1990; Gęsiarz and Crockett 2015; Kindt et al. 2017; Rand and Nowak 2013). For instance, Leander and Chartrand (2017) threatened participants' need for self-efficacy, by making them fail a cognitive task, and gave them the opportunity to engage in either active aggressive and passive prosocial behavior or in passive aggressive and active prosocial behavior. They found that participants preferred the active over the passive behavior irrespective of the aggressive or prosocial nature of the behavior. If one assumes that participants estimate the expectancy of active behavior as higher than passive behavior, these results suggest that participants selected the behavior with the highest expectancy to repair self-efficacy. These findings were further corroborated in a follow-up study showing that participants refrained from aggressive behavior only if they were told that they could improve their performance in a cognitive task at a later time and were thereby given a more effective means to repair self-efficacy than aggressive behavior.

Within the domain of social exclusion, the goal-directed nature of the antisocial and prosocial behavior has received less attention. The goal-directed explanation suggests that the behaviors elicited by social exclusion can be explained by their expected utilities. Ample evidence indicates that the strength of the need threat and accordingly the value of the outcome of repairing these needs influences the reactions to social exclusion (e.g., Knausenberger et al. 2015;

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Warburton et al. 2006). Much less is known about the role of expectancies that specific behaviors will lead to the valued outcomes. It is true that existing models of social exclusion have considered factors that are related to expectancy. For instance, the temporal need-threat model (Wesselmann and Williams 2013) refers to the perceived likelihood of reinclusion, and the Multimotive model (Smart Richman 2013) refers to expectations of relational repair. However, these factors refer to *general* expectations of attaining a specific valued outcome and not to the expectations that a *particular* behavior will lead to any valued outcome. In addition, in these models, the degree of these general expectations is linked in a fixed manner to specific behaviors. For instance, in the temporal need-threat model, high expectations of reinclusion lead to prosocial behavior whereas low expectations of reinclusion lead to antisocial behavior. Likewise, in the Multimotive model, high expectations of relational repair lead to prosocial behavior whereas low expectations of relational repair lead to antisocial behavior or avoidance. This differs from a goal-directed account, which predicts that a person will choose prosocial, antisocial, or any other behavior if this behavior has the highest expectancy to repair her needs.

Instead of pitting both models against each other as competing accounts, the temporal need-threat model could be considered as an incomplete goal-directed account in that it only focuses on the values of goals, but neglects the expectancies of specific behaviors for achieving these goals. Another way to frame the difference between both models is to consider the temporal need-threat model as a special case of the goal-directed model. Indeed, it could be argued that the associations between specific need threats and specific behaviors hypothesized in the temporal need-threat model describe preferential (i.e., typical but not necessary) relations. For instance, the hypothesis could be that a threat to the need for control is best repaired with antisocial behavior in many but not all cases. Another point of alignment is that the goal-directed model predicts inaction if the expected utilities of all behavior options are marginally low, which is consistent with the temporal need-threat model regarding the resignation stage.

The present studies tested the prediction that behavioral reactions to social exclusion are goal-directed. To this end, we manipulated the relative expectancies of various behaviors to repair threatened needs and examined whether socially excluded participants choose the behavior with the highest relative expectancy to do so. This would provide support for the goal-directed nature of behavioral reactions to social exclusion.

The expectancies (i.e., subjective probabilities) of a behavior can be manipulated by varying the objective probabilities that the behavior leads to certain outcomes and/or by informing participants about these probabilities. For instance, participants could be informed that prosocial behavior will lead to future re-inclusion. Such an approach, however, faces the major difficulty that participants may bring their own prior beliefs about the expectancies of behaviors to the lab, which are difficult to override in an experimental setting. We therefore opted for an alternative expectancy manipulation that does not suffer from this difficulty. This manipulation makes use of the prediction of the goal-directed account that the behavior with the *relatively* highest expectancy will be selected (irrespective of its absolute level). The behavior repertoire available to one group of participants consisted of the original options to behave aggressively (i.e., one type of antisocial behavior) and prosocially, whereas the behavior repertoire available to another group was extended with a behavior option that we assumed to have a higher expectancy for repairing the threatened needs than the original behaviors. In particular, participants of the latter group were presented with a moralizing behavior option, that is, they were given the opportunity to lecture the perpetrators. Assuming that moralizing behavior indeed has a higher expectancy than aggressive and prosocial behavior for repairing the needs threatened by social exclusion, we hypothesized that participants would prefer moralizing over aggressive and prosocial behavior if they receive the opportunity. This would indicate that the expectancy (combined with the value of the threatened needs) rather than the specific need that is threatened determines behavior selection after social exclusion and hence that this behavior is goal directed.

In the present study, we only considered the two needs from the temporal need-threat model that received the strongest empirical support: the need for control and the need to belong (see Gerber and Wheeler 2009). In addition, we also explored the role of two needs that were not part of the need-threat model: the need for social status and the need for fair treatment. We included these needs because previous research suggested that social exclusion also threatens these needs (see Chow et al. 2008; DeBono and Muraven 2014; Schoel et al. 2014).

We assumed that moralizing behavior is more effective to repair the selected needs because it has a smaller cost than aggressive and prosocial behavior. Aggressive behavior may be effective to repair the needs for control, status, and fairness, but imposes a cost to the need for belonging because it is condemned by society. Prosocial behavior may help a person to be reincluded in the group, but may impose a cost to the needs for status and fairness. Moralizing behavior, on the other hand, seems effective to repair all four needs in a societally acceptable way: It signals that a person defends him or herself (control and status), it makes the norms for fairness salient, and it communicates the desire to still belong to the group. Indirect evidence for these ideas comes from research showing that moralizing behavior is highly successful in

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motivating behavior adjustments in others (Bolderdijk et al. 2013; Täuber et al. 2015). In sum, we assume that moralizing behavior has a higher overall expectancy to repair needs threatened by social exclusion than aggressive and prosocial behaviors and hence should be preferred over these other behaviors if available. The precise expectancies of the behaviors are subject to exploratory analyses.

In a first experiment, all participants were excluded by two other (ostensible) participants before they were asked to send them a message. In one condition, participants could choose from aggressive and prosocial sentences to compose their message (i.e., the response options typically offered in previous research). In the other condition, participants could choose from aggressive, prosocial, and moralizing sentences.[1] The second experiment was set up to extend the results of the first experiment and to improve some methodological aspects.

Experiment 1

Method

Sample

A total of 178 first-year psychology students participated in return for course credits. Participants were randomly assigned to a condition with or a condition without a moralizing behavior option. The data from 30 participants were discarded based on their responses to a debriefing question in which they indicated that they meant their message to the perpetrators sarcastically.[2] This resulted in a final sample of 146 participants (M_{age} = 18 years, 90% female). According to a sensitivity analysis using G * Power (Faul et al. 2007), this sample size allows detecting an effect with a minimal effect size of $\eta^2 = 0.03$ under standard criteria ($\alpha = 0.05$ two-tailed, $\beta = 0.80$, $r$corr. = 0.5, nonsphericity correction = 1). All participants gave written informed consent.

