

Contributions of Family Processes to the Development of Delay of Gratification in Preschool-aged Children

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Background

- **Delay of Gratification (DoG)** refers to the ability to inhibit immediate gratification in order to attain greater future rewards (Mischel, 1974; Mischel, Shoda, & Rodriguez, 1989). It is an important aspect of self-regulation.
- Given the essential role of DoG in a wide range of positive outcomes later in life, it is critical to understand how to foster young children's DoG.
- The development of self-regulation is part of **socialization** moving from externally to internally regulated behaviors, supplemented by the maturation of attention and parental socialization (Kopp, 1982).
- Temperament, especially **effortful control** (the ability to efficiently shift and focus attention, inhibit dominant responses and perform subdominant responses), serves as a basis of the development of DoG.
- **Parents and caregivers** play an essential role in nurturing young children's self-regulation skills by modeling, guiding, and enforcing rules, to help preschoolers learn how to control their impulses and show more socially acceptable behaviors, and finally internally regulate their behaviors (Eisenberg et al., 2005; Kochanska, Murray, & Harlan, 2000).
- **Contextual risk factors** (e.g., low parental education and poverty) negatively impact young children's self-regulation (Lengua, Honorado, & Bush, 2007).

Background

➤ Parenting behaviors shape children's DoG.

- **Positive parental control:** Self-regulation is positively associated with positive parental control such as limit-setting, guidance and instructional behavior, directiveness with low to moderate power assertion (Crockenberg & Litman, 1990; Kochanska & Aksan, 1995; Parpal & Maccoby, 1985; Putnam et al., 2002).
 - **Negative parental control:** The use of more power-assertive controlling strategies undermined children's self-regulation (Kochanska & Aksan, 1995; Kochanska & Knaack, 2003; Silverman & Ragusa, 1990).
 - **Responsiveness/warmth:** less significantly related to self-regulation in children, although it may be an important facilitator for the development of self-concept or well-being (Amato & Fowler, 2002; Brophy & Dunn, 2002).
- It is reasonable to expect that parental cognitive verbal ability and self-control may also act as important factors to promote children's DoG, by facilitating parental appropriate instruction, guidance, and modeling during children's socialization process. **However, direct evidence is still lacking.**

Background

- Few studies have included temperament, contextual risk factors, parental attributes and different family processes in the same model, to investigate how they influence young children's DoG.
- The current research aims to investigate how socioeconomic status (SES), parental verbal cognitive and self-regulatory abilities, three broad types of parenting behaviors, family relationships, and physical home environment work together to influence DoG, when the child's temperament is accounted for.
- This investigation will help illustrate the complex dynamics underlying the development of DoG.

Method

➤ Participants

- Our participants were a subset of the nationally-representative sample from the Singapore Longitudinal EARly Development Study (SG LEADS) conducted in 2018-19.
- A total of 2,206 children (47% girls) aged 4-6 ($M_{age} = 5.02$, $SD = 0.82$) years.
- 67.9% Chinese, 16.0% Malays, 11.6% Indian, 4.4% other ethnic background.
- Primary caregivers (PCGs): 94.8% mothers, 3.8% fathers, and 1.4% other adults.

➤ Procedure

- Data was collected during a home visit by a pair of interviewers. Child interviewer conducted the child assessment with the child, and PCG interviewer conducted a set of questionnaires with the PCG.

Method

➤ Measures

- **DoG:** Prencipe and Zelazo's (2005) standardized choice paradigm was modified to measure DoG. Nine test trials were created by crossing three types of reward (balloons, erasers, and stickers) and three types of choice (1 now vs. 2 later, 1 now vs. 4 later, 1 now vs. 6 later). Choosing "now" scored 0, and choosing "later" scored 1, in each trial. Scores of 9 test trials were summed to indicate DoG.
- **Effortful Control:** PCG rated the child's behaviors on 6 items selected from the CBO-VSF (Putnam & Rothbart, 2006). Example: "*when drawing or colouring in a book, (child) shows strong concentration.*" (1=never to 7=always)
- **SES:** indicated by primary caregiver's education attainment and family annual income in the past year.
- **Economic stress:** measured by one single item "*at the end of the month, do you (and your family) usually end up with some money left over, just enough to make ends meet, or not enough money to make ends meet?*". (1=Some money leftover; 3=not enough to make ends meet)
- **Parenting stress:** measured by four items, such as "*feeling trapped as a parent*" and "*feeling tired raising a family*" (1=not at all true; 5=completely true).

Method

➤ Measures (continued)

- **Parental verbal cognitive ability:** assessed by 8 items selected from the Passage Comprehension sub-test in the Woodcock-Johnson Test of Academic Achievement.
- **Parental self-control:** measured by 7 negatively-keyed items (e.g., “*Sometimes I can’t stop myself from doing something, even if I know it is wrong*”), and 3 positively-keyed items (e.g., “*I refuse things that are bad for me*”) on a 5-point scale (1=*Not at all like me*; 5=*Very much like me*). The 7 negatively-keyed items were recoded using reversed scoring.
- **Parental Warmth:** Six items such as physical affection, verbal affection/responses, and spending time with the child, were used to measure parental warmth in the past month (1=*not in the past month*; 5=*everyday*).
- **Harsh Punishment:** measured by the frequency of using five methods such as spanking, grounding, taking away privileges, or scolding, to control the child in the past month (1=*not in the past month*; 5=*everyday*).
- **Limit Setting:** measured by 6 items on how often the PCG set limit on child(ren)'s bedtime, snacks, friends, after-school activities, and homework, as well as discussing the rules with child(ren) (1=*never*, 5=*very often*).

Method

➤ Measures (continued)

- **Closeness to parents:** One item captured how close the child felt to the mother and father (*1=not at all close, 4=extremely*).
- **Family conflict:** Five items measured the ways in which family members resolve conflicts, such as "*fight as lot*", "*throw things*", "*hit each other*", or "*calmly discuss problems*" (*1=strongly disagree; 5=strongly agree*)
- **Physical home environment:** Interviewer rated the respondent's home environment based on the observation during the interview, on 3 items such as whether the home is dark/perceptually monotonous, cluttered, and clean (*1=not at all, 5=very*).
- **Statistic Analysis:** Hierarchical regression analysis.

Results

Table 1. Hierarchical Regression to Delay of Gratification

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Demographics	.06***		.06***		.06***		.06***		.06***		.06***	
Age		.24***		.24***		.23***		.23***		.23***		.23***
Gender (Girl)		.04*		.03		.03		.04+		.04+		.04+
Temperament			.01***		.01***		.01***		.01***		.01***	
Effortful Control				.10***		.08***		.08***		.08***		.07**
SES					.01***		.01***		.01***		.01***	
PCG Education						.10***		.05+		.04		.04
Log10Income						.02		-.02		-.02		-.02
Stress and PCG Attributes							.01***		.01***		.01***	
Economic Stress								-.08**		-.08**		-.07*
Parenting Stress								.03		.02		.02
PCG Verbal Cognition								.08**		.07**		.06*
PCG Self-Control								.05*		.05+		.04
Parenting									.003+		.003+	
Parental Warmth										.007		-.01
Harsh Punishment										-.008		-.005
Limit-Setting										.06*		.05*
Family											.007**	
Family Conflict												-.01
Closeness to mothers												.03
Closeness to fathers												.05*
Organized Home												.05*

Noted. PCG = Primary Caregiver. *** $p < .001$, ** $p < .01$, * $p < .05$. + $p < .10$.

Results

➤ **Models 1 : Age and gender**

- DoG developed rapidly with age in early childhood, and girls showed a small advantage.

• **Models 2 : Temperament**

- DoG was positively associated with effortful control, the self-regulatory aspect of temperament;
- Effortful control may account for the gender difference in DoG.

