FERTILITY DECISION MAKING: TO WHAT EXTENT DO ADAPTATIONS, SOCIAL PRESSURES, AND INDIVIDUAL DIFFERENCES INFLUENCE PLANS TO HAVE A CHILD?

by

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Abstract

An evolutionary perspective suggests that changes in resource availability produce changes in fertility decisions and desires, and that these adaptive mechanisms are sensitive to sociocultural factors that act more proximally to the decision-maker. The current work systematically investigates several factors as potential predictors of fertility decisions at the level of the individual decision-maker in a three-study design, adding to an existing literature of fertility decision-making that has focused on demographic-level shifts. In study 1 (*N*=228, 69.3% female, average age=25.6), study 2 (*N*=232, 72.4% female, average age=24.7), and study 3 (*N*=333, 67% female, average age=25.1) data was collected from a general Internet sample and a student sample. Findings suggest that high resource variability produces insecure romantic attachment, which is associated with increased fertility plans and desires. Further, this work indicates that fertility decision making mechanisms are sensitive to sociocultural factors, particularly gender roles and identities, cultural pressures to become a parent, mothering expectations, and relationship status. These findings suggest that demographic-level changes in fertility can be understood, with strong predictive models, at the individual-level of analysis.

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Dedication

This work is dedicated to Adam Adair, for his constant support throughout this process. Completion of this research would not have been possible without his guidance.

Introduction

"We have children because we want immortality, and this is the most reliable way of getting it" – Woodrow Wyatt

The decision to have children is arguably one of the most impactful and difficult decisions of our adult lives. Decision making literature has secured a relatively comprehensive understanding of how we choose a mate (Buss & Barnes, 1986; Buss, Shackelford, Kirkpatrick & Larsen, 2001; Edlund & Sagarin, 2010) and how we choose to invest or defect from a pairing (Buss, & Shackelford, 1997; Coleman, 2009; Kaighobadi, Shackelford & Goetz, 2009), surprisingly little is known about how we decide whether or not to have children. Electing to have children has been described, albeit controversially (Holm, 2004), as irrational and morally objectionable; with the accompanying justification that "because of the uncertainties of human life, anybody's children can end up arguing that it would have been better for them not to have been born at all" (Häyry, 2004, pg 378).

Further, electing *not* to have children has been associated with greater marital satisfaction, adjustment and cohesion (Callahan, 1987; Macklin, 1980; Somers, 1993). Contradictory to the belief that childbearing is necessary to fulfill psychological needs for self-fulfillment, companionship, or feelings of achievement (Callahan, 1987), increasing evidence suggests that these needs can be met through other, childless avenues (Crawford & Unger, 2004). However, parenting has been associated with personal growth and increased positive personal relations (Scorgie & Sobsey, 2000); furthermore, *satisfied* parents enjoy positive changes in their health and general welfare (Umberson & Williams, 1999).

In sum, it does not appear clear that decisions to parent are overwhelmingly associated with the positive personal and marital outcomes with which they have been traditionally associated. If we can achieve personal fulfillment and growth while remaining childless, why do we decide to have children? Do we decide to become parents as a result of an abstract desire for immortality? Or, are our fertility decision-making practices a result of much more basic, adaptive, and visceral desires? The current work systematically investigates several potential predictors of fertility decisions in concert, hoping to ultimately shed light on population-level changes in birth rates from an individual-level of analysis.

The locus of the literature regarding fertility decision making explores demographic-level shifts in countries of extreme wealth and poverty; specifically, the somewhat paradoxical below replacement level fertility rates in wealthy countries and the high fertility rates of the world's poorest countries (Aarssen & Tzipporah, 2006; Booth & Crouter, 2005; Borgerhoff-Mulder, 1998; Crenshaw, Christenson, Oakey, 2000; Foster, 2000; Haaga, 2001; Hill & Reeve, 2004; Mitchell & Gray, 2007). Dramatically falling fertility rates, or "population implosion" has now become a pressing issue for 64 industrialized nations, the consequences of which include insufficient labor forces to maintain economic stability and social security (Caldwell, Caldwell, & McDonald, 2002). Insufficient birth rates to sustain a nation and an inability to provide for a nations' rapidly growing population are both important issues of public health that beg explanation and therein, long-term solutions (Wachter & Bulatao, 2003).

The demographic transition model lends itself to the explanation of population-level shifts from high fertility to low fertility – concluding that this transition hinges on mortality rates, such that falling mortality rates are associated with falling fertility rates. For example, when mortality rates fall as in the case of industrialized nations, abundant resources become invested

in upward social mobility instead of offspring (Crenshaw, Christenson, & Oakey, 2000; Davis, 1963; Notestein, 1945). In this case, resources are devoted to leaving a legacy behind oneself with material wealth and career achievement, rather than leaving behind a genetic legacy (Aarssen & Tzipporah, 2006). However, this runs counter to predictions based on basic evolutionary theory, which posits that individuals should maximize their fitness (the survival and prevalence of their genes in subsequent generations) by investing all of their abundant resources in reproductive effort. This theory would therefore predict that as resource abundance and stability increases, fertility rates should also *increase*. However, Lack (1947) demonstrated that resource stability is not always associated with increased fertility rates; rather than just increasing the amount of offspring produced, individuals could instead maximize the survival of the offspring they produce by investing in their success. Specifically, Lack (1947) recognized that birds do this by adjusting their clutch sizes relative to the stability and availability of resources in their environment.

This fertility rate adjustment based on resource availability is consistent with life history theory, which asserts that availability of resources dictates a necessary trade-off between investing limited resources in the quantity and quality of one's offspring (Griskevicius, Delton, Robertson, & Tybur, 2010; Voland, 1998). While birds (and other nonhuman animals) adjust their fertility rates based on resource availability and stability, similar adaptations are likely at work in producing fertility patterns in human populations as well. However, in humans resource scarcity is relative – it is far less likely that humans face fatally scarce resources when providing for offspring, as birds do. For humans, when resources are relatively scarce and variable a "fast" life strategy is favored, in which a small investment is made into many offspring, and when

resources are abundant and stable a "slow" life strategy is favored, in which few, high-quality offspring are produced (Dawkins, 1989; Quinlan, 2007).

According to strategic pluralism, fertility rates reflect another trade-off between investing limited resources in offspring and mating opportunities (Gangestad & Simpson, 2000). Strategic pluralism is defined as the relationship between an individuals' genetic fitness and their allocation of effort towards short-term and long-term mating opportunities (Gangestad & Simpson, 2000). According to this perspective, adaptations maximize fitness through sensitivity not only to resource stability, but also individual genetic fitness. Specifically, males with high genetic quality (whom are desired by females as short-term mates) should invest in short-term mating opportunities. Conversely, males with lower genetic quality should invest in parenting and long-term mating opportunities (Gangestad & Simpson, 2000). This perspective also predicts that females engage in a similar trade-off between the allocation of their effort towards short-term and long-term mating opportunities. In this case, females who would benefit more from securing a partner with high genetic quality should invest in short-term mating opportunities with high-quality (e.g., physically attractive) mates. On the other hand, females who would benefit more from securing a reliable partner who would invest resources in potential offspring should pursue long-term mating opportunities (wherein they might sacrifice genetic quality to ensure they are pairing with a partner who is willing to commit long-term; Gangestad & Simpson, 2000).

However, critiques of these theories call for the identification of proximate mechanisms that can provide more precise prediction and explanation of changes in birth rates (Crenshaw, Christenson, & Oakey, 2000; Knodel & van de Walle, 1986). In other words, what sociocultural forces act on evolutionarily derived strategies that seek to maximize fitness?

Specific Aims

The chief goal of the current work is to develop a more comprehensive model of fertility decision-making. An understanding of how the *individual* makes fertility-relevant decisions will be achieved by systematically investigating the role of the predictive factors introduced below across three studies. The current status of fertility decision-making literature (with contributions from demographers, sociologists, and anthropologists) explains *population-level* changes in fertility rates, with a specific need present to expand this understanding to the individual level of decision-making. An adaptationist explanation of fertility decision making predicts that fertility plans will seek to maximize fitness based on resource availability (Dawkins, 1989; Griskevicius, Delton, Robertson, & Tybur, 2010; Voland, 1998), which speaks to demographic level changes in countries of extreme wealth or poverty. However, ovulatory shifts and exposure to children (i.e., through peer's reproductive success) can provide insight into the importance of adaptive forces at work within the individual in shaping their fertility plans.

Application of a sociocultural perspective to fertility decision-making permits even more precise and individualized predictions. Consistent with modern interpretations of the nature-nurture debate, it is expected that the expression of evolved adaptations will be tempered by sociocultural and individual difference factors, such as social pressures (Macklin, 1980), social roles and identity (Heilman & Okimoto, 2008), attachment (Miller & Fishkin, 1997), impulsivity (McDonald, Donnellan, & Navarette, 2012), and relationship status (Schoen, Astone, Kim, Nathanson, & Fields, 1999).

A Proposed Model of Fertility Decision-Making

To summarize, the current work will evaluate the effectiveness of a proposed model of fertility decision-making. Such a predictive model will contribute to the fertility decision making

literature, where surprisingly little is understood about how these factors operate within the individual decision maker. Within an adaptationist framework, the factors of life history strategy, the reproductive status of one's peers, one's biological sex and experienced stage of ovulation are all predicted to provide significant prediction of fertility desires and plans. From a sociocultural perspective, investigation of more proximal factors is necessitated – that is, the sex roles and identity, social pressures to become a parent, attitudes about parenting, relationship status, attachment style, and impulsivity of the individual are anticipated to provide even more precise prediction of fertility desires and plans. Further, the possibility that these individual difference factors (such as attachment style and impulsivity) mediate the relationship between adaptive or ultimate factors and fertility decisions will be explored (see Figure 1.1). For example, it is expected that a "fast" life history strategy produces increased fertility through an individual's insecure attachment style and patterns of impulsive decision making. The effectiveness of these factors is evaluated in a three-study design.

In the first study, the role of *sociocultural factors* in shaping fertility attitudes and desires will be investigated. Particularly, the strength of the following predictors will be investigated in concert: attitudes about the female role, work-role identity, attitudes about parenting, social pressures to become a parent, and relationship status. In the second study, the role of *adaptations in combination with potential mediating individual difference factors* within fertility decision-making will be tested. In this case, the predictive model will include the following factors: life history strategy, household income, impulsivity, and insecure attachment style. Finally, the third study will focus on the predictive strength of biological factors (that is, adaptations). Using an adaptationist framework, the predictive quality of the following factors will be determined:

biological sex, experienced stage of ovulation, and the frequency of exposure to babies/children (our evolutionarily-relevant measure of peers' reproductive status).

Chapter 1 – Study 1: The Influence of Sociocultural Factors on Fertility Decisions

A sociocultural perspective of fertility decision-making includes the influence of several social and individual difference factors that act proximally to the decision maker. Therefore, the proposed role of social factors including identity, gender roles, social pressures, attitudes about parenting, and relationship status will be discussed.

Sex Roles and Identity

According to social role theory, the behaviors and attitudes of men and women are guided by existing social role stereotypes (Eagly, 1987; Eagly, 1997; Eagly, Wood, & Deikman, 2000) and endorsement of these stereotypes increases with age and socialization (Maestripieri & Pelka, 2001). Stereotypical gender roles and the resulting observed sex differences in career choices (Deikman, Clark, Johnston, Brown, & Steinberg, 2011), mate choices (Eagly, Wood, Johannesen-Schmidt, 2004), and possibly fertility choices are postulated to have arisen from adapted, biological differences between men and women, thus marrying the importance of ultimate and cultural factors in shaping the behaviors of individuals (Archer, 1996). Therefore, rather than seeking to determine the importance of ultimate versus proximate factors, the current work will address the relative importance of gender role beliefs and identity (in the context of other relevant factors discussed below) in determining fertility decision making outcomes.

Research investigating nontraditional family forms has identified some common characteristics shared between individuals who elect to remain childless, primarily that they endorse nontraditional gender roles more so than parents (Somers, 1993). Traditional attitudes about the female role, specifically, have been previously associated with more positive attitudes

towards parenting (Kaufman, 2000; Thornton, Alwin, & Camburn, 1983; Thornton & Camburn, 1980).

> **H1:** It is therefore predicted that more traditional attitudes toward the female role will be associated with increased fertility attitudes and plans.

In accordance with social role theory, endorsement of stereotypical gender roles is expected to increase with age and predict choices in accordance with those roles, namely decisions to occupy a particular identity (Maestripieri & Pelka, 2001). In general, decreasing fertility trends have been accompanied by increasing female presence in the full-time workforce since the 1960s (Brewster & Rindfuss, 2000); and individually, women who endorse traditional gender roles are more likely to feel that occupying an identity as a mother is their duty, while their nontraditional counterparts are more likely to focus on their careers (Greenhaus, 1971; Kaufman, 2000). This feeling of obligation towards the decision to have children is perhaps a product of social perceptions of motherhood, which suggest that it is an essential aspect of the feminine role (Heilman & Okimoto, 2008). Indeed, according to Damaske (2011), "… shared cultural values about the importance of work and motherhood in women's lives shape their decisions about work and home even in the face of significant structural constraints, such as poor work opportunities and a lack of family resources" (p. 121). This suggests that knowledge about individuals' gender role endorsements and work-role identities can provide valuable insight into their fertility decisions, beyond that provided by measures of resource instability (i.e., life history strategy).