Procedure

Participants were socially excluded via the cyberball procedure (Williams and Jarvis 2006), a virtual ball game in which two other (ostensible) participants toss the ball at them only two times in the beginning of the game before tossing the ball only to each other for another 28 times. After this, participants were asked to send a message to the perpetrators composed of five sentences that had to be selected from a list of 24 sentences. In the nonmoral condition, participants could choose from 12 aggressive sentences (e.g., "You're pathetic") and 12 prosocial sentences (e.g., "I enjoyed playing with you"). In the moral condition, participants could choose from 8 aggressive, 8 prosocial, and 8 moralizing sentences (e.g., "It is wrong to exclude other people."). We counted the number of aggressive, prosocial, and moralizing sentences sent. Next, participants read two messages (in both conditions the same prosocial messages) that the perpetrators had allegedly sent to them. This was done to strengthen participants' belief that they interacted with real people. The English translation of all the Dutch items used can be found in the Supplementary Materials.

Participants' sentence choice served as the key measure for the hypothesis testing. In addition, we conducted several induction and manipulation checks. This was done after sentence choice to prevent a potential influence of the checks on sentence choice. First, participants rated the expectancies of each behavior available in their condition to repair the four needs (e.g., "If I express my anger to the other players then the likelihood is high that I restore control over the situation") on a scale from 0 ("completely disagree") to 4 ("completely agree"). We expected higher expectancy ratings for chosen than nonchosen behaviors but not necessarily a different absolute score between conditions.

Second, they rated the degree to which these four needs were threatened during the game (e.g., "I could influence the course of the game"; items adapted from Van Beest and Williams 2006) on a scale from 0 ("completely agree") to 4 ("completely disagree"). The need threat measure served to verify whether the social exclusion induction was successful in threatening participants' needs. Third, participants rated the importance of the need threats for those needs that participants had rated as being threatened during the game. This question was added because we envisaged the possibility that participants would only engage in repairing behavior when the threatened needs had a sufficiently high value. Thus, participants who indicated some threat to a need evaluated the importance of this need threat (e.g., "If you could not

[1] Our studies aim to test whether differences in behavior after need threat are determined by differences in the expectancies of behaviors to repair need threats. Based on previous research, we assumed that social exclusion would indeed lead to need threats and we also verified this with manipulation checks. However, it was not our aim to show that it was the social exclusion that led to the threatened needs. Our research question can still be answered if the needs would have been threatened by another event (e.g., an event that happened prior to the experiment). Therefore, it was not essential for the present studies to add an inclusion condition.

[2] Participants who indicated doubts about playing against real participants were included in the analyses in both experiments because a previous research from Zadro, Williams, and Richardson (2004) showed that rejection still works when the co-players are not real. As such data are not yet available for sarcasm, however, we decided to still exclude the participants who indicated that they had meant parts or all of the selected sentences sarcastically. Analyses yielded descriptively similar results in the full sample and the sample without the sarcastic participants (for more details on these analyses see the Supplementary Materials).

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Table 1 Means, standard deviations, Cronbach's alphas and test statistics of the induction check measures of Experiment 1 and Experiment 2

	Experiment 1				Experiment 2			
	M (SD)	Cronbach's α	*t (df)*	*d*	*M (SD)*	Cronbach's α	*t (df)*	*d*
Social exclusion								
Perceived inclusion in the game	1.65 (0.58)		− 27.99*** (145)	− 2.32	1.94 (0.94)		− 10.47*** (85)	− 1.13
Percentage of received throws	7.19 (4.61)		− 68.30*** (144)	− 5.67				
Degree of need threat								
Control	3.78 (0.42)	.44	50.96*** (145)	4.24				
Status	3.18 (0.75)	.86	19.16*** (145)	1.57	3.25 (0.72)	.70	16.14*** (85)	1.73
Fairness	3.35 (0.75)	.78	21.86*** (145)	1.80	3.26 (0.75)	.64	15.44*** (85)	1.68
Belonging	3.41 (0.78)	.44	21.78*** (145)	1.81	3.41 (0.86)	.64	15.15*** (85)	1.64
Self-presentation					2.16 (1.02)	.77	1.48 (85)	0.16
Importance of need threat								
Control	2.16 (1.04)	.86	1.87 (145)	0.15				
Status	2.70 (0.84)	.88	9.94** (143)	0.83	2.37 (1.06)	.92	3.21** (84)	0.35
Fairness	2.32 (1.02)	.89	3.80** (144)	0.31	2.37 (1.12)	.94	3.06** (84)	0.33
Belonging	2.63 (1.03)	.91	7.40*** (144)	0.61	2.31 (1.14)	.93	2.50* (84)	0.27
Self-presentation					1.46 (0.97)	.92	− 4.97*** (77)	− 0.56

*p < .05, **p < .01, ***p < .001

influence the course of the game, how bad was this?") on a scale from 0 ("not bad at all") to 4 ("very bad"). Importantly, all items pertaining to need threat and the importance of need threat explicitly referred to the cyberball game situation (i.e., the situation prior to the sentence selection).

Fourth, participants rated the aggressive/friendly meaning of the sentences on a scale from 1 to 7. This measure served to verify that the moralizing sentences were perceived as less aggressive than the aggressive sentences and as less friendly than the prosocial sentences. For exploratory purposes, we also included ratings on the dimensions of valence, arousal, and dominance. However, these ratings did not contribute to a better understanding of the findings and are therefore reported in the Supplementary Materials.

Fifth, participants rated how much they felt socially excluded (e.g., "To what extent did you feel you could take part in the game?", and "Which percentage of the ball tosses were thrown at you?"; items adapted from Zadro et al. 2004) on a scale from 1 ("not at all") to 5 ("very well"). The social exclusion measure served to check whether social exclusion had been induced successfully in all participants.

After this, participants filled in additional personality questionnaires (Buss-Perry Aggression Questionnaire; Meesters et al. 1996; Brief Prosocial Scale; Prot et al. 2014) and gave ratings on 15 feeling scales. Because these measures were only added for exploratory purposes, we report them in the Supplementary Materials. Then, participants wrote down their gender and age, their impression of the other two participants (which served as a suspicion check), and whether they intended some or all of the selected sentences sarcastically. For the latter, we asked participants whether they selected a positive statement such as "It was nice with you" but actually wanted to communicate that it was not nice, using a Likert scale ranging from 1 (Yes, all the statements in my message were meant sarcastically) over 2 (Yes, part of the statements were meant sarcastically) to 3 (No, none of the statements were meant sarcastically). Finally, participants were debriefed and thanked.

