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ARTICLE



Maternal prenatal conditional regard orientation and postnatal controlling behaviour as predictors of preschoolers' helpless coping with failure: A prospective study

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ABSTRACT

Based on Self-Determination theory, we examined three hypotheses: (1) mothers' achievement-oriented controlling behaviour towards their toddlers predicts children's helpless coping with failure three years later, (2) mothers' prenatal orientation to use conditional regard (CR) to promote children's achievements predicts postnatal controlling behaviour, and (3) the effects of mothers' prenatal CR-orientation and postnatal controlling behaviour emerge also after controlling for the effects of infants' temperament disposition towards frustration-reactivity. A four-wave study assessed expectant mothers' CR-orientation ($n = 290$), their 8-month-old infants' frustration-reactivity ($n = 184$), mothers' controlling behaviour with their 18-month olds ($n = 201$), and children's helpless coping with unsolvable puzzles at 54–60 months ($n = 200$). No systematic attrition effects were detected. Results supported the hypotheses, and, in addition, suggested that prenatal CR-orientation has an indirect effect on preschoolers' helplessness, via mothers' postnatal controlling behaviour. The findings suggest that mothers' achievement-oriented prenatal CR-orientation and postnatal controlling behaviour may be risk factors that can be addressed in early prevention programs.

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Past research suggests that young children differ in the way they cope with difficult tasks or with task failure, ranging from mastery to helpless coping (e.g., Barrett & Morgan, 1995; Cimpian, 2017; Dweck, 1999; Nolen-Hoeksema et al., 1995; Smiley & Dweck, 1994). Mastery coping is characterized by

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persistence in the face of difficulties or initial failures, neutral or positive emotions to challenges, and lack of negative self-evaluations. Helpless coping is characterized by a lack of effort and then giving up when encountering difficulties or initial failures, accompanied by negative emotions and negative self-evaluations.

As helpless coping in preschool children foreshadows poor adjustment (e.g., Ziegert et al., 2001), it is important to try to identify early maternal antecedents of this type of coping. In an attempt to identify such maternal antecedents, the present study focused on two maternal attributes: (1) a relatively proximal antecedent: *postnatal achievement-oriented controlling behaviour (AOC)*, and (2) a more distal and indirect antecedent expected to increase helpless child coping through its effect on the relatively proximal antecedent of controlling maternal behaviour: *prenatal orientation to use conditional regard (CR) to promote child's achievements*. Given that orientations and practices involving control and conditional regard might be affected by frustration-triggered angry and defiant child behaviour (Paulussen-Hoogeboom et al., 2007), the present study also examined the hypothesis that the effects of mothers' prenatal CR-orientation and postnatal controlling behaviour are sufficiently robust to emerge also after controlling for the effects of infants' temperament disposition towards frustration-reactivity. Figure 1 describes the variables and relations examined.

The following sections present the main variables and associations to be examined. We begin with the long-term outcome of helpless coping in preschool children and then focus on the relatively proximal maternal antecedent expected to have a direct effect on helpless child coping: *maternal controlling behaviour when a child is 18 months old*. The third variable presented is the more distal antecedent – prenatal maternal conditional regard orientation – expected to have an *indirect* effect on child helpless coping through its effect on postnatal controlling mother's behaviour. The fourth variable presented is infant frustration-reactivity, which is examined as a possible moderator of the effects of the two maternal attributes, as well as a possible direct predictor of a helpless child coping.

Helpless child coping

Helpless coping is associated with poor concurrent and prospective socio-emotional development and academic functioning (e.g., Berhenke et al.,

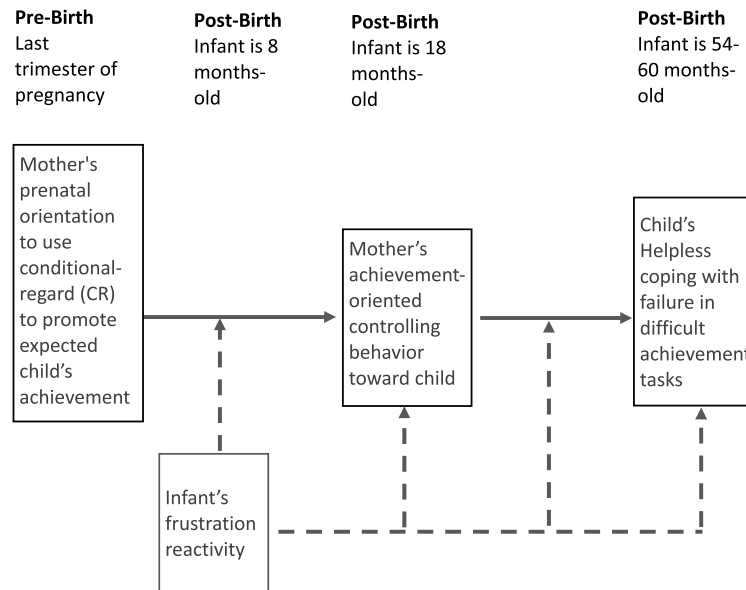


Figure 1. Model depicting the main hypotheses of the study. *Note:* Continuous arrows represent the main hypotheses; segmented arrows represent effects to be controlled for.