> **H2:** It is predicted that identity, whether family or career-oriented, will also be predictive of fertility attitudes and decisions.

Attitudes About Parenting

The role of expectations has been greatly emphasized in the decision-making literature, specifically within the domains of economic (Van Raaij, 1991) and social decision-making (Klaaren, Hodges, & Wilson, 1994; Priem & Price, 1991). Fertility decisions and attitudes are likely to also depend on individuals' expectations of what the experience is going to be like. These expectations are shaped by social factors, and as such rely upon stereotypes about the female role (for example, perceiving motherhood is an essential characteristic of the female role (Heilman & Okimoto, 2008)). Therefore attitudes about parenting have particularly strong implications for fertility decision-making practices of women (Walls, 2010). Such social norms indicate that "good" mothers provide most (if not all) of the care that their children need. In other words, intensive mothering expectations (a construct described by Hays (1996)) are grounded in the assumption "that children fare best under exclusive maternal care, and this is primarily because maternal love and affection are assumed to be an instinctual part of motherhood" (Walls, 2010, pg. 38).

While the role of these intensive mothering expectations has been investigated within the context of well-being (Walls, 2010) and changes in career decision-making (Garey, 1999; Hattery, 2001), it has yet to be investigated as a predictor of fertility plans and attitudes. Women's intensive mothering expectations affect their work and family-relevant identities (Hochschild, 1989; Uttal, 1996), as well as their career investment (Hattery, 2001); suggesting that these expectations might also shape family decisions relevant to fertility. Indeed, interviews with childless women have revealed that they often explain that their decision to forgo parenthood is motivated by negative attitudes towards the *responsibilities* associated with parenting, rather than negative attitudes towards children (Gillespie, 1999; Kelly, 2009). For

these women, intensive mothering expectations imply demands that they are unwilling to meet (Kelly, 2009).

> **H3**: As childless women have been found to endorse more intensive mothering expectations, compared to mothers (Maher & Saugeres, 2007), it is expected that individuals with more intensive mothering expectations will display decreased fertility plans and attitudes.

Social Pressures

Behaviors that are consistent with or violate stereotypical gender roles elicit differential reactions and social perceptions. Specifically, individuals who *violate* stereotypical gender roles are often perceived and treated unfavorably (Heilman, Wallen, Fuchs, & Tamkins, 2004), resulting in salient social pressures to adhere to these roles. This stigmatization is particularly prominent with female violators (Miles, 2005; Rudman, 1998). The social pressure to occupy the traditional female role and become a mother is referred to as the "motherhood mandate", and while evidence suggests a non-relationship between psychological well being and parenthood (Baruch & Barnett, 1983), childless women are perceived as less fulfilled, unhappy, and less acceptable role models (Crawford & Unger, 2004). Both men and women report being distinctly aware of these negative social perceptions and pressures (Macklin, 1980), and women indicate that these pressures come from both family members and friends (Somers, 1993; Miles, 2005).

Perceptions of more general cultural expectations for achieving parenthood might also be involved in shaping an individual's fertility decisions; evidence suggests that cultural rules do impact the decision making processes of their members (Briley, Morris, & Simonson, 2000). Briley and colleagues (2000), in the domain of consumer decision-making, find that complex decisions in particular are more likely to be shaped by cultural norms and rules – accordingly,

since decisions about one's fertility involve considerations of trade-offs and explanations for one's decision, cultural expectations are expected to shape fertility decision-making processes (Brase & Brase, 2012; Walker & McNiell, 2007).

> **H4**: Therefore, it is expected that perceived pressures to achieve parenthood from kin, non-kin, and cultural (e.g., governmental policy and general beliefs) sources will have a significant effect on fertility choices, particularly in women.

Relationship Status and Duration

In order to construct a working model of fertility decision making, practical boundaries to the achievement of fertility plans must be taken into account. While developing a predictive model of fertility decision making within Samoan society, Nardi (1983) explains obstacles to the attainment of fertility goals; "People do not simply formulate goals and carry out plans to achieve their goals, escaping intrusion and resistance from the outside world. Environmental change forces people to realign their goals and plans and to be flexible in making decisions" (pg 13). For example, a social climate that is conducive to high fertility, with individual endorsement of traditional gender roles (Greenhaus, 1971; Kaufman, 2000; Somers, 1993), and strong pronatalist expectations from kin and non-kin acquaintances (Macklin, 1980; Miles, 2005) might *not* predict high fertility in never-married single individuals. That is, when certain situational factors are encountered no offspring will be desired or produced, regardless of the presence of other factors found to predict the decision to have children. According to our "deal-breaker" hypothesis, boundaries such as relationship status and duration might serve as deal-breakers, which force the decision maker to change their fertility plans. Evidence supports such a prediction, indicating that a change in marital status exerts strong influence over fertility intentions (Williams, Abma & Piccinino, 1999).

If relationship status and duration are indeed critical aspects of the fertility decision-making process, then they should surface in the literature as strong and reliable predictors of fertility. Investigated within the context of several other relevant factors (education, age, employment, certainty of fertility plans, spouse's fertility plans, and income) marital status has emerged as one of the strongest predictors of fertility outcomes, along with fertility intentions (Schoen, Astone, Kim, Nathanson, & Fields, 1999). In fact, marital status is one of the most reliable predictors of fertility intention status (Forrest, 1994). Marital duration has similarly been found to be a strong predictor of fertility (Neal & Groat, 1980).

> **H5**: The deal-breaker hypothesis - It is therefore predicted that, within the context of the factors investigated in the current work, relationship status and duration will surface as the strongest predictors of fertility decisions.

Importantly, these family structure factors are referred to here as "relationship" rather than "marital" factors in order to accommodate the drastic increase in nonmarital cohabitation and nonmarital childbearing in the United States over the past two decades. In fact, recent iterations of partnership typologies have adapted to this shift, and address cohabitation and marriage as equivalent, ultimate stages within which childrearing is most likely to take place (Kiernan, 2002).

Chapter 2 – Study 1 Methods, Results, and Discussion

Methods

Participants

For study one, online data collection was facilitated through Axio (Axio Learning, 2012). Subjects were recruited from a general Internet sample, through the Social Psychology Network (N = 77) and Mechanical Turk (N = 95), and finally from a student sample via the SONA System (N = 56). Our student sample participated for credit towards their completion of a General Psychology course, our Mechanical Turk sample received a $0.15 incentive for participation, and our sample recruited through the Social Psychology Network did not receive any compensation. Several one-way ANOVAs determined that while participants recruited through these three sources did differ significantly in terms of age ($F(2, 225)= 35.01$, $p <.001$), with participants recruited through Mechanical Turk being significantly older ($M = 32.40$, $SD = 11.20$) than those recruited through SONA ($M = 19.64$, $SD = 3.89$) or the Social Psychology Network ($M = 24.90$, $SD = 9.65$), participants' responses *did not* differ significantly on the majority of the dependent variable measures (i.e., the ultimate number of children they desire, the frequency of their desires to have a baby, the age at which they plan on having their first child, and their fertility desires as measured by the Attitudes Towards Babies Scale (ABS; Brase & Brase, 2012). The only exception was that participants recruited through SONA reported having significantly weaker desires to have a baby ($F(2, 225)=4.04$, $p = .019$; $M = 4.54$, $SD = 3.40$), compared to those recruited through Mechanical Turk ($M = 6.01$, $SD = 3.16$) and the Social Psychology Network ($M = 5.95$, $SD = 3.43$). However, these differences appear to be driven by age differences alone, rather than other systematic differences between our samples; the relationship between the source of the data and the strength of one's desires to have a baby becomes insignificant when

the age of the participant is controlled for in the first step of a hierarchical regression analysis ($\beta = .022$, $p = .756$). As such, subsequent findings reported will be garnered from this sample collapsing across data source.

Females are slightly overrepresented in our study one sample (69.3%), as are childless individuals (75.9%). A largely childless sample is desirable for our purposes, as we are chiefly interested in fertility decision-making among those who have not already made the decision to parent. Further, most of our sample is Caucasian (72.4%), heterosexual (88.2%), and currently involved in a romantic relationship (54%).

Procedure and Materials

In order to determine the predictive power of sociocultural factors within the proposed model of fertility decision-making, participants responded to the following scales through Axio (Axio Learning, 2012), after reading and endorsing an informed consent form. The following measures were used to assess the factors included in the model for study one:

Sex Roles and Identity. Attitudes about the female role were measured using the Attitudes Towards Women Scale (Spence & Helmreich, 1978), which asks participants their degree of agreement (scale anchors of 1 "strongly agree" and 5 "strongly disagree") with 15 statements which range from stereotypical and traditional to nontraditional gender role prescriptions (e.g., "Swearing and obscenity are more repulsive in the speech of a woman than a man"; see Appendix A). Higher scores on the Attitudes Towards Women Scale were indicative of more traditional attitudes about the female role. This scale demonstrated good consistency within the current sample, Cronbach's $\alpha = .82$. In order to assess the identity occupied by participants, the Work Role Salience Scale (Greenhaus, 1971) was used; in this case, participants reported their degree of agreement (scale anchors of 1 "strongly disagree" and 5 "strongly

agree") with 25 statements that exemplify parenting or career-oriented identities (e.g., "I could never be truly happy in life unless I achieved success in my job or career"; see Appendix C). High scores on the Work Role Salience Scale were associated with more work-focused identities. This scale also demonstrated good internal consistency, Cronbach's $\alpha = .86$.

Attitudes About Parenting. Attitudes about parenting were measured using the 21-item Intensive Mothering Beliefs Scale (Walls, 2010). This measure asks participants to indicate their degree of agreement (scale anchors of 1 "strongly agree" and 5 "strongly disagree") with statements that represent social norms about "good" mothers; for example, "Child care is solely the responsibility of the mother" (see Appendix G). High scores on the Intensive Mothering Beliefs Scale were indicative of greater endorsement of intensive mothering beliefs. In our study one sample, this measure too demonstrated good internal consistency, Cronbach's $\alpha = .86$.

Social Pressures. In order to determine the extent to which participants experience and perceive social pressures to become a parent, the Cultural Pressures for Parenthood Scale was used (Adair, 2013; in progress). Participants were asked to report their degree of agreement (anchors of 1 "strongly agree" and 5 "strongly disagree") with 33 statements about experiencing pressure to become a parent from several sources (i.e., the media, general beliefs, friends and family, and governmental policy). For example, "My family insists that I have children someday" (see Appendix F). Larger values on the Cultural Pressures for Parenthood Scale were associated with stronger perceived pressures to become a parent. Again, good internal consistency was observed, Cronbach's $\alpha = .84$.

Relationship Status and Duration. To address our deal-breaker hypothesis, participants were presented with demographic questions (including items regarding age, ethnicity, sexual orientation, etc.) addressing participants' relationship status and duration.

Fertility Decision Making. The outcome of interest for all three studies, fertility decision making, was measured with several instruments. As in Brase and Brase (2012), "baby fever" or the desire to have a child was measured using the Attitudes Towards Babies Scale (see Appendix D). This scale addresses three dimensions of the desire for parenthood as subscales, including positive exposure (e.g., "The smells of a baby (baby powder/baby wash) make me want to have a baby of my own"), negative exposure (e.g., "When I see a child having a tantrum, I want to get as far away from the noise as possible"), and trade-offs (e.g., "Having a baby would destroy my freedom to do whatever I want, when I want"). The 8-item negative exposure subscale (Cronbach's $\alpha = .90$), 10-item positive exposure subscale (Cronbach's $\alpha = .95$), and 6-item trade-offs subscale (Cronbach's $\alpha = .91$) all demonstrated good internal consistency reliability within the current sample.

It could be argued that desires to have a child may not be the best measure of fertility decisions because individual decision-making processes may not bring these desires to fruition. However, explicitly stated fertility desires and plans have been found to strongly correlate with fertility outcomes (that is, having children) (Ajzen, 1991; Islam & Bairagi, 2003; Schoen, Astone, Kim, Nathanson, & Fields, 1999; Schoen, Astone, Nathanson, Kim, & Murray, 2000). To further address individual fertility decisions, participants were given a series of items which directly assessed fertility plans or intentions; i.e, "At what age do you plan to have children?" and "What is the ultimate (or largest) number of children you would like to have?". Also, fertility outcomes were assessed within the individuals to which these items applied (24.1% of our sample which reported having children); i.e., "How many children do you have?" and "At what age did you have your first child?".