Results

Induction of social exclusion

Means, standard deviations, Cronbach's alphas, and test statistics of the induction check measures are summarized in Table 1 (see Supplementary Materials for statistics by condition). One sample *t*-tests revealed that the extent to which all participants felt included in the game was significantly lower than the midpoint of the inclusion scale and that participants also reported having received a lower percentage of throws than an equal number of throws (i.e., 33.33%). One sample *t*-tests showed further that the degree of need threat was significantly higher than the midpoint of the threat scale for all needs and that the importance of the need threats was significantly higher than the midpoint of the importance of threat scale for all needs except the need for control. Taken together, these results suggest that participants felt excluded, that social exclusion threatened

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Table 2 Means, standard deviations (in parenthesis) and Cronbach's alphas of the manipulation check measures by condition in Experiment 1 and Experiment 2

	Experiment 1			Experiment 2		
	Moral condition	Nonmoral condition	Cronbach's alpha	Moral condition	Nonmoral condition	Cronbach's alpha
	M (SD)	M (SD)		M (SD)	M (SD)	
Meaning of sentences						
Aggressive sentences	1.58 (0.46)	1.82 (0.35)	.84[a]/.81[b]	1.87 (0.56)	2.07 (0.56)	.68[a]/.78[b]
Prosocial sentences	5.88 (0.55)	5.95 (0.52)	.86[a]/.89[b]	6.19 (0.74)	6.14 (0.59)	.63[a]/.72[b]
Moralizing sentences	4.04 (0.74)		.88[a]	4.09 (0.91)		.87[a]
Expectancy ratings						
Aggressive behavior/ sentences	1.24 (0.75)	1.13 (0.70)	.81	− 1.32 (0.56)	− 1.08 (0.61)	.91[a]/.92[b]
Prosocial behavior/ sentences	2.47 (0.79)	2.45 (0.91)	.93	0.05 (0.61)	0.52 (0.62)	.84[a]/.93[b]
Moralizing behavior/ sentences	2.20 (0.72)		.90	0.36 (0.51)		.80[a]

Cronbach's alpha were calculated per condition if the items differed between conditions

[a]Moral condition

[b]Nonmoral condition

all needs, and that participants cared about threats to the needs for status, fairness, and belonging (suggesting that they attached a high value to these needs).

Manipulation check: Sentence perception and expectancy ratings

A first set of analyses verified whether we had successfully manipulated the meaning of the sentences (see Table 2 for means, standard deviations, and Cronbach's alphas). The ratings of aggressive and prosocial sentences were analyzed across conditions. Prosocial sentences ($M = 5.91$, $SD = 0.53$) were evaluated as significantly more friendly than aggressive sentences ($M = 1.69$, $SD = 0.43$) as indicated by a paired sample t-test, $t(145) = -66.373$, $p < 0.001$, $d = -5.49$. The ratings for moralizing sentences were analyzed only within the moral condition because this is the only condition in which these sentences were rated. A repeated measures ANOVA showed that ratings for aggressive, prosocial, and moralizing sentences differed significantly, $F(2, 164) = 1168.62$, $p < 0.001$, $\eta_p^2 = 0.93$. Planned comparisons revealed that moralizing sentences were significantly less aggressive than aggressive sentences, $F(1, 82) = 897.96$, $p < 0.001$, $\eta_p^2 = 0.92$, and significantly less friendly than prosocial sentences, $F(1, 82) = 394.07$, $p < 0.001$, $\eta_p^2 = 0.83$. These results were in line with our expectations.

A second set of analyses verified whether the expectancy of the chosen behaviors was higher than the expectancy of the nonchosen behaviors (see again Table 2 for means, standard deviations, and Cronbach's alphas). We conducted separate analyses per condition (because participants rated only the expectancy of the sentences provided in their own condition) and we averaged the expectancy ratings over all needs (see Table 3 for expectancy ratings per needs). In the moral condition, a repeated measures ANOVA (with a Huynh–Feldt correction for violation of sphericity) revealed significantly different expectancies for aggressive, prosocial, and moralizing behavior to repair the assessed needs, $F(1.90, 156.06) = 56.45$, $p < 0.001$, $\eta_p^2 = 0.41$. Planned contrasts indicated a higher expectancy of moralizing than aggressive behavior, $F(1, 82) = 80.89$, $p < 0.001$, $\eta_p^2 = 0.50$, but a higher expectancy of prosocial than moralizing behavior, $F(1, 82) = 4.92$, $p = 0.029$, $\eta_p^2 = 0.06$, and also a higher expectancy of prosocial than aggressive behavior, $F(1, 82) = 82.10$, $p < 0.001$, $\eta_p^2 = 0.50$. In the nonmoral condition, a repeated measures ANOVA indicated a higher expectancy of prosocial than aggressive behavior, $F(1, 62) = 63.37$, $p < 0.001$, $\eta_p^2 = 0.51$. Taken together, participants in both conditions perceived the expectancy of prosocial behavior as the highest, which is at variance with our expectations.

Behavior: Sentence selection

In line with expectations, our manipulation of the relative expectancies of the behaviors via the manipulation of the available behavior repertoire yielded highly significant differences in behavior choice, that is, sentence selection (see Fig. 1). We performed separate analyses for the moral and the nonmoral conditions because the sentences available in each condition differed. In the moral condition,

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Table 3 Means and standard deviations (in parenthesis) for expectancy measures by condition and type of need in Experiment 1 and Experiment 2

Expectancy of aggressive/prosocial/moralizing behavior to repair or further threaten (*only Experiment 2*) the need for control/status/fairness/belonging/self-presentation	Experiment 1		Experiment 2	
	Moral condition	Nonmoral condition	Moral condition	Nonmoral condition
Aggressive behavior				
Control	1.34 (0.95)	1.21 (0.88)		
Status	1.22 (0.88)	1.01 (0.79)	− 0.97 (0.93)	− 0.63 (0.97)
Fairness	1.30 (0.84)	1.19 (0.82)	− 1.13 (0.85)	− 0.91 (0.91)
Belonging	1.21 (0.89)	1.10 (0.90)	− 1.48 (0.58)	− 1.20 (0.71)
Self-presentation			− 1.69 (0.42)	− 1.57 (0.44)
Prosocial behavior				
Control	2.19 (0.91)	2.25 (0.99)		
Status	2.60 (0.90)	2.52 (1.04)	− 0.52 (0.81)	− 0.06 (0.94)
Fairness	2.45 (0.85)	2.48 (0.96)	− 0.16 (0.82)	0.39 (0.68)
Belonging	2.63 (0.79)	2.55 (0.99)	< 0.001 (0.73)	0.62 (0.80)
Self-presentation			0.87 (0.96)	1.13 (0.59)
Moralizing behavior				
Control	2.21 (0.83)			
Status	2.04 (0.79)		0.53 (0.68)	
Fairness	2.34 (0.78)		0.53 (0.62)	
Belonging	2.20 (0.79)		0.43 (0.67)	
Self-presentation			− 0.04 (0.76)	

The Likert scale ranged from 0 ("completely disagree") to 4 ("completely agree") in Experiment 1 and from − 2 ("much less"/"much more negative") to + 2 ("much more"/"much more positive") in Experiment 2