2011; Fincham et al., 1989; Kistner et al., 2001; Moorman & Pomerantz, 2008a; Onatsu-Arvilommi & Nurmi, 2000; Ziegert et al., 2001). For example, Ziegert et al. (2001) and Kistner et al. (2001) found that a helpless coping pattern exhibited by kindergarten children predicted a similar pattern, as well as teacher ratings of depression, 5 years later. Similarly, Nolen-Hoeksema et al. (1986) found that among 3rd to 5th grade children, a helplessness pattern detected early in the school year predicted depression and poor achievement later. Fincham et al. (1989) found that in elementary school children, a helpless pattern was associated with test anxiety and poor grades. Additionally, as shown in numerous studies, poor academic performance contributes to social difficulties and lack of acceptance by peers (Hinshaw, 1992; Maughan et al., 1985; McGee et al., 1986; Welsh et al., 2001). Thus, helpless coping is likely to undermine optimal socio-emotional development not only by its direct effects on depressive symptoms and anxiety but also through its negative effects on academic functioning and peer relationships.

Given the negative effects of helpless coping on socio-emotional development, the aim of the present study was to examine early maternal

antecedents of a helpless coping pattern and thereby provide information which may inform future prevention programs.

Studies conducted in the last two decades identified self-regulatory and executive functioning processes that may also affect young children's persistence under difficult conditions, and therefore may underlie helpless coping in response to difficult tasks (Blair, 2016; Blair & Diamond, 2008; Diamond, 2013; Zelazo et al., 2003). However, there is much that is still unknown about these processes, as well as about the origins of poor task persistence (Carlson, 2009), and more generally about helpless coping, in young children. The following sections present three attributes that may affect the development of helpless coping in preschool children.

Achievement-oriented parental control (AOC)

The construct of achievement-oriented parental control (AOC) refers to parents' tendency to promote children's success in achievement tasks via behaviours that pressure the child to behave in specific ways, while ignoring children's perspectives and denying choice (Assor et al., 2014; Soenens, Vansteenkiste, & Luyten, 2010), and is grounded in self-determination theory (SDT; Ryan & Deci, 2017).

The concept of parental control is, of course, not unique to SDT, and figures in many parenting studies based on other perspectives. An in-depth discussion of the relations between parental control as viewed in SDT compared to other conceptualizations is beyond the scope of this paper (but see Assor & Tal, 2012; Grolnick, 2003; Soenens & Vansteenkiste, 2010; Soenens et al., 2019). However, here we only note the difference between our SDT-based notion of AOC and the widely known construct of authoritarian parenting (Baumrind, 1971, 1991; Steinberg et al., 1994). Authoritarian parenting is a practice in which parents insist that their children fully comply with strict standards, do not allow questioning or discussion of parental rules, and are willing to use rather punitive means (threats or harsh punishments) to enforce compliance. In addition, authoritarian parents demonstrate little affection and warmth towards their children. AOC is similar to authoritarian parenting in its emphasis on pressuring children to behave in specific ways while ignoring children's perspectives and denying choice. However, it differs from it in several ways. First, the construct of AOC is rooted in SDT, which conceptualizes parenting practices in terms of their presumed effect on children's basic psychological needs (Soenens et al., 2019). AOC is assumed to be harmful

because it thwarts children's need for autonomy. According to SDT, children feel that their need for autonomy is thwarted when parents pressure them to act in specific ways, ignore their perspective, and provide no room for choosing options that allow children to express or do what they really want (Assor, 2018).

The definition of AOC behaviour in the present study was based on the SDT conception of control as autonomy-suppressing (Assor et al., 2002), and therefore encompasses all kinds of controlling behaviour, and not only the fairly punitive practices of authoritarian parenting. Thus, while AOC includes these punitive practices, it also includes milder forms of control. For example, commands and repeated reminders to behave as expected that are not accompanied by threats, and non-violent physical interventions (e.g., holding and directing the child hand to ensure success in the task), and unsolicited premature help. Previous studies (Grolnick et al., 1984) have shown that in achievement-related tasks for toddlers, controlling parents mostly use the less punitive, yet controlling, behaviours noted above.

Second, as AOC refers only to the need for autonomy, unlike authoritarianism, it does not imply a consistent lack of warmth, which involves the thwarting of the need for relatedness. Finally, AOC is domain-specific, as it concerns only the achievement domain. Thus, a parent may be inclined to use AOC when issues of achievement arise, but may not be so controlling when other issues that are less important to them are involved (e.g., Assor et al., 2014).

Controlling parental behaviour was found to have negative effects on major markers of poor socio-emotional development such as depressive feelings, behaviour problems, poor conscience development, and non-compliance with parents (e.g., Assor et al., 2014; Barber et al., 2005; Kim et al., 2014; Kochanska et al., 2019; Olson et al., 2002; Soenens & Vansteenkiste, 2010; Soenens et al., 2005). However, its long-term effects on helpless coping have rarely been investigated.

Parents' AOC is posited to undermine mastery-oriented coping as early as the second year of life by reducing the pleasure of engaging in mastery challenges and creating negative emotions (Grolnick et al., 1984). The negative effects of AOC on children's mastery-oriented coping are likely to further increase as children enter their fourth year of life. By that time, most children interpret success and failure as indicators of their chances of success on future tasks and are able to anticipate others' reactions to their success and failure (e.g., Barrett & Morgan, 1995). Many start to

experience embarrassment or shame when failing (Barrett, 2005; Burhans & Dweck, 1995). As a result of these cognitive-emotional developments, controlling parental interference when children deal with mastery challenges is likely to be interpreted as a sign that they will not succeed. And, as noted by Moorman and Pomerantz (2008b), when children feel that they cannot affect their surroundings, they tend to give in and respond with helplessness rather than mastery.

Consistent with this reasoning, research focusing on toddlers and young children has indicated that controlling parenting is associated with low levels of mastery, and poor or helpless child coping with difficult cognitive tasks (Frodi et al., 1985; Gilmore et al., 2009; Grolnick et al., 1984; Moorman & Pomerantz, 2008b). Yet, there is a dearth of studies showing that parental achievement-oriented control in the first years of life predicts helpless or low mastery coping years later. One seminal study that provided such evidence was conducted by Moorman and Pomerantz (2008b). Results showed that maternal control when children were 4-year old predicted decreased mastery and increased helpless coping 6 months later. While these results suggest that parents' early AOC may indeed foreshadow helpless coping in preschool children, no study to date has examined whether maternal AOC of toddlers predicts preschoolers' coping years later, and may thus be considered *a potential early risk factor*. The present study addressed this issue by assessing maternal AOC when children were 18 months old, and children's coping with difficult tasks in preschool (54 to 60 months).

While AOC was expected to have a direct effect on helpless child coping, the present study also examined two more distal attributes that may affect the development of helpless child coping in a less direct way. The next two sections focus on these attributes.

Prenatal maternal orientation to use achievement-oriented conditional regard

One maternal attribute that is associated with poor and/or stressful coping of youth with achievement challenges is parents' use of conditional regard (CR) to promote children's motivation to work hard and achieve (Assor et al., 2004; Assor & Tal, 2012; Curran et al., 2017; Roth et al., 2009; Soenens et al., 2010; Wouters et al., 2018). The practice of CR involves the provision of more affection and esteem when the child complies with parental expectations, and less affection and esteem when the child does not comply. From an SDT perspective, CR is only one kind of controlling

practice (see Assor et al., 2014, 2004 for a more extensive discussion of this issue). Thus, as already noted, parents can try to shape their children's behaviour using different types of controlling practices (for example, by direct commands or physical intervention).

Following the logic and findings of Assor and his colleagues (e.g., Assor et al., 2014), we hypothesized that mothers who prenatally endorse CR as an achievement-promoting practice will be concerned with their toddlers' performance in achievement-type tasks early on. Therefore, when young children cope with challenging tasks that are viewed by their mothers as indicating ability to achieve, mothers will experience achievement pressure that will motivate them to use various achievement-oriented controlling (AOC) behaviours, in an attempt to ensure that their children do their best. Furthermore, we also hypothesized that mothers' prenatal orientation to use CR will enhance helpless coping in the preschool child, by promoting mothers' postnatal AOC towards their toddlers.

Extant research on CR has used only concurrent designs during childhood and adolescence, and therefore associations between CR and poor coping can be attributed to the effects of poor child coping on parents' inclination to use CR. Further, examination of the effects of prenatal CR-orientation on postnatal controlling behaviour will allow, for the first time, a more rigorous test of the potential causal role of CR-orientation on mother behaviour and on children's coping with challenges.

Controlling for the effects of infant frustration-reactivity

Another issue not previously examined is the possibility that the effects of achievement-oriented parental control in early childhood are enhanced, weakened, or even cancelled by high versus low levels of infants' temperament disposition towards frustration-reactivity. Children showing high levels of frustration-reactivity respond with considerable distress, anger, and protest when others do not allow them to pursue their goals, or when they do not attain their goals (e.g., Braungart-Rieker et al., 2010; Braungart-Rieker & Stifter, 1996; Rothbart & Bates, 2007).

Past work indicates that frustration-reactivity and the related attribute of anger-proneness predict increased controlling parenting (Calkins et al., 2004; Paulussen-Hoogeboom et al., 2007). Therefore, it is possible that infants' tendency to show disengagement and anger when frustrated may further increase the tendency of parents with high prenatal CR-orientation to rely on controlling practices in an attempt to demonstrate

their authority or pressure the child to do what is expected. Another possibility is that low levels of infant frustration-reactivity may strongly reduce or even cancel the inclination of parents with a CR-orientation to use controlling behaviour, because infants usually do not defy parents' demands. Frustration reactivity may also have a direct effect on helpless coping. Thus, when children characterized by high frustration-reactivity expect or experience failure, they may feel strong negative emotions which may lead to disengagement from the task.

However, given past work on the widespread negative correlates of controlling parenting, we hypothesized that CR-orientation will predict postnatal achievement-orienting controlling behaviour, and controlling behaviour will predict helplessness, also after controlling for the effect of frustration reactivity (as a main effect and as a moderator).

The current study

Our prospective study examined mothers' prenatal achievement-oriented CR-orientation, postnatal achievement-oriented controlling behaviour, and infant frustration reactivity as predictors of helpless coping in pre-school children. The study focused only on mothers because it was very difficult to bring fathers to the lab, where waves 2 and 3 procedures were administered. Thus, most participating couples indicated that they cannot both come to the lab, and as mothers were more willing or able to participate, we focused only on mothers. As shown in [Figure 1](#), we hypothesized that mothers' prenatal achievement-oriented CR-orientation will predict their achievement-oriented controlling behaviour when their child is 18 months old, which in turn will predict their child's helpless response to achievement challenges at 54 to 60 months of age. We hypothesized that these relations will emerge also when controlling for the effects of the child's frustration-reactivity at 8 months. In addition, we examined the possibility that prenatal CR-orientation would predict child helpless behaviour 3 years later, with this effect mediated by mothers' post-natal controlling behaviour.

Method

Participants and design

The study included four waves: Wave 1 included 290 Israeli mothers in the last trimester of their first pregnancy ($M_{age} = 27.2$ years, $SD = 3.2$), who

completed a scale assessing achievement-oriented CR-orientation. Wave 2 included 201 8-month-old infants ($M_{age} = 8.3$ months, $SD = 0.74$) and mothers, who participated in a lab procedure assessing infant frustration-reactivity. Wave 3 included 184 mothers and their 18-month-old toddlers ($M_{age} = 18.3$ months, $SD = 2.0$), who participated in a lab task assessing mothers' achievement-oriented controlling behaviour. Wave 4 included 200 children ($M_{age} = 57$ months, $SD = 3.4$) who participated in a task assessing helpless coping with unsolvable puzzles in their preschool. Attrition rates were: 32.7% from wave 1 to 2; 8.5% from wave 2 to 3; and in wave 4 almost all wave 2 participants participated because mothers did not have to commute. Attrition occurred mainly because it was difficult for mothers to get their child to the lab because of a busy schedule or family relocation. The number of participants in wave 4 did not decrease because mothers did not have to participate, and we administered the helplessness task in the child's preschool. Results of attrition analysis are presented in the preliminary results section.

Participants were recruited through brochures distributed in prenatal health-care clinics. Mothers who indicated their interest and left their phone numbers were informed about the study in a telephone conversation and then signed an informed consent form; 98% of those mothers agreed to participate following the phone conversation; 68% of the mothers had completed college; 88% worked in a paid job; and 34% worked in professions related to education, therapy, or human relations.

Procedure and measures

Expectant mothers' achievement-oriented conditional regard at time 1

Assessed by a 9-item self-report scale based on Assor et al. (2004) and Assor and Tal (2012) scales (e.g., 'I will encourage my child to invest in his studies by telling him that this is something that makes me proud of him/her.'). For each item, participants responded to the question: 'how true is this statement for you?' using a 7-point scale ranging from 1 (not true at all) to 7 (very true). Cronbach's alpha was .87

Infants' frustration-reactivity at time 2

This disposition was assessed by the arm-restraint procedure of the LabTAB battery (Version 3; Goldsmith & Rothbart, 1996). The procedure starts with a 10-second baseline in which the child is given an attractive

toy, and then the mother restrains her/his arms for 30 seconds, thus preventing the child from touching the toy. The arm-restraint procedure is a widely used method to assess frustration reactivity in infants (e.g., Auerbach et al., 2004; Planalp et al., 2017). Evidence that the arm-restraint procedure indeed frustrates infants comes also from research using experimental paradigms not anchored in temperament research (e.g., Diamond, 1985).

Following Braungart-Rieker and Stifter (1996) and Bandon et al. (2010), frustration-reactivity was indicated by distress vocalizations, which were rated every 5 seconds on a scale ranging from 1 (no distress) to 4 (intense vocalization accompanied by face getting red, narrowed eyes, and open mouth). The overall vocalization distress score was computed by averaging the vocalization scores across all segments, and then partialing out the effect of baseline distress scores. Intraclass coefficient of agreement among judges who scored 20 tapes was .81. In a sub-sample of 98 mothers, the frustration-reactivity scale had a significant positive correlation with mothers' reports on their infants' distress to limitations (assessed by the revised infant behaviour questionnaire; Gartstein & Rothbart, 2003), which were completed at home. This finding supports the validity of the lab-based frustration-reactivity score.

Achievement-oriented controlling (AOC) behaviour at time 3

Mothers and their 18-month-old children participated in a task administered in a university lab aimed at assessing AOC maternal behaviour. The task was administered by a trained research assistant and was similar to those used by Moorman and Pomerantz (2008b) and Whipple et al. (2011). After a 5-minute warm-up free play, the mother was asked to bring the child to play with a challenging puzzle. The task duration was 2 minutes, and mothers were informed that they could help children as much or as little as they liked. As in Moorman and Pomerantz (2008b), in order to ensure that mothers saw the task as important, they were told that the task assessed children's cognitive abilities. The interaction between mother and child was videotaped by three cameras and then coded for controlling behaviour by means of a scoring system adapted from Grolnick et al. (1984), following consultations with Wendy Grolnick and from Moorman and Pomerantz (2008b). As in Grolnick et al. (1984), and in line with our theoretical definition, mothers' behaviour was coded every 15 seconds on six variables reflecting control versus autonomy

support, using a 4-point scale ranging from high autonomy support (1) to high control (4). The six categories were: (1) physical interventions: pushing the child's hand, moving child forcefully versus gently, moving a piece to a more convenient place; (2) verbal or affective interventions: commands, threats, prohibitions, stern disapproving affect versus gentle suggestions expressed in a pleasant tone; (3) timing of intervention: too early versus when clearly needed; (4) perspective-taking and empathy in response to child difficulties: criticism or impatience versus verbal or nonverbal acknowledgement of difficulty; (5) type of feedback following success: sarcastic feedback or no feedback versus positive feedback; and (6) provision of choice (among pieces or action alternatives) versus taking over. As the categories were highly correlated (as in other systems), mothers' controlling behaviour scores were computed by summing her scores across the six categories. Intraclass coefficient of agreement among judges who scored 26 tapes was .83. Mothers were informed after the task that the task was actually very difficult for children at this age and that their child did well on this task.