Study 1 Results

Analysis of Demographic Factors

First, a series of t-tests and correlations were used to explore demographic differences in responses to several attitude measures (including measures of gender roles, fertility plans and desires). Sex differences are reported in Table 1.1, and suggest a few findings of note; men in our sample reported more frequent desires for sex, compared to women (M=6.89, SD = 1.81 and M=5.39, SD = 2.09 respectively; $t(226)$=5.19, p<.001). Also, women reported greater visceral desires for the sight, smell, and feel of a baby, compared to men (M=4.07, SD = 2.74 and M=3.21, SD = 2.27 respectively; $t(226)$=-2.29, p=.023). However, no such differences were found in the frequency (M_{men}=3.21, SD_{men}= 2.06 and M_{women}=3.59, SD_{women}= 2.51; $t(226)$=-1.12, p=.266) or intensity (M_{men}=5.64, SD_{men}=3.37 and M_{women}=5.62, SD_{women}= 3.36; $t(226)$=.05, p=.963) of desires to have a child. No significant differences regarding these attitude measures were observed for subjects reporting different ethnic backgrounds.

Some differences based on participants' reported age also emerged. Age was significantly related to the frequency of desires to have a baby ($r(228)$= -.140, p=.035), the strength of visceral desires for the sight, smell, and feel of a baby ($r(228)$= -.135, p=.042), endorsement of negative exposure items ($r(228)$= .155, p=.022) and positive exposure items of the ABS ($r(228)$= -.290, p<.001), and work-role identity ($r(228)$= -.199, p=.004).

Hypothesis Testing for Study 1

To address the relative importance of the examined factors in determining fertility decision-making plans, and identify the sociocultural forces that act upon evolutionarily derived strategies, a series of regression analyses were used. Below, these systematic regression analyses are addressed individually, by outcome of interest.

Fertility Plans: Ultimate number of children desired. The predictive quality of the sociocultural factors included in our model for study 1 regarding plans to have children (specifically, the ultimate number of children desired) was examined using a simultaneous regression. Together, all of the included factors predicted 11.6% of the variance in the number of children desired ($F(8,179)= 2.94$, $p =.004$, $R^2= .116$). Age ($\beta= -.262$, $p =.001$) and relationship status ($\beta= .167$, $p =.031$) emerged as the only significant individual predictors of fertility plans. Contrary to hypotheses 1, 2, 3, and 4 regarding the relative importance of attitudes about the female role, work-related identity, mothering expectations, and cultural pressures to become a parent, respectively; these factors did not predict individual differences in the ultimate number of children desired. However, our findings do provide support for our deal-breaker hypothesis (H5), as relationship status *did* predict variance in fertility plans above and beyond that explained by the other sociocultural factors in our model.

To determine if our predictive model is operating differently depending on biological sex, regression analyses were run for men and women separately. Our sociocultural predictive model tested in study 1 appears to provide better prediction for men ($F(7,53)= 2.24$, $p =.045$, $R^2= .228$), compared to women ($F(7,119)= 2.25$, $p =.035$, $R^2= .117$). However, regarding the strength of individual predictors, no differences emerged when our model was applied to men and women separately, compared to our overall model including both sexes. Also, hierarchical regression analyses indicated that sex did not significantly interact with intensive mothering expectations ($F(1, 190)= 1.22$, $p =.270$, R^2 change= .006, $\beta= .333$) or cultural pressures for parenthood ($F(1, 195)= 1.35$, $p =.246$, R^2 change= .007, $\beta= .297$); therefore, predictions regarding the *greater* influence of intensive mothering expectations (H3) and cultural pressures for parenthood (H4) on the fertility plans of women were not supported in this sample.

To determine if our predictive model is operating differently depending on parenting status, regression analyses were run for childless individuals and parents separately. In this case, our model appears to provide better prediction for childless individuals ($F(7,133)= 8.74$, $p <.001$, $R^2= .315$), compared to parents ($F(7,39)= 1.12$, $p =.372$, $R^2= .167$). For childless individuals, age ($\beta= -.507$, $p<.001$), and income ($\beta= -.174$, $p= .019$) significantly individually predict the ultimate number of children desired. For parents, no significant individual predictors emerged.

Fertility Plans: The age at which one plans to have their first child. To determine the power of our predictive model regarding fertility plans (specifically, the age at which one plans to have their first (or next) child) a simultaneous regression analysis was used, including the sociocultural factors measured in study 1. Together, all of our sociocultural factors only predicted 8.3% of the variance in the age at which individuals report planning on having their first (or next, for parents) child ($F(8,172)= 2.05$, $p =.043$, $R^2= .087$). Age was the only significant individual predictor of individuals' fertility plans ($\beta= -.252$, $p=.001$). Therefore, (in the case of the age one plans to have a child), our hypotheses regarding the importance of attitudes about the female role (H1), work-related identity (H2), mothering expectations (H3), and cultural pressures to become a parent (H4), and relationship status (H5) were not supported.

To determine if our predictive model is operating differently depending on biological sex, regression analyses were run for men and women separately. Our sociocultural predictive model tested in study 1 significantly predicts fertility plans for women ($F(7, 113)= 3.44$, $p =.002$, $R^2= .176$), but not for men ($F(7, 52)= .889$, $p =.522$, $R^2= .107$). Regarding the strength of individual predictors, no significant individual predictors were found for men, but for women age ($\beta= -.347$, $p<.001$) and income ($\beta= -.244$, $p=.006$) appear to be particularly important. Also, hierarchical regression analyses indicated that sex did not significantly interact with intensive mothering

expectations (F(1, 182)= .238, p =.626, R^2 change= .001, β= .151). However, sex did significantly interact with cultural pressures for parenthood (F(1, 187)= 4.12, p =.044, R^2 change= .021, β= -.519). Predictions regarding the *greater* influence of intensive mothering expectations on the fertility plans of women is not supported (H3). Interestingly, simple slopes analysis does indicate that there is a slightly greater influence of cultural pressures for parenthood on the fertility plans of men (β= .233, p=.054) compared to women (β= -.071, p=.429; see Figure 2.1). Our data indicate that as cultural pressures to become a parent increase, the age at which men plan on having a child *increases* and the age at which women plan on having a child *decreases*.

To determine if our predictive model is operating differently depending on parenting status, regression analyses were run for childless individuals and parents separately. In this case, our model appears to only significantly predict fertility plans for childless individuals (F(8, 129)= 2.05, p =.045, R^2= .113), compared to parents (F(8, 34)= 1.04, p =.428, R^2= .196). For childless individuals, age (β= -.226, p=.010), and intensive mothering expectations (β= -.261, p= .029) significantly individually predict the age at which one plans to have a child. For parents, no significant individual predictors emerged.

Fertility Attitudes and Desires: The frequency of desires to have a baby. Simultaneous regression analyses were used to determine how well our model predicts the frequency of desires to have a baby. Together, all of the factors from study 1 significantly predicted 12.1% of the variance in the frequency of desires to have a baby (F(8, 179)= 3.09, p =.003, R^2= .121). In this case, age (β= -.266, p=.001) and household income (β= -.225, p=.002) emerged as significant individual predictors. Therefore, our hypotheses regarding the importance of attitudes about the female role (H1), work-related identity (H2), mothering expectations (H3), and cultural pressures

to become a parent (H4), and relationship status (H5) were not supported when predicting the frequency of desires to have a baby.

To determine if our predictive model is operating differently depending on biological sex, regression analyses were run for men and women separately. For this criterion, our predictive model significantly predicts the frequency of fertility desires for women ($F(7, 119)= 3.64$, $p =.001$, $R^2= .176$), but not for men ($F(7, 53)= .56$, $p =.785$, $R^2= .069$). Regarding the strength of individual predictors, no significant individual predictors were found for men, but for women age (β= -.266, p=.001) and income (β= -.225, p=.002) appear to be particularly important. Also, hierarchical regression analyses indicated that sex did not significantly interact with intensive mothering expectations ($F(1, 190)= .006$, $p =.938$, R^2 change<.001, β= -.024) or cultural pressures for parenthood ($F(1, 195)= .726$, $p =.395$, R^2 change=.004, β= -.221), contrary to hypotheses 3 and 4 respectively.

To determine if our predictive model is operating differently depending on parenting status, regression analyses were run for childless individuals and parents separately. Again, our model appears to only significantly predict fertility plans for childless individuals ($F(8, 132)= 3.02$, $p =.004$, $R^2= .155$), compared to parents ($F(8, 38)= .860$, $p =.558$, $R^2= .153$). For childless individuals, sex (β= .168, p=.044), age (β= -.277, p=.001), and income (β= -.273, p= .001) significantly individually predict the frequency of desires to have a baby. For parents, no significant individual predictors emerged.

Fertility Attitudes and Desires: The strength of visceral desires to have a baby. Simultaneous regression analyses determined that together, all of the factors from study 1 significantly predicted 15.8% of the variance in the strength of visceral desires for the feel, sight, and scent of a baby ($F(8, 179)= 3.09$, $p =.003$, $R^2= .121$). In this case, sex (β= .164, p=.021), age

(β= -.256, *p*=.001), relationship status (β= .189, *p*=.013), and household income (β= -.155, *p*=.026) emerged as significant individual predictors. Therefore, when predicting the strength of visceral desires to have a baby, our hypotheses regarding the importance of attitudes about the female role (H1), work-related identity (H2), mothering expectations (H3), and cultural pressures to become a parent (H4), were not supported. However, consistent with hypothesis 5 relationship status did emerge as a significant individual predictor of fertility desires. Individuals involved in committed romantic relationships reported stronger desires (*M*=4.18, *SD*=2.72), compared to singles (*M*=3.44, *SD*=2.50; *t*(226)=2.13, *p*=.034).

Using separate simultaneous regression analyses, again we found that our predictive model significantly predicts the strength of visceral desires to have a baby for women (*F*(7, 119)= 3.56, *p* =.002, R^2= .173), but not for men (*F*(7, 53)= 1.56, *p* =.168, R^2= .171). Regarding the strength of individual predictors, no significant individual predictors were found for men, but for women age (β= -.307, *p*=.001) and income (β= -.228, *p*=.008) appear to be particularly important. Also, hierarchical regression analyses indicated that, contrary to hypotheses 3 and 4, sex did not significantly interact with intensive mothering expectations (*F*(1, 190)= .003, *p* =.956, R^2 change<.001, β= -.017) or cultural pressures for parenthood (*F*(1, 195)= .005, *p* =.944, R^2 change<.001, β= .018).

We again ran regression analyses for childless individuals and parents separately. We found that our model appears to only significantly predict fertility plans for childless individuals (*F*(8, 132)= 3.27, *p* =.002, R^2= .165), compared to parents (*F*(8, 38)= 1.38, *p* =.237, R^2= .225). For childless individuals, sex (β= .211, *p*=.011), age (β= -.226, *p*=.007), and income (β= -.195, *p*= .019) significantly individually predict the strength of desires to have a baby. For parents, no significant individual predictors emerged.

Fertility Attitudes and Desires: Attitudes about fertility. Our predictive model for study 1 significantly predicts the variance in individuals' negative exposure to babies ($F(8, 179)= 6.35$, $p <.001$, $R^2= .221$) and positive exposure to babies ($F(8, 179)= 6.64$, $p <.001$, $R^2= .229$) subscales of the ABS. However, our model does not significantly predict endorsement of trade-off items of the ABS ($F(8, 179)= 1.65$, $p =.115$, $R^2= .068$). Sex (β= -.293, $p<.001$), age (β= .265, $p<.001$), relationship status (β= -.182, $p=.013$), household income (β= .136, $p=.042$), work-role identity (β= .139, $p=.042$), and cultural pressures to become a parent (β= .150, $p=.041$) significantly individually predicted individuals' negative exposure to babies. Therefore, our hypotheses regarding the importance of work-related identity (H2) and cultural pressures to become a parent (H4) in shaping fertility attitudes were supported. Regarding positive exposure to babies, sex (β= .222, $p= .001$), age (β= -.388, $p<.001$), household income (β= -.180, $p=.007$), and cultural pressures to become a parent (β= .184, $p=.012$) significantly individually predicted individuals' positive exposure to babies. Regarding this criterion, our hypothesis about the importance of cultural pressures to become a parent (H4) in shaping fertility attitudes was supported.

Using separate simultaneous regression analyses to predict negative exposure to children, again we found that our predictive model significantly predicts negative exposure/attitudes towards children for women ($F(7, 119)= 3.84$, $p =.001$, $R^2= .184$), but not for men ($F(7, 53)= .983$, $p =.453$, $R^2= .115$). Regarding the strength of individual predictors, no significant individual predictors were found for men, but for women age (β= .282, $p=.002$), relationship status (β= -.219, $p=.015$), and work-role identity (β= .201, $p=.021$) appear to be particularly important. Also, hierarchical regression analyses indicated that, contrary to hypothesis 3 and 4, sex did not significantly interact with intensive mothering expectations ($F(1, 190)= .070$, p

=.791, R^2 change<.001, β= -.078) or cultural pressures for parenthood (F(1, 195)= .026, p =.872, R^2 change<.001, β= .040).

For the positive exposure criterion, we found that our model significantly predicts fertility attitudes for women (F(7, 119)= 5.16, p <.001, R^2= .233) *and* men (F(7, 53)= 2.50, p =.027, R^2= .248). Regarding the strength of individual predictors, for women age (β= -.456, p<.001), and income (β= -.173, p=.035) appear to be particularly important, for men cultural pressures for parenthood (β= .270, p=.050) and attitudes about the female role (β= -.421, p=.010) appear to be important in shaping positive attitudes about babies. Also, hierarchical regression analyses indicated that contrary to hypothesis 3 and 4 sex did not significantly interact with intensive mothering expectations (F(1,190)= .050, p =.823, R^2 change<.001, β= .067) or cultural pressures for parenthood (F(1, 195)= .122, p =.728, R^2 change=.001, β= -.089).

