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Preschool Social Exclusion, Aggression, and Cooperation: A Longitudinal Evaluation of the Need-to-Belong and the Social-Reconnection Hypotheses

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Abstract

The need-to-belong theory stipulates that social exclusion fosters aggression, whereas the social-reconnection hypothesis suggests that social exclusion promotes motivation to behave cooperatively. To date, empirical investigations of these contrasting views have focused on the *immediate* effects of social exclusion, yielding mixed results. Here we examine longer term effects of preschool social exclusion on children's functioning 2 years later. Social exclusion was reported by teachers, aggression and cooperation by parents. Cross-lagged analyses showed that greater social exclusion at age 4 predicted more aggression and less cooperation at age 6, providing support for the need-to-belong rather than social-reconnection hypothesis. Secondary analyses showed that social exclusion predicted more aggression only among children scoring above mean on aggression at age 4, indicating that aggressive behavior is *amplified* by social exclusion among children already behaving aggressively. No gender differences were found. Implications and limitations are discussed in a developmental context.

Keywords

need-to-belong, prosocial behavior, self-regulation, ostracism, development

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How do people react when socially excluded? Two very different consequences seem plausible: (a) *social reconnection*: individuals seek to compensate for their experience, becoming more proactively cooperative in an effort to improve social relations (Maner, DeWall, Baumeister, & Schaller, 2007; Molden & Maner, 2013; Williams, 2002) and (b) *anti-social*: individuals become dejected, frustrated, resentful, and ultimately aggressive toward others (Baumeister & Leary, 1995; Berkowitz, 1989; DeWall & Twenge, 2013). These opposing viewpoints reflect social processes that are presumed to operate in the real world, even over the long term, not just within the confines of a typical experiment (Baumeister & Leary, 1995; Wesselmann & Williams, 2013). Nevertheless, researchers have almost exclusively studied the *immediate effects* of social exclusion on young adults under such laboratory conditions (Twenge, Baumeister, Tice, & Stucke, 2001; Williams & Sommer, 1997). Thus, even though a large body of evidence indicates that the social environment can shape a person's behavior (e.g., Caspi & Roberts, 2001; Ryan & Deci, 2000), and that social rejection is a prevalent societal phenomenon (Hawker & Boulton, 2000), long-term consequences of social exclusion in the real world have rarely been investigated. Thus, the present report seeks to address this lacuna—by studying

preschool children's experience of social exclusion and their aggressive and cooperative behavior 2 years later.

A focus on children when investigating long-term effects of social exclusion—on trait-like behavior rather than just immediate responses—would seem to make good sense given that they are presumed to be more developmentally plastic, malleable or susceptible to social influence than adults (Beauchamp & Anderson, 2010; Belsky & Pluess, 2009; Cairns, 1979). As it turns out, however, even when one incorporates peer rejection (Asher & Coie, 1990), victimization (Arseneault, Bowes, & Shakoor, 2010; Olweus, 1978), and ostracism (Williams, 2002) into the definition of social exclusion (e.g., Leary, 2001; “being disliked, rejected, and shunned by others”), relatively little is known regarding how exclusion affects children's aggressive and/or cooperative traits. Here we evaluate the two aforementioned hypotheses

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in a developmental perspective, drawing on a large cohort of preschool children, while using cross-lag panel analyses.

Thwarting the Need-to-Belong: Social Exclusion, Self-Regulation, and Aggression

In their need-to-belong theory, Baumeister and Leary (1995) argue that humans have an inherent need to belong in order to establish sustaining social relations, relations which are considered essential to a well-functioning life. The need for belongingness drives people to take part in meaningful and supportive relationships. Sometimes, however, individuals are prevented from establishing and maintaining such relationships. When this happens, according to the theory, one's ability to self-regulate will be undermined.

Self-regulation is a multi-faceted concept (Baumeister, Heatherton, & Tice, 1994; Carver & Scheier, 1981; Posner & Rothbart, 2000), but in general, it is defined as the ability to suppress instant urges and primary biological impulses in favor of deferred and higher-order goals. This includes the ability to attenuate particular emotions, such as sadness and anger (Gross, 1998, 2003). Findings from several experimental studies on adults support the notion that social exclusion impairs self-regulation, at least momentarily. In such research, social exclusion is typically activated by informing participants that they will end up lonely later in life or that other participants rejected them. Experiments conducted within this paradigm document, for example, impairments in attention regulation, concentration, and resistance to temptation as a result of social exclusion (Baumeister, DeWall, Ciarocco, & Twenge, 2005); reduced cognitive capacity as measured by performance on intelligence tests; as well as other assessments of logic and reasoning ability (Baumeister, Twenge, & Nuss, 2002).