Helpless coping with failure in a difficult cognitive task at time 4

The task assessing this variable was similar to that used by Smiley and Dweck (1994) and was administered in the preschool by trained research assistants. The task starts with one solvable puzzle, then three unsolvable puzzles, then a solvable puzzle. All children solved the first puzzle within 5 minutes and were given 3 minutes for each of the unsolvable puzzles. If children asked for help, the experimenter did not help but pleasantly suggested they keep trying. An important methodological feature unique to the present study is rigorous control of the effect of the child's actual success in the difficult task. Thus, we constructed the unsolvable puzzles so that all children completed three pieces; after that, it was impossible to successfully place the other nine pieces.

After children worked on the three unsolvable puzzles, they were presented with a solvable puzzle, which was relatively easy. If children did not solve the puzzle by themselves in 2 minutes, they were gently given non-verbal hints (e.g., touching the relevant piece) so that after 4 minutes all children solved the puzzle. Following the corrective experience, the experimenter put on the desk for the first incomplete puzzle (only 3 out of 12 pieces completed) and asked the child to indicate how he/she felt when working on this puzzle. The same procedure was

repeated with the two other failed puzzles. Based on this procedure, we constructed two types of measures:

Observed helpless behaviours during the task. Children's behaviour as they worked on the puzzles was videotaped and then coded by three trained coders, using seven categories of helpless behaviour, based mostly on Smiley and Dweck (1994) system (the categories are presented in Table 1). Intraclass correlations between the three coders on 20 tapes ranged between .81 and .98 ($M = .92$) with only 1 out of 21 correlations below .80 ($ICC = .77$). Although we used a well-known procedure (Smiley & Dweck's, 1994) to assess helplessness, we conducted two analyses aimed at checking that the categories of task behaviour are valid also in the Israeli culture. First, we compared the scores obtained on the seven categories during the baseline solvable puzzle, the three unsolvable puzzles, and the solvable puzzle at the end of the task. Table 1 presents the results of these comparisons. During the baseline period, only the two categories of sad and distressed facial expressions, and behaviours expressing sadness, shame, and distress were scored. The other five categories were not scored because they were almost always absent. As expected, scores on the categories of negative facial and behavioural emotion-expressions were significantly higher ($p's < .001$) during the

Table 1. Frequencies of helpless behaviours during different parts of the task.

	Puzzle 1 (solvable)	Puzzles 2–4 (unsolvable)	Puzzle 5 (solvable)	Comparison F values
1. Sad and distressed facial expressions	.05 (.27)	.24 (.38)	.13 (.57)	11.35*** ^{ab}
2. Behaviours expressing sadness, shame & distress	.43 (.73)	1.40 (1.18)	1.06 (1.78)	39.67*** ^{ab}
3. Unwillingness to continue the task (active break, requests to stop)	–*	.10 (.19)	.07 (.38)	1.23
4. Negative self-evaluations	–	.42 (.66)	.12 (.61)	34.20*** ^b
5. Devaluing the task	–	.19 (.33)	.03 (.21)	34.57*** ^b
6. Repeated pleas for help	–	1.38 (1.61)	.82 (1.85)	17.96*** ^b
7. Aimless behaviour (unrelated speech, aimless moving of parts)	–	.21 (.37)	.33 (.79)	6.18*** ^b

* Behaviour categories 3–7 were not scored during the first puzzle because they were hardly present.

^a This superscript represents a significant difference between puzzle 1 and the unsolvable puzzles

^b This superscript represents a significant difference between the unsolvable puzzles and puzzle 5.

* $p < .05$. ** $p < .01$. *** $p < .001$.

unsolvable puzzles than during the first solvable puzzle. In addition, six out of seven categories were lower during the final solvable puzzle compared to the unsolvable puzzles, and five of these changes were significant. Thus, as expected, exposure to repeated failure after the initial success elevated helplessness scores, and exposure to the final success experience, reduced all but one of the helplessness scores. Second, comparisons of the seven category scores on the three unsolvable tasks showed increases in helplessness from the first puzzle to the next two puzzles, for six out of the seven categories.

Post-task self-reported negative feelings. This measure assessed children's post-task report on their feelings as they worked on the unsolvable puzzles. The measure consists of three scales, one for each unsolvable puzzle. In each scale, the child is presented with five faces representing five feelings, from very happy (1) to very sad (5). For each scale, he/she is asked to indicate how he/she felt when working on the relevant puzzle.

As shown in Table 2, exploratory factor analysis with varimax rotation indicated that the seven helpless behaviours exhibited by children as they worked on the puzzles loaded on one factor, whereas the three feeling reports loaded on another factor. Therefore, we averaged the items loading on each factor to produce two helplessness composite scores: Observed helplessness during the task, and post-task self-reported negative feelings. As would be expected, these factors were positively and significantly correlated, $r = .34$, $p < .01$.

Table 2. Factor analysis of helpless behaviours during the task and post-task self-reported negative feelings.