Considering differential prediction for parents and childless individuals, separate regression analyses indicate our model only significantly predicts negative exposure to babies for childless individuals (F(8, 132)= 7.67, p <.001, R^2= .317), compared to parents (F(8, 38)= 2.04, p =.068, R^2= .300). For childless individuals, sex (β= -.280, p<.001), age (β= .412, p<.001), and income (β= .209, p= .005) significantly individually predict negative exposure to babies. For parents, work-role identity (β= .301, p=.036), and attitudes towards women (β= -.391, p= .029) emerged as significant individual predictors of negative exposure to babies. For the positive exposure to babies criterion, we also only found significant prediction for childless individuals (F(8, 132)= 6.77, p <.001, R^2= .291), compared to parents (F(8, 38)= 1.36, p =.244, R^2= .223). For childless individuals, sex (β= .256, p=.001), age (β= -.437, p<.001), and income (β= -.233, p= .002) significantly individually predict positive exposure to babies. For parents, no significant individual predictors emerged.

Study 1 Discussion

The sociocultural predictive model tested in study 1 did significantly predict fertility plans, desires, and attitudes. However, when considering error-rate inflation given multiple experiment-wise testing, the limited support found for the following factors runs contrary to predictions; attitudes about the female role, intensive mothering expectations, and work-role identity. We did find partial support for hypothesis 1 regarding the role of attitudes about the female role in shaping fertility desires, as men's traditional attitudes about the female role were associated with less positive attitudes about babies. We also found that parents with traditional attitudes about the female role reported less negative attitudes about babies. Previous work suggests that more traditional attitudes about the female role are associated with more positive attitudes towards parenting (Kaufman, 2000; Thornton, Alwin, & Camburn, 1983; Thornton & Camburn, 1980). This pattern only seems to be present for the parents in our sample.

We also found support for hypothesis 2 that work or family-oriented identity would be associated with fertility attitudes and desires. Those who reported a work-oriented identity were more likely to indicate negative attitudes towards babies. This finding is consistent with previous work suggesting that women who endorse traditional gender roles are more likely to feel that occupying an identity as a mother is their duty, while their nontraditional counterparts (those who delay parenthood) are more likely to focus on their careers (Greenhaus, 1971; Kaufman, 2000). Our finding is consistent for men and women, indicating that to some extent work or career focused identities might be perceived to be inconsistent or incompatible with increased fertility desires (Bernhardt, 1993). Increasingly converging male and female roles might foster more similar attitudes about work-family balance in contemporary samples.

Consistent with hypothesis 3, intensive mothering expectations were predictive of fertility-related outcomes. For individuals in our sample without children, greater intensive mothering expectations were associated with a younger planned age at birth of first child. Indeed, childless women have been found to endorse more intensive mothering expectations, compared to mothers (Maher & Saugeres, 2007). Notably, in our sample we did not observe differential effects of intensive mothering expectations for men and women.

In partial support of hypothesis 4, we observed that those who experienced greater pressure to become a parent were more likely to indicate negative attitudes towards babies. Although we found that these pressures from friends, family, and more general sources of cultural norm transmission (general beliefs, the media, etc.) did play a role in shaping fertility attitudes, their effect did depend on biological sex – as cultural pressures to become a parent increase, the age at which *men* plan on having a child increases and the age at which *women* plan on having a child decreases. While the motherhood mandate explains that pressures to parent might be particularly salient in females, for whom motherhood is an essential aspect of the female role, men and women in our sample did not report experiencing differential pressures to parent (Heilman & Okimoto, 2008).

Finally, regarding hypothesis 5 – our deal-breaker hypothesis – we found that relationship status emerged as a significant individual predictor, within the context of all of our other sociocultural predictors, for fertility plans, visceral desires to have a baby, as well as negative attitudes about babies. Specifically, singles reported *decreased* fertility plans (such as the ultimate number of children desired), *weaker* visceral desires for the sight, feel, and touch of a baby, and (unexpectedly) *lesser* negative attitudes towards babies. In general, our trend supports our prediction that relationship status serves as a deal-breaker – such that a committed

partner serves as a practical barrier to the achievement of one's fertility plans. This is also consistent with previous work identifying marital status as one of the strongest and most reliable predictors of fertility intentions (Forrest, 1994; Williams, Abma & Piccinino, 1999).

Other demographic factors also emerged as strong individual predictors of fertility attitudes, desires, and plans. We found that older individuals and those reporting higher annual income reported *decreased* fertility plans (such as the number of children desired and the age one plans on having a child), *weaker* visceral desires for the sight, feel, and touch of a baby, *less* frequent desires to have a baby, and *more* frequent negative exposure to babies, compared to younger, lower-income respondents. The influence of income on fertility decisions is supported in the literature (as well as theoretically through life history theory), in which findings have similarly demonstrated that individuals from poor households were more likely to desire children at a younger age, compared to individuals from more wealthy households who desired delayed reproduction in order to pursue education and career opportunities (Griskevicius et al., 2010).

Chapter 3 – Study 2: The Influence of Adaptations, in Conjunction with Proximate Factors, on Fertility Decisions

The importance of resource stability in shaping fertility decisions has been repeatedly supported in the literature (Griskevicius, Delton, Robertson, & Tybur, 2010; Quinlan, 2007; Voland, 1998), however, relationships between resource stability and proximate factors within the individual (such as attachment style and impulsivity) in predicting these decisions have yet to be explored. It is possible that inclusion of these proximate factors in a predictive model can 1) provide insight into *why* resource stability predicts fertility decisions and 2) provide more precise prediction of fertility decisions. Therefore, the proposed role of adaptations sensitive to resource stability and social factors including attachment style and impulsivity will be studied.

Life History and Household Income

Demographic-level patterns of fertility decision-making have been associated with shifts in nations' mortality rates and wealth; however, resource availability can provide predictive power regarding fertility decisions within the context individuals as well. According to life history theory, strategies designed to maximize fitness are sensitive to changes in resource availability and stability, ensuring optimization of necessary trade-offs between the quantity and quality of offspring (Griskevicius, Delton, Robertson, & Tybur, 2010; Voland, 1998). Humans typically have access to enough resources to provide for potential offspring, however these patterns of trade-offs are still evident regarding *relative* resource abundance and scarcity; that is, humans do not absolutely maximize their fertility rates based on species-wide resource availability (Voland, 1998). Relative scarcity and instability of resources produce predictable patterns of high fertility, and relative abundance and stability of resources produce predictable patterns of low fertility. The findings of Griskevicius and colleagues (2010) demonstrate changes

in fertility decisions based on wealth, such that individuals from poor households were more likely to desire children at a younger age, compared to individuals from more wealthy households who desired delayed reproduction in order to pursue education and career opportunities.

> **H6**: It is therefore anticipated that fertility decisions are a function of life history strategy ("fast" or "slow") and household income. Specifically, low income and fast life history strategies should be associated with increased fertility attitudes and plans.

Life history strategy and income are addressed separately here because the measure of life history theory included in the current survey battery (Mini-K; Figueredo, 2007) does not *explicitly* assess household income; instead it focuses on the abundance of social resources and support, personal perseverance, and planning.

Attachment Style

In order to provide more proximate predictions of fertility decisions in the individual, the potential predictive role of attachment style will be explored. According to attachment theory, sex differences in parental investment are not quite as pronounced as strategic pluralism implies (Gangestad & Simpson, 2000). In fact, this perspective suggests that decisions to allocate resources to mating or parenting opportunities are better predicted by within-sex differences in attachment styles (Miller & Fishkin, 1997). Del Giudice (2009) explains that it is not just resource instability that produces "fast" life history strategies and increased fertility; he suggests that childhood insecure attachment serves as an adaptive cue that encourages higher (and earlier) fertility in response to environmental instability.

> **H7**: Accordingly, the impact of "fast" life history strategies on fertility decisions might then be mediated by resulting adult romantic attachment styles. When faced with unstable home environments, the adaptive mechanisms of men and women shift to promote maximum fitness, wherein females exhibit anxious/ambivalent attachments and males exhibit avoidant attachment (Del Giudice, 2009).

As discussed previously, life history theory can provide prediction of fertility decisions based on social and physical resource stability in early life. Measures of life history strategy include items which address social resources provided by one's biological parents (e.g., "How much love and affection did they give you?") and one's romantic partner (e.g., "I turn to my partner for many things, including comfort and reassurance."; Figueredo, 2007). However, information about one's life history strategy (that is, "slow" or "fast") does not provide as much insight into the emotional closeness and the security of bonds established with loved ones as does assessments of attachment. For this reason, this work incorporates measures of adult romantic attachment styles to develop a more comprehensive model of fertility decision-making.

Impulsivity

Developing a comprehensive model of fertility decision-making includes assessment of conventional personality factors – these trait variations provide much insight regarding human decision-making (Bensi, Giusberti, Nori, & Gambetti, 2010). The personality trait of impulsivity is of particular interest within the current decision making domain, as deciding to increase one's fertility at the expense of material wealth and career achievement can be viewed as an impulsive choice, as it is at the expense of long-term, higher value rewards (Aarssen & Tzipporah, 2006).

This tradeoff between investing in upward social mobility versus in childbearing can be viewed within the scope of life history theory – indeed, evidence suggests that "fast" life history

strategies are associated with increased impulsivity within the individual (McDonald, Donnellan, & Navarrete, 2012). Further, the construct of impulsivity is often operationally defined as a lifetime pattern of impulsive decision-making (Coccaro & Schmidt-Kaplan, 2012).

> **H8**: Trait values of impulsivity are likely to mediate observed differences in fertility decision making predicted by life history strategy.

Chapter 4 – Study 2 Methods, Results, and Discussion

Methods

Participants

As in study one, online data collection for study two was facilitated through Axio (Axio Learning, 2012). Subjects were recruited from a general Internet sample, through the Social Psychology Network ($N = 95$) and Mechanical Turk ($N = 58$), and also from a student sample via the SONA System ($N = 79$). As in Study 1, our student sample participated for credit towards their completion of a General Psychology course, our Mechanical Turk sample received a $0.15 incentive for participation, and our sample recruited through the Social Psychology Network did not receive any compensation.

As in Study 1, one-way ANOVAs were used to determine if participants recruited through these three sources differed significantly in terms of several demographic variables, and dependent variables included in our model. Our samples differed significantly in terms of age ($F(2, 229)= 35.19$, $p <.001$), with participants recruited through Mechanical Turk being significantly older ($M = 31.35$, $SD = 11.87$) than those recruited through SONA ($M = 19.05$, $SD = 2.98$) or the Social Psychology Network ($M = 23.61$, $SD = 9.10$). Further, our Social Psychology Network sample was more ethnically diverse than our samples recruited through SONA and Mechanical Turk ($\chi^2(6)=20.22$, $p = .003$).

However, participants' responses *did not* differ significantly on the majority of the dependent variable measures (i.e., the strength of their desires to have a baby, the frequency of their desires to have a baby, the age at which they plan on having their first child, and their fertility desires as measured by the Attitudes Towards Babies Scale (ABS; Brase & Brase, 2012). In this case, participants recruited through SONA reported ultimately desiring a larger number of

children ($F(2, 228)=16.67$, $p < .001$; $M = 4.00$, $SD = 1.77$), compared to those recruited through Mechanical Turk ($M = 2.57$, $SD = 1.58$) and the Social Psychology Network ($M = 2.88$, $SD = 1.40$). Again, these differences appear to be driven by age differences alone, rather than other systematic differences between our samples; the relationship between the source of the data and the ultimate number of children desired becomes insignificant when the age of the participant is controlled for in the first step of a hierarchical regression analysis ($\beta = -.063$, $p = .338$). As such, subsequent findings reported will be garnered from this sample collapsing across data source.

Females are overrepresented in our study two sample (72.4%), as are childless individuals (84.5%). As we observed in our sample from study one, a large portion of our sample is Caucasian (76.7%), heterosexual (92.2%), and currently involved in a romantic relationship (46.6%).

Procedure and Materials

In order to determine the predictive power of adaptive and proximate factors within the proposed model of fertility decision-making, participants responded to the following scales and items through Axio (Axio Learning, 2012), after reading and endorsing an informed consent form. The following measures were used to assess the factors included in the model for study two:

Life History and Household Income. To explore the hypothesized relationship between life history strategy (as a function of resource stability and relative abundance) and fertility decision-making, life history strategy was measured using the 20-item Mini-K (an abbreviated version of the Arizona Life History Battery; Figueredo, 2007). This scale assesses self-perceived ability to provide insight and have control over one's own life and the stability of social relationships in one's life; for example, "While growing up, I had a close and warm relationship

with my biological mother" and "I try to understand how I got into a situation to figure out how to handle it" (anchors of 1 "strongly disagree" and 7 "strongly agree"; see Appendix B). Higher scores on the Mini-K are associated with slower life history strategies – that is, more stable social and physical resources in one's early home environment. This scale demonstrated good internal consistency in the current sample, Cronbach's α = .87. Also, an item addressing annual household income was included in the demographic questionnaire (along with items assessing relationship status and duration, age, ethnicity, sexual orientation, and the highest level of education completed).