As briefly mentioned above, self-regulation encompasses the regulation of emotions (Gross, 1998, 2003), and in particular, perhaps, anger. Accordingly, a few studies evaluating the need-to-belong theory have investigated whether aggression results from social exclusion. Twenge et al. (2001) showed, using a social exclusion procedure involving a computer game with an option to punish one's opponent with aversive noise, that socially excluded participants directed aggressive behavior not only toward the opponent who had insulted them but also to opponents who had not insulted them. More recent work of this kind (i.e., using a similar experimental exclusion procedure) indicates that social exclusion causes a substantial reduction in prosocial behavior (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007), and that participants who are socially excluded are more likely to interpret ambiguous words as hostile compared with controls (DeWall, Twenge, Gitter, & Baumeister, 2009). Accordingly, and involving adolescents, Reijntjes et al. (2010) found that participants who felt alienated (i.e.,

estranged from society) reacted more aggressively to negative feedback about their personality as compared with non-alienated participants.

The cited research clearly shows that negative social feedback is responded to with behavior of the same kind rather than with constructive initiatives in an effort to secure social acceptance. These social dynamics are, especially in the long run, presumed to be rooted in social learning. More specifically, the experience of being the executor, victim, or observer of aggressive behavior promotes cognitive schemata, or knowledge structures, that make the person more prone to behave aggressively under similar future circumstances (Anderson & Bushman, 2002; Bushman & Anderson, 2002). A straightforward definition of aggression is *behavior carried out with the intent to harm others* (e.g., Berkowitz, 1993; Buss, 1961), and arguably, social exclusion may sometimes be perceived as an aggressive act. As such, negative social experiences may create knowledge structures that increase aggressive behavior. This form of social learning may especially apply to experiences made in childhood (Patterson, DeBaryshe, & Ramsey, 1989).

Long-Term Consequences of Thwarted Belongingness

Most investigations of the need-to-belong theory have used experimental designs, and thus, focused on the immediate effects of social exclusion. Few studies have investigated the need-to-belong theory with respect to long-term effects (for an exception, see Stenseng, Belsky, Skalicka, & Wichstrøm, 2014). Hence, although Baumeister and Leary (1995) assume that their theory has "implications that go beyond immediate psychological functioning" (p. 498), this has rarely been tested.

Even though longitudinal investigations of *social exclusion* are lacking, research on associated social experiences merit consideration. For instance, in its extreme form, social exclusion resembles victimization (Arseneault et al., 2010). Social exclusion is defined as being disliked, rejected, and shunned by others (Baumeister & Tice, 1990; Leary, 2001), whereas victimization involves being overtly bullied, abused, and attacked by peers (Arseneault et al., 2010; Olweus, 1978). Despite this social-marginalization distinction, we argue that victimization is likely to be experienced as the thwarting of the need-to-belong (Baumeister & Leary, 1995; Williams, Forgas, & Von Hippel, 2005). As such, we regard evidence pertaining to the relation between child victimization and aggression as pertinent to the present effort. As it turns out, victimization and aggression are positively associated, at least in cross-sectional investigations of preschool children (Crick, Casas, & Mosher, 1997) and in similar research on first-, second- and fourth graders (Hanish & Guerra, 2002).

Such evidence, that social exclusion and aggressive behavior covary within time, even at diverse periods of development, does not illuminate longer term consequences.

Fortunately, some research addresses this issue using longitudinal designs (Dodge et al., 2003; Hanish & Guerra, 2002; Hodges & Perry, 1999; Lansford, Malone, Dodge, Pettit, & Bates, 2010; Reijntjes et al., 2011), though very little has focused on preschool children, the focus of inquiry herein. One exception which deserves special attention is Ostrov's (2010) study of 113 preschool children (M age = 3.66); it found that children who experienced physical victimization at one point in time increased in physical aggression 3-months later, whereas children who experienced relational victimization exhibited increased relational aggression across the same time period. This work lends support for the need-to-belong hypothesis among children, even if the research was not explicitly couched in such terms.

Boys and girls typically differ in the extent to which they are aggressive, especially in the case of physical aggression (Card, Stucky, Sawalani, & Little, 2008; Hyde, 1986). Some scholars suggest that boys are predetermined to respond more aggressively than girls when residing in a harsh social context, such as being the victim of repeated bullying (Baron & Richardson, 2004). Accordingly, several studies find that boys tend to interpret both neutral and hostile acts as more aggressive than girls, which again makes them more likely to react with aggression (Crick, Bigbee, & Howes, 1996; Crick & Grotpeter, 1995). Girls, in addition, tend to manifest self-regulatory behavior earlier in childhood than boys (Kochanska, Coy, & Murray, 2001). Since the regulation of emotions—such as anger—is closely attached to general self-regulation capacity, boys seem to be less able to suppress their predetermined tendency to react aggressively when experiencing peer rejection or exclusion. This leads to a gender-moderated prediction regarding effects of social exclusion, namely that it will more powerfully foster aggression in boys than girls. To our knowledge, no empirical investigations of the need-to-belong theory have tested and/or detected or reported such gender differences in social-exclusion effects, either in terms of immediate- or long-term effects. Indeed, it remains unclear whether this is the case because none emerged in research when examined or whether gender moderation was not considered. In view of theory and evidence that social exclusion can foster aggression and that boys tend to be more aggressive than girls, we here evaluate the gender-moderated effect under consideration. In addition, we examine whether the potential reciprocal effect of aggression on social exclusion is moderated by gender. We predict that social exclusion will exert a greater effect on the aggression of boys than girls, though remain agnostic about whether boys are more susceptible to the effect of aggression on subsequent social exclusion in our longitudinal study.