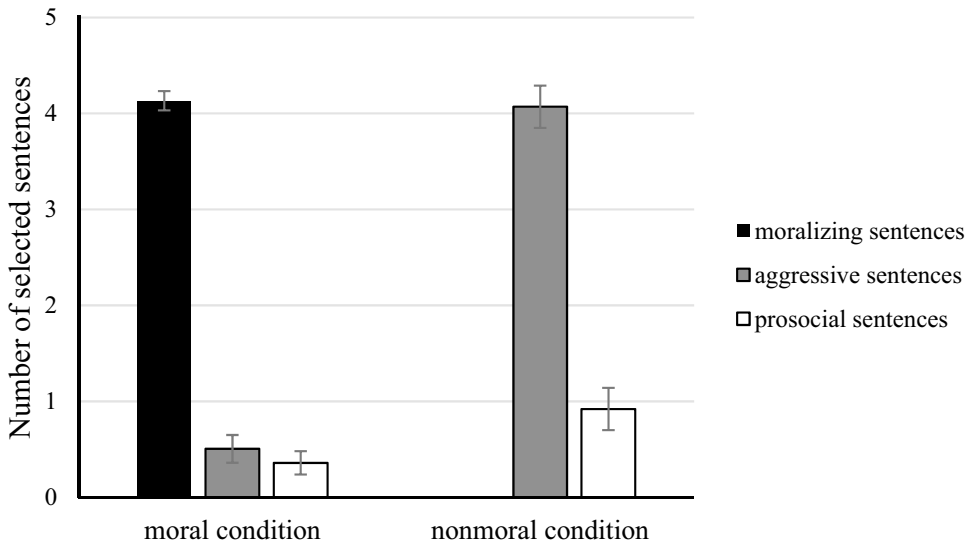


Fig. 1 The number of selected aggressive, prosocial and moralizing sentences as a function of the experimental condition in Experiment 1 (error bars represent standard errors)

a repeated measures ANOVA (with a Huynh–Feldt correction for violation of sphericity) revealed a highly significant difference in the type of sentences selected, $F(1.74, 142.63) = 198.27$, $p < 0.001$, $\eta_p^2 = 0.71$. Planned contrasts indicated that participants chose more moralizing sentences ($M = 4.13$, $SD = 1.32$) than aggressive ones ($M = 0.51$, $SD = 0.92$), $F(1, 82) = 276.76$, $p < 0.001$, $\eta_p^2 = 0.77$, and more moralizing sentences than prosocial ones ($M = 0.36$, $SD = 1.11$), $F(1, 82) = 230.09$, $p < 0.001$, $\eta_p^2 = 0.74$. The number of chosen aggressive and prosocial sentences did not differ significantly from each other, $p > 0.40$. In the nonmoral condition, participants selected more aggressive sentences ($M = 4.07$, $SD = 1.75$) than prosocial sentences ($M = 0.92$, $SD = 1.75$). A one sample

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Table 4 Multiple regression analysis predicting the number of selected aggressive, prosocial, and moralizing sentences in Experiment 1

Predictors and statistics	Aggressive behavior		Prosocial behavior		Moralizing behavior	
	β	*t*	β	*t*	β	*t*
Condition (0 = moral condition)	.64	6.30***	− .35	− 1.71		
Expectancy of aggressive/prosocial/moralizing behavior	.46	3.06**	.79	4.28***	.68	2.52*
Importance of need threat	.47	5.45***	.22	1.07	.87	3.13**
Expectancy * importance of need threat	− .52	− 3.18**	− .92	− 3.69***	− .84	− 2.20*
Condition * expectancy	.10	0.92	.27	1.25		
F	45.43		19.30		5.13	
R^2	0.62		.41		.16	
Adjusted R^2	0.61		.39		.13	

*p < .05, **p < .01, ***p < .001

t-test revealed that the number of selected aggressive sentences was much higher than the number expected from an equal distribution of aggressive and prosocial sentences (i.e., 2.5), $t(62) = 7.15$, $p < 0.001$, $d = 0.90$. Finally, to compare the number of aggressive sentences in both conditions and given that the number of aggressive sentences available in the two condition differed, we first subtracted the expected from the observed number of chosen aggressive sentences. An independent sample *t*-test (with degrees of freedom corrected for violation of homogeneity of variances) revealed that the weighed number of aggressive sentences was significantly lower in the moral ($M = -1.16$, $SD = 0.92$) than in the nonmoral condition ($M = 1.58$, $SD = 1.75$), $t(87.49) = -11.29$, $p < 0.001$, $d = 1.96$. These results allowed us to conclude that participants selected predominantly moralizing sentences if the moral option was available and aggressive sentences if this option was unavailable.

Prediction of sentence selection by self-reported expectancy of the behavior

We tested whether the expectancy of the behavior to repair the threatened needs predicted the number of selected aggressive, prosocial, and moralizing sentences in three multiple linear regression analyses (see Table 4). For aggressive and prosocial behavior, we added condition, expectancy of the respective behavior (averaged over all assessed needs), importance of need threat (averaged over all assessed needs), and the interactions between expectancy and importance of need threat and between expectancy and condition as predictors and we used the weighted number of aggressive/prosocial sentences as the criterion. For moralizing behavior, we only added expectancy, importance of need threat, and its interaction term as predictors because the expectancy of moralizing behavior was only rated in the moral condition. The criterion was the number of selected moralizing sentences. The regression analyses for all three behaviors showed that the expectancy to repair the threatened needs, the importance of the need threat, and the interaction between the expectancy and the importance of the need threat significantly predicted the number of selected sentences. Furthermore, condition was a significant predictor for aggressive behavior but not for prosocial behavior, and the interaction between condition and expectancy was not a significant predictor for aggressive or prosocial behavior. In sum, these results indicate a positive effect of expectancy on the number of selected sentences but this effect weakened with higher importance of the need threat.

Discussion

The first experiment examined whether the behavior of socially excluded people is influenced by the relative expectancies of the behavior options at their disposal to repair the threatened needs. Participants were asked to send a message to people who excluded them by choosing from lists of aggressive and prosocial sentences (in the nonmoral condition), or by choosing from lists of aggressive, prosocial, and moralizing sentences (in the moral condition). We assumed that participants would confer a higher expectancy to moralizing behavior than to aggressive and prosocial behavior for repairing the threatened needs, which should make them preferentially choose moralizing behavior if possible. We found that participants indeed chose the moralizing behavior in the moral condition and that the self-reported expectancy ratings predicted behavior choices. We also observed that the influence of self-reported expectancy became weaker with higher importance of the need threat. This is in line with a goal-directed account because it shows that expectancies and values are both involved in determining behavior. It also suggests, however, that expectancies and values can be weighted differently depending on their level (see also Sun et al. 2014; Tversky and Kahneman 1992). Furthermore, we found that

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the needs for belonging and control (two needs put forward by the temporal need-threat model) and the needs for status and fairness (two needs put forward by us) were all threatened by social exclusion. Interestingly, the degree of need threat did not correspond to the importance of the need threat. Participants indicated a threat to the need for control but did not attach much importance to this threat. This suggests that the importance of the need threat should not be inferred from the degree of need threat, but should be measured independently.

