Prenatal childbearing motivations, parenting styles, and child adjustment: A longitudinal study

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Abstract

To have a child is among individuals' most important and meaningful decisions, with far-reaching implications. Despite evidence linking this decision to a wide variety of consequences, little is known about what motivates people to have children, and even less so about the long-term effects of different childbearing motivations on parenting and child adjustment. This study took a Self-Determination Theory (SDT) perspective, examining how prenatal maternal autonomous and controlled childbearing motivations are related to child behavior problems through parenting styles. The rationale was that prenatal autonomous (sense of volition and self-fulfillment) and controlled (feeling pressured) childbearing motivations would shape later parental styles (autonomy-supportive versus controlling, respectively) and, consequently, child adjustment. Over a period of 2 years beginning at pregnancy, 326 Israeli mothers reported their prenatal childbearing motivations, as well as parental styles and child behavior problems 20 months postpartum. Results of a path analysis revealed that prenatal autonomous childbearing motivation predicted autonomy-supportive parenting, yet the latter was not associated with children's behavior problems. Prenatal controlled motivation predicted controlling parenting, which, in turn, predicted children's internalizing and externalizing problems. No direct effects of childbearing motivation on children's behavior problems were observed, suggesting that childbearing motivation is a distal antecedent operating through more proximal factors such as parenting style. Findings were robust to children's temperamental tendencies and sociodemographic risk factors such as maternal age, high-risk pregnancy, and preterm birth. These findings have theoretical and practical implications for the discourse on motivations underlying the childbearing decision and their effects on parenting and child adjustment.

Keywords: self-determination theory; autonomous motivation; child adjustment; parenting styles.

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Introduction

Having a child is a universal, elemental, and common human decision (Cowan & Cowan, 2000). It has long-term, meaningful implications for various life domains, including family relationships, finances, work, and mental health (Kluwer, 2010; Lino et al., 2017; Nachoum & Kanat-Maymon, 2018). Research on reproductive decision-making mainly focuses on childbearing motivation, or the extent to which a person responds favorably or unfavorably to childbearing. Miller (2011) suggested childbearing desires and intentions are the consequences of a biological-neural system emphasizing the human need to nurture, as well as cognitively driven decisions reflecting higher-order processes. Research grounded in the theory of planned behavior (e.g. Klobas & Ajzen, 2015) has highlighted a reasoned childbearing decision making, suggesting that positive or negative intentions to have a child are a function of individuals' attitudes, subjective norms, and behavioral control. Others have viewed childbearing motivation from the perspective of pregnancy wantedness and planning (e.g., Nelson & O'Brien, 2012), suggesting unplanned and especially unwanted pregnancies reflect low childbearing motivation (Miller et al., 2009). Low childbearing motivation has been associated with lower birth rates (Miller, 2011), pregnancy timing (Klobas & Ajzen, 2015), child poor socioemotional development (Claridge, 2017), and poor mother-child relationships (Nelson & O'Brien, 2012).

These differing theoretical perspectives reflect the complexity of childbearing motivations. While it is quite reasonable, on both theoretical and empirical grounds, that low childbearing motivation has negative implications for parents and children, whether high motivation or positive intentions may also have negative implications remains unclear. We sought to extend and complement the research on childbearing motivation by applying a self-

determination theory perspective (SDT; Ryan & Deci, 2017). SDT-based analysis considers not only *whether* but also *why* individuals choose to have a child. SDT views childbearing motivation as a multidimensional concept, suggesting individuals' desire and intention to have a child may stem from different reasons (i.e., motivations), and these are important factors in predicting subsequent behavior and functioning. For instance, having a child because parenthood is considered an important life goal fulfillment may have different consequences than having a child to please a partner's demand or comply with social norms.

SDT can elucidate some of the complex motivational properties of wanting to have children that, as we argue in this paper, may directly facilitate the development of parenting styles and parent-child interaction. In the course of this sequence, the child's socioemotional functioning is shaped. From a developmental point of view, this would suggest that prenatal childbearing motivation may indirectly affect children's later socioemotional functioning, and that early trajectories of parenting styles may be the pathway connecting the two.

In the present investigation we also accounted for risk factors for child's socioemotional functioning. Specifically, we considered children's temperamental tendencies as it is known to affect parental behavior and child adjustment (e.g., Bates et al., 2012; Putnam et al., 2002), and sociodemographic risk factors for the development of child behavior problems (e.g., maternal age, high-risk pregnancy, preterm birth) for the development of child behavior problems.

Self-Determination Theory: Autonomous vs. Controlled Motivations

SDT (Ryan & Deci, 2017) is a macro-theory of human motivation, taking a multidimensional perspective on motivational processes in various life domains. According to SDT, different types of motivation underlie human behavior, and can be broadly classified into two categories: autonomous and controlled.

Autonomous motivation refers to an activity performed with a sense of choice and genuine will (Ryan & Deci, 2017). It consists of intrinsic motivation, in which the activity is performed for enjoyment or an interest in the activity itself, and identified regulation, wherein the activity is seen as important and in congruence with a person's values. An example of autonomous motivation in the present context is deciding to become a parent due to the joy one takes in caring for children or because one considers it a self-fulfilling life goal. In contrast, *controlled motivation* refers to an activity performed under a sense of pressure from factors either outside or inside the individual (Ryan & Deci, 2017). It consists of external regulation, in which the activity is a function of outside coercion, usually accompanied by rewards or punishment, and introjected regulation, in which the individual is motivated to avoid feelings of guilt and shame or to gain approval (Ryan & Deci, 2017). For example, becoming a parent for the sake of meeting cultural and family expectations or in order to feel worthy as a person, both reflect a controlled motivation.