	Child's observed helpless behaviours during the task	Child's post-task self-reported negative feelings
Sad and distressed facial expressions	.596	
Behaviours expressing sadness, shame & distress	.818	
Unwillingness to continue the task (active break, requests to stop)	.547	
Negative self-evaluations	.541	
Devaluing the task	.615	
Repeated pleas for help	.665	
Aimless behaviour (unrelated speech, aimless moving of parts)	.741	
Child's post-task report of negative feelings during unsolvable puzzle 1		.776
Child's post-task report of negative feelings during unsolvable puzzle 2		.732
Child's post-task report of negative feelings during unsolvable puzzle 3		.711
% of variance	35.6%	15.8%

Results

Analytic plan

First, we present the correlations among the study variables. Then, we report the findings of three multiple regression analyses that allow us to test the hypothesized effects, while controlling for possible direct and moderating (interactive) effects of frustration-reactivity and gender. The first regression analysis examined the effects of prenatal CR-orientation on controlling mother behaviour at age 18 months, and the second and third regression analyses examined the effects of prenatal CR-orientation on the two helpless coping indicators. These regression analyses allowed us to include a relatively large number of direct and interactive effects which a structural equation modelling (SEM) analysis cannot reliably accommodate because the sample size was not large enough. Following the regression analyses, we conducted an SEM analysis examining the hypothesized effects. Last, we conducted mediation analyses testing the possibility of indirect links between prenatal maternal CR-orientation and the two child helpless coping indicators at age 5 years, through controlling maternal behaviour when the child was 18 months.

Preliminary analyses

Little's MCAR test (Little, 1988) revealed that data missing due to attrition of participants were missing completely at random ($\chi^2 = 28.1$, $df = 23$, $p = .211$). As recommended, missing data were completed using the EM algorithm (Schafer & Graham, 2002). Importantly, results obtained before and after data completion were very similar, with all significant effects appearing in both analyses. To ascertain that participants missing in some of the waves did not differ from participants who participated in all four waves, we conducted ANOVAs comparing participants in terms of mothers' age and prenatal conditional regard orientation. Thus, we classified mothers and children into three groups: (1) participants attending all the waves, (2) participants who dropped out after the first wave, and (3) participants who attended only one more wave following the first one. Results indicated that there was no significant difference between participants in the three groups on any of the variables examined.

The hypotheses were first examined via zero-order correlations. As expected, and shown in Table 3, mothers' achievement-oriented controlling behaviour towards their 18 month-olds was a positive and significant

Table 3. Correlations among the study variables.

	M	SD	1	2	3	4	5
1. Mother's prenatal achievement-oriented conditional regard (CR)	2.9	1.1					
2. Infant's frustration-reactivity (8 months)	2.5	0.76	.08				
3. Mother's achievement – oriented controlling behaviour towards the child (18 months)	17.5	15	.30**	.04			
4. Child's helpless coping with failure in the unsolvable puzzles task (54–60 months)	35.6	25.6	.06	–.04	.24**		
5. Child's negative emotions following the task (54–60 months)	3.4	1.1	.08	–.00	.25**	.34**	
6. Child's gender			.05	–.03	.00	.03	.05

** $p < .01$. *** $p < .001$.

predictor of the 54- to 60-month-old child's helplessness, as indicated by both coping with failure in the unsolvable puzzles, and negative emotions when later presented with the unsolved puzzles. Also as expected, mothers' prenatal achievement-oriented CR-orientation significantly predicted their postnatal achievement-oriented controlling behaviour towards their 18-month-old child. Prenatal achievement-oriented CR-orientation did not predict children's helplessness at 54 to 60 months, although, as shown later, further analysis indicated an indirect link. Frustration-reactivity did not correlate with any of the other measures.

Main analyses

To test the hypotheses that the effects of CR-orientation and controlling behaviour would emerge also when controlling for the direct and interactive effects of infant frustration-reactivity, as well as possible direct and interactive effects of child gender, we conducted three regression analyses. The first regression examined the effects of prenatal CR-orientation, frustration-reactivity, gender, and their interactions on postnatal controlling behaviour. Results showed no significant direct or interactive effects of frustration-reactivity or gender; only prenatal CR-orientation had a significant effect on maternal controlling behaviour at 18 months, $\beta = .27$, $p < .001$. The second and third regression analyses examined the effects of postnatal controlling mother behaviour, frustration-reactivity, gender, and their interactions, on helpless task behaviour and on post-task feelings. Again, there were no significant effects of frustration-reactivity and gender or their interactions with mothers' controlling behaviour at 18 months; controlling behaviour had positive effects on both helpless task behaviour and on post-task feelings, $\beta = .20$, $p < .05$, $\beta = .22$, $p < .01$,

respectively. Thus, as expected, the effects of CR-orientation and controlling behaviour emerged also when the effects of children's frustration reactivity and gender were held constant.

To allow parsimonious testing of our predictions, we conducted a structural equation modelling (SEM) analysis with observed variables (Stage et al., 2004).

Given the large number of possible interaction effects involving frustration-reactivity and gender, we did not include these effects in a reliable SEM analysis. Moreover, as the regression analyses showed, all of these interaction effects were very small and non-significant, so there appears to be little justification for their inclusion in the SEM analysis. Yet, to allow some representation of the variables of frustration-reactivity and child gender in the major test of the model examined in our study, we did include the main effects of frustration-reactivity and gender in the SEM analysis (but not the interactions involving these variables).

The SEM model is presented in Figure 2. As frustration-reactivity and gender had very small and non-significant effects, they are not included in Figure 2. The fit indices of the model were very good, $\chi^2(6) = 3.18$, *ns*, NFI = .96, CFI = 1, TLI = 1.08, RMSEA = .01. As expected, prenatal CR-orientation predicted postnatal controlling behaviour, $\beta = .30$, $p < .01$, which in turn, predicted the two helplessness indicators of helpless coping during the task, $\beta = .24$, $p < .05$, and post-task negative emotions,

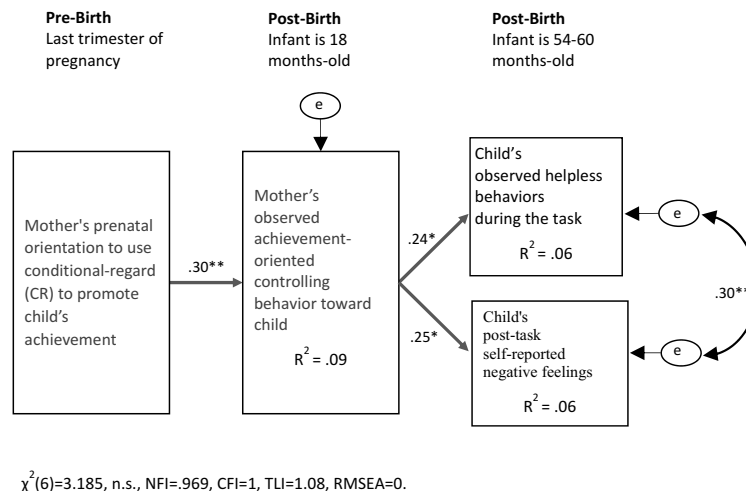


Figure 2. Structural equation model testing the main hypotheses.

$\beta = .25, p < .05$. Importantly, the SEM model also indicates that postnatal maternal control predicted each helpless coping indicator, after controlling for the relations among the indicators. Thus, the effect of controlling maternal behaviour on post-task negative emotions could not be ascribed to its effect on helpless coping during the task.

The SEM model presented in [Figure 2](#) clearly suggests that controlling maternal behaviour towards her 18-month-old child also mediates the relation between prenatal maternal CR-orientation and indicators of the child's helpless coping at the age of 5 years. However, to allow more rigorous testing of these indirect links we conducted bootstrapping tests (using the PROCESS utility; Hayes, 2012), and controlling for the effects of frustration-reactivity and gender. Results indicated mediation effects on both helpless task-behaviour (95% confidence interval of .68 to .94), and post-task sadness (95% confidence interval of $-.145$ to $-.045$). Yet, it is important to note that the findings suggesting mediation should be interpreted with caution, since there are no significant direct associations between prenatal CR-orientation and the two helpless coping indicators. While the widely accepted approach of Hayes et al. (2011) suggests that direct effects are not a necessary condition for showing mediation, especially when the variables examined are assessed over a long time period, the evidence for mediation is stronger when direct effects are also present.

Discussion

The results of the present study suggest that mothers' achievement-oriented controlling behaviour in toddlerhood may be a precursor of children's helpless coping with failure more than 3 years later. The findings also suggest that mothers' prenatal achievement-oriented CR-orientation may contribute to the development of postnatal achievement-oriented controlling behaviour, a practice associated with maladaptive child-functioning in early childhood (e.g., Grolnick et al., 1984; Moorman & Pomerantz, 2008b; Smith et al., 2004). Importantly, the effects of prenatal CR-orientation and postnatal controlling behaviour emerged as predictors even after controlling for the effects of infants' frustration-reactivity and gender. The findings also indicate that, although prenatal CR-orientation did not have a direct effect on preschoolers' helplessness, prenatal CR-orientation had an indirect effect on preschoolers' helplessness, via mothers' postnatal controlling behaviour.

One finding that is particularly noteworthy is the fact that postnatal maternal control predicted negative child emotion even after an extended corrective experience (success on the fifth puzzle, followed by a demonstration of the unsolvable nature of the failure puzzles, and feedback indicating that the child did as well as possible with the flawed puzzles). Thus, 5-year olds whose mothers were more controlling 3 years earlier (on a similar puzzle task) seemed less able to use the corrective experiences to reduce failure-related feelings.

Together with other findings pointing to the potential harm of conditional regard and other controlling practices (e.g., Assor et al., 2014; Assor & Tal, 2012; Soenens et al., 2010), these results suggest that it could be important for early prevention programs to include the practice of CR as one of the topics they address. Given findings suggesting that mothers' use of CR may be motivated by their own self-worth difficulties (e.g., Israeli-Halevi et al., 2015), it appears that in addressing these issues, programs would do well to focus also on the self-experiences and perceptions that drive mothers to use the practices of CR and achievement-oriented controlling behaviour (e.g., Grolnick & Seal, 2008), and perhaps also on enhancing mothers' capacity to provide unconditional regard (Brummelman et al., 2014).

In terms of wider theoretical and practical implications, it appears important to consider the findings suggesting possible harmful effects of early maternal CR-orientation and controlling behaviour in the context of another line of early childhood research that is also based on SDT; namely, research demonstrating the positive effects of mothers' early autonomy support on toddlers' and young children's executive functioning (Bernier et al., 2010; Bindman et al., 2015; Distefano et al., 2018; Matte-Gagné & Bernier, 2011). Thus, while the present research suggests that thwarting toddlers' need for autonomy may have negative effects, the studies on autonomy support document the positive effects of supporting this need, and suggest non-controlling ways to motivate young children.

While our findings have interesting implications, it is important to note that the effects of the maternal attributes detected in the present study are fairly small. These effects are also likely to capture only a rather small part of a complex, dynamic, bi-directional, and context-dependent picture. For example, social contexts that are supportive and non-pressuring are likely to cause mothers to become less controlling

(e.g., Grolnick, 2003), which in turn, may lead to improved coping in children.

The present study has three additional features that expand the current knowledge regarding the effects of achievement-oriented controlling parenting on preschoolers' coping. First, we assessed two helplessness components not examined until now as part of the helpless pattern associated with controlling parenting: (a) negative self-evaluative statements (e.g., 'I am not good at puzzles'), and (b) negative emotions evoked by the recollection of the failure experience. The features of self-evaluative statements and negative emotion associated with recollection of the failure are important because they may indicate that failure experiences create lasting cognitive-emotional representations that might emerge each time a challenge is encountered. That is, each time a difficult cognitive challenge is encountered, it might evoke negative self-evaluations and feelings that could undermine the motivation to take the challenge or persist in coping with it.

Second, to expand the type of challenges examined in studies linking early maternal control with later child helplessness, we focused on children's coping with clear failure to meet an obvious achievement standard, namely, a finished puzzle. Examining children's reactions to clear failures is important because as children join formal education systems, in many of these systems they get clear feedback indicating that they did not meet a standard; it is important to identify early precursors of their likely response to such failure feedback.

Third, unlike many past studies, the present study controlled for children's actual success on the task in assessing helpless coping. Therefore, children's helplessness cannot be attributed to lower success levels on the task. In most previous studies, the unsolvable puzzles were constructed in ways that did not control the number of pieces completed. Without this control, it is possible that children who completed more pieces might have shown less helplessness than others, not because they were less inclined to show a helpless coping pattern, but because their relative success made them more hopeful and less helpless. Yet, it should be noted that in Smiley and Dweck (1994) study, mastery- and performance-oriented children showed no difference in a number of pieces placed correctly across the three unsolvable puzzles.

The fact that mothers' CR-orientation and controlling behaviour were found to have maladaptive effects even when controlling for a possible moderating effect of infants' frustration-reactivity suggests that these

maternal attributes have relatively robust effects, and their harmful influence does not decrease when children have temperaments that are less 'difficult.' Practically, this may imply that the fact that a child does not have a 'difficult' temperament does not protect her/him against possible detrimental effects of conditionally regarding or controlling, achievement-oriented parenting.

An intriguing finding of the present study is the indirect link between prenatal CR-orientation and preschoolers' helpless coping. As this link was not accompanied by a direct effect of CR-orientation on helpless coping, the results should be interpreted with caution until there is evidence for a suppressor mediating variable that may account for an indirect effect in the absence of a direct effect. One possible suppressor-based explanation for the lack of direct link between CR-orientation and helpless coping is the following: for some mothers, prenatal CR-orientation may promote a more benign postnatal controlling behaviour that involves the use of positive CR (Assor & Tal, 2012). This more benign controlling behaviour, which was not assessed in the present study, actually reduces helpless coping because it promotes relentless, rigid, internally controlled, persistence (e.g., Assor & Tal, 2012; Ryan et al., 1991). Thus, while the less benign controlling behaviours assessed in this study increase helpless coping, the more benign controlling behaviour, not assessed in this study, could act as a suppressor variable that decreases helpless coping and therefore cancels the direct effect of prenatal CR-orientation on helpless coping. To examine this interpretation, future research will need to distinguish between different types of controlling behaviours and examine their role as mediators of the effects of prenatal CR-orientation on helpless coping.

Limitations and future directions

The current research clearly has some limitations. First, we did not assess children's coping with failure prior to Time 4, precluding our ability to examine the effects of mothers' controlling behaviour on changes in children's helpless coping, and therefore not allowing us to draw rigorous causal interpretations. Second, it is important to assess the variables examined using multiple indicators, for example, using both the lab procedure and parents' reports. Third, it is important to assess children's frustration-reactivity at older ages as well, given that temperamental dispositions may change, or have stronger effects as children grow

older. It is also of interest to examine other child temperamental dispositions that may modify the effects of CR-orientation or controlling behaviour. Fourth, the issues examined in this study should also be studied with fathers who may have a unique influence on children's achievement behaviour. Fifth, it is important to examine the interplay between the parenting attributes assessed in this study and parent attributes already found to affect children's helplessness (e.g., Hokoda & Fincham, 1995; Kelley et al., 2000; Pomerantz et al., 2005). Finally, it is important to examine whether the findings hold across different levels of SES, and across different cultures. Of special interest are cultures with hierarchical-collectivist orientations, where controlling parental practices are common (Assor et al., 2020; Soenens et al., 2015).

In summary, our findings suggest that mothers' prenatal conditional regard orientation in the achievement domain and achievement-oriented controlling behaviour in the first years of life may constitute early risk factors for children's helpless coping with failure at 5 years of age. Early prevention programs may address mothers' inclination to use the practice of conditional regard to promote their young children's achievements.

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