Against the predictions of the goal-directed account, participants' self-reported expectancies of the behaviors to repair needs did not correspond to their actual behavior. The expectancy of prosocial behavior received surprisingly high ratings, although participants behaved aggressively or moralizing but not prosocially. To make sense of these unexpected findings, three methodological issues may be considered. First, participants received prosocial messages that were ostensibly sent by the perpetrators before completion of the expectancy measurement. This might have alleviated the social exclusion experience, leading participants to regret their own aggressive/moralizing behavior and subsequently favoring high expectancy ratings for prosocial behavior. Second, the items used in the expectancy measure were formulated at a generic level (e.g., "If I behave aggressively towards the other players, the likelihood is high that they will behave fairly."). Therefore, participants might have rated the expectancies of the three behaviors in general rather than for the situation at hand. This is also supported by the fact that many participants indicated that they intended the prosocial sentences sarcastically, which suggests that they indeed evaluated the expectancy of the specific prosocial sentences as low. Third, the behaviors were explicitly labeled in these items as aggressive, prosocial, and moralizing. This might have encouraged socially desirable responses.

Taken together, the behavioral findings of the first experiment suggest that the behavioral reactions to social exclusion are goal directed if the assumption holds that the manipulation of the behavior repertoire successfully changed the relative expectancies of the behaviors. However, two possible scenarios are consistent with a goal-directed account: The behavior can either be directly elicited by a goal-directed process or it can be elicited by an initial stimulus-driven process, which is subsequently regulated by a goal-directed process (Moors 2017; Moors et al. 2017). In the first scenario, moralizing behavior is immediately elicited by the goal to repair the threatened needs and the expectancy that moralizing behavior will do so. In the second scenario, social exclusion first elicits an aggressive tendency via a stimulus-driven process. This tendency conflicts with the need for presenting oneself in a favorable way and therefore gives rise to a regulation process that replaces the aggressive tendency with a moralizing tendency.

Experiment 2

The aims of Experiment 2 were to replicate the main findings of Experiment 1 while resolving some of its methodological issues and to gain more insight into whether moralizing behavior was chosen immediately or only subsequently as a means to regulate aggressive behavior. For the first aim, we implemented the following adjustments to the procedure. The messages from the perpetrators were shown only at the end of the experiment to avoid an influence of these messages on participants' expectancy judgments. To avoid that participants would interpret the expectancy questions in a generic sense, we asked them to indicate for every specific sentence (both sent and nonsent ones) the degree to which they expected that sending it would threaten or repair their needs and we omitted the labels for the assessed behaviors (aggressive, prosocial, moralizing). Omitting these labels was also done to reduce the pressure to give socially desirable responses. To make this task more feasible, we reduced the total number of aggressive, prosocial, and moralizing sentences that participants could choose from.

For the second aim, we extended the set of assessed needs with the need for a favorable self-presentation (Leary and Kowalski 1990). Self-presentation can be seen as an important motivation for people to regulate their aggressive behavior. If we would find that this need does not play a role in the choice for moralizing behavior, the interpretation that participants merely chose moralizing behavior in a later stage as a means to regulate their aggressive behavior would not be supported. In order to preserve the size of the questionnaire, we dropped the need for control as this was the need participants cared about least in Experiment 1.

We should mention two further procedural adjustments. First, we extended the expectancy questionnaire so that it not only measured the expectancy that behaviors would repair their needs, but also the expectancy that behaviors would further thwart their needs. We figured that this would yield additional insights into the expectancies of the assessed behaviors as especially aggressive behavior might be expected to further thwart certain needs (e.g., the need for belonging). Second, we discarded the exploratory measures on trait aggressiveness and prosociality and on the feelings elicited by social exclusion..

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Method

Sample

A total of 101 people recruited through the experiment system of the university or through Prolific Academic participated online through Qualtrics in return for payment or for course credits.[3] They were randomly assigned to the moral or the nonmoral condition. Fifteen participants were discarded because they meant some of the selected sentences sarcastically.[2] The final sample consisted of 86 Dutch-speaking participants ($M_{age} = 24$ years, 61% female). A sensitivity analysis indicated that this sample size could detect effects with a minimal effect size of $\eta^2 = 0.05$, under standard criteria ($\alpha = 0.05$ two-tailed, $\beta = 0.80$, $r$corr. $= 0.5$, nonsphericity correction $= 1$).

Procedure

The procedure of the second experiment was the same as that of the first experiment with the following exceptions. First, we reduced the number of sentences in the list from 24 to 12 sentences and the number of sentences required to select for the message from five to three. Participants could choose from six aggressive and six prosocial sentences in the nonmoral condition and from four moralizing, four aggressive, and four prosocial sentences in the moral condition. Second, the messages of the perpetrators were presented only after the manipulation checks were administered. Third, the expectancy was measured by asking participants to indicate for each sentence available in their condition to which degree they expected that sending it had (or would have) increased or decreased satisfaction of the four needs (e.g., "To which extent do you expect that by sending the sentence, the other players would take you less or more seriously than during the ball game) on a scale from − 2 ("much less"/"much more negative") to + 2 ("much more"/"much more positive"). Fourth, the degree and importance of the need threat were measured for the needs for status, fairness, belonging, and self-presentation (e.g., "I presented myself at my best with my selection of sentences."; "If you did not present yourself at your best, how bad was that?") on scales from 0 ("completely agree"/"not bad at all") to 4 ("completely disagree"/"very bad"). Fifth, social exclusion was measured with the item from Experiment 1 that asks about the extent to which they could take part in the game. Finally, we no longer asked about trait aggressiveness and prosociality and the feelings elicited by social exclusion, and we only assessed the meaning of the sentences on the dimensions of aggressiveness and friendliness.

Data analysis

We repeated the analyses conducted in Experiment 1 and we examined again whether the expectancy that a sentence repairs a need predicted the selection of this sentence and whether this influence of expectancy was affected by the importance of the need threat and the condition. In contrast to Experiment 1, we analyzed this with a multilevel logistic regression in Mplus 5.2 (Muthén and Muthén 2010) because multiple observations (sentences) were nested within participant and because the outcome variable had a binary format (sentence sent = 1, sentence not sent = 0). We ran random intercept and slope models for each need separately containing the following predictors: on Level-1 (sentence level), the expectancy to repair or threaten a need; on Level-2 (participant level), the importance of the need threat and the condition of the participant; and across levels, the interaction between expectancy and importance of the need threat and the interaction between expectancy and condition. We person-mean centered the expectancy variable.

Results

Induction of social exclusion

Table 1 provides an overview of the means, standard deviations, Cronbach's alphas, and test statistics of the induction check measures (see Supplementary Materials for statistics by condition). One sample t-tests revealed that the perceived inclusion in the game was significantly lower than the midpoint of the inclusion scale and that the degree of need threat was significantly higher than the midpoint of the need threat scale for all needs except for the need for self-presentation. Further, one sample t-tests showed that a threat to the needs for status, fairness, and belonging were rated as more important than the midpoint of the importance of need threat scale, whereas a threat to the need for self-presentation was rated as less important than this midpoint. In sum, these results suggest that participants felt excluded, that the needs for status, fairness, and belonging, but not the need for self-presentation were threatened, and that participants cared about a threat to the needs for status, fairness, and belonging, but not about a threat to the need for self-presentation.

Manipulation check: Sentence perception and expectancy ratings

A first set of analyses checked whether we successfully manipulated the meanings of the sentences (see Table 2 for means, standard deviations, and Cronbach's alphas). The

[3] The Prolific Academic sample and the university sample did not differ on relevant features. Analyses comparing the two samples are reported in the Supplementary Materials.

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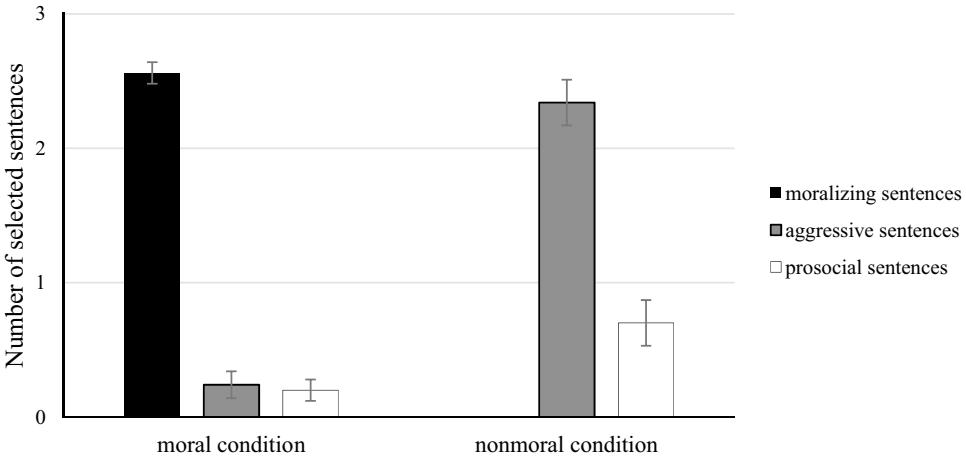


Fig. 2 The number of selected aggressive, prosocial and moralizing sentences as a function of the experimental condition in Experiment 2 (error bars represent standard errors)

ratings for aggressive and prosocial sentences were analyzed across conditions. Participants evaluated the prosocial sentences ($M = 6.16$, $SD = 0.67$) as significantly more friendly than the aggressive ones ($M = 1.99$, $SD = 0.57$), as shown by a paired sample t-test, $t(85) = -40.53$, $p < 0.001$, $d = -4.37$. The ratings for moralizing sentences were analyzed only within the moral condition because this is the only conditions in which these sentences were rated. A repeated measures ANOVA revealed a significant main effect of type of sentence, $F(2, 88) = 427.92$, $p < 0.001$, $\eta_p^2 = 0.91$. As in Experiment 1, planned contrasts indicated that the moralizing sentences were significantly less aggressive than the aggressive sentences and significantly less friendly than the prosocial sentences, $F_{moralizing\text{-}aggressive}(1, 44) = 310.13$, $p < 0.001$, $\eta_p^2 = 0.88$; $F_{moralizing\text{-}prosocial}(1, 44) = 159.26$, $p < 0.001$, $\eta_p^2 = 0.78$. These results were in line with our expectations.

A second set of analyses checked whether the ratings for the expectancies of the provided sentences were higher for the chosen than for the non-chosen sentences (see again Table 2 for means, standard deviations, and Cronbach's alphas). We analyzed the expectancy ratings for aggressive, prosocial, and moralizing sentences separately per condition (because participants rated only the expectancies of the sentences provided in their own condition) and we averaged the expectancy ratings over all assessed needs (means and standard deviations for the ratings per need are reported in Table 3).

In the moral condition, a repeated measures ANOVA revealed that the expectancies of the aggressive, prosocial, and moralizing sentences to repair or further threaten the assessed needs were evaluated differently, $F(2, 88) = 108.90$, $p < 0.001$, $\eta_p^2 = 0.71$. Planned contrasts indicated that the expectancy of moralizing sentences was significantly higher than the expectancy of aggressive ones, $F(1, 44) = 211.26$, $p < 0.001$, $\eta_p^2 = 0.83$, and than the expectancy of prosocial ones, $F(1, 44) = 8.23$, $p = 0.006$, $\eta_p^2 = 0.16$. Furthermore, the expectancy of prosocial sentences was also significantly higher than the expectancy of aggressive ones, $F(1, 44) = 100.11$, $p < 0.001$, $\eta_p^2 = 0.70$. In the nonmoral condition, a repeated measures ANOVA revealed that the expectancy of prosocial sentences was higher than the expectancy of aggressive ones, $F(1, 40) = 91.98$, $p < 0.001$, $\eta_p^2 = 0.70$. Taken together, these results indicate that participants in the moral condition evaluated the expectancy of moral behavior as the highest, which is in line with our expectations, but that participants in the nonmoral condition evaluated the expectancy of prosocial behavior as the highest, which goes against our expectations.

Behavior: Sentence selection

As in Experiment 1, we found strong effects of the availability of sentences—and hence their relative expectancy—on the selection of the sentences (see Fig. 2). In the moral condition, a repeated measures ANOVA (with Huynh–Feldt correction for violation of sphericity) yielded a highly significant main effect in the moral condition, $F(1.76, 77.41) = 161.10$, $p < 0.001$, $\eta_p^2 = 0.79$. Planned contrasts revealed that these participants chose more moralizing sentences ($M = 2.56$, $SD = 0.69$) than aggressive ones ($M = 0.24$, $SD = 0.53$), $F(1, 44) = 190.06$, $p < 0.001$, $\eta_p^2 = 0.81$, and than prosocial ones ($M = 0.20$, $SD = 0.50$), $F(1, 44) = 210.02$, $p < 0.001$, $\eta_p^2 = 0.83$. The number of chosen aggressive and prosocial sentences did not differ significantly from each other, $p > 0.70$. In the nonmoral condition, participants selected more aggressive sentences ($M = 2.34$, $SD = 1.09$) than prosocial ones ($M = 0.66$, $SD = 1.09$). The number of selected aggressive sentences differed significantly from an equal distribution of aggressive and prosocial sentences (i.e., 1.5) as revealed by a one sample t-test, $t(41) = 4.96$, $p < 0.001$, $d = 0.77$. Similar to Experiment 1, we compared the number of selected aggressive sentences between the

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conditions in independent sample *t*-tests using the same correction method and degrees of freedom corrected for violation of homogeneity of variances. The number of selected aggressive sentences was again significantly lower in the moral ($M = -0.76$, $SD = 0.53$) than in the nonmoral condition ($M = 0.84$, $SD = 1.09$), $t(56.74) = 8.54$, $p < 0.001$, $d = 1.87$. Again, we can conclude that moralizing sentences were chosen if they were available and aggressive sentences if they were not.

Prediction of sentence selection by self-reported expectancy of the sentence

We analyzed whether the expectancy that a sentence repairs/threatens a need predicted the selection of a sentence in multilevel logistic regression analyses. We also included the factors condition and importance of the need threat in the analyses. From the predictors in all full models, only condition and the importance of need threat correlated significantly ($0.07 <$ all $rs < 0.16$). The full models for the needs for status, fairness, and belonging revealed significant effects of the Level-1 predictor expectancy and of the cross-level interaction between expectancy and condition on the log-odds of the sentence selection. The model for the need for fairness additionally indicated a significant effect of condition. This suggests that the probability of selecting a sentence rose with an increasing expectancy that this sentence repaired a need, but that the influence of expectancy was only observed in the moral and not in the nonmoral condition (see Table 5). For these three needs, no other predictors had a significant effect. For the need for self-representation, only the cross-level interaction effect between expectancy and condition predicted the selection of the sentences significantly. The influence of the expectancy was slightly positive in the moral condition, but slightly negative in the nonmoral condition.

Discussion

The first aim of Experiment 2 was to replicate the main findings of Experiment 1 while resolving some of its methodological problems. To this end, we presented the messages from the ostensible other participants only at the end of the experiment, we tailored the expectancy questions to the specific sentences, and we changed the content of some of the aggressive sentences. We replicated the finding that participants moralized if they could moralize, but that they aggressed if they could not moralize. We also replicated the finding that social exclusion led to a strong threat to the needs for status, fairness, and belonging. The results further showed that sending any message led to an average threat to the need for self-presentation. Participants also cared about threats to the needs for status, fairness, and belonging but they cared little about a threat to the need for self-presentation. Furthermore, using the more specific expectancy questions, we found that participants in the moral condition rated the expectancy of the moralizing sentences as higher than the expectancy of other sentences, whereas participants in the nonmoral condition rated the expectancy of prosocial sentences as higher than the expectancy of aggressive sentences. This suggests that by providing moralizing sentences we indeed added a behavior option with a higher expectancy, but that participants in the nonmoral condition did not rate the expectancies in line with their behavior. The results of the multilevel logistic regressions were similar to the results in Experiment 1. The expectancy of a sentence to repair the need for status, fairness, or belonging predicted the selection of the sentence, but this influence was only strong for the moral and not for the nonmoral condition. In contrast to Experiment 1, the effect of the expectancy did not depend on the importance of the need threat in Experiment 2. In sum, these findings provide preliminary support that expectancies influence the behavioral reactions to social exclusion and that these reactions are therefore goal directed. This is more pronounced in the behavioral effects resulting from the experimental manipulation than in the manipulation check. The evidence in the self-reports is further stronger for the moral than for the nonmoral condition and hence stronger for moralizing than for aggressive behavior.

The second aim of Experiment 2 was to investigate whether the goal-directedness of the behavior stems from an immediate or a subsequent regulatory goal-directed process. Participants indicated that they cared least about the threat to the need for self-presentation and the expectancy to repair this need did not predict the selection of the sentences in the multilevel logistic regressions. Although still preliminary, these findings are more in line with a scenario in which the goal-directed process is immediately recruited than a scenario in which the goal-directed process is merely invoked to regulate an initial aggressive tendency.

General discussion

The temporal need-threat model (Williams 2007, 2009) stated that the type of needs that are threatened by social exclusion determine the types of behaviors that occur: antisocial behavior when the needs for control and meaningful existence are threatened, prosocial behavior when the needs for self-esteem and belonging are threatened. We tested a goal-directed extension of this model, which holds that behavioral reactions to social exclusion are based on the values of the outcomes of the behaviors and the expectancies that the behaviors will lead to these outcomes. Previous research has provided considerable evidence for the role of the values of the outcomes of behaviors (i.e., the value

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Table 5 Multilevel logistic regression results predicting the decision to send a sentence in Experiment 2

Predictors and statistics	Estimate	95% CI of estimate	*SE*	*z*-score	*p*
Model: need for status					
Fixed effects					
Threshold	1.46	1.02 to 1.90	0.23	6.43	< .001
Condition (0 = moral condition)	0.25	− 0.09 to 0.60	0.17	1.46	.146
Status	− 0.01	− 0.17 to 0.15	0.08	− 0.12	.904
Random effects					
Expectancy	1.26	0.69 to 1.74	0.29	4.30	< .001
Expectancy * condition	− 0.83	− 1.27 to − 0.40	0.22	− 3.75	< .001
Expectancy * status	− 0.05	− 0.25 to 0.16	0.10	− 0.46	.644
− 2LogL	1016.64				
BIC	1072.06				
Model: need for fairness					
Fixed effects					
Threshold	1.59	1.15 to 2.03	0.22	7.13	< .001
Condition (0 = moral condition)	0.36	0.01 to 0.72	0.18	1.97	.05
Fairness	0.01	− 0.15 to 0.16	0.08	0.04	.967
Random effects					
Expectancy	1.33	0.83 to 1.84	0.26	7.13	< .001
Expectancy * condition	− 1.23	− 1.66 to − 0.81	0.22	− 5.71	< .001
Expectancy * fairness	− 0.01	− .17 to 0.17	0.09	− 0.30	.976
− 2LogL	998.898				
BIC	1054.32				
Model: need for belonging					
Fixed effects					
Threshold	1.55	1.12 to 1.98	0.22	7.08	< .001
Condition (0 = moral condition)	0.23	− 0.12 to 0.58	0.18	1.31	.191
Belonging	0.02	− 0.12 to 0.17	0.08	0.31	.757
Random effects					
Expectancy	1.30	0.81 to 1.80	0.26	5.12	< .001
Expectancy * condition	− 1.15	− 1.56 to − 0.74	0.21	− 5.47	< .001
Expectancy * belonging	− 0.08	− .25 to 0.09	0.09	− 0.97	.330
− 2LogL	1016.59				
BIC	1072.01				
Model: need for self-presentation					
Fixed effects					
Threshold	1.21	0.89 to 1.54	0.17	7.32	< .001
Condition (0 = moral condition)	− 0.12	− 0.45 to 0.21	0.17	− 0.70	.482
Self-presentation	0.01	− 0.16 to 0.19	0.09	0.15	.881
Random effects					
Expectancy	0.25	− 0.07 to 0.56	0.16	1.55	.122
Expectancy * condition	− 0.64	− 0.97 to − 0.32	0.17	− 3.892	< .001
Expectancy * self-presentation	0.01	− 0.15 to 0.17	0.08	0.12	.903
− 2LogL	1004.26				
BIC	1058.99				

of the repaired needs). The present research goes beyond previous research by investigating also the role of expectancies of the available behavior options. More specifically, we examined whether socially excluded participants engaged in the behavior with the highest expectancy to repair the threatened needs.

In two experiments, we manipulated the availability of behavior options in order to manipulate the relative expectancies of aggressive, prosocial, and moralizing behavior

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and we registered the behaviors participants engaged in. The behavioral results of both experiments supported our hypothesis that the availability manipulation determined the respective behaviors: Participants in the nonmoral condition most often behaved in an aggressive way whereas those in the moral condition behaved most often in a moralizing way. The questionnaire results were more mixed. The regression analyses in both experiments suggested that the expectancy that a behavior repairs the threatened needs predicted the behavior choice. This influence became weaker with higher importance of need threat in Experiment 1 but not in Experiment 2, and held only for the moral condition in Experiment 2. Furthermore, only in Experiment 2, participants in the moral condition evaluated the expectancies in line with their behavior choice.

A further finding is that social exclusion threatened several needs: the need for control in Experiment 1 and the needs for status, fairness, and belonging in both experiments. In both experiments, participants also indicated that they cared about the threats to the needs for status, fairness, and belonging. Interestingly, the degree of need threat differed from the importance of need threat in Experiment 1. Participants reported a threat to the need for control but attached little importance to this.

Finally, in Experiment 2, we found that participants evaluated a threat to the need for self-presentation as less important than a threat to the other needs, and that the expectancy of the sentences to satisfy this need did not predict the selection of the sentences in the multilevel logistic regression models. These findings fit better with a scenario in which the behaviors were elicited directly by a goal-directed process than with a scenario in which a stimulus-driven process first elicited an aggressive tendency that was subsequently regulated by a goal-directed process for reasons of self-presentation. Caution is due, however, because regulation may still have occurred for other reasons than self-presentation.

A potential limitation of our studies might be that the induction and manipulation checks for expectancy, need threat, and social exclusion were assessed only after the sentence selection took place. This choice was guided by the concern that these measures could otherwise contaminate the sentence choice. One downside is that we cannot exclude that answers to the manipulation checks reflected a post-hoc justification of the behavior to some extent. Another downside is that the degree and importance of the need threat could have been underestimated because the behavior could have partly repaired the need threat. A first reply is that the questions explicitly referred to the social exclusion situation and not to the momentary situation. A second reply is that the results show that the need threat was still substantial. Therefore, we believe that our conclusion regarding the importance of the expectancies in the choice of the behavior still holds.

A further potential limitation concerns the specific sentences provided to the participants. First, these sentences might have differed on more dimensions than the manipulated one, such as valence: The moralizing sentences may have been more neutral than the aggressive and prosocial ones. Second, the prosocial sentences might have been perceived as exaggerated or not applicable to the situation at hand, which could have lowered their expectancy. This possibility is further suggested by the fact that many participants indicated that they intended the prosocial sentences sarcastically. In future research we could, for instance, provide prosocial sentences that are more applicable, such as sentences that express the desire to be included again. The challenge remains, however, to make sure that the sentences do not become neutral or partly moralizing (or even inculpating or passive aggressive).

Another potential limitation are the mixed results of the questionnaire data. A first post-hoc interpretation is that the questionnaire did not accurately capture the expectancies. Participants might have had more insight into the expectancies for moralizing behavior than into those for aggressive behavior, and/or social desirability concerns might have affected the responses. A second possible interpretation is that we did not assess the most relevant needs that participants aimed to repair with aggressive behavior. Aggressive behavior might have served, for instance, to receive acknowledgment from the perpetrators (see Rudert et al. 2017; Wesselmann et al. 2015), a need that may only partially overlap with the need for status that we measured. A third possible interpretation is that moralizing behavior (the most chosen behavior in the moral condition) is more goal-directed than aggressive behavior (the most chosen behavior in the nonmoral condition). Aggressive behavior might have been determined by a weak goal-directed process or by a combination of a stimulus-driven and a goal-directed process. If a stimulus-driven process would have been at play in our study, however, it must have been rather weak as our results showed that it was trumped by a goal-directed process eliciting moralizing behavior.

Taken together, our findings have important theoretical, methodological, and practical implications. On the theoretical side, they show that the type of need threatened does not suffice to explain the behavior elicited by social exclusion as existing versions of the temporal need-threat model suggest (Williams 2007, 2009). Indeed, according to such versions, the behavior should have been the same in both conditions as all needs were threatened to a similar degree. The finding that participants with similarly threatened needs preferred moralizing behavior except when this option was not available is more in line with a goal-directed extension of the temporal need-threat model. This conclusion is based on our reasoning that the manipulation of the behavior repertoire changed the relative expectancies of the behaviors, even

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if it was only partly supported by the expectancy ratings. Furthermore, the results also suggest that existing models should incorporate more needs such as the needs for fairness and for status. On the other hand, in a goal-directed model, every need should be capable of producing any behavior as long as the value of this need and the expectancy of the behavior to repair the need are high enough (for other examples of alternative behaviors, see Eck et al. 2016). If future studies corroborate our findings, theorists should consider giving more weight to goal-directed processes in their explanations of emotional behavior. This would fit with a recent dual process model developed by Moors (2017; Moors et al. 2017) which proposes that most emotional behavior is caused by a goal-directed process and only exceptionally by a stimulus-driven process.

The present studies also have implications for the methods used in social exclusion research. In the lion share of this research, participants can only choose between aggressive and prosocial behavior (see Gerber and Wheeler 2009). Our studies show that a restriction of the available behavior options crucially influences the behavior and that it might lead to the erroneous conclusion that social exclusion predominantly elicits these behaviors. In addition, our studies show that the degree of need threat does not necessarily overlap with the importance of the need threat. This is a good reason to include a measure of the importance of need threat in future studies. In terms of practical implications, our findings suggest that changing the expectancies of desired and undesired behaviors can help prevent undesired reactions to social exclusion (e.g., excessive aggression).

One avenue for future research would be to use different methods for manipulation and measurement. As mentioned in the introduction, expectancies can be manipulated by varying the objective probabilities that the behavior leads to certain outcomes and/or by informing participants about these probabilities. The first option would require repeated experience of social exclusion, which would make the experimental design more complex, and both options face issues of credibility. Another option would to inform participants about expectancies when participants interact with avatars (instead of real people), assuming that the experimenter has knowledge about the avatars' reactions to the participants' behavior (e.g., whether the avatars will include the participant again after prosocial behavior or not). A further option would be to use implicit methods to measure values, expectancies, and action tendencies such as reaction times tasks (Bossuyt et al. 2014) and neuroscientific methods (TMS/MEP; Moors et al. 2019). Another avenue for future research would be to investigate the factors that influence values and expectancies. Promising candidates are moderators proposed in prior research on social exclusion such as whether the target person was one of the perpetrators responsible for the exclusion (Maner et al. 2007) and the cultural context of the rejected person (Uskul and Over 2017). Several of these factors can be reinterpreted within a goal-directed framework. To illustrate, after social exclusion, people in individualistic cultures reported stronger antisocial behavior intentions than people in collectivistic cultures (Pfundmair et al. 2015). In a goal-directed framework, cultural differences might have two effects. First, the importance of needs may differ between cultures, which may influence the need that has the highest priority to be repaired. Second, different behaviors may have different expectancies for repairing these needs in different cultures, resulting in different behavioral responses to social exclusion even if need importance would be the same.

In conclusion, the present studies provide preliminary evidence that the behavioral reactions to social exclusion are goal directed and that social exclusion threatens also the needs for status and for fairness. Indeed, socially excluded participants alter their behavior if the provided behavior options change.

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Compliance with ethical standards

Conflict of interest All authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from all individual participants in the study.

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