Attachment Style. In order to assess the predicted relationship between insecure romantic attachment and increased fertility, participants completed the Experiences in Close Relationships Scale (ECR; Brennan, Clark, & Schaver, 1998). This scale provides insight into a person's emotional closeness and bonding in romantic relationships, and in turn the predicted effects of attachment on fertility plans and desires. The ECR assesses two types of insecure romantic attachment, anxious and avoidant, with 18 items each. Items include "I am very comfortable being close to romantic partners", with participants indicating the extent to which these statements describe how they generally feel in romantic relationships (scale anchors of 1 "strongly disagree" and 7 "strongly agree"; see Appendix H). Higher scores on the anxious and avoidant attachment subscales indicate greater insecure attachment. This scale also demonstrated good internal consistency reliability, Cronbach's α anxious attachment subscale = .93 and Cronbach's α avoidant attachment subscale = .89.

Impulsivity. In order to evaluate the extent to which the effect of life history strategy on fertility decisions is mediated by impulsiveness, participants will complete the Impulsivity and Sensation-Seeking Scale (Webster & Crysel, 2012). This scale measures impulsivity by asking

participants whether or not statements about behaviors and attitudes are true of them (responses of 1 "true" and 2 "false") with 19 statements such as, "I like to have new and exciting experiences and sensations even if they are a little frightening" (see Appendix I). High scores on the Impulsivity and Sensation-Seeking Scale indicate greater impulsivity. We observed good internal consistency with this scale in our current sample, Cronbach's $\alpha = .81$.

Fertility Decision Making. The outcome of interest for all three studies, fertility decision making, was measured with a variety of items. "Baby fever", or the desire to have a child, was again measured using the Attitudes Towards Babies Scale (ABS; Brase & Brase, 2012). As in study 2, the 8-item negative exposure subscale (Cronbach's $\alpha = .91$), 10-item positive exposure subscale (Cronbach's $\alpha = .94$), and 6-item trade-offs subscale (Cronbach's $\alpha = .91$) all demonstrated good internal consistency reliability within the current sample.

To further address individual fertility decisions, participants were given a series of items which directly assessed fertility plans or intentions; including, "At what age do you plan to have children?" and "What is the ultimate (or largest) number of children you would like to have?". Also, fertility outcomes were assessed within the individuals to which these items applied (27.6% of our sample which reported having children); items included "How many children do you have?" and "At what age did you have your first child?".

Study 2 Results

Analysis of Demographic Factors

First, a series of t-tests and correlations were used to explore demographic differences in responses to several attitude measures (including measures of attachment, impulsivity, fertility plans and desires). Sex differences are reported in Table 2.1, and suggest a few findings of note; men in our sample reported more frequent desires for sex, compared to women (M=6.59,

SD=1.85 and *M*=5.38, *SD*=2.13 respectively; $t(230)=4.02$, $p<.001$). Also, women reported greater visceral desires for the sight, smell, and feel of a baby, compared to men (*M*=4.27, *SD*=2.86 and *M*=3.23, *SD*=2.33 respectively; $t(230)=-2.59$, $p=.010$) and more frequent desires to have a baby, compared to men (*M*=3.93, *SD*=2.49 and *M*=3.03, *SD*=2.25 respectively; $t(230)=-2.52$, $p=.013$). However, no such differences were found in the intensity of desires to have a child (M_{men}=5.81, SD_{men}=3.43 and M_{women}=6.33, SD_{women}=3.20; $t(230)=-1.09$, $p=.279$), or in fertility plans (the age one plans to have a child M_{men}=29.06, SD_{men}=12.36 and M_{women}=26.03, SD_{women}=9.70; $t(224)=1.87$, $p=.062$; the ultimate number of children desired M_{men}=3.03, SD_{men}=1.79 and M_{women}=3.25, SD_{women}=1.64; $t(229)=-0.86$, $p=.388$). The only significant difference observed regarding these attitude measures for subjects reporting different ethnic backgrounds was the ultimate number of children desired; for this criterion, Asian-Americans (*M*=1.76, *SD*=1.34; ($F(3,227)= 5.65$, $p=.001$) reported desiring significantly less children than Whites (*M*=3.35, *SD*=1.74) or Hispanics (*M*=3.47, *SD*=1.18).

Some differences based on participants' reported age also emerged. Age was significantly related to the ultimate number of children desired ($r(232)= -.288$, $p<.001$), the strength of desires to have a baby ($r(232)= .213$, $p=.001$), endorsement of positive exposure items of the ABS ($r(232)= -.264$, $p<.001$), life history strategy ($r(232)= -.146$, $p=.030$), anxious attachment ($r(232)= -.228$, $p=.001$), and impulsivity ($r(232)= -.185$, $p=.007$).

Hypothesis Testing for Study 2

To address the relative importance of the examined factors in determining fertility decision-making plans and attitudes, a series of regression analyses were used. Below, these systematic regression analyses are addressed individually, by outcome of interest.

Fertility Plans: Ultimate number of children desired. The predictive quality of the adaptations and proximate factors included in our model for study 2 regarding plans to have children (specifically, the ultimate number of children desired) was examined using a simultaneous regression. Together, all of the included factors predicted 15.2% of the variance in the number of children desired ($F(8, 197)= 4.43$, $p <.001$, $R^2= .152$). Regarding the importance of individual factors, age ($\beta= -.247$, $p =.001$) and anxious attachment ($\beta= .211$, $p =.003$) emerged as the only significant individual predictors of fertility plans. Contrary to hypothesis 6 regarding the importance of life history strategy in shaping fertility decisions, scores on the Mini-K did not provide significant individual prediction in our model. We used the Baron and Kenny (1986) approach to test for potential mediation effects predicted in hypotheses 7 and 8. In testing hypothesis 7 we found that life history strategy was significantly related to the ultimate number of children desired ($r(221)= .148$, $p=.028$), and insecure attachment style ($r_{anxious}(211)= .171$, $p=.013$; $r_{avoidant}(211)= -.291$, $p<.001$); the only mediator significantly related to the ultimate number of children desired was anxious attachment style ($r(211)= .232$, $p=.001$). We do find evidence of complete mediation, in support of hypothesis 7, as controlling for the effects of anxious attachment makes the relationship between life history strategy and the ultimate number of children desired non-significant (partial $r(207)= .121$, $p=.081$). Applying this method to hypothesis 8 demonstrates that life history strategy was not significantly related to impulsivity ($r(210)= .082$, $p=.236$), therefore mediation of the relationship between life history strategy and the ultimate number of children desired by impulsivity is not present.

To determine if our predictive model is operating differently depending on biological sex, regression analyses were run for men and women separately. Our predictive model tested in study 2 appears to significantly predict fertility plans for women ($F(7, 142)= 7.46$, $p <.001$, $R^2=$

.269), but not for men ($F(7, 48)= .69$, $p = .681$, $R^2= .091$). Regarding the strength of individual predictors, for women age (β= -.307, $p < .001$), anxious attachment (β= .268, $p = .001$), avoidant attachment (β= -.182, $p = .029$), and impulsivity (β= -.182, $p = .016$) appear to be particularly important. Previous work suggests that the particular type of insecure attachment style created by unstable environments might vary by biological sex, with women being more likely to display anxious attachment and men being more likely to display avoidant attachment (Del Giudice, 2009). To determine if this was the case in our sample, mediation analyses were run separately for men and women – no cases of mediation were found when run separately.

Regression analyses were also run for parents and childless individuals separately, to determine if our predictive model is operating differently depending on parenting status. In this case, our model significantly predicts the ultimate number of children desired for childless individuals ($F(8, 164)= 6.39$, $p < .001$, $R^2= .238$), not for parents ($F(8, 24)= 1.81$, $p = .125$, $R^2= .376$). For childless individuals, age (β= -.361, $p < .001$), and anxious attachment (β= .243, $p= .001$) significantly individually predict the ultimate number of children desired.

Fertility Plans: The age at which one plans to have their first child. To determine the role of life history strategy and attachment in individual fertility planning (specifically, the age at which one plans to have their first (or next) child) a simultaneous regression analysis was used. Together, all of our factors measured in study 2 did not significantly predict age at which individuals report planning on having their first (or next, for parents) child ($F(8,192)= 1.40$, $p = .199$, $R^2= .055$). Therefore, (in the case of the age one plans to have a child), our hypotheses regarding the importance of life history strategy (H6), attachment style (H7) and impulsivity (H8) were not supported.

To determine if our predictive model is operating differently depending on biological sex, regression analyses were run for men and women separately. Our predictive model tested in study 2 only significantly predicts the age at which individuals plan on having their first (or next) child for women ($F(7, 139)= 2.42$, $p =.023$, $R^2= .109$), rather than men ($F(7, 46)= 1.39$, $p =.231$, $R^2= .175$). Regarding the strength of individual predictors, no significant individual predictors were found for men, but for women age (β= -.216, p=.011) alone emerged as a significant individual predictor of fertility plans. No mediation analyses were conducted (to address hypotheses 7 and 8), as our potential mediators were not significantly related to the age at which individuals reported planning to have their first (or next) child.

To determine if our predictive model is operating differently depending on parenting status, regression analyses were run for childless individuals and parents separately. In this case, our model did not significantly predict fertility plans for childless individuals ($F(8, 163)= 1.21$, $p =.298$, $R^2= .056$), or parents ($F(8, 20)= .873$, $p =.555$, $R^2= .259$).

Fertility Attitudes and Desires: The frequency of desires to have a baby. Simultaneous regression analyses were used to determine how well our model predicts the frequency of desires to have a baby. Together, all of the factors from study 2 significantly predict 14.4% of the variance in the frequency of desires to have a baby ($F(8, 198)= 4.17$, $p <.001$, $R^2= .144$). Relationship status (β= .169, p=.029) and anxious attachment (β= .255, p<.001) emerged as significant individual predictors. Therefore, our hypotheses regarding the importance of life history strategy (H6) and impulsivity (H8) were not supported when predicting the frequency of desires to have a baby. However, mediation analyses were conducted to determine if our data were consistent with H7. In testing hypothesis 7 we found that life history strategy was significantly related to the frequency of desires to have a baby ($r(222)= .202$, p=.003), and

insecure attachment style (as above; $r_{anxious}(211)= .171$, $p=.013$; $r_{avoidant}(211)= -.291$, $p<.001$); the only mediator significantly related to the frequency of desires to have a baby was anxious attachment style ($r(211)= .237$, $p=.001$). We do find evidence of partial mediation, in support of hypothesis 7, as controlling for the effects of anxious attachment makes the relationship between life history strategy and the frequency of desires to have a baby weaker, although still significant (partial $r(208)= .148$, $p=.031$). As above, applying this method to hypothesis 8 demonstrates that life history strategy was not significantly related to impulsivity ($r(210)= .082$, $p=.236$), therefore mediation of the relationship between life history strategy and the frequency of desires to have a baby is not present.

To determine if our predictive model is operating differently depending on biological sex, regression analyses were run for men and women separately. The predictive model for study 2 appears to only significantly predict the frequency of fertility desires for women ($F(7, 143)= 3.98$, $p =.001$, $R^2= .163$), compared to men ($F(7, 48)= .81$, $p =.587$, $R^2= .105$). Regarding the strength of individual predictors, no significant individual predictors were found for men, but for women relationship status ($\beta= .174$, $p=.049$) and anxious attachment ($\beta= .310$, $p<.001$) appear to be particularly important. To determine if the particular type of insecure attachment style created by unstable environments varies by biological sex, mediation analyses were run separately for men and women. In this case, we found no mediation for men. For women, we found that life history strategy was significantly related to the frequency of desires to have a baby ($r(162)= .196$, $p=.012$), and insecure attachment style ($r_{avoidant}(155)= -.294$, $p<.001$); anxious attachment style was also significantly related to the frequency of desires to have a baby ($r(155)= .257$, $p=.001$). We do find evidence of partial mediation, in support of hypothesis 7. Controlling for the

effects of anxious attachment weakens the relationship between life history strategy and the frequency of desires to have a baby (partial $r(152) = .178$, $p = .027$).

To determine if our predictive model is operating differently depending on parenting status, regression analyses were run for childless individuals and parents separately. Our model only significantly predicts fertility desires for childless individuals ($F(8, 164) = 3.73$, $p < .001$, $R^2 = .154$), rather than parents ($F(8, 25) = 1.01$, $p = .453$, $R^2 = .245$). For childless individuals, anxious attachment was the only significant individual predictor of the frequency of desires to have a baby ($\beta = .288$, $p < .001$).

Fertility Attitudes and Desires: The strength of visceral desires to have a baby.