Research has consistently shown that autonomous motivation predicts better functioning, psychological health, and growth across major life domains than controlled motivation (Ryan & Deci, 2017; Kanat-Maymon, Benjamin, Stavsky, Shoshani, & Roth, 2015; Ryan et al., 2006). Similar findings, though scant, have been found for childbearing motivation as well. In the first study on autonomous childbearing motivation, mothers whose childbirth motivation was more autonomous were at lower risk for postpartum depression two-months postpartum than those whose motivation was controlled (Gauthier et al., 2010). In a longitudinal study, Nachoum and Kanat-Maymon (2018) found that for both parents, prenatal self-reported autonomous (as opposed to controlled) childbearing motivation predicted a lower level of self-reported depressive symptoms 3-6 months postnatally, even when controlling for depression at pregnancy. Nachoum and Kanat-Maymon (2018) also found evidence of a dyadic effect, such that postpartum depressive symptoms were not only

attributed to an individual's own childbearing motivation but also to the spouse's motivation. Recent studies have also reported that autonomous childbearing motivation is related to women's prenatal wellbeing (Brenning et al., 2015) and to parents' higher satisfaction with parental roles two-months postpartum (Ross-Plourde & Basque, 2019).

Autonomy-Supportive and Controlling Parenting

Parental *autonomy support* is defined as the active support of a child's ability to develop an autonomous self (Ryan et al., 2006) and is considered a key component of optimal parenting (Assor et al., 2019). Autonomy support involves taking the child's perspective, allowing choice, and providing a rationale for behavioral requests (e.g., Joussemet et al., 2014; Kanat-Maymon & Reizer, 2017). *Controlling parenting* refers to efforts to change the child's thoughts, feelings, or behaviors. Controlling parents tend to project their own wishes on their children and push them in the parent-desired direction (Joussemet et al., 2014; Ryan et al., 2006).

Previous research on how individuals come to adopt an autonomy-supportive or controlling style suggest a continuance from individuals' own motivational orientations to the way they interact with or mentor others (Jungert et al., 2015; Roth et al., 2007). For instance, a cross-sectional study of American, Canadian, and French families found parents' reports of autonomous motivation to take on a parenting role was related to adolescents' perceptions of parental autonomy-supportive behaviors (Jungert et al., 2015). Research in the workforce on supervisors and subordinates found supervisors' self-reported autonomous and controlled work motivations were associated with subordinates' perceptions of these supervisors as autonomy supportive and controlling, respectively (Kanat-Maymon et al., 2020). Finally, in a cross-sectional study conducted in Israel, teachers' reports on autonomous motivation for teaching were associated with elementary school students' perceptions of an autonomy-

supportive teaching style (Roth et al., 2007). These studies imply similarities between a person's motivational orientation and behavioral mentoring. That is, autonomously motivated individuals tend to be more autonomy-supportive, while controlled individuals tend to be more controlling. Hence, it is reasonable to assume that individuals with prenatal autonomous or controlled childbearing motivations are more likely to engage in autonomy-supportive or controlling parenting behaviors, respectively. Parenting, as we argue, shapes parent-child interaction and is the intermediate mechanism trough which prenatal childbearing motivation affect child adjustment.

Child Adjustment

Adjustment in early childhood is a broad term, covering a range of children's social and emotional functioning (Rothbart & Bates, 1998). In infancy and toddlerhood, behavior problems are common indicators of adjustment and are generally differentiated into externalizing and internalizing problems (Achenbach, 1966). Although child adjustment is the result of an interweaving of influences, several factors may be of particular importance for the following discussion.

Parenting practices. One of the most critical factors in children's adjustment is parenting (Aunola & Nurmi, 2005) and, more specifically, parental autonomy support versus control (Matte-Gagné et al., 2015). According to SDT, parental autonomy support facilitates optimal adjustment by allowing children to explore their feelings and to internalize rules (Laurin & Joussemet, 2017), and by encouraging children's intrinsic motivation (Ryan & Deci, 2017). Overall, studies have found that autonomy support decreases children's behavior problems over time. In a Canadian study, Matte-Gagné and colleagues (2015) found that maternal autonomy support during preschool, measured using observational coding, predicted fewer behavior problems at elementary school and in preadolescence, as reported by mothers,

teachers, and children. In an intervention study conducted among French-Canadians parents of elementary school students, Joussemet et al. (2014) discovered children's level of behavior problems, as reported by parents, decreased significantly after their parents enhanced their autonomy-supportive parenting skills.

In contrast, children of controlling parents are at risk of developing internalizing and externalizing behavior problems. On the one hand, controlling parents arouse feelings of guilt and shame among their children, and these may develop into rigid self-regulation or symptoms of anxiety and depression (Soenens & Vansteenkiste, 2010), central components of internalizing problems. On the other hand, parental control can lead to children's rejection and opposing behavior (Joussemet et al., 2014), lack of self-regulation (Ryan et al., 2006), and rule internalization difficulties (e.g., compliance solely in the presence of external factors; Laurin & Joussemet, 2017), central components of externalizing problems.

Child temperament. Among infants and toddlers, a difficult temperament is characterized by high emotionality, activity levels, anger, and fussiness (Rothbart et al., 1994; Rubin et al., 2002). While behavior problems in children are often viewed as a consequence of certain parenting behaviors (e.g. Laurin & Joussemet, 2017), difficult temperament is considered a more innate and dispositional aspect of adjustment (Rubin et al., 2002). Temperament researchers have suggested that the fit between parenting behaviors and children's innate temperamental tendencies is critical for predicting later maladjustment (e.g., Thomas & Chess, 1977; Putnam et al., 2002; Bates et al., 2012). In other words, different temperamental tendencies may elicit different parental behaviors and may also influence the way children are affected by those parenting behaviors.

Environmental factors. The circumstances into which a child is born may also impact adjustment. According to a bioecological approach, a child develops into multiple contexts, with various demographic and environmental factors serving as risk factors for

maladjustment (Bronfenbrenner & Morris, 1998). Some of those factors have uniquely been related to child behavior problems and are therefore included in this study. For example, families with a low income level may struggle with daily stress or lack resources to create an optimal developmental environment for the child, often resulting in child maladjustment (e.g., Edwards & Hans, 2015). Similar processes are likely to occur among younger (Edwards & Hans, 2015) or low-educated mothers (Uljas et al., 1999). In addition, behavior problems tend to be more prevalent among boys (Smith et al., 2004) and firstborns (Lahey et al., 1980), because of differences in socialization processes and social construction. Finally, child adjustment may be developmentally affected by medical aspects such as high risk-pregnancy (Uljas et al., 1999) and preterm birth (van Baar et al., 2009).

The Current Research

The purpose of this research was to examine whether mothers' prenatal childbearing motivations were related to child adjustment and, if so, whether these relations were mediated by specific maternal parenting styles. Following mothers from pregnancy to 20 months postpartum, we applied an SDT perspective to two main hypotheses:

Hypothesis 1: Prenatal autonomous childbearing motivations would predict an autonomy-supportive parenting orientation at 20 months postpartum, which, in turn, would predict a lower level of child externalizing and internalizing problems.

Hypothesis 2: Prenatal controlled childbearing motivations would predict a controlling parenting orientation at 20 months postpartum, which, in turn, would predict a higher level of child externalizing and internalizing problems.

Given the importance of child temperament, we included it as an integral part of the main model to ensure parenting styles were the principal predictors of child adjustment,

independent of characteristics of children that might inflate observed relations between parenting and child behavior.

In this study, children's externalizing and internalizing problems were reported by the mother. During infancy and early toddlerhood, mothers are often in a unique position to observe children in a variety of circumstances and for extensive periods of time, relative to other informants, such as fathers or other caretakers (e.g., Richters, 1992). Behavioral rating scales in developmental research are therefore most commonly administered to mothers, reflecting their role as primary caregiver and following data indicating that they accurately observe and perceive their children's problems (Achenbach, 2006;-Phares, 1997).

Most research in the field of childbearing motivations has been conducted in North American or European cultures. We used an Israeli sample. Israel is a relatively small and young Western country, characterized by cultural diversity, modern lifestyle (Scharf, 2014), a strong economy, and strong education and health systems (UNDP, 2011). It is considered a "child-oriented" society, in which the decision to have a child often has historical, religious, psychological, and political aspects (Waldman, 2006). Even so, and while fertility rates in Israel are higher than in the United States (World Bank, 2020), research has shown similarities in cultural perceptions of childbearing (Waldman, 2006).

Method

Participants and Procedure

Data were gathered as part of longitudinal research on the long-term effects of childbearing motivations. Participants were recruited via social networks (e.g., Facebook, Email, WhatsApp). Advertisements were posted from the authors' personal Facebook pages in a variety of parenting and pregnancy groups, inviting pregnant women to participate in a longitudinal study. The advertisement included a short description of the study's aims, the

authors' contact details, and a link to Qualtrics.com, where participants completed the study's first questionnaire. We asked participants to provide contact details and sent the links for the other assessment points via email or WhatsApp. Participants received compensation of $15 for taking part in the study. Ethical approval that complied with the Declaration of Helsinki was obtained from the institution's ethical committee, and informed consent was obtained from all participants.

The initial sample was composed of 326 Israeli Hebrew-speaking pregnant women living in urban areas. Power analysis for the proposed model was conducted, with effect size defined as the difference in model RMSEA between close fit and the lack of fit (MacCallum et al., 1996). MacCallum et al, (1996) have used RMSEA values smaller than .05 as indicative of close fit and values larger than .08 as indicative of lack of fit. However, others have suggested .10 as the cutoff for poor fitting models. In this study, given $\alpha = .05$ and power of .80, sample size estimations ranged between 147 and 340 (depending on the strictness of the lack of fit cutoff value). With a stricter lack of fit criterion, the minimum power for the actual sample size was at least .80.

The study design included three assessment points. The first assessment (T1) was conducted prenatally, and the two others (T2 and T3) postnatally. At the prenatal assessment (N_{T1}=326), participating women were 9-41 weeks pregnant (M=31.21, SD=5.99); at the first postnatal assessment (N_{T2}=178), infants' mean age was 15.74 weeks (SD=3.09); at the second postnatal assessment (N_{T3}=130), children's mean age was 20.4 months (SD=3.28). Childbearing motivations were measured at T1, and parental styles and child adjustment were measured at T3. Control variables, including demographic, pregnancy, birth, and child measures, were reported at both T1 and T2.

Mothers' age at pregnancy ranged from 18 to 41, with an average of 28.84 (SD=4.28). Of these women, 61.3% (N=200) had a university degree, 35.3% (N=115) reported an

average or above level of income, and 64.7% reported a below average income, relative to the average monthly salary in Israel, equivalent to 2500 USD during data collection. The majority of the participants were born in Israel (*N*=291; 89.3%), but 6.7% had immigrated from the Soviet Union (*N*=22), and 4% had immigrated from other countries (*N*=13).

As for marital status, 93.6% (*N*=305) were married, very close to the national rate for married pregnant women (93.1%; Israeli Central Bureau of Satistics, 2018); duration of marriage ranged from six months to 20 years (M_{years}=3.86 , *SD*=2.97). The other 6.4% (*N*=21) reported being in a relationship with an exclusive partner.

Out of the participating women, 83.7% (*N*=273) reported the pregnancy was planned; 98.2 % (*N*=301) of the pregnancies were spontaneous, and the rest 6.8% (*N*=22) were a result of In Virto Fertilization (IVF). In the sample, 44.2% (*N*=144) were pregnant with their first child, 31.3% (*N*=102) with their second child, 16.3% (*N*=53) with their third child, and the remaining 8.2% (*N*=27) were pregnant with their fourth, fifth or sixth child. For 17.5% of the participants (*N*=57), the pregnancy was considered high risk, not statistically significant from than the 15% reported by the World Health Organization (2017).

Mother's mean age at childbirth was 29.19 (*SD*=4.12), slightly lower than the average maternal age in the Israeli population, which was 30.4 at the time of data collection (Israeli Central Bureau of Statistics, 2018). Out of all children born as a result of these pregnancies, 50.6% (*N*=90) were males. The pregnancy week at birth ranged from 28 to 42 (*M*=39.36, *SD*=1.70), making 4% (*N*=7) preterm births (before 37 weeks). As for birth method, 71.9% (*N*=128) of the births were vaginal, 12.9% (*N*=23) were assisted /instrumental, 6.2% (*N*=11) were scheduled C-sections, and 9% (*N*=16) were unplanned C-section. As for children's nutrition at T2, 49.4% (*N*=88) were consuming breast milk, 36.5% (*N*=65) formula, and 14% (*N*=25) both breast milk and formula. At T3, the majority of women (60.44%) had a full-time

job (*N*=81), 18.66% (*N*=25) had a part-time job, 8.96% (*N*=12) were students, 6.72% (*N*=9) were unemployed, and 5.22% (*N*=7) were on maternity leave.

Measures

Prenatal childbearing motivations. Mothers reported on their childbearing motivations using the Motivation to Have a Child Scale (MCS; Brenning et al., 2015) at T1. The MCS is a 7-point self-report Likert scale composed of 16 items. Each item has the following introduction: "An important reason for me to have a child is…." *Autonomous motivation* was calculated as the mean of the intrinsic motivation (e.g., "For the pleasure of having a child") and identified regulation (e.g., "Having a child is one of the valuable ways to realize my goals") subscales. *Controlled motivation* was calculated as the mean of the introjected (e.g., "I would feel I had failed as a person if I did not have children") and external regulation (e.g., "To please my social network (partner, family, friends)") subscales. Construct validity of the scale was supported in previous studies among Belgian (Brenning et al., 2015) and Israeli (Nachoum & Kanat-Maymon, 2018) populations. In a canadian longitudinal study, Cronbach's alphas ranged from .60 to .90, and test-retest reliability coefficients ranged from .65 to .77 (Gauthier et al., 2010). In the present study, Cronbach's alphas were .79 for autonomous motivation and .85 for controlled motivation.

Given the sample's characteristics, to examine whether nationality was significant to childbearing motivations, we compared the Israeli sample's childbearing motivations to the Belgian sample's motivations (Brenning et al., 2015) after rescaling the results (childbearing motivation in the Israeli sample was measured on a 1-7 scale and in the Belgian sample on a 1-5 scale). The results indicated that autonomous motivation in the Belgian sample was slightly lower (M=5.7) than in the Israeli sample (M=5.9). Although the difference was statistically significant ($t=2.42$, $p<.001$), the effect size was weak (Cohen's $d=0.22$).

However, controlled motivation in the Israeli sample (M=3.2) was more prominent than the Belgian sample (M=2.3), as indicated by stronger effect size (t=7.24, p<.001, Cohen's d=0.64).

Autonomy-supportive vs. controlling parenting. Mothers reported on their parenting styles using the Parent as Social Context Questionnaire for parents of young children (PSCQ-YC; Zimmer-Gembeck et al., 2015) at T3. The questionnaire is composed of two subscales, one assessing supportive/positive parenting (autonomy support, warmth, structure) and the other assessing controlling/negative parenting (coercion, rejection, chaos). Each subscale has 12 items, rated on a 7-point Likert scale, from 1 (not at all true) to 7 (very true). Scores were calculated as the average of items within each subscale. Examples are: "I support my child's efforts to try new things on his/her own" (supportive parenting); "To get my child to do something, I have to yell at him/her" (controlling parenting). In their scale development paper, Zimmer-Gembeck and colleagues (2015) reported Cronbach's alphas between .80 and .84, among an Australian sample. In this study, Cronbach's alpha was .72 for supportive parenting and .70 for controlling parenting.

Child behavior problems. Mothers reported on their children's behavior problems using the Child Behavior Checklist (CBCL/1-5; Achenbach, 2000) at T3. The CBCL is a well-validated and widely used dimensional measure designed to capture a wide range of childhood psychopathology. The questionnaire includes 100 problem behavior items, rated on 3-point scale, from 0 (not at all typical of the child) to 2 (often typical of the child), that can be summed to produce "externalizing" and "internalizing" behavior problem scores. In a Belgian study, Cronbach's alpha was .86 for internalizing problems and .90 for externalizing problems (De Pauw et al., 2009). Among an American sample, test-retest reliabilities ranged from .78 to .88 (Scheeringa & Haslett, 2010). In the present study, Cronbach's alpha was .79 for internalizing problems and .86 for externalizing problems.

Child difficult temperament. Mothers reported on their children's temperament using eight items from the Infant Characteristics Questionnaire (ICQ; Bates et al., 1979) at T2. The ICQ is a parent-report questionnaire, with responses rated on a 7-point Likert scale (e.g. "How much does he/she cry and fuss in general?"). In a Canadian study, Cronbach's alpha was .87 (Landry et al., 2008). In this study, Cronbach's alpha was 0.86.

Demographic variables. Demographic variables at T1 included: maternal age, maternal education, country of birth, maternal income, marital status, duration of marriage, number of children, pregnancy week, and other questions regarding the pregnancy. Maternal education was coded into six categories (elementary school, partial high-school, full high-school, non-academic diploma, BA, MA and above). Maternal income was coded into five levels. Participants rated their level of income relative to the average monthly salary in Israel, which was equivalent to 2500 USD during data collection: 1 = well below the average, 2 = below the average, 3 = average level, 4 = above the average, 5 = well above the average. Number of children was dichotomously coded, indicating if the reported child was a firstborn or not (0 = not firstborn, 1 = firstborn). Participants were asked to answer several pregnancy-related questions at T1: "Was the pregnancy planned?" (0 = yes, 1 = no); "Was the pregnancy spontaneous or as a result of IVF?" (0 = spontaneous, 1 = IVF); "Is the pregnancy considered high-risk?" (0 = no, 1 = yes).

Demographic variables at T2 included: child's gender, week of birth, child's age in weeks, birth method (vaginal, assisted / instrumental birth, scheduled C-section, unplanned C-section), child's nutrition (breast milk, formula, or both). Demographic variables at T3 included: child's age in years, type of childcare (homecare, nanny, in-home daycare, daycare / pre-kindergarten, or other), and maternal occupational status (full time job / part time job / student / unemployed / maternity leave). Participants were also asked whether they were pregnant or had given birth after the participating child was born.

Analytical Strategy

To test the direct and indirect paths from prenatal motivation to parental style and children's internalizing and externalizing problems, we conducted a path analyses using IBM SPSS Amos 25.0 (IBM Corporation, Armonk, NY). To account for potential covariations among the mediators and among the outcome variables, we modeled these covariations. All analyses were conducted with and without controlling for sociodemographic variables. This is in line with Simmons's and colleagues' (2011) claim that comparing with- and without-covariates analyses allows non-biased transparency as to the extent to which a finding is reliant in the presence of a covariate. Missing data were handled using the maximum likelihood method, a state-of-the-art method for obtaining estimates of the parameters (Schafer & Graham, 2002). The method uses all available data to calculate maximum likelihood parameter estimates with standard errors that are robust to non-normality.

We used different indices to test model fit. A model fit with NFI, CFI, and TLI equal to or greater than .95, RMSEA equal to or less than .06, and χ^2/df=1 to 3 is indicative of an adequate fit to the data (Kline, 2016). Ideally, the chi-square statistic is expected to be nonsignificant in the case of adequate fit; generally, however, this index is no longer recommended to evaluate fit because of its hypersensitivity to sample size (Kline, 2016). To assess the significance of the mediation effects, we used a procedure recommended by Hayes (2013) and calculated the 95% confidence intervals (CI) of the indirect effects based on 5,000 bias-corrected and accelerated bootstrapped samples. Indirect effects in which zero is not included in the 95%CI indicate a significant effect at $\alpha < .05$.

All the information was gathered from mothers; therefore, we tested for common method variance (CMV) using Harman's one-factor test. This test indicates CMV if the exploratory factor analysis of all key study variables produces a first-factor eigenvalue that

accounts for more than 50% of the variance (Fuller et al., 2016; Kanat-Maymon et al., 2019). Results indicated the first factor accounted for 32.1% of the variance; therefore, CMV seemed less of a problem in the data.

Results

Descriptive Statistics

Table 1 presents descriptive statistics and correlations among the key variables. As expected, prenatal autonomous childbearing motivation was positively related to autonomy-supportive parenting at 20 months, while controlled childbearing motivation was positively related to controlling parenting. There was also a negative correlation between autonomy-supportive parenting and children's internalizing problems, and a positive correlation between controlling parenting and children's internalizing and externalizing problems.

*** *Insert Table 1 around here* ***

No significant correlations were found between any of the key variables and number of children, child gender, high-risk pregnancy, and week of birth. Significant correlations were found for participants' age, education, and income. Controlled childbearing motivation was higher among older (r = .20, p < .05) and less educated women (r = -.12, p < .05). Autonomous childbearing motivation was less evident among older women (r = -.13, p < .05). Finally, income was positively correlated with controlling parenting (r = .26, p < .01).

Path Analysis

To test our conceptual model on the dynamic paths leading from prenatal motivations to children's behavior problems via parental autonomy-supportive and controlling parenting, we built a structural model (see Figure 1). The overall model provided good fit to the data: χ^2 (7) = 9.58, p = .214, RMSEA =.03, CFI =.98, TLI =.95, NFI = .94, χ^2/df=1.37.

**** Insert Figure 1 around here ****

Results indicated that autonomous prenatal childbearing motivation was positively associated with autonomy-supportive parenting at 20 months. However, the paths from parental autonomy support to internalizing (β = -.11, p = .259) and externalizing problems (β =.04, p = .658) were not significant, leaving hypothesis 1 only partially confirmed. Tests of the indirect effects did not reveal significant indirect effects from autonomous childbearing motivation to children's behavior problems (for externalizing, 95%CI = -.05, .05; for internalizing, 95%CI = -.09, .17).

Prenatal controlled childbearing motivation was positively associated with postnatal controlling parenting at 20 months. Controlling parenting, in turn, was positively associated with children's externalizing and internalizing problems. These results are fully consistent with hypothesis 2. Tests of the indirect effect indicated that the indirect effects of prenatal childbearing motivation on children's behavior problems through controlling parenting were significant (for externalizing problems, 95%CI = .06, .25; for internalizing problems, 95%CI = .03, .17). In addition, we found a significant path from controlled prenatal childbearing motivation to autonomy-supportive parenting, indicating that women with more controlled prenatal reasons to have a child were less autonomy-supportive at 20 months.

Robustness Analysis

To examine the robustness of the findings, we analyzed the data with an additional two sets of covariates. First, we controlled for child temperament at infancy (M =15.74 weeks, SD = 3.09). We found a marginally significant path between temperament and internalizing problems (β = .17, p = .065). In this model, the path between controlled childbearing motivation and subsequent autonomy support was only marginally significant (β = -.18, p = .059). Temperament did not alter any other associations in the main model.

Second, to test whether our findings could be attributed to demographic and birth factors, we controlled for mothers' age, education level, income, high-risk pregnancy, birth order, preterm birth, and child gender. The main findings were not altered by demographic and birth factors. When we turned to the control variables, we found significant associations between being a firstborn and externalizing (β = .23, p < .01) and internalizing problems (β = .20, p < .05). We also found a positive association between temperament and internalizing problems (β = .18, p < .01; for more information, see supplementary analysis).

Discussion

Having a child is a major life event, with long-term implications in many life realms (Cowan & Cowan, 2000). Despite its importance, very few studies have approached the decision to have a child using a multidimensional motivational perspective, and even fewer have examined the effect of childbearing motivations on subsequent parent and child behavior. To address this gap, in our longitudinal study, we used an SDT perspective to examine whether autonomous and controlled childbearing motivations are indirectly related to child behavior problems through autonomy-supportive versus controlling parenting.

Several interesting findings emerged from this study. The study's first hypothesis was that prenatal autonomous childbearing motivations would predict an autonomy-supportive parenting orientation at 20 months postpartum, which, in turn, would predict a lower level of child externalizing and internalizing problems. The results were partially consistent with this hypothesis. We found that autonomous childbearing motivation predicted an autonomy-supportive parenting style at 20 months postpartum. However, autonomy support was not associated with child behavior problems.

The study's second hypothesis was that prenatal controlled childbearing motivations would predict a controlling parenting orientation at 20 months postpartum, which, in turn,

would predict a higher level of child externalizing and internalizing problems. The results were fully consistent with this hypothesis. That is, pregnant women who felt pressured or forced to have a child tended to be more controlling as mothers, and this, in turn, was associated with higher rates of child behavior problems. Importantly, robustness analyses indicated that these findings did not change when accounting for child temperament, demographics, and birth factors.

Another interesting result was our finding of a positive correlation between autonomous and controlled motivation. Although SDT conceptualizes autonomy and controlled motivations as opposite ends of a continuum, they are not necessarily negatively correlated. In fact, they are in some occasions found to be positively correlated (e.g., Vansteenkiste et al., 2005). Perhaps this positive correlation suggests people might have more than one childbearing reason. A person can truly desire a child and at same time be subjected to external pressure from family members or friends.

The study has several theoretical implications. First, it emphasizes the importance of prenatal reasons for having a child to early childhood adjustment problems. Although child behavior problems are often regarded as resulting from poor environmental or biological conditions, such as harsh parenting (McKee et al., 2007) and temperament (Bates et al., 2012), our findings widen this perspective by suggesting these processes may be rooted in a much earlier stage, before the child is even born. It is important to note that we did not find a direct effect of prenatal motivations on child behavior problems. Childbearing motivations thus appear to be distal predictors of child adjustment, operating by shaping environmental characteristics, such as parenting styles.

This idea is much in line with other research on the distal effect of childbearing motivation. For example, Miller et al. (2009) argued for an indirect effect of childbearing motivation on child attachment. Accordingly, there is a sequence of effects starting with

mothers' childbearing motivation, going through emotional postnatal state, then to parenting behaviors, and ending with child attachment style. Similar to the current study's finding, Miller and colleagues (2009) found that negative childbearing motivations predicted maternal postpartum stress, depressive symptoms, and non-optimal parenting practices, which were related to child attachment insecurity at the age of two years. Claridge (2017) also found that maternal stress at 2 years postpartum mediated the relationship between pregnancy unwantedness and child socio-emotional difficulties at 3 years old.

Second, our results suggest that controlled motivation for childbearing and controlling parenting have a stronger influence on children's behavior problems than autonomous childbearing motivation and autonomy-supportive parenting. Although not fully consistent with our hypothesis, this possibility may be in line with the dual process model (Jang et al., 2016), whereby the absence of autonomy is not the mere presence of a controlled experience and vice versa. Rather, autonomous and controlled motivations represent two distinct, yet related, motivational trajectories. For example, an individual who has low self-fulfillment reasons for having a child does not necessarily experience high external pressure.

Some SDT studies have shown autonomous motivation is likely to be related to growth and wellbeing, whereas controlled motivation is more likely to be a risk factor for maladaptive functioning (e.g., Kanat-Maymon et al., 2018). Along these lines, and because the study's outcome variables focused on negative aspects of children's adjustment, the finding of a link between children's behavior problems and the controlled trajectory, but not the autonomous trajectory, is a reasonable one. Yet to better support this idea, future research should include both positive and negative adjustment outcomes.

Last, the study's findings have important practical implications. Knowing the possible influence of their motivations on their children may encourage parents to pay closer attention to their inner, autonomous motivations when deciding to expand their family, and to give

greater priority to reasons reflecting autonomous motivation. In addition, future parents' reasons for having children can easily be screened in antenatal care services. Awareness of prenatal motivations can be useful for clinicians, such as psychologists, couple counselors, and family therapists, when advising parents and future parents. Clinicians who encounter parents' controlled motivation can recognize it as a warning sign and suggest a suitable intervention. Given our finding of the mediational nature of parenting style, interventions may aim to enhance autonomy-supportive parenting behaviors (e.g. Joussemet et al., 2014), thus reducing the risk for the development of child internalizing and externalizing problems.

Several limitations should be considered when interpreting these results. First, the research variables were all self-reported and therefore may be subject to common method variance and social desirability bias (Fuller et al., 2016). The ability to rely on self-report measures is also limited because of the possibility of self enhancement and self-presentation motives (Swann et al., 2007). It is possible that our results reflect mothers' perceptions of themselves and their child. However, it is important to note that previous studies have demonstrated positive correlations between mothers' autonomous perceptions and children's reports of their mother's autonomously-oriented behavior (e.g., Jungert et al., 2015), indicating that perception bias may not be an issue. Further, test for CMV did not show that this is a problem in the current data. Nevertheless, a perception bias cannot be entirely ruled out, and fathers' reports could have mitigated potential biases of mothers as single informants.

Second, recruiting through social media may lead to a selection bias by recruiting more Internet-active, technology-oriented participants, and this may undermine the ability to generalize the findings to broader populations. Future studies should use more diverse data sources and measurement tools, such as observations or a wider range of informants.

Third, parenting styles (i.e., mediator) and child behavior problems (i.e., outcome) were measured at the same time point, a scenario that Cole and Maxwell (2003) termed half-mediation. Although the longitudinal design strengthens the findings, causality inferences in a half-mediation design cannot be fully drawn. Future studies can expand the timeline of the model by measuring parenting styles before child adjustment. It is also important to note that mothers' motivation was assessed at pregnancy and not prior to the childbearing decision-making. Therefore, it is less clear whether motivation was consistent throughout entire the childbearing decision-making process. However, SDT studies usually demonstrate motivational stability (Ryan & Deci, 2017). Future studies may follow non-pregnant women over a few years to look for changes or stability in childbearing motivations.

Conclusion

Our findings suggest prenatal childbearing motivations have long-term, meaningful effects on early parenting styles and may serve as indicators of future child adjustment problems, above and beyond the child's innate tendencies and contextual factors. These findings have implications for theoretical and practical discourse on motivations underlying the decision to have a child and the effect of these motivations on early parenting and children's adjustment.

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Table 1: Descriptive statistics and correlations between the research variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Prenatal childbearing autonomous motivation															
2. Prenatal childbearing controlled motivation	.36**														
3. Parental autonomy support	.22*	-.07													
4. Parental controlling	.03	.25**	-.34**												
5. Child's internalizing problems	.05	.16†	-.19*	.29**											
6. Child's externalizing problems	-.09	.06	-.18	.49**	.59**										
7. Temperament	-.08	.08	-.11	.16	.22*	.17									
8. Maternal age	-.13*	-.03	.02	.20*	.02	.11	.02								
9. Maternal education level	-.10†	-.12*	-.01	.17†	.10	.17	.12	.33**							
10. Maternal income	-.01	-.03	-.06	.26**	.01	.10	.01	.28**	.26**						
11. High-risk pregnancy	.07	.08	.06	.09	.06	.00	-.09	.15**	.05	.17**					
12. Firstborn child	-.01	-.03	-.04	-.07	.16	.19*	.02	-.28**	-.04	-.07	-.08				
13. Preterm birth	.09	.02	.04	.00	-.03	-.08	.02	.02	.00	.16*	.07	-.07			
14. Child's gender (male)	-.06	-.07	.11	-.01	-.06	.10	-.01	-.08	-.04	-.02	.01	.07	-.03		
15. Planned pregnancy	.02	-.06	.16	-.02	-.01	-.08	.04	.02	-.08	-.06	.06	-.11†	-.01	.03	
n	326	326	124	124	116	116	170	326	326	326	325	326	177	178	326
Mean	5.96	3.19	5.59	2.35	4.34	8.11	2.88	28.84	4.52	2.16	--	--	--	--	--
SD	0.88	1.38	0.67	0.71	4.27	5.91	0.97	4.28	1.16	1.23	--	--	--	--	--

Note. *$p < .05$; **$p < .01$; †$p<.08$. High risk pregnancy, firstborn child, preterm birth: 0=no 1=yes. Planned pregnancy: 0= yes 1= no. Child's gender: 0=female 1=male.

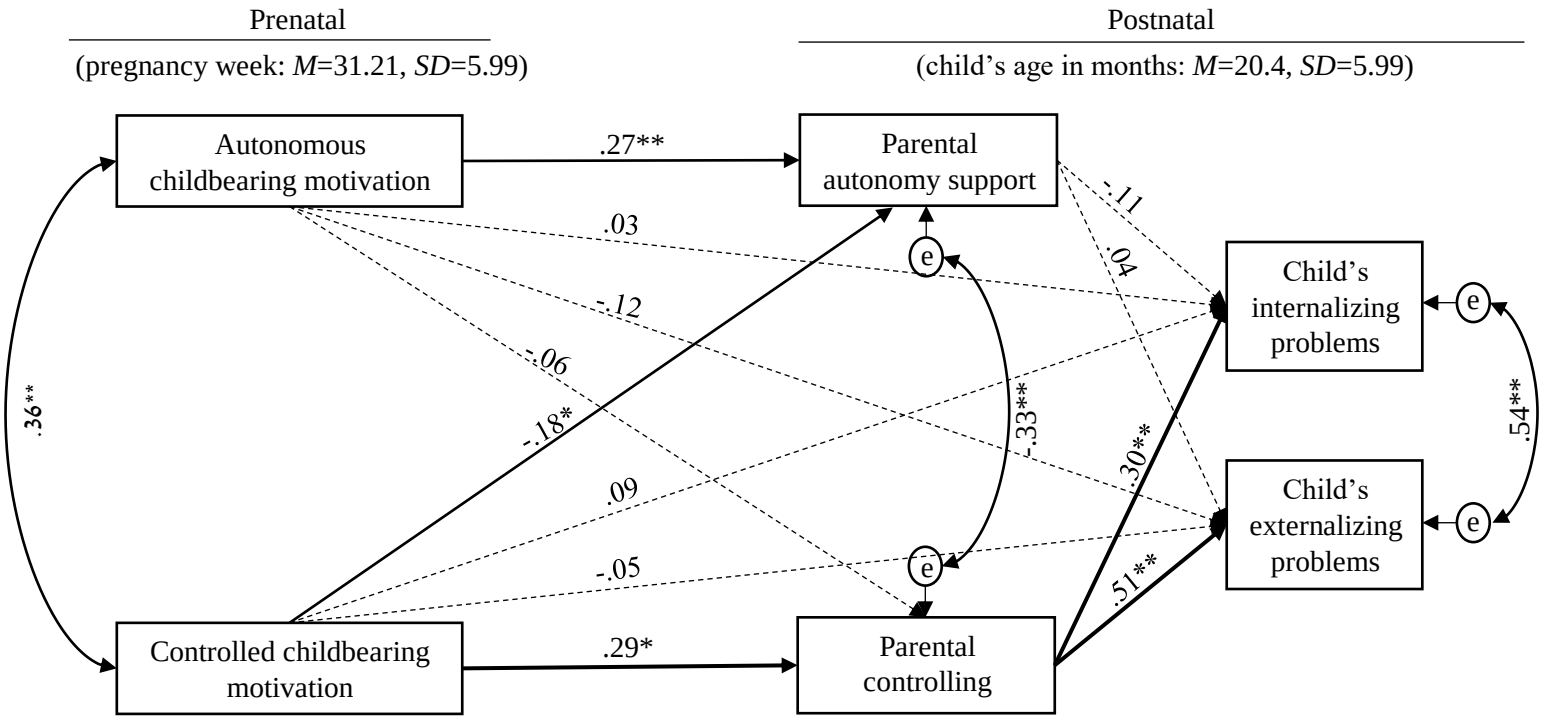

Figure 1

Path analysis linking prenatal maternal childbearing motivations with postnatal parental style and child behavior problems.

Note. Coefficients are standardized regression weights. Nonsignificant paths are represented as dashed lines. **p* < .05, ***p* < .01.