The work summarized through this point suggests that social exclusion does not tend to promote cooperative behavior but, instead, increased aggression toward those doing the excluding and even to innocent bystanders. However, since the findings in question mainly arise from research on adolescents and adults studied in laboratory settings—or even

on young children studied over very short periods of time—they may have limited generalizability with regard to how young children's behavior, especially their aggressive behavior, is affected, over the longer term, by chronic social exclusion from peers in real-life settings.

The Social-Reconnection Hypothesis: Social Exclusion Facilitates Cooperation

The social-reconnection hypothesis (Maner et al., 2007; Twenge et al., 2007; Williams, 2002) posits that the execution of prosocial behavior after being socially excluded is a possible consequence of social exclusion. Consistent with this claim are results from Williams and Sommer's (1997) experimental work with college undergraduates. These investigators evaluated whether participants behaved more actively on a collective creative task after being ostracized by confederates. Results showed that whereas female participants generated significantly more ideas after being ignored than females who were not so treated, just the opposite was the case with males, with ostracized males contributing fewer ideas than their more accepted counterparts. Such results suggest that women may try to compensate for social exclusion by increasing investment in a cooperative task, whereas men tend to withdraw after being excluded. In another study, in which adult participants were excluded experimentally from participating in a "Cyberball" game, Williams, Cheung, and Choi (2000) found that those excluded from the game were more likely than others to behave in a socially conforming way in an Asch-type situation (Asch, 1956).

The final work to be considered with regard to the social-reconnection hypothesis investigated a series of conditions that might affect how individuals respond to social exclusion. Results from a set of experiments revealed that social exclusion (and threat of exclusion) increased motivation to make new friends, increased desire to work with others, and fostered more positive attitudes toward new and novel potential affiliations (Maner et al., 2007). However, Maner et al. (2007) observed that social-exclusion effects varied as a result of the nature of the previous interaction, as well as the prospect of future reciprocity of a hypothetical social initiative. They also found that participants who—in general—feared negative evaluations from others were least likely to behave in an affiliative manner following exclusion. This latter result concurs with results from four experiments reported by Twenge and Campbell (2003), showing that it was mainly individuals with narcissistic tendencies who reacted with aggression after being socially rejected. Such results suggest that personal predispositions (other than gender) can moderate responses to social exclusion. It is for this reason that we not only examine whether gender moderates social-exclusion effects, but also whether children who are more aggressive or cooperative to begin with—at preschool age—are more or less adversely affected when excluded by aegmates.

Even if focused exclusively on adults, the results just summarized appear inconsistent with what the need-to-belong theory would predict, given its claim that exclusion promotes aggressive behavior (Baumeister & Leary, 1995; Twenge et al., 2007; Twenge et al., 2001). What the evidence also suggests, however, is that some may be more prone to behave cooperatively under social exclusion than others, perhaps especially women/girls and persons tolerant of negative evaluations from others. Still, as in the case of the need-to-belong theory, empirical investigations of long-term effects of social reconnection are rare, if there exist any at all. This is in contrast to recent works that suggest that chronic ostracism may lead to different stages of psychological coping, where “resignation” may be the final stage (Wesselmann & Williams, 2013; Williams, 2009), and hence, implying that the social-reconnection hypothesis could be investigated in a longitudinal perspective.

The Present Study

The research considered through this point, seeming to provide support for alternative, even competing, theoretical propositions, rarely focused on children, especially young children. Thus, the primary purpose of the work reported herein is to investigate the *non-immediate* consequences, or at least correlates of social exclusion, most notably aggression and cooperation. By taking advantage of a 2-year longitudinal study, we examine the interrelation of these constructs over time to determine whether social exclusion at age 4 predicts later aggression at age 6, as suggested by the need-to-belong theory (Baumeister & Leary, 1995), or cooperation, as suggested by the social-reconnection hypothesis (Maner et al., 2007). Because we rely on cross-lag methods, with information on social exclusion and child functioning from different reporters (i.e., teachers, parents), we also address the issue of reverse causation, again in the context of an observational study. On the basis of some evidence that males and females may respond differently to social exclusion, this issue is also addressed. Finally, we consider some potential “person characteristics” that might moderate the potential determinants and consequences of social exclusion, namely, the child’s initial levels of aggression and cooperation. We suspect that more aggressive boys will prove more susceptible to the adverse effects of social exclusion, whereas more cooperative children are more susceptible to behave in a social connective manner in response to the same exclusionary experience.

Method

Participants and Procedure

The first wave of the Trondheim Early Secure Study (TESS) was conducted in 2007 and 2008 (T1) and included participants from two birth cohorts of children (born 2003 or

2004) and their parents living in the city of Trondheim, Norway. Details about the procedure and recruitment are presented elsewhere (Wichstrom et al., 2012). Of the 1,250 children invited to participate, we tested 936 at the time of study enrollment (74.9%, M age = 4.55). Drop-out rate did not vary by emotional, behavioral functioning, or social problems of the child (as measured using the Strengths and Difficulty Questionnaire; Goodman, 1997) ($\chi^2 = 5.70$, $df = 3$, $p = .13$) or gender ($\chi^2 = 0.23$, $df = 1$, $p = .63$). Seven hundred and sixty two children (50.5% boys) participated in the follow-up assessment 2 years later, resulting in an 81.4% (M age = 6.72) longitudinal participation rate. Neither aggression (odds ratio [OR] = 0.98, 95% confidence interval [CI] = [0.95, 1.01], $p = .27$) nor cooperation (OR = 1.03, 95% CI = [0.96, 1.10] $p = .36$) at T1 predicted dropout at T2. Parental data were collected by means of interviews and questionnaires. Teacher data were collected by means of questionnaires sent to day-care centers at T1 and to primary schools at T2. Response rates among teachers were 90.6% at T1 and 92.2% at T2. Preschool teachers had known the child for an average of 13 months whereas school teachers had known the child for an average of 6 months. Teachers provided information on social exclusion and parents on child behavior at both measurements occasions.

Measures

Social exclusion. The Teacher-Report form (TRF) from the Achenbach System of Empirically Based Assessment (Achenbach & Rescorla, 2000) was used to assess social exclusion at both measurement occasions. Three items of the TRF were judged to reflect the need-oriented character of social exclusion (Baumeister & Leary, 1995): *not liked by other children/pupils*, *does not get along with other children/pupils*, and *gets teased a lot*. Teachers rated each item for each child using a 3-point scale ranging from 0 (*not true*), through 1 (*somewhat or sometimes true*), to 2 (*very true or often true*). A one-factor solution using the maximum likelihood estimator explained 65.37% of the variance at T1, with all factor loadings above .56. Comparable figures at T2 were 61.66% and .44. Cronbach’s alpha coefficients for the construct were .73 on T1 and .68 on T2. The scale correlated moderately highly ($r = .58$, $p < .001$) with the Revised Olweus Victimization Scale (Kyriakides, Kaloyirou, & Lindsay, 2006) at T2, a measure which was not obtained at T1, but is a highly regarded self-report scale used to measure victimization. A secondary analysis also showed that the two scales could be fitted into one model using confirmatory factor analysis, $\chi^2 = 1105.74$, $p < .001$, $df = 28$, comparative fit index (CFI) = .97, Tucker-Lewis index (TLI) = .93, root mean square error approximation (RMSEA) = .060, standardized root mean residual (SRMR) = .05. In sum, these analyses supported the validity of the social exclusion measure used here.

Aggression. The Aggressive Behavior dimension of the Child Behavior Check List (Achenbach & Rescorla, 2000) was administered to parents. The preschool version (age 1½-5) was used at T1 and the school version (age 6-16) was used at T2. Sample items are “gets in many fights,” “hits others,” and “destroys things belonging to his/her family and other children.” Parents’ responses are made on a 3-point scale (0 = *not true*, 1 = *somewhat or sometimes true*, 2 = *very true or often true*). Cronbach’s alphas for the scale were .88 on T1 and .77 on T2.

Cooperation. The Cooperation subscale of The Social Skills Rating System (Gresham & Elliott, 1990) was administered to parents. It is comprised of 10 items reflecting parental perception of the child’s ability to abide to social norms, with especial focus on social interplay with peers and parents, including cooperation (e.g., “complies with instructions,” “helps others,” “compliments others”). The same 3-point scale used for assessing aggression is used to rate cooperation. Cronbach’s alphas for the scale were .74 at T1 and .77 at T2.

Results

Structural equation modeling (SEM) was used to evaluate the cross-time interrelation of social exclusion and aggression. In SEM, it is possible to combine latent constructs with regression, and to determine the overall empirical *fit* of a theoretical model. When identical measurements have been obtained repeatedly over time, cross-lagged techniques are used to determine causal priority and causal predominance, within the confines and limits, of course, of an observational study. When performing cross-lagged analyses, every outcome variable is regressed on its auto-regressor and cross-lagged onto other variables from previous measurements, thereby making the outcome to a measure of change over time (Burkholder & Harlow, 2003; Farrell, 1994).

Mplus (Muthén & Muthén, 2008) was used to perform SEM analyses. The full information maximum likelihood estimation (FIML) was used to handle missing values (Arbuckle, 1996; Enders, 2010). Preliminary analyses of the data indicated some deviations from normality on variables included in the model. Therefore, the model was tested using maximum likelihood estimation with robust standard errors (Petersen, 2009). For nested model comparisons, we used the corrected chi-square difference test (Satorra & Bentler, 2001). Judgments of model fits were based on criteria suggested by Hu and Bentler (1999). The CFI and TLI were judged as adequate being above .90, whereas the RMSEA and the SRMR were judged as adequate being below .08.

A two-step modeling approach (Kline, 2010) was used to test the hypotheses. In this procedure, latent constructs are first validated by means of confirmatory factor analyses. The latent measurement model of social exclusion at ages 4 (T1) and 6 (T2) consisted of items drawn from the TRF, whereas

Table 1. Means, Standard Deviations, and Zero-Order Correlations Between Study Variables.

| | M | SD | 1 | 2 | 3 | 4 | 5 | 6 |
|-------------------------|------|-----|--------|--------|--------|--------|-------|---|
| 1. Social exclusion, T1 | 1.08 | .24 | I | | | | | |
| 2. Social exclusion, T2 | 1.01 | .23 | .30** | I | | | | |
| 3. Aggression, T1 | 0.33 | .29 | .20** | .16** | I | | | |
| 4. Aggression, T2 | 0.14 | .18 | .24** | .30** | .61** | I | | |
| 5. Cooperation, T1 | 1.12 | .25 | -.12** | -.10* | -.31** | -.17** | I | |
| 6. Cooperation, T2 | 2.57 | .36 | -.17** | -.12** | -.32** | -.36** | .54** | I |

Note. $n = 936$ (T1) and 762 (T2).

*significant at the .05 level. **significant at the .01 level.

the measurements of aggression and cooperation were based on aggregated scores due to their large amount of items. Model fit indices showed that the measurement model had good fit with the data: $\chi^2 = 270.51$, $df = 15$, $p < .001$, CFI = .97, TLI = .96, RMSEA = .027, SRMR = .06 (see Hu & Bentler, 1999).

In a second step, the full structural model was built including all potential causal paths corresponding to when measurements were conducted. We specified auto-regressive paths from social exclusion on T1 toward social exclusion at T2. Auto-regressive paths were also specified for aggression and cooperation measured at T1 toward T2. To test for reciprocal effects over time, cross-lagged paths were drawn between the three measurements.

Means and standard deviations for the study variables are presented in Table 1, together with results from the bivariate correlational analysis. Foremost, social exclusion was positively related to aggression and negatively related to cooperation at both measurement occasions, whereas aggression and cooperation were inversely related. Mean level of aggression decreased from T1 to T2, whereas mean level of cooperation increased. Levels of aggression and cooperation from T1 to T2, respectively, were fairly stable at the level of individual differences, as revealed by their cross-time stability quotients.

Model fit indices for the full model including all potential causal paths from T1 toward T2 revealed an excellent model fit: $\chi^2 = 833.29$, $p < .001$, $df = 44$, CFI = .98, TLI = .97, RMSEA = .023, SRMR = .04. In line with the two-step modeling approach (Kline, 2005), non-significant paths were removed from the model, but model fit was not substantially altered ($\chi^2 = 43.86$, $p < .001$, $df = 23$, CFI = .98, TLI = .97, RMSEA = .023, SRMR = .04).

As illustrated in Figure 1, greater social exclusion at T1 predicted increase (or less decrease) in aggression by T2 ($\beta = .17$, $p = .006$), as well as decreased cooperation (or less increase; $\beta = -.06$, $p = .03$). Also, high levels of aggression predicted less increase in cooperation ($\beta = -.15$, $p < .000$). Neither earlier aggression nor cooperation predicted change over time in social exclusion (both paths, $p > .05$). Aggression at T1 substantially and positively predicted aggression at T2 ($\beta = .56$, $p < .000$), just as cooperation at T1 predicted cooperation at T2 ($\beta = .47$, $p < .000$). Social exclusion was also fairly stable over time ($\beta = .42$, $p < .000$).

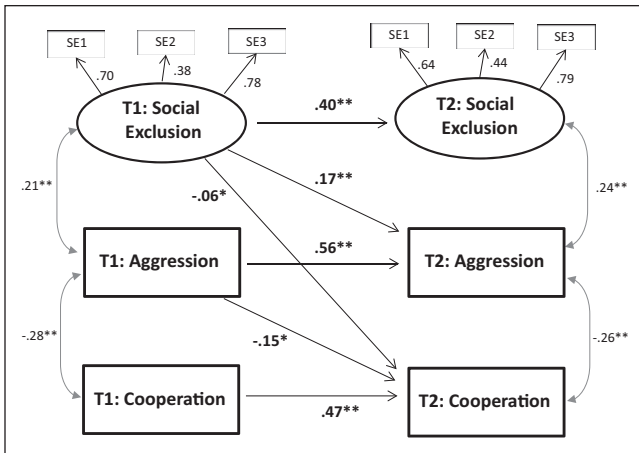


Figure 1. Structural equation model for the longitudinal cross-lagged and direct effects in the total sample ($n = 762$).

Note. Non-significant paths are removed from the figure.

* $p < .05$. ** $p < .01$.

The next analysis addressed gender differences in the model, which was evaluated using the grouping function in Mplus. The gender-divided model showed good model fits: ($\chi^2 = 865.83, p < .001, df = 88$) CFI = .99, TLI = .98, RMSEA = .017, SRMR = .05. There were hints of differences between boys' and girls' regression coefficients, such as a slightly larger coefficient linking T1 exclusion to T2 aggression for boys than for girls ($\beta = .21$ for boys vs. $\beta = .08$ for girls). However, this sex difference was not significant, $\Delta\chi^2(1) = 0.31, p = .63$, and we are thus led to conclude that effects of social exclusion on boys and girls is not quantitatively different. The same applies to the negative effect of T1 social exclusion on T2 cooperation, $\Delta\chi^2(1) = 0.09, p = .76$.

Finally, multi-group analyses were conducted to determine whether children's initial level of aggression and cooperation moderated the effects under consideration (in the total sample). We created "above-mean" and "below-mean" groups on both aggression and cooperation based on T1 mean levels of these constructs. Results showed that aggression at age 6 was predicted by social exclusion at age 4 among those children initially high on aggression at T1 ($n = 335, \beta = .25, p = .015$, see Figure 2), but not among those scoring low at T1 ($n = 427, \beta = .08, p = .18$). Notably, this difference in prediction was significant, $\Delta\chi^2(1) = 4.33, p = .03$, indicating that it is children already high on aggression and not others whose future aggression is further promoted by the experience of social exclusion in preschool.

In addition, since it may be argued that only children with good cooperative skills are able to behave cooperatively in the case of social exclusion, we also tested whether the cross-lagged model differed for children above mean and below mean on cooperation at T1. However, results yielded no such differences (social exclusion, T1 \rightarrow cooperation, T2: "above mean": $\beta = -.04, p = .56$ vs. "below mean" $\beta = -.06, p = .18$), $\Delta\chi^2(1) = 0.05, p = .82$.

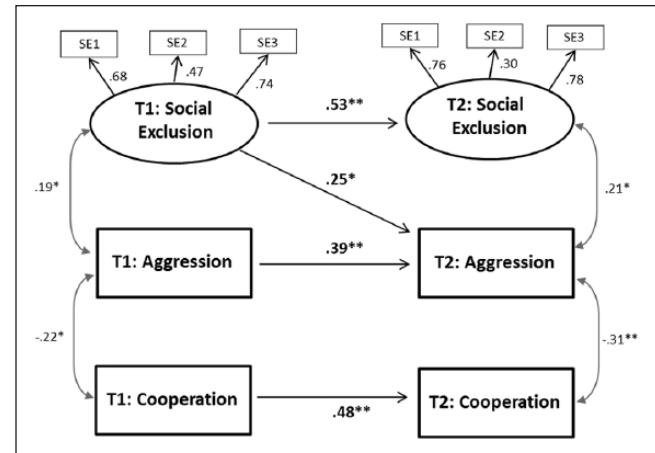


Figure 2. Structural equation model for the longitudinal cross-lagged and direct effects among the group of children above mean on T1 aggression ($n = 335$).

Note. Non-significant paths are removed from the figure.

* $p < .05$. ** $p < .01$.

Discussion

Most research on the effects of social exclusion on social behavior (Baumeister et al., 2005; Baumeister & Leary, 1995)—with some exceptions including research on associated phenomena such as peer rejection (Crick et al., 1997) and victimization (Ostrov, 2010)—has focused on immediate effects. In addition, extant empirical investigations have primarily included adults and adolescents, and not prepubertal children, such as preschool children. Hence, the need-to-belong and the social-reconnection hypotheses had not previously been investigated in the case of young children, and not in a longitudinal perspective regardless of participants' age. Although these hypotheses originally were formulated as *immediate* outcomes after an *incidence* of social exclusion, some have speculated that these effects also may be evident under long-lasting peer rejection (Leary, 2001; Smart Richman & Leary, 2009).

Thus, in the present study, we sought to determine whether social exclusion experienced at age four predicted change over time in aggressive and/or cooperative behavior across a 2-year period involving the transition to school, as well as whether reciprocal effects could be detected. Notably, evaluation of predictive power took into account stability of individual differences in all three constructs under investigation, thereby making the predicted outcomes indices of change. In accord with the need-to-belong theory (Baumeister & Leary, 1995), results indicated that children excluded at age 4 proved more aggressive and less cooperative than would have been predicted by their preschool functioning alone. At the same time, there was no support for the alternative model which led to the prediction that the experience of rejection would promote social cooperation in the service of improving social ties.

Importantly, consideration of child-moderator factors, namely gender and levels of social behavior at preschool age, resulted in better understanding of these whole-sample findings. When separately testing the model on boys and girls, the effect of social exclusion on aggression appeared restricted to boys. The fact, however, that the gender difference did not prove to be statistically reliable implies that boys and girls are similarly affected by social exclusion. When social behavior was treated as a moderator, evidence indicated that the negative effects of social exclusion (i.e., promoting future aggression) was restricted to only those children who scored high on aggression at age 4. Thus, the present findings are not unreservedly in line with the need-to-belong theory (Baumeister & Leary, 1995; Berkowitz, 1989). As stipulated by the theory, social exclusion is detrimental to self-regulation, which again reduces the individual's ability to control aggression in contexts that are interpreted as unfriendly or hostile. When applied to the preschool and school setting, however, this hypothesis only received support in the case of children already aggressive when socially excluded. Nevertheless, overall, the present study concurs with results from experiments among adults (Twenge et al., 2007; Twenge et al., 2001), in the sense that our findings show that exclusion—in addition to provoking short-term aggressive tendencies—also may amplify at least some children's aggressive functioning.

The finding that aggressive children are most prone to become increasingly aggressive when being rejected or excluded seems worth considering in light of DeWall et al.'s (2009) four experiments, which showed that social exclusion made people more likely to interpret neutral information as hostile. DeWall et al. note that such a response may seem paradoxical, as the most adaptive strategy to regain belongingness would be to avoid disputes and to behave prosocially. Apparently, however, social exclusion triggers a strategy of self-protection not only in adults but also in children, or at least aggressive children, whose self-regulatory resources are often poorly developed (Raffaelli, Crockett, & Shen, 2005). With respect to the fight-or-flight response (Cannon, 1932), then, aggressive children seem least likely to “flee” when experiencing social threat—via exclusion—instead choosing to retaliate with aggressive behavior (i.e., a fight rather than flight response). This may be why they become more aggressive over time when exposed to social exclusion at a younger age.

The aggression-promoting effects of social exclusion chronicled here may also be interpreted in light of Anderson and Bushman's (2002) social learning model of aggressive behavior which stipulates that such behavior partly stems from knowledge structures derived from experiences. In the present case, then, the model may help explain why aggressive children, who are prone to be met with aggressive behavior from their social surroundings, more evidently continue to develop aggressive traits in early childhood compared with their less aggressive peers. This perspective has

broader implications given children's exposure to—and execution of—social exclusion and aggression in the modern, hyper-social-connected and digital world (see, for example, Anderson, Gentile, & Buckley, 2007).

In the present study, we did not find support for the social-reconnection hypothesis in a long-term perspective (Maner et al., 2007; Twenge et al., 2007; Williams, 2002). The hypothesis specifies that individuals who are rejected, excluded, or ostracized will act more socially cooperative to form new social bonds, restore old ones, or to maintain existing relations. Previous studies conducted to test this hypothesis have identified increases in prosocial behavior after social rejection among adults in experimental settings (Maner et al., 2007; Williams & Sommer, 1997). For example, Maner et al. (2007) found that social exclusion predicted greater interest in making new friends, to cause an increase in the desire to work with others, and to make individuals express more positivity to future relations with novel persons. Williams and Sommer (1997) also reported social compensation in group task among participants who had been ostracized, but only among girls. So, not only does the social-reconnection hypothesis seem highly plausible theoretically, there certainly is empirical evidence in support of this proposition, too. Recall also that we did not find support for the social-reconnection hypothesis even when we asked, in moderational analysis, whether it might apply to some children, based on their gender and/or social behavior, more than others, as proved to be the case when testing need-to-belong hypotheses.

There may be several reasons why we did not find support for the social-reconnection hypothesis. Foremost, and in contrast to previous investigations, we tested the hypothesis by means of a 2-year longitudinal design with preschool children followed across the transition to school, and not as an immediate response. However, several scholars suggest that *belongingness* is a fundamental psychological need (e.g., Baumeister & Leary, 1995; Deci & Ryan, 2000) and that everyday activities to a large extent may be interpreted in light of need fulfilment. Consequently, it may also be argued that long-term exclusion should lead to more cooperative social skills in order to increase the individual's probability for fulfilment of its' innate need for belongingness. Nevertheless, our findings suggest that such behavior may not be developed under chronic conditions of social exclusion (see also Williams, 2009). Over time, a chronically excluded child's estimation of the probability for inclusion probably wanes, and the fear of repeated rejections might ultimately swamp his or her motivation to act in a cooperative, prosocial, reconnecting manner. As suggested by Smart Richman and Leary (2009), relationship-promoting responses are only likely to occur when the person assumes that the damaged relationship is repairable, or in the case of seeking new friendship, that their social initiative will be met with appreciation. With respect to coping with ostracism, as addressed by Williams (2009) and Wesselmann and Williams

(2013), the children who were socially excluded at age 4 in the present study may have reached the “stage of resignation” at age 6. And therefore, no increase on cooperative behavior from social exclusion became evident.

In considering all the results reported, it should not be forgotten that the present study relied on parental reports on children’s aggressive and cooperative behavior *in general*. Such broad measurements may be too insensitive to capture social initiatives outside the parents’ awareness, perhaps most especially in school. We need to remain alert to the possibility that the null results regarding the social-reconnection hypothesis may be influenced by this fact. After all, parents are unlikely to be aware of all that goes on between peers in this setting.

The present findings have several theoretical, empirical, and practical implications. To our knowledge, the present effort is the first to simultaneously test predictions derived from both need-to-belong theory (Baumeister & Leary, 1995) and the social-reconnection hypothesis (Maner et al., 2007) in a longitudinal design. One strength of this work was its focus on a large, representative sample of children; another was the examination of core constructs over time, along with an empirical model that took into account the stability of individual differences, resulting in a focus on change over time in behavior (and social exclusion when reciprocal effects were tested). Because we focused on children’s social experience and functioning in the real world, based on reports by teachers and parents, this work moves the study of social exclusion out of the laboratory.

As mentioned previously, the terms *victimization* (Arseneault et al., 2010), *peer rejection* (Asher & Coie, 1990), and *ostracism* (Williams, 2002) pertain to partly overlapping constructs related to social exclusion. Therefore, findings from investigations of the need-to-belong theory should be relevant for research founded in these other conceptual and empirical traditions. The works of Baumeister and colleagues (Baumeister et al., 2005; Baumeister et al., 2002; DeWall et al., 2009; Twenge et al., 2001) differs from the abovementioned approaches in the sense that their investigations of *social exclusion* are derived from a comprehensive psychological theory. Although their theory primarily has been tested experimentally, this should not undermine its relevance in more “real world” contexts, as we believe we have shown here. Moreover, studies showing that victimization leads to undercontrolled behavior (Arseneault et al., 2006; Hanish & Guerra, 2002; Ostrov, 2010) could be interpreted alongside the presumptions made in the theory, in the sense that social exclusion is hypothesized to be detrimental to self-regulation. We believe that the present study contributes to the integration of research on social marginalization from different frameworks, by applying the need-to-belong theory in the investigation on social exclusion among children in their everyday context.

Finally, the present findings also have some practical implications. The results illustrate the detrimental impact

social exclusion in the school settings may have on young children’s behavioral development. As shown in the present study, and in several others (Arseneault et al., 2010; Reijntjes et al., 2011), excluded children are likely to develop more internalizing and externalizing problems compared with socially included children. To minimize the amount of children being excluded, several interventions have been developed and tested in schools, with more or less success (Newman-Carlson & Horne, 2004; Olweus, 2006; Pepler, Craig, Ziegler, & Charach, 1994). As reported in reviews and meta-studies on the topic (Smith, Pepler, & Rigby, 2004; Vreeman & Carroll, 2007), interventions tend to change attitudes and self-perceptions in relation to harassment of peers, but they do not necessarily change behavior. In light of the negative consequences of social exclusion detected here and elsewhere, the development of such interventions should continue, expectantly leading to more efficient programs to promote inclusive social environments among preschool and school pupils.

Limitations and Conclusion

The present study has some limitations. First, there are several ways of measuring different sorts of social marginalization among preschool children, either defined as social exclusion, victimization, or peer rejection (Leary, 2001; Smart Richman & Leary, 2009). Some experts argue that the peer nomination method (Crick et al., 1997; Perren & Alsaker, 2006)—which implies that researchers interview children and/or teachers to identify socially excluded children—is the best approach. However, in line with the need-to-belong theory, we doubt that social exclusion is *absolute* in the sense that one *is* or *is not* excluded, but rather, that social exclusion is better understood as a continuum. Multi-assessment studies have also found substantial overlap between peer reported victimization and observational data (Pellegrini & Bartini, 2000), and accordingly, we believe that it would be too hasty to claim that our operationalization of social exclusion is severely limited. After all, it proved effective in not only detecting a general social-exclusion effect on change in aggression over time, but in enabling us to specify exactly which children proved most susceptible to the adverse effect detected (i.e., aggressive children).

Another potential limitation of the current work was that it pertained only to social exclusion of which teachers were aware (i.e., in school). Because social exclusion or inclusion occurs in other settings, we need to be aware that these were not directly measured here. Thus, we cannot know the extent to which the school-based exclusion effects chronicled here reflect only school-based exclusion or whether extra-school exclusion experiences have the same or different effects. These are issues which future research should address.

Finally, the issue of generalizability must be noted. There remains some uncertainty as to whether findings based on Norwegian preschoolers, who tend to experience high-quality

early childcare while growing up in a high-income welfare state, may reflect the social and developmental dynamics of children growing up elsewhere under different conditions.

To sum up, the present study derives from a large community sample of young children, and reveals that social exclusion in preschool predicts increased aggressive tendencies, but not increased cooperation, at least according to parent reports of child behavior. The results accord well with the need-to-belong theory (Baumeister & Leary, 1995), though principally with respect to children already behaving more aggressively than their peers. Although the present findings may not correspond with how the social-reconnection hypothesis was formulated originally (Maner et al., 2007; Williams, 2002), the findings concur with more recent theoretical extensions of the hypothesis (e.g., Williams, 2009), suggesting that chronic social marginalization over time will lead to resignation of social initiatives. With respect to both hypotheses, the present work extends prior research that has focused on short-term effects, often derived from experimentally manipulated experiences of social exclusion and inclusion. We believe that the present findings are relevant to associated approaches to social marginalization, such as victimization, peer rejection, and ostracism, in the sense that they more or less deal with the same psychological condition: the deprivation of belongingness.

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Supplemental Material

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