Simultaneous regression analyses determined that together, all of the factors from study 2 significantly predict 18.4% of the variance in the strength of visceral desires for the feel, sight, and scent of a baby ($F(8, 198) = 5.59$, $p < .001$, $R^2 = .184$). In this case, relationship status ($\beta = .209$, $p = .006$), and anxious attachment ($\beta = .340$, $p < .001$) emerged as significant individual predictors. Therefore, when predicting the strength of visceral desires to have a baby, our hypotheses regarding the importance of life history strategy (H6) and impulsivity (H8), were not supported. Mediation analyses were conducted to determine if our data were consistent with H7. In testing hypothesis 7 we found that life history strategy was significantly related to the strength of desires to have a baby ($r(222) = .172$, $p = .010$), and insecure attachment style (as above; $r_{anxious}(211) = .171$, $p = .013$; $r_{avoidant}(211) = -.291$, $p < .001$); the only mediator significantly related to the strength of desires to have a baby was anxious attachment style ($r(211) = .309$, $p < .001$). We do find evidence of complete mediation, in support of hypothesis 7, as controlling for the effects of anxious attachment makes the relationship between life history strategy and the strength of desires to have a baby insignificant (partial $r(208) = .098$, $p = .056$). As above,

applying this method to hypothesis 8 demonstrates that life history strategy was not significantly related to impulsivity ($r(210)= .082$, $p=.236$), therefore mediation of the relationship between life history strategy and the strength of desires to have a baby is not present.

Using separate simultaneous regression analyses, we found that our model significantly predicts the strength of fertility desires for women ($F(7, 143)= 4.80$, $p <.001$, $R^2= .190$), not for men ($F(7, 48)= 1.87$, $p =.096$, $R^2= .214$). Regarding the strength of individual predictors, no significant individual predictors were found for men, but for women relationship status ($\beta= .189$, $p=.030$) and anxious attachment ($\beta= .397$, $p<.001$) appear to be particularly important. To determine if the particular type of insecure attachment style created by unstable environments varies by biological sex, mediation analyses were run separately for men and women – mediation was not found for men and women individually.

We again ran regression analyses for childless individuals and parents separately. We found that our model appears to only significantly predict fertility plans for childless individuals ($F(8, 164)= 4.70$, $p <.001$, $R^2= .187$), compared to parents ($F(8, 25)= 1.81$, $p =.118$, $R^2= .369$). For childless individuals, anxious attachment was the only significant individual predictor of the strength of desires to have a baby ($\beta= .354$, $p<.001$). For parents, no significant individual predictors emerged.

Fertility Attitudes and Desires: Attitudes about fertility. Together, all of the factors in our predictive model for study 2 predict 19.1% of the variance in individuals' negative exposure to babies ($F(8, 198)= 5.84$, $p <.001$, $R^2= .191$), 22.9% of the variance in positive exposure to babies ($F(8, 198)= 7.34$, $p <.001$, $R^2= .229$), and 10.8% of the variance in their endorsement of trade-offs associated with parenting ($F(8, 198)= 2.99$, $p =.003$, $R^2= .108$). Age ($\beta= .177$, $p=.016$), relationship status ($\beta= -.218$, $p=.004$), and avoidant attachment ($\beta= .259$, $p=.001$), were

significant individual predictors of individuals' negative exposure to babies. Therefore, our hypotheses regarding the importance of life history strategy (H6) and impulsivity (H8) in shaping fertility attitudes were not supported. Contrary to hypothesis 7, no relationship emerged between life history strategy and negative exposure to babies. However, avoidant attachment was associated with increased endorsement of negative exposure items.

Regarding positive exposure to babies, sex (β= .204, p= .002), age (β= -.206, p=.004), and anxious attachment (β= .245, p<.001) significantly individually predicted individuals' positive exposure to babies. Life history strategy was significantly related to positive exposure (r(222)= .272, p<.001), and insecure attachment style (as above; $r_{anxious}$(211)= .171, p=.013; $r_{avoidant}$(211)= -.291, p<.001); the only mediator significantly related to positive exposure to babies was anxious attachment style (r(211)= .273, p<.001). Partial correlations did not reveal mediation of the relationship between life history strategy and positive exposure to babies by anxious attachment style. Therefore, our hypotheses about the importance of life history strategy (H6) and impulsivity (H8) in shaping fertility attitudes were not supported. In partial support of hypothesis 7, anxious attachment is associated with increased endorsement of positive exposure items of the ABS, although it did not mediate the relationship between life history strategy and positive exposure to babies.

The endorsement of trade-off items associated with parenting was individually predicted by relationship status (β= -.165, p= .036) and avoidant attachment (β= .187, p=.017). As we observed with the negative exposure subscale of the ABS, our hypotheses regarding the importance of life history strategy (H6) and impulsivity (H8) in shaping fertility attitudes were not supported. Regarding hypothesis 7, avoidant attachment was associated with increased

endorsement of parenting trade-offs, but no relationship emerged between life history strategy and endorsement these trade-offs.

To determine if our predictive model is operating differently based on biological sex, simultaneous regression analyses were conducted for men and women separately. When predicting negative exposure to children, we found that our predictive model appears to provide good prediction for women ($F(7, 143)= 6.68$, $p <.001$, $R^2= .246$), and men ($F(7, 48)= 2.39$, $p =.035$, $R^2= .258$). Regarding the strength of individual predictors, for women age (β= .166, $p=.039$), relationship status (β= -.243, $p=.004$), life history strategy (β=-.195, $p=.015$), and avoidant attachment (β= -.243, $p=.004$) appear to be particularly important. For men, relationship status (β= -.354, $p=.038$) and anxious attachment (β= .426, $p=.014$) emerged as significant individual predictors of negative exposure to children. To determine if the relationship between life history strategy and fertility attitude is mediated by different attachment styles depending on sex, mediation analyses were run separately. No mediation was found.

For the positive exposure criterion, we found significant prediction for women ($F(7, 143)= 5.83$, $p <.001$, $R^2= .227$) but not for men ($F(7, 48)= 1.59$, $p =.163$, $R^2= .188$). While no significant individual predictors emerged for men, for women age (β= -.177, $p=.030$), life history strategy (β= .245, $p=.003$), and anxious attachment (β= -.243, $p=.004$) individually predict positive exposure to babies. Again, we found no mediation when analyses were run separately.

When predicting endorsement of parenting trade-offs, our model significantly predicted fertility attitudes for women ($F(7, 143)= 2.43$, $p =.022$, $R^2= .106$) and men ($F(7, 48)= 2.50$, $p =.029$, $R^2= .267$). For women, avoidant attachment significantly predicted endorsement of parenting trade-offs (β= .219, $p=.017$). For men, relationship status emerged as a significant individual predictor (β= -.413, $p=.016$). In this case, we did find complete mediation of the

relationship between men's life history strategy and parenting trade-offs by anxious attachment (life history strategy was significantly related to trade-offs, $r(222)= .284$, $p=.028$, and anxious attachment, $r(211)= .606$, $p<.001$; anxious attachment is related to trade-offs, $r(211)= .388$, $p=.003$; when controlling for attachment, the relationship between life history strategy and trade-offs becomes insignificant, partial $r(208)= .104$, $p=.450$).

Considering differential prediction for parents and childless individuals, separate regression analyses indicate our model only significantly predicts negative exposure to babies for childless individuals ($F(8, 164)= 6.96$, $p <.001$, $R^2= .254$), compared to parents ($F(8, 25)= 1.31$, $p =.284$, $R^2= .295$). For childless individuals, age ($\beta= .256$, $p<.001$) and avoidant attachment ($\beta= .336$, $p<.001$) were significant individual predictors of negative exposure to babies. For the positive exposure to babies criterion, our model provided significant prediction for childless individuals ($F(8, 164)= 5.52$, $p <.001$, $R^2= .212$), and parents ($F(8, 25)= 2.48$, $p =.039$, $R^2= .443$). For childless individuals, sex ($\beta= .225$, $p=.002$), age ($\beta= -.220$, $p=.002$), and anxious attachment ($\beta= .264$, $p<.001$) individually predict positive exposure to babies. For parents, life history strategy individually predicted positive exposure to babies ($\beta= .511$, $p=.005$).

Study 2 Discussion

The predictive model tested in study 2 – analyzing the effect of adaptations in conjunction with proximate factors – did provide good prediction of fertility plans, desires, and attitudes. Regarding hypothesis 6, we found that individuals with faster life history strategies report more negative attitudes and less positive attitudes towards children in *women*, and faster life history strategies were associated with less positive exposure to babies in *parents* as well. While we did not find that faster life history strategies predicted increased fertility plans (contrary to our predictions and the findings of Griskevicius et al., 2010), these findings do

suggest that the observed fertility differences in individuals with fast and slow life history strategies might be driven by the different attitudes that these individuals have towards babies.

While life history did not emerge as a significant individual predictor of fertility plans and desires, a factor proposed to mediate the relationship between life history and fertility decisions (namely, *insecure attachment*) did significantly individually predict larger numbers of children ultimately desired, increased frequency of desires to have a baby, stronger visceral desires for a baby, more negative attitudes towards babies in *men* and less negative attitudes towards babies in *women*, more positive attitudes towards babies in *childless* individuals, and more endorsement of trade-offs associated with parenting in individuals overall. Indeed, we found that insecure attachment styles completely mediated the relationship between life history strategy and the ultimate number of children desires, the strength of visceral desires to have a baby, and men's endorsement of trade-offs associated with parenting (consistent with hypothesis 7).

These findings are consistent with previous work finding that decisions to allocate resources to mating or parenting opportunities are more precisely predicted by within-sex differences in attachment styles (Miller & Fishkin, 1997). In our sample, it appears that early environment resource instability (measured here by life history strategy) produces insecure romantic attachment styles, which then encourage higher fertility (see also Del Giudice, 2009). As anticipated, including insecure attachment as a predictor provides more insight into the emotional closeness and security of bonds established with love ones, compared to what is measured through life history strategy. Therefore, our inclusion of measures of adult romantic attachment styles did improve our prediction of fertility decisions, attitudes, and desires.

Contrary to our predictions (H8), impulsivity only emerged as a significant individual predictor for one of our fertility decision-making outcome variables – the ultimate number of children desired. We found that for women, increased impulsivity was actually (weakly) associated with smaller numbers of children ultimately desired. Unlike attachment, impulsivity did not significantly mediate any of the relationships between life history strategy and fertility desires, attitudes, and plans. In fact, life history strategy was not significantly related to impulsivity in our sample, suggesting that early environment instability might have a greater influence on attachment than impulsive patterns of decision-making and sensation seeking.

As in study 1, other demographic factors emerged as strong individual predictors of fertility attitudes, desires, and plans. We found that older individuals reported *decreased* fertility plans (such as the number of children desired and the age one plans on having a child), *more* negative attitudes towards babies, and *less* positive attitudes towards babies, compared to younger respondents. However, unlike study 1 we did not find that income was significantly related to any of our fertility outcome variables.

Chapter 5 – Study 3: Adaptations and Biological Influences on Fertility Decisions

An adaptationist perspective of fertility decision-making predicts that fertility plans will seek to maximize the representation of one's genes in subsequent generations. This is done by pursuing reproductive opportunities based on one's own fertility and, possibly, the reproductive success of one's peers (competition from a fitness perspective). Therefore, the proposed role of these factors in the current model of fertility decision-making will be discussed.

Ovulatory Stage

The predictive power of ovulatory stage will be explored within the current model of fertility decision-making. A woman's experienced stage of ovulation has been found to change the way she dresses (Haselton, Mortezaie, Pillsworth, Bleske-Rechek, & Frederick, 2007), her self-perceived attractiveness (Beaulieu, 2007), and the relative intensity of her sexual desires (Pillsworth, Haselton, & Buss, 2004; Regan, 1996). These opportunistic shifts in sexual desire exploit shifts in fertility, adapted to increase the probability of conception. Adaptive cues of peak fertility serve to indicate to the individual that now is the time to pursue reproductive goals; suggesting that desires for a child should likewise increase when the probability of conception is greatest (Brase & Brase, 2012).

> **H9**: For females, fertility desires should increase during periods of peak fertility, when the probability of conception is greatest.

As seems to be the case regarding fertility plans (Williams, Abma & Piccinino, 1999), it appears that these experienced increases in sexual desire near ovulation (peak fertility) are contingent upon relationship status. Pillsworth and colleagues (2004) found that ovulatory shifts in sexual desires are sensitive to the presence of a mate, such that increases in sexual desire do

not accompany increases in conception probability in single women. Indeed, increases in the frequency of intimate physical contact were found to correspond with experiences of peak fertility only among women who were bonded or attached to their partner (Eastwick & Finkel, 2012). From an adaptationist perspective, female minimal investment in offspring is so high (9 months gestation and subsequent lactation) that it would often be maladaptive to pursue fertility opportunities without ensured male commitment to provide for resulting offspring (Pillsworth, Haselton, & Buss, 2004; Trivers, 1972). This provides further support for the deal-breaker hypothesis – that relationship status and duration should immerge as the most important factors when predicting fertility decisions.

Biological Sex

Existing literature on fertility decision-making and changes in fertility decision making (including delayed childbearing and increased access to contraceptives, for example) is largely based on female samples (Crawford & Unger, 2004; Knodel & van de Walle, 1979; Miles, 2005; Rudman, 1998), without systematically addressing the potential role of biological sex in shaping fertility decisions. Existing sex differences in sociosexual orientation fit nicely within an adaptationist framework, such that men report more unrestricted sociosexuality and therein are comfortable with casual, uncommitted sexual encounters, whereas women (who are required to invest more in potential offspring) report more restricted sociosexuality, requiring emotional closeness and commitment before pursuing sexual involvement (Jackson & Kirkpatrick, 2007; Ostovich, 2005). These differences imply that adaptive forces might have shaped *different desires* for sex in men and women, based on their differential investment in any produced offspring from a particular pairing (Trivers, 1972).

Sex differences are quite prevalent within the domain of sex and sexuality (Peplau, 2003). For instance, men have been found to report greater, more frequent sexual desires compared to women (Abbey, 1982; Brase & Brase, 2012; Ostovich, 2005; Peplau, 2003). As a single act of sex is all the investment that is required of a male to successfully increase the prevalence of his genes in subsequent generations, a stronger desire for sex (compared to females) is expected. Similarly, as females seek to secure paternal resources and pursue reproductive opportunities when these resources are secured, it is expected that females will present a stronger desire for children (compared to men; Brase & Brase, 2012).

> **H10**: Females are expected to report greater desires for children, compared to men.

Reproductive Status of Peers

A specific facet of fertility decision making, commonly referred to as "baby fever" is a multi-dimensional index of the desire to have a child (Brase & Brase, 2012); beyond a simple play on words, is it possible that "baby fever" is contagious? There is some evidence supporting the "copying" or modeling of one's decisions after that of one's peers – a strategy which requires less resources than performing the cognitive operations oneself. For example, it is more economical for an individual to copy a peer's foraging habits (e.g., locating good places to acquire food) than for that individual to undergo the trial-and-error of solving this problem on their own (Giraldeau, 1997; Galef & Giraldeau, 2001).

Since complex cognitive tasks can be made simpler through the use of social information from our peers, it is likely that humans use this technique to solve adaptive problems in the domain of mating. Indeed, when choosing a mate individuals have been shown to use the mate choices of their peers in their own decision-making processes, termed "mate copying" (Gibson & Hoglund, 1992; Jones, DeBruine, Little, Burriss, & Feinburg, 2007; Kirkpatrick & Dugatkin,

1994). While much of this literature has focused on female mate choice, males *and* females have demonstrated preferences for mates based on the preferences of their peers in speed-dating scenarios (Place, Todd, Penke, & Asendorpf, 2010).

Much like mate choice, fertility decisions are complex and can benefit from the use of social information – limited evidence does suggest that females acquire (and use) information about optimal fertility timing from the fertility decisions of co-workers (Hensvik & Nilsson, 2010). The current work will expand on these initial findings, proposing that frequent exposure to children (through peers' fertility decisions) will produce increased fertility plans (the "baby copying" hypothesis).

> **H11**: The baby copying hypothesis – more frequent exposure to children will be associated with increased fertility plans.

Chapter 6 – Study 3 Methods, Results, and Discussion

Methods

Participants

As in studies one and two, online data collection for study three was facilitated through Axio (Axio Learning, 2012). Subjects were recruited from a general Internet sample, through the Social Psychology Network (N = 175) and Mechanical Turk (N = 124), and finally from a student sample via the SONA System (N = 34). Also as above, our student sample participated for credit towards their completion of a General Psychology course, our Mechanical Turk sample received a $0.15 incentive for participation, and our sample recruited through the Social Psychology Network did not receive any compensation.

One-way ANOVAs were used to determine if participants recruited through these three sources differed significantly in terms of several demographic variables, and dependent variables included in our model. Our samples differed significantly in terms of age ($F(2, 330)= 34.48$, $p <.001$), with participants recruited through Mechanical Turk being significantly older ($M = 31.54$, $SD = 11.79$) than those recruited through SONA ($M = 19.24$, $SD = 2.97$) or the Social Psychology Network ($M = 24.61$, $SD = 7.31$). Again, our Social Psychology Network sample was more ethnically diverse than our samples recruited through SONA and Mechanical Turk ($\chi^2(8)=101.12$, $p < .001$).

As in studies one and two, participants' responses *did not* differ significantly on the majority of the dependent variable measures (i.e., the strength of their desires to have a baby, the frequency of their desires to have a baby, the age at which they plan on having their first child, and their fertility desires as measured by the Attitudes Towards Babies Scale positive exposure, and trade-offs subscales (ABS; Brase & Brase, 2012). Here, participants recruited through the

Social Psychology Network reported ultimately desiring a larger number of children ($F(2, 329)=5.19$, $p = .006$; $M = 3.79$, $SD = 1.45$), compared to those recruited through Mechanical Turk ($M = 2.61$, $SD = 2.38$) and SONA ($M = 2.69$, $SD = 1.69$). Also, participants recruited through the Social Psychology Network were *slightly* less likely to endorse negative exposure items on the ABS ($F(2, 311)=3.36$, $p = .036$; $M = 2.05$, $SD = 0.90$), compared to those recruited through Mechanical Turk ($M = 2.50$, $SD = 0.90$) and SONA ($M = 2.53$, $SD = 1.12$). Again, these differences appear to be driven by age differences alone, rather than other systematic differences between our samples; the relationship between the source of the data and the ultimate number of children desired ($\beta = -.029$, $p = .617$) as well as the endorsement of negative exposure items on the ABS ($\beta = -.012$, $p = .835$) becomes non-significant when the age of the participant is controlled for in the first step of a hierarchical regression analysis. As such, subsequent findings reported will be garnered from this sample collapsing across data source.

Females are overrepresented in our study three sample (67%), as are childless individuals (78.7%). As we observed in our samples from studies one and two, a large portion of our sample is Caucasian (58.6%), heterosexual (89.2%), and currently involved in a romantic relationship (49.5%).

Procedure and Materials

In order to determine the predictive power of adaptations and biological factors within the proposed model of fertility decision-making, participants responded to the following scales and items through Axio (Axio Learning, 2012), after reading and endorsing an informed consent form. The following measures were used to assess the factors included in the model for study three:

Ovulatory Stage, Biological Sex, and Reproductive Status of Peers. Experienced stage of ovulation was measured by asking female participants how many days have passed since the last day of their most recent menstruation, and by determining the typical length of their ovulatory cycle. Females were excluded from further analyses if they reported having used hormonal contraceptives within the last three months *or* their ovulatory cycle did not fall within normal range, from 25-38 days in length (Matsumoto, Nogami, & Ohkuri, 1962; Pillsworth, Haselton, & Buss, 2004). With these estimates, using the method employed by Wilcox and colleagues (2001), female participants were placed into categories of follicular (< 10 days since last menstruation), ovulatory (10-17 days since last menstruation), or post-ovulation (>17 days since last menstruation) phases.

Also, in order to determine biological sex and the reproductive status of participants' peers, items were included to address these factors within the demographic questionnaire (which also assessed relationship status and duration, age, ethnicity, etc.). To determine if our participants were engaging in baby copying behavior, the reproductive status of their peers was measured by items addressing the frequency of their exposure to children – in our environment of evolutionary adaptedness, exposure to babies and children would likely have been a cue for determining the fertility decisions of one's peer group, for example, "I don't see or play with children very often" (see Appendix E). Eight items (anchored with 1 "strongly disagree" and 5 "strongly agree"; with higher values associated with more frequent exposure to babies) assessing exposure to babies and children demonstrated good internal consistency, Cronbach's $\alpha = .83$.

Fertility Decision Making. The outcome of interest for all three studies, fertility decision making, was measured with a variety of items. As in studies one and two, "baby fever" or the desire to have a child was again measured using the Attitudes Towards Babies Scale (ABS;

Brase & Brase, 2012). Again the 8-item negative exposure subscale (Cronbach's α = .90), 10-item positive exposure subscale (Cronbach's α = .95), and 6-item trade-offs subscale (Cronbach's α = .91) all demonstrated good internal consistency reliability within the current sample.

To further address individual fertility decisions, participants were given a series of items which directly assessed fertility plans or intentions; for example, "At what age do you plan to have children?" and "What is the ultimate (or largest) number of children you would like to have?". Also, fertility outcomes were assessed within the individuals to which these items applied (21.3% of our sample which reported having children), such as "How many children do you have?".

Study 3 Results

Analysis of Demographic Factors

First, a series of t-tests and correlations were used to explore demographic differences in responses to several attitude measures (including measures of exposure to children, fertility plans and desires). Sex differences are reported in Table 3.1, and suggest a few findings of note; men in our sample reported more frequent desires for sex, compared to women (M=6.81 and M=5.39 respectively; $t(331)=5.96$, $p<.001$). Also, women reported greater visceral desires for the sight, smell, and feel of a baby, compared to men (M=4.39, SD=2.84 and M=3.47, SD=2.57 respectively; $t(331)=-2.88$, $p=.004$), and more frequent desires to have a baby, compared to men (M=4.10, SD=2.55 and M=3.41, SD=2.41 respectively; $t(331)=-2.38$, $p=.018$). However, no such differences were found in the intensity of desires to have a child (M_{men}=6.01, SD_{men}=3.24 and M_{women}=6.50, SD_{women}=2.96; $t(331)=-1.35$, $p=.179$). In partial support of hypothesis 10, we did find that women displayed stronger visceral desires to have a baby, and more frequent desires to

have a baby. No significant differences regarding these attitude measures were observed for subjects reporting different ethnic backgrounds.

Some differences based on participants' reported age also emerged. Age was significantly related to the ultimate number of children desired ($r(333)= -.116$, $p=.035$), frequency of desires to have a baby ($r(333)= -.175$, $p=.001$), the strength of visceral desires for the sight, smell, and feel of a baby ($r(333)= -.165$, $p=.002$), endorsement of positive exposure items ($r(333)= -.190$, $p=.001$) and exposure to children ($r(333)= .148$, $p=.009$).

Hypothesis Testing for Study 3

To address the relative importance of the examined factors in determining fertility decision-making plans, and therefore determine the influence of biological forces on fertility decision-making processes, a series of regression analyses were used. Below, these systematic regression analyses are addressed individually, by outcome of interest. In order to address our predictive factor of ovulatory stage, all subsequent analyses were run for men and women separately. For study 3, we did not have enough parents in our sample to determine if our predictive model is operating differently depending on parenting status.

Fertility Plans: Ultimate number of children desired. The predictive quality of the biological factors included in our model for study 3 regarding plans to have children (specifically, the ultimate number of children desired) was examined using simultaneous regression analyses. Our model did not significantly predict the number of children desired for men ($F(4, 96)= 4.84$, $p =.635$, $R^2= .026$). For naturally cycling women (reporting not having taken hormonal contraceptives in the past three months), our model predicted 11.9% of the variance in the ultimate number of children desired ($F(5, 160)= 4.31$, $p =.001$, $R^2= .119$). Regarding the importance of individual factors, age ($\beta= -.225$, $p =.010$) and exposure to children

(β= .294, p <.001) emerged as the only significant individual predictors of women's fertility plans. Consistent with hypothesis 11, it seems that more frequent exposure to children was associated with increased fertility plans. However, no support for the role of ovulatory phase was found concerning this criterion, contrary to hypothesis 9.

Fertility Plans: The age at which one plans to have their first child. To determine the power of our predictive model regarding fertility plans (specifically, the age at which one plans to have their first (or next) child) simultaneous regression analyses were used. Together, all of our factors predicted 27.1% of the variance in the age at which men report planning on having their first (or next) child (F(4, 88)= 8.19, p <.001, R^2= .271). Age (β= .609, p<.001) and relationship status (β= -.340, p=.003) individually predicted men's fertility plans. However, our model did not significantly predict the age at which first (or next) child is desired in women (F(5, 198)= .542, p =.744, R^2= .013). Therefore, (in the case of the age one plans to have a child), our hypotheses regarding the importance of ovulatory stage (H9) and exposure to children (H11) were not supported.

Fertility Attitudes and Desires: The frequency of desires to have a baby. Simultaneous regression analyses were used to determine how well our model predicts the frequency of desires to have a baby. Together, all of the factors from study 3 significantly predict 26.1% of the variance in the frequency of men's desires to have a baby (F(4, 96)= 8.49, p <.001, R^2= .261). Exposure to children emerged as the only significant individual predictor of the frequency of men's desires for children (β= .416, p<.001). For women, our model predicted 20.0% of the variance in the frequency of desires to have a baby (F(5, 161)= 8.03, p <.001, R^2= .200). Age (β= -.341, p<.001) and exposure to children (β= .353, p<.001) emerged as our only significant individual predictors of the frequency of women's desires to have a baby. Therefore, while our

hypothesis regarding ovulatory shifts in fertility desires (H9) was not supported, we did find support that increased exposure to children is associated with stronger fertility desires (H11).

Fertility Attitudes and Desires: The strength of visceral desires to have a baby. Simultaneous regression analyses determined that together, all of the factors from study 3 significantly predict 22.5% of the variance in the strength of men's visceral desires for the feel, sight, and scent of a baby ($F(4, 96)= 7.00$, $p <.001$, $R^2= .225$). In this case, exposure to children ($\beta= .446$, $p<.001$) emerged as the only significant individual predictor. For women, our model predicted 29.9% of the variance in their reported visceral desires to have a baby ($F(5, 161)= 13.71$, $p <.001$, $R^2= .299$). Age ($\beta= -.326$, $p<.001$), relationship status ($\beta= .200$, $p=.014$), household income ($\beta= .166$, $p=.016$), and exposure to children ($\beta= .430$, $p<.001$) all significantly individually predicted these visceral desires in women. Therefore, when predicting the strength of visceral desires to have a baby, our hypothesis regarding the importance of ovulatory stage (H9) was not supported. However, consistent with hypothesis 11 exposure to children did emerge as a significant individual predictor of fertility desires.

Fertility Attitudes and Desires: Attitudes about fertility. Our predictive model for study 3 significantly predicted variance in men's responses to the negative exposure to babies ($F(4, 96)= 4.06$, $p =.004$, $R^2= .145$), positive exposure to babies ($F(4, 96)= 6.02$, $p <.001$, $R^2= .201$), and the parenting trade-offs ($F(4, 96)= 3.68$, $p =.008$, $R^2= .133$) subscales of the ABS. In all of these cases (consistent with hypothesis 11), exposure to children was the only significant individual predictor of men's attitudes towards babies ($\beta_{negative}= -.313$, $p=.002$; $\beta_{positive}= .465$, $p<.001$; $\beta_{trade\text{-}offs}= -.366$, $p<.001$). For women, our predictive model significantly predicted variance in their responses to the negative exposure to babies ($F(5, 161)= 10.41$, $p <.001$, $R^2= .244$), positive exposure to babies ($F(5, 161)= 13,35$, $p <.001$, $R^2= .293$), and the parenting trade-

offs ($F(5, 161)= 9.42$, $p <.001$, $R^2= .226$) subscales of the ABS. Exposure to children was the only significant individual predictor of the endorsement of positive exposure to children items (β= -.476, $p<.001$) and trade-offs associated with parenting (β= -.445, $p<.001$). Women's positive exposure to children was individually predicted by age (β= -.400, $p<.001$), household income (β= .163, $p=.018$), and the frequency of exposure to children (β= .431, $p<.001$). Again, consistent with hypothesis 11, all of these attitudes towards babies were significantly related to the frequency of exposure to children.

Study 3 Discussion

The adaptation/biological predictive model tested in study 3 provided good prediction of fertility plans, desires, and attitudes. However, our prediction (H9) that fertility attitudes, plans, and desires would shift with times of peak fertility was not supported in this sample. In fact, ovulatory stage was not significantly related to any of our fertility decision-making outcome variables. It is possible that adaptive cues to peak fertility might indicate to females *when* they should pursue reproductive goals, but this might work indirectly by changing women's sexual desires and mate choices (see Pillsworth, Haselton, & Buss, 2004; Regan, 1996).

We did find support for hypothesis 10, such that women reported *stronger* visceral desires for the sight, smell, and touch of a baby, *more* positive attitudes towards babies, a *younger* age planned for first birth, as well as *more* frequent desires to have a baby, compared to men. However, we also observed similarities between the sexes in the intensity of their desires to have a baby. Further, consistent with previous literature, we found that men reported *more* frequent desires for sex, compared to women (Abbey, 1982; Brase & Brase, 2012; Ostovich, 2005; Peplau, 2003). Our findings indicate that previous fertility decision-making literature that

has focused on females only might be missing important sex differences, particularly since some of our predictive models operated differently for males and females.

We also found support for hypothesis 11, which predicted that exposure to children would be associated with increased fertility plans, attitudes, and desires. Specifically we found that those who were more frequently exposed to children reported an *increased* ultimate number of children desired (for *women* only), *more* frequent desires to have children, *stronger* visceral desires for the sight, feel, and touch of a baby, *less* negative attitudes towards babies, *less* frequent endorsement of parenting trade-offs, and *more* positive attitudes towards babies (for *men* only). Given that our work is purely correlational, it is possible that the baby-copying hypothesis is correct, *or* that individuals with increased fertility desires and plans are more likely to seek out interactions with and exposure to babies. Further work is needed to gather more support for the baby-copying hypothesis that individuals are using peers' fertility decisions to simplify their own fertility decision-making process. Previous work does support our prediction that individuals use socially acquired information when making decisions about their intimate relationships (see "mate copying" in Gibson & Hoglund, 1992; Jones, DeBruine, Little, Burriss, & Feinburg, 2007; Kirkpatrick & Dugatkin, 1994). Limited findings more specifically suggest that females might use the fertility timing decisions of their co-workers to inform their own fertility decisions (Hensvik & Nilsson, 2010).

As in studies 1 and 2, other demographic factors emerged as strong individual predictors of fertility attitudes, desires, and plans. We found that older individuals reported *decreased* fertility plans (such as the number of children desired and the age one plans on having a child) in individuals overall, and *less* frequent desires to have a baby, *weaker* visceral desires for a baby, as well as *less* positive attitudes towards babies in women. Partially consistent with life history

theory, we also observed that individuals with *lower* annual incomes reported *weaker* visceral desires for a baby, yet *more* positive attitudes towards babies. Again, lower income (associated with faster life history strategies) has been theoretically and empirically linked with increased fertility (Griskevicius et al., 2010). Finally, we found that single men reported *increased* age at which first child was desired, and single women reported *weaker* visceral desires for the smell, sight, and touch of a baby. This is consistent with our deal-breaker hypothesis, which predicts that the absence of a committed partner might serve as a practical (and psychological) barrier to pursuing and achieving fertility goals (see Schoen, Astone, Kim, Nathanson, & Fields, 1999).

Chapter 7 – General Discussion

It does indeed appear that adaptive strategies designed to maximize fitness (in our evolutionary past) are sensitive to sociocultural forces, particularly gender roles and identities, mothering expectations, romantic attachment, cultural pressures to become a parent, and relationship status. Our findings suggest that these sociocultural factors are quite strong predictors; even when investigated in concert with the other proposed factors in the prediction of fertility decisions, plans, and desires. Further, we discovered that certain sociocultural factors – in this case romantic attachment – work together with adaptations to produce differences in fertility intentions. It seems that adaptations sensitive to the stability and availability of resources produce attachment patterns, which can then produce fertility attitudes, desires, and outcomes that were successful in our evolutionary past. For example, unstable resources in early environments (which are conducive of fast life history strategies) do not seem to *directly* produce increased fertility. This work, as well as that of others, suggests that it is the effect of resource instability on attachment that better explains the increased fertility of individuals categorized as those using fast life history strategies (Del Giudice, 2009; Miller & Fishkin, 1997).

Taken together, this provides support for a more integrative nature/nurture perspective, which recognizes the importance of the malleability of evolutionarily derived strategies. These adaptations can be shaped by the availability of social pressures and resources, as well as personal attitudes and beliefs, to maximize an individuals' fitness.

The Deal-breaker Hypothesis

Across three independent samples, we found that relationship status reliably emerged as a strong predictor of fertility attitudes, desires, and plans. Specifically, it seems as though single individuals are experiencing not only a practical barrier to the pursuit of their fertility goals, but a

psychological inhibition as well. Without a committed partner, individuals in our sample reported feeling dampened fertility desires and delayed fertility plans. As several other empirical works have demonstrated, relationship status appears critical in shaping fertility (Forrest, 1994; Nardi, 1983; Neal & Groat, 1980; Schoen, Astone, Kim, Nathanson, & Fields, 1999). Our work supports these findings across independent samples and in the context of other predictive factors.

The Baby-copying Hypothesis

We also found support for the prediction that individuals might simplify their complex fertility decision-making process by integrating fertility timing information from their peers that they acquire through exposure to children. Indeed, exposure to children emerged as one of the strongest predictors of fertility attitude and intentions; more frequent exposure to children was associated with increased fertility desires and plans, as well as more positive attitudes about babies. However, since we are working with correlational data, we cannot be sure that exposure to children is serving as an adaptive cue that environmental conditions are good for pursuing fertility goals. It is also possible that individuals with increased fertility plans and attitudes merely seek out opportunities to interact with children more frequently. More empirical work is needed to further evaluate the prediction that individuals' use the fertility timing decisions of their peers to inform their own fertility decisions (for similar findings, see Hensvik & Nilsson, 2010).

Consistent Demographic Predictors Across Samples

Across three studies, certain demographic factors emerged as strong predictors of fertility attitudes, desires, and plans. There was a general trend of decreased fertility plans, attitudes, and desires in *older* participants. It is possible that these older individuals are reporting decreased fertility desires and plans due to the natural decreases in fertility associated with aging in women

(and, to a lesser extent, men; Hassan & Killick, 2003; Plas, Berger, Hermann, & Pfluger, 2000; Speroff, 1994). Further, it is also possible that these individuals are reporting *decreased* fertility plans because they have already decided to delay or forego childbearing (the majority of individuals in our three samples were childless) or have already achieved their fertility goals (parents were significantly older than childless individuals in our sample). However, it is important to note that these findings are inconsistent with Maestripieri and Pelka (2001), which found that age and traditional attitudes about the female role interact when predicting fertility plans and desires, such that older individuals were more likely to exhibit traditional attitudes and *increased* fertility plans. Study 1 found that age was not significantly correlated with traditional attitudes about the female role, but older individuals (in a relatively young sample, overall) were more likely to report family-focused identities.

Our findings also suggest that our predictive model might work differently when applied to the fertility desires and plans of parents compared to childless individuals. Specifically we find that age, income, intensive mothering expectations, sex, and anxious attachment are only significantly related to the fertility attitudes and plans of childless individuals. Fewer of our proposed predictive factors emerged as significant individual predictors of parents attitudes and plans about their fertility; work-role identity, attitudes towards women, and life history strategy were the only factors significantly related to parents' fertility decision-making within the context of our predictive models. Other work supports our general pattern of results, suggesting that fertility decision-making processes differ between childless individuals and parents (Dommermuth, Klobas, & Lappegard, 2011; Somers, 1993). Inclusion of other factors in our predictive model that have been found to predict the fertility plans of parents (such as the number of children they already have and the desired age spacing between their current and future

children; Dommermuth, Klobas, & Lappegard, 2011) could strengthen our ability to predict and explain the fertility decision-making practices of parents.

While life history strategy was indeed related to most of the fertility outcomes, it did not frequently emerge as a significant individual predictor in the model. However, annual income across the samples was a strong predictor of fertility. Those who earned less annually reported increased fertility plans and desires. This is consistent with empirical work and life history theory, which suggests that unstable resources (somewhat paradoxically) are associated with increased fertility (Griskevicius et al., 2010). In our evolutionary past, under resource scarcity and instability, this increased investment in reproductive effort increased the likelihood that our genes would be represented in subsequent generations. However, in contemporary societies this increase in fertility However, in contemporary societies this increase in fertility observed in nations characterized by resource instability is associated with considerable issues of public health (Wachter & Bulatao, 2003).

All three studies found differences in our fertility outcome variables, as well as differential prediction (with some of our predictive models) based on biological sex. Since most of the fertility literature focuses on females only, these findings provide important insights into potential differences between men and women in how they make decisions about their fertility. Men reported more frequent desires for sex (consistent with previous findings, Abbey, 1982; Brase & Brase, 2012; Ostovich, 2005; Peplau, 2003) and women reported more frequent desires to have a baby, stronger visceral desires for the sight, smell, and touch of a baby, more positive attitudes towards babies, and a younger age at which they plan to have their first child (compared to men).

It is possible that these differential desires and attitudes towards babies reflect differences in men and women created by the different adaptive challenges faced by the biological sexes in our environment of evolutionary adaptedness (EEA). Adaptive forces might have shaped *different desires* for sex and children in men and women, based on their differential investment in any produced offspring from a particular pairing (Trivers, 1972). Since a single sexual act is the minimum investment required by males in any potential offspring, relatively upregulated sexual desires can function to facilitate increased representation of an individual male's genes in subsequent generations. In contrast, females are required to invest much more in potential offspring, and stronger desires for children (once a committed partner is acquired) can be expected. Alternatively, the emphasis placed on fertility desires and motherhood associated with the female role (for example, nurturance is considered to be a stereotypically feminine trait; Damaske, 2011; Heilman & Okimoto, 2008) might lead women to more openly report on their positive attitudes towards babies as well as their fertility desires.

An Alternative Predictive Model

This work is presented in the context of another model that has been traditionally used to predict the outcomes of complex decision-making processes, the theory of planned behavior (Ajzen, 1985; Ajzen, 1987). The theory of planned behavior has been successful at describing and predicting how attitudes give rise to behaviors, specifically participation in leisure activities (Ajzen & Driver, 1992), weight loss initiatives (Schifter & Ajzen, 1985), illegal driving habits (Parker, Manstead, Strading, Reason, & Baxter, 1992), as well as plans to have a baby in the next three years (Dommermuth, Klobas, & Lappegard, 2011). The theory of planned behavior, building from the theory of reasoned action (Fishbein & Ajzen, 1975), explains that behaviors are a function of attitudes, perceived norms, and perceived behavioral control.

As applied to fertility decision-making, fertility decisions and plans should be strongly predicted by attitudes about one's fertility (indeed, several have demonstrated relationships between fertility attitudes and desