

Associations Between Parenting Practices and Decision-Making Competence in  
Emerging Adults: A Prospective Study

by  
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## AN ABSTRACT OF THE THESIS OF

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Developmental research has suggested that parenting practices may impact the development of risk behaviors later in life. However, little evidence exists regarding how parenting may impact actual decision processes that precede poor choices. This study examined how parenting practices in early childhood influence the development of decision-making competence (DMC), a latent trait that reflects individual differences in rational responding, and has been linked with risk behaviors (i.e. drug use, unprotected sex, drinking) in later life outcomes.

To answer this question, we utilized a longitudinal dataset that tracked children from ages 10-12 through early adulthood. We correlated scores from Loeber's (1989) Parental Supervision/Monitoring scale and Schludermann, and Schludermann's (1970) Child Report on Parenting Behavior Inventory with scores on the Youth Decision-Making Competence (Y-DMC) scale. Preliminary results suggest that there are significant correlations between parenting practices and DMC. Specifically, children whose parents engaged in greater supervision and parental monitoring demonstrated higher DMC. Additionally, parenting practices uniquely contributed to the variance in DMC scores, controlling for socioeconomic status, child's gender, child's self-control, and cognitive ability at age 10. The findings from this study can contribute to future research related to decision-making, highlighting environmental factors that might impact the development of advantageous decision-making.

Key Words: Decision-Making Competence, DMC, parenting, child development, decision-making

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I understand that my project will become part of the permanent collection of Oregon State University, Honors College. My signature below authorizes release of my project to any reader upon request.

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Children's early social interactions are important in shaping their development and can have large impacts on future behaviors (Bowlby & Ainsworth, 1991; Lacey, Kumari, & Bartley, 2014). Perhaps the most important set of social interactions during development is the one between a child and parents. Children look to parents for many things that are important to their physical, mental, and social development. However, particular parenting practices, like lack of parental monitoring, harsh discipline, and parental control through psychological means (e.g., instilling guilt, anxiety) can have negative outcomes on behavior, such as increased substance use and early initiation of sexual activity (Roche et al. 2005; Sidze & Defo, 2013).

Although associations have been made between parenting and risk behaviors, little is known about how parenting practices impact actual decision processes that may influence these disadvantageous choices. Having the ability to make rational decisions can assist an individual in making optimal choices to avoid negative outcomes that could result in risk behaviors. Additionally, understanding how parental interactions may influence the development of these decision-making abilities is especially important for not only targeting individuals at risk but also for parental training purposes.

In this study, I examine the associations between children's (approximately 10-12 years old) reports of their parents' parenting behaviors and the tendency to make normatively rational choices, assessed by an objective performance test of rational decision-making (Parker & Fischhoff, 2005), when these children were approximately 19 years old. To meet this end, I leveraged data from an extensive longitudinal dataset that tracked children's development from 10 years until 27 years.

For studying decision-making skills, this age range is especially important because of documented increases in risk behaviors that may bear tremendous costs to personal well-being and society at large (Arnett, 1992; Dahl, 2004; Kwan, Cairney, Faulkner, & Pullenayegum, 2012; Reyna & Farley, 2006; Steinberg, 2008; Warren, Kann, Small, Santelli, Collins & Kolbe, 1997).

### **Parenting Practices**

Developmental researchers have suggested that certain parenting practices may be predictive of risk behaviors later in life. For example, increased parental control on their child's activities (i.e. setting rules or guidelines) and low parental involvement (i.e. knowing the child's friends and the parents of the friends or the child's whereabouts) have been found to be associated with risky sexual behavior in adolescents (e.g., Roche et al. 2005). Factors such as parental monitoring, supportiveness, and communication about sex have also been associated with contraceptive use and delayed intercourse (Parkes, Henderson, Wight, & Nixon, 2011; Commendador, 2010). The research linking parenting styles to risky sexual activity is extensive; however, connections have also been made between parenting, drug use, and peer delinquency (Borawski, Ievers-landis, Lovegreen, & Trapl, 2003; Miller, Loeber, & Hipwell, 2008).

Conversely, researchers have also found associations between parenting practices and differences in peer affiliation. Brown, Mounts, Lamborn, & Steinberg (1993) found that different parental styles influenced what social group children belonged to in school. Factors such as monitoring and achievement were associated with in-group social membership. Specifically, children whose parents emphasized



achievement were more likely to belong to social groups centered around athletics or within the group of those deemed popular by their peers, and they were less likely to associate with deviant peer groups. Parental monitoring was additionally found to be positively associated with membership in an academic-driven social group and negatively associated with membership in a deviant peer group. Thus, parenting can influence the peers with which a child associates, which has been found to be associated with increased risk outcomes (Gardner & Steinberg, 2005). For example, adolescents who affiliated with deviant peers were more likely to participate in risky sexual behavior (Lansford, Dodge, Fontaine, & Bates, 2014). Additionally, interactions with positive parenting helps to model empathy and sympathy for children. Thus, children are better able to see multiple perspectives and have more positive social interactions (Carlo, Mestre, Samper, Tur, & Armenta, 2010). Overall, variation in parenting styles may have important social influences as well as behavioral influences.

However, parenting also impacts the development of cognitive abilities, including executive functioning, which enables goal-oriented responses, planning, inhibitory control, and responses in ambiguous situations (Fay-Stammbach, Hawes, & Meredith, 2014). Lucassen et al. (2015) examined maternal and paternal harsh parenting with regards to three components of executive functioning: child's metacognition, inhibitory self-control, and flexibility. Specifically, paternal harsh parenting and less sensitive maternal parenting was associated with lower emergent metacognition and lower inhibitory self-control. Thus, they found significant associations and concluded that parenting plays an important part in the development

of executive functioning in children. Bernier, Carlson, and Whipple (2010) found that parental autonomy support was especially associated with the development of executive function. Thus, research has established that parenting is influential in child development, risk behaviors, and the development of abilities involved in decision-making. Also, knowing that parenting is related to development of cognitive mechanisms and executive function is vital in understanding the development of advantageous decision-making (e.g., del Missier, Mantyla, & Bruine de Bruin, 2012).

### **Decision Making in Emerging Adults/Late Adolescence**

Late adolescence is a period characterized by rapid mental, emotional, and physical changes, as well as a time when decisions are made that can have future impacts in life (Mann, Harmoni, & Power, 1989). Some researchers believe that adolescents are especially susceptible to making disadvantageous decisions because neural regions responsible for emotional and impulse control are not fully developed until adulthood (e.g., Reyna & Farley, 2006). Due to this functional immaturity, adolescents are especially prone to making disadvantageous decisions, especially in emotionally-charged situations (e.g., van Duijvenvoorde, Jansen, Visser, & Huizenga, 2010).

Additionally, Gardner & Steinberg (2005) found that youths (ages 13-16) and adolescents (ages 18-22) considered benefits over costs when making decisions, and tended to make riskier decisions as a result. Adolescents also tend to weight the benefits of a decision more than the risks and also underestimate harmful or long term consequences (Reyna & Farley, 2006). Equally weighing the costs and benefits promotes good decision making as an individual is better able to completely analyze

the situation and make a rational decision that is not influenced by emotions, impressions, or personal bias (Hastie & Dawes, 2010). Thus, emerging adults especially may be prone to making decisions without properly weighing the costs and benefits. This, in turn, contributes to their tendency to make disadvantageous decisions resulting in future outcomes.

### **Individual Differences in Decision Making**

While research has found that adolescents are more prone to make disadvantageous decisions and that parenting additionally contributes to decision-making and subsequent risk behaviors, there is little evidence that examines how parenting is associated with the development of actual decision processes. In order to examine and measure decision-making processes, researchers have established a construct that they refer to as Decision Making Competence (DMC). Specifically, DMC is conceptualized as a latent construct that measures individual differences in the ability to respond rationally, or making a choice that is consistent with what would be predicted by a rational standard. Parker & Fischhoff (2005) first assessed the components of the DMC domain by focusing on two criteria reflecting rationality: consistency (i.e. consistency in choices across equivalent items that are presented in different contexts) and accuracy (i.e. making optimal decisions with external decision rules). Both these criteria are considered vital criteria for decision making. If people are responding rationally they should not change their decision, even if the circumstances change, which is why consistency is an important aspect of rational decision making. Additionally, accuracy is equally as important since individuals must be able to properly utilize decision rules each time in order to make the most

optimal decision. Individual differences in DMC have been recovered in youth, adolescent, and adult samples (Parker & Fischhoff, 2005; Bruine de Bruin, Fischhoff, & Parker 2007; Weller, Levin, Rose, & Bossard, 2012).

DMC scores have been found to be associated with multiple factors. For example, greater DMC was found to be related to risk attitudes, specifically lower perceived expected benefits and lower perceived risk (Weller, Ceschi, & Randolph, 2015). Links have also been made between DMC and psychosocial outcomes. Specifically, higher DMC in preadolescents was predictive of prosocial behaviors; and lower DMC scores were predictive of increased prosocial difficulties, such as peer problems or conduct problems, over a 2-year period (Weller, Moholy, Bossard, & Levin, 2015). Higher DMC scores were also associated with better social environments (Fischhoff, 2008; Parker & Fischhoff, 2005). DMC has also been found to be linked to various cognitive abilities as well as executive cognitive function. Specifically, those found to have more developed cognitive abilities tended to perform better on decision-making tasks (Del Missier, Mantyla, & Bruine de Bruin, 2012; Weller et al. 2012).

Additionally, DMC has also been associated with positive and negative real life outcomes. Parker, Bruine de Bruin, and Fischhoff (2015) used the Decision Outcome Inventory (DOI) to calculate the percent of negative outcomes participants had experienced. They found that the negative outcomes from the DOI were indicators of low DMC scores, and thus lower decision-making abilities. Conversely, negative correlations have been found between DMC and risk behaviors, indicating that individuals with lower DMC scores tended to partake in riskier behaviors (Bruine

de Bruin et al., 2007). Specifically, those with lower DMC scores are more likely to make decisions leading to financial (i.e. bankruptcy), social, and sexual (unprotected sex) negative outcomes (Parker, Bruine de Bruin, & Fischhoff, 2015).

Thus, DMC has been found to be associated with cognitive abilities and negative life outcomes. However, researchers have not fully examined its relation to parenting practices.

### **The Current Study**

I examined the association between parenting practices (assessed at age 10) and rational decision-making (assessed at age 19). I am specifically examining parental supervision/involvement, control, and discipline. I hypothesize that parental supervision/involvement, establishing firm rules, and instilling autonomy (vs. using psychological control such as guilt) will be associated with greater rational decision-making abilities later in life.

## **METHOD**

### **Participants**

Participants were recruited from an ongoing longitudinal study from the Center for Education and Drug Abuse Research (CEDAR) funded by the National Institute of Health consisting of 344 families. Within this sample 775 children age 10-12 were utilized for data collection on parenting practices. Of these individuals, 566 were re-visited at age 19 for DMC data collection; only participants with DMC scores at age 19 were used.

### **Procedure**

Both parents and the children were asked to complete the *Children's Report on Parental Behavior Inventory* (CRPBI; Schludermann & Schludermann, 1970) and the *Parental Supervision/Involvement Scale* (Loeber et al., 1998) at Visit 1 when the children were between the ages of 10-12 to assess parenting practices. Participants were then revisited when they were approximately age 19 where they completed the tasks on the *Youth Decision-Making Competence* (Y-DMC; Parker & Fishhoff, 2005) to assess their decision-making competence.

## Measures

As part of a larger longitudinal study, participants completed the following three scales:

***Parenting practices.*** Participants completed the *Children's Report on Parental Behavior Inventory* (CRPBI; Schludermann & Schludermann, 1970), where the children rated their parent's behavior on a three-point scale (1 = *very true*; 2 = *somewhat true*; 3 = *not at all true*). The inventory evaluated parental behavior on six individual scales: Acceptance ("My mother/father seems to see my good points more than my faults."), Child Centeredness (My mother/father enjoys doing things with me."), Control through Guilt ("My father/mother tells me how much he/she has suffered for me."), Instilling Persistent Anxiety ("My father/mother says some day when I grow up I'll be punished for the bad things I do now."), Lax Discipline ("My father/mother lets me get away with a lot of things"), and Non-Enforcement of Rules ("My mother/father makes sure I follow her/his rules"), and consisted of 162 questions (81 questions reflecting mother behaviors and 81 for father behaviors). Children reported on both mother and father parental behavior in these six subscales. However, I found

that mother and father scales correlated between .38 and .72 (mean  $r = .57$ ); thus, I collapsed individual reports into composite scales, representing three specific parenting dimensions based on Schuldermann & Schuldermann, 1970: *Acceptance vs. Rejection*, the degree to which the parents accept or reject the child; *Psychological Autonomy vs. Control*, the use of indirect means of control through guilt or anxiety; and *Firm vs. Lax Control*, the use of direct methods such as rules to control the child's behavior. Higher scores on each scale indicate greater perceived acceptance, greater firm control, and more psychological autonomy.

Additionally, caretakers and the children completed the *Parental Supervision/Involvement Scale* (Loeber et al., 1998) at Visit 1. The scale consisted of 43 items on a Likert-type scale, including items related to supervision (e.g., "Do your parents know who you are with when you are not home?"), family talk (e.g., "When was the last time that you discussed with your child his/her plans for the coming day?"), family activities (e.g., "How often do you have a friendly chat with your mom/dad?"), set time to be home (e.g., "Does your child have a set time to be home on a school night?"), and family involvement (e.g., "Does your child help to plan family activities?"). A composite scale was created by calculating the average response on these items.

### ***Youth Decision-Making Competence (Y-DMC)***

At age 19, participants completed the Y-DMC (Parker & Fischhoff, 2005) to assess individual differences in DMC. The Y-DMC measures rational responding through six tasks: Resistance to framing, Resistance to sunk costs, Over/underconfidence, Consistency in risk perception, Recognizing social norms, and

Applying decision rules. Standardized scores on the Y-DMC components were averaged to create a composite DMC score. The six tasks are detailed further below:

### *Resistance to Framing*

The questionnaire was modified from Linville, Fischer, and Fishhoff (1993) and consisted of 5 pairs of questions. The first question pair gave two choices at separate times, and the participant must accept or reject one. If they are answering consistently, they will choose one and reject the other. In the second question pair participants are either told the success rate or the failure rate of condom use, and then must state how acceptable condom use is. In this pair, consistency would be choosing the same option both times. The third question pair was established from Roelofs and Keren (1995), and gives the participant two scenarios: (1) choose to receive \$100 tomorrow or \$20 in 4 weeks and (2) choose to receive \$100 in 26 weeks or \$120 in 30 weeks (choice 2). In this case, consistency would be rejecting or accepting the \$20 compensation both times. The fourth pair in this evaluation was established from Tversky and Kahneman (1988) and it gives equivalent medical care options and are given information on either the amount of lives that are saved or the amount of lives that are lost. Regardless of the information that is given, if participants are being consistent they should make the same choice. In the final 5<sup>th</sup> question pair that was established from Fischhoff (1993), participants have the choice of a gamble with a negative outcome and expenditure of equal expected value that is given as a sure loss or an insurance payment. The Resistance to framing task evaluates insensitivity to irrelevant tasks and is scored by the amount of consistent choices made across the



five problem pairs. Item pairs were presented at different times during the broader assessed to reduce memory effects.

#### *Resistance to Sunk Costs*

This was used as another measure of insensitivity to irrelevant tasks and was adapted from Baron et al. (1993) and Dawes and Hastie (2001). The task examined the ability to ignore prior investments when making decisions. When making decisions, previous investments should not influence them, only future consequences should (Parker & Fishhoff, 2005). In this task, participants were given two problems: continue with a decision in which a substantial time investment, or monetary investment was previously made or switch to one with better outcomes. Resistance to sunk costs scores were how often participants rejected the sunk-cost option (continuing where an investment was previously made).

#### *Over/Underconfidence*

This task consists of 42 true or false items and examined adjustment of confidence to one's knowledge level. Participants indicated if the statement was true or false and the probability that their answer is correct (i.e. their confidence level). The questions consisted of general knowledge questions (i.e. "the color of robin eggs is orange"), sex and AIDS, and drug/alcohol related questions. The task was scored by subtracting 1 from the absolute value of the difference between the participants' mean confidence level and their proportion of correct responses.

#### *Consistency in Risk Perception*

This task examines an individual's skill of belief assessment and their ability to judge likelihood, and it was established from the 1997 National Longitudinal Study

of Youth expectations module (Fischhoff et al., 2000). Participants are given 20 events/scenarios (ex. “eating pizza” or “using illegal drugs”) and respond with the probability of the given event occurring to them in a specific time frame. The scale was scored with 0% indicating ‘no chance’ and 100% indicating ‘certainty’ of the event occurring. The overall consistency in risk perception score is from 0 to 5 and is the number of consistent pairs of judgements.

### *Recognizing Social Norms*

This task is another assessment of an individual’s ability to judge likelihood, and it also assesses the ability to recognize peer social norms. The task, established from Jacobs et al. (1995) and Loeber (1989), consists of 16 items that ask if the participant believes it is “sometimes okay” to participate in specific negative behaviors. Later in the assessment, the participants are asked to estimate how many people in their age range would agree (ex. estimate how many “out of 100 people of your age”). Scores were created by first calculating the overall normative average (i.e., % of respondents saying it was sometimes OK). Then, I calculated a correlation coefficient between the normative average and each participant’s perceived norm estimate (i.e., out of 100 people of your age). Thus, overall scores from -1 to +1 and reflected the within-responded rank-order correlation between estimated and actual social norms.

### *Applying decision rules*

This task assessed the ability to follow a prescribed decision rule to make a correct choice based form several options in a multi-attribute matrix. It consisted of seven questions that were adapted from Payne, Bettman, and Johnson (1993). In the

questions, participants were asked to use a specific decision rule to make a choice, such as choosing which Walkman should be chosen based on a specific feature (ex. battery life or tape player sound)<sup>1</sup>. The overall score reflected the number correct decision rules applied.

### ***Covariates: Executive Function and Socioeconomic Status***

Past research has found links between socioeconomic status (SES)/neighborhood disadvantage, executive function, and DMC (Parker & Fischhoff, 2005). Thus, SES (i.e. neighborhood disadvantage) and executive cognitive function (ECF) were also examined in the analyses to account for possible influences on DMC. Specifically, neighborhood disadvantage includes information regarding the surrounding community, such as the percent of households living below poverty, the percent of households headed by a female, the number of adults without higher education/degrees, and not inhabited by the owner. Additionally, executive cognitive function (ECF) reflects that developed by Giancola et al. (1998) and is a high order cognitive construct. Specifically, ECF is involved in tasks such as planning, establishing, and managing goal-oriented behavior, and additionally assesses competency in areas such as planning, attention, working memory, and spatial skills.

## **RESULTS**

### ***Descriptive Statistics***

As displayed in Table 1, the six component DMC tasks were positively associated with each other, with exception of sunk costs. Although this scale was

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<sup>1</sup> This assessment was created at a time when Walkmans were popular and a common household item.

unrelated, it remained in the composite index to maintain consistency with past studies.

#### *Associations between DMC and Demographic Variables*

The correlations between DMC scores and demographic variables are displayed in Table 2. Y-DMC had no significant correlations with sex ( $r = -.04$ ) or parental SUD ( $r = -.04$ ). However, analyses did indicate significant correlations between Y-DMC scores and neighborhood disadvantage ( $r = -.42$ ) and ECF ( $r = .43$ ). These scores indicated that higher DMC scores are associated with greater neighborhood disadvantage and lower executive cognitive function. However, the Resistance to Framing component of DMC did not have any significant correlations with the demographic variables.

#### *Associations between Parenting Variables and Demographics Variables*

Increased parental substance use disorder (SUD) was modestly correlated with Acceptance vs. Rejection ( $r = .12$ ). Additionally, reported psychological autonomy was modestly correlated with participant sex, and was specifically more prominent for females ( $r = -.18$ ). Living in a less advantaged neighborhood was additionally associated with less psychological autonomy (i.e., greater use of guilt and anxiety as means of psychological control;  $r = -.24$ ). Lower Parental SUD ( $r = -.14$ ) and higher ECF ( $r = .25$ ) was additionally associated with less psychological autonomy. Firm control also had modest significant correlations with neighborhood disadvantage ( $r = -.10$ ) and increased ECF ( $r = .12$ ). Parental supervision/involvement was also negatively correlated with parental SUD ( $r = -.09$ ).

#### *Associations Between Parenting Practices and DMC*

Correlations were run between parenting practices reported at age 10-12 and DMC at age 19 (see Table 3). Significant correlations were found between the two variables. Psychological control was especially correlated with lower Y-DMC scores at age 19 ( $r=-.30$ ). Analyses also indicated modest positive correlations between DMC and Lax control ( $r=.17$ ) and Supervision/involvement ( $r=.17$ ). However, DMC had no significant correlations with acceptance or rejection ( $r=.02$ ). The DMC task of Applying Decision rules was especially correlated with Psychological Autonomy vs. Control ( $r=.31$ ).

#### *Regression Analysis*

I then tested the degree to which parenting practices still accounted for variance in DMC scores after controlling for Socioeconomic Status and individual differences in ECF. Together, these variables were able to account for 31% of the variance in DMC scores. Holding other variables constant, parenting practices, especially greater use of psychological autonomy and to a lesser extent increased parental supervision/involvement, were able to explain a unique proportion of the variance in DMC (see Table 4).

### DISCUSSION

In past research, DMC has been linked with risk behaviors (e.g., Parker & Fischhoff, 2005; Weller, Ceschi, & Randolph, 2015). However, knowing that parenting practices influence the development of DMC later in life is especially important for targeting potential antecedents for subsequent risk behaviors. In this study I found that parenting practices, especially maintaining psychological control through guilt/anxiety and supervision/involvement, at age 10-12 were associated with

lower DMC scores at age 19, even after controlling for SES and ECF. These findings support past research emphasizing the importance of parenting on a child's social and cognitive development (Lucassen et al., 2015). However, this research emphasizes the importance of parenting specifically with regards to decision making.

This research also contributes to DMC research such as Parker & Fischhoff (2005) by contributing to DMC's predictive validity and by further exploring how the familial environment relates to the development of DMC. These findings are consistent with previous analyses which have indicated that greater parental involvement are positive for child development and for reducing risky decisions (e.g., Roche et al. 2005). The findings from the study also continue to emphasize the importance of instilling autonomy rather than control when raising children. Previous research has found autonomy to be especially important, as it gives a child the freedom to make their own guided decisions and to form their own goals. Thus, autonomy promotes intrinsic motivation, and contributes to improved well-being and academic success (Lekes, Gingras, Philippe, Koestner, & Fang, 2010).

The findings additionally contribute to research regarding decision-making in maltreated children (Weller & Fisher, 2012; Cicchetti, Weller, Leve, Kim, Bhimiji, & Fisher, 2015). Specifically, this research helps to further examine developmental trajectories of decision making and highlights how early experience with factors such as parenting can negatively influence decision-making abilities later in life; thus, increasing susceptibility to certain risk behaviors.

Overall, these findings may have implications for prevention and intervention purposes. Specifically, this research reinforces the importance of environmental

influences, especially parenting. Knowing how parenting can influence the development of decision-making abilities is important for both identifying individuals who may be susceptible to making maladaptive choices, and for improving parent skills training that may contribute to improved decision-making abilities. Similarly, the importance of critical thinking skills is additionally highlighted by this study, as teaching these skills to children could allow them to make more optimal/rational decisions.

## LIMITATIONS AND FUTURE DIRECTIONS

### *Limitations*

One limitation of this study was that DMC was only evaluated at time 2 when the sample was 19-20 years of age. This limited the ability to evaluate changes in DMC, as there was no DMC score collected at age 10-12 to compare the scores from Time 2. This additionally poses another limitation as rational decision-making has been found to naturally improve as one reaches emerging adulthood, though risk taking has been shown to increase during this time (Smith, Xiao, & Bechara, 2011).

Another limitation in the current study is that parenting practices were only evaluated at Time 1 when the children were ages 10-12. This did not account for any possible changes in parenting that could have occurred. Changes in parenting could influence the data and subsequent influences on the development of decision-making abilities. For example, at the time of evaluation, a parent may have used higher psychological control, but if they later gave their child more psychological autonomy as they got older it could shift how the child develops mentally.

Similarly, changes in family structure were not evaluated. This includes accounting for divorce, single parent households, or even the addition of a sibling to the family. Parental divorce does have a negative impact on children and adolescents, specifically on the development of cognitive abilities (Kim, 2011). Siblings have also been found to impact parent-child relationships and intellectual development (Dunn, 1992; Downey, 2001). Thus, this study does not account for any familial impacts outside of initial parenting practices at age 10-12.

### *Future Directions*

While the current study and past research have contributed to developmental and decision-making research, it can continue to be utilized in the future to further look into DMC and parenting. Specifically, further examining parenting with regards to family coherence (i.e. divorced households, single-parent households, same-sex marriage households) could be beneficial in continuing to target earlier events in life that may influence the development of decision-making abilities. Family coherence is especially important to emphasize today when divorce rates are continually increasing as well as with the recent legalization of same-sex marriage. Single parent households are becoming more common, and it could have substantial effects, positive or negative, on adolescent behavior. Thus, this could help to bring to light potential effects of family coherence on adolescents, and could help to find intervention methods to minimize negative consequences and prevent risk-behaviors before they occur.

These findings can additionally be utilized in parent skills training. However, there is little evidence displaying how putting these specific parenting practices into



intervention impacts decision-making. For instance, would teaching parents how to avoid using guilt to control their child result in the child establishing better decision-making abilities? Thus, applying these findings to intervention and training and analyzing the subsequent outcomes could be beneficial in solidifying the validity of programs aimed to increase decision making abilities in emerging adolescents.

Overall, these findings contribute to and support past decision-making research that has highlighted parenting and cognitive abilities. It additionally recognizes important antecedents to risk behaviors, and targeting ways to reduce those behaviors as well as highlights ways that parents can aid in improving decision skills that may promote long-term social, financial, and health outcomes.

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## APPENDIX

**Table 1** *Descriptive Statistics and Intercorrelations of DMC*

Measure	M	SD	Min	Max	1	2	3	4	5	6
1. Resistance to framing	.69	.22	.00	1.00	–					
2. Resistance to sunk costs	.36	.35	.00	1.00	.04	–				
3. Consistency in risk perception	.83	.20	.00	1.00	.18**	.03	–			
4. Applying decision rules	.89	.17	.00	1.00	.21**	-.06	.22**	–		
5. Under/Overconfidence	.92	.07	.59	1.00	.23**	-.01	.22**	.35**	–	
6. Recognizing social norms	.53	.22	-.24	.91	.09*	-.03	.12*	.28**	.13**	–

*Note.* \*  $p < .05$ , \*\*  $p < .01$

**Table 2** *Correlations of DMC and Parenting Variables with Demographic Variables*

	<b>Sex</b>	<b>Neighborhood Disadvantage</b>	<b>Parental SUD</b>	<b>Executive Cognitive Function</b>
<b>DMC Variables</b>				
Resistance to framing	-.03	-.17**	-.02	.23**
Resistance to sunk costs	-.13**	-.08	-.06	.03
Consistency in risk perception	.01	-.26**	.03	.19**
Applying decision rules	.07	-.31**	-.04	.38**
Under/Overconfidence	-.01	-.33**	.02	.31**
Recognizing social norms	-.01	-.18**	-.05	.20**
Y-DMC	-.04	-.42**	-.04	.43**
<b>Parenting Variables</b>				
Acceptance vs. Rejection	-.08	.02	.12**	.04
Psychological autonomy vs. control	.18**	-.24**	-.14**	.25**
Firm control vs. Lax control	-.08	-.10*	-.04	.12*
Supervision/Involvement	.07	.02	-.09*	.02

*Note.* \*  $p < .05$ , \*\*  $p < .01$

**Table 3** *Correlations Between Parenting Variables and DMC*

DMC	Parenting Variables			
	Acceptance vs. Rejection	Firm Control vs. Lax Control	Autonomy vs. Psychological Control	Supervision/ Involvement
Resistance to framing	-.04	.06	.08	.07
Resistance to sunk costs	.00	.14**	.05	.17**
Consistency in risk perception	.00	.07	.14**	.08
Applying decision rules	.01	.08	.31**	.12**
Under/Overconfidence	.01	.11*	.25**	.08
Recognizing social norms	.05	.05	.10*	.04
<b>Y-DMC Composite</b>	<b>.02</b>	<b>.17**</b>	<b>.30**</b>	<b>.17**</b>

*Note.* \*  $p < .05$ , \*\*  $p < .01$ .

**Table 4** *Regression Analysis of Parenting and Demographic Variables*

	<b>Standardized Coefficients</b>		
	<b><math>\beta</math></b>	<b><math>t</math></b>	<b><math>p</math></b>
Supervision/Involvement	.11	2.42	.02
Acceptance vs. Rejection	-.01	-.29	.78
Psychological Autonomy vs. Control	.15	3.26	.00
Firm vs. Lax Control	.05	1.14	.26
Neighborhood Disadvantage	-.26	-5.90	.00
Executive Cognitive Function	.28	6.25	.00