➤ **Model 3: SES**

- Primary caregiver's higher education level predicted a young child's greater ability to delay gratification.
- Family annual income did not significantly predict the child's DoG.

Results

➤ **Model 4: Stress and parental attributes**

- Family economic stress negatively predicted the child's DoG.
- Parenting stress did not act as a significant predictor.
- Primary caregiver's verbal cognitive ability and self-control positively predicted the child's DoG.
- These factors may explain the influence of primary caregiver's education attainment on the child's DoG.

➤ **Model 5: Parenting behaviors**

- Positive parental control (i.e., limit setting) was positively associated with the child's DoG;
- Negative parental control (i.e., harsh punishment) and responsiveness/warmth did not act as significant predictors.

➤ **Model 6: Family relationships and home environment**

- DoG was positively related to father-child closeness, but not significantly related to mother-child closeness or family conflict;
- DoG was positively related to a clean organized home environment.

Discussion

- **Effortful control, the self-regulatory dimension of temperament, acts as the basis of the development of DoG.**
 - Children high on effortful control have better ability to efficiently shift and focus attention, inhibit dominant responses (i.e., to get immediate small reward) and perform subdominant responses (i.e., to wait to get delayed larger reward), in the DoG task.
- **Although family income did not predict a young child's DoG, economic stress (whether the family makes ends meet) was related to the child's DoG.**
 - DoG, as a future-orientated self-control construct, may be influenced by the family's future-orientation to plan for the expenditure (e.g., to save up money rather than using up money earned in the month to enjoy the present).
- **Primary caregiver's cognitive verbal ability and self-control may explain primary caregiver's education attainment on the child's DoG.**
 - With better cognitive verbal ability, primary caregivers are able to use appropriate instructions to guide, teach and encourage children to regulate their behaviors;
 - Primary caregivers with a higher level of self-control to resist temptation and inhibit unfavorable behaviors in their own lives, can act as good role models for their children to learn how to regulate behaviors.

Discussion

- **Positive parental control was associated with young children's DoG, but negative parental control and warmth did not act as significant predictors.**
- Parents generally tend to build a responsive and warm relationship with their children, whereas the levels of parental control usually vary.
- Negative parental control like harsh punishment, with high power assertion, cannot provide a nurturing environment for children to internalize the “control” exposed by parents or caregivers.
- Positive parental control, such as setting limit or boundaries on children’s activities and enforcing these rules in low to moderate power assertion may be the key to nurturing children’s self-regulation. During this process, parental guidance, instruction and encouragement is crucial for helping children internally follow the rules, regulate their behaviors, and eventually display greater ability to delay gratification.

Discussion

- **Father-child closeness was positively related to a young child's DoG; but mother-child closeness and family conflict did not act as significant predictors of DoG.**
 - Paternal parenting contributed to self-regulation over and above maternal parenting (Karreman et al., 2008).
 - Although resolving family conflicts in an impulsive way may create a detrimental environment for a child to inhibit dominant responses, if the conflicts usually happen when the child is absent, the influence on children's behavior may be less significant.
- **An organized and clean home environment was associated with a child's greater ability to delay gratification.**
 - Cleanness, clutteredness and darkness of the house reflects family members' self-regulatory abilities, and the enforcement of rules to tidy up the home regularly. Physical environment reinforces the socialization process.

Take-Home Message

- "Control" is usually imposed externally by parents or caregivers, then internalized by children.
- Parents and caregivers play an essential role in nurturing preschoolers' self-regulation skills by modeling, guiding, and enforcing rules then facilitating a preschooler to internalize the rules.
 - Role models: parents or caregivers' show young children how to resist temptation and inhibit certain behaviors.
 - Expressivity: with richer vocabularies and reasoning can guide children to regulate their behaviors.
- **Instead of negative control, using positive control such as limit setting and enforced rules with low to moderate power assertion can facilitate children to internalize the rules.**
- Paternal involvement plays an essential role in shaping a child's behaviors.
- Physical environment may also implicitly influence children's self-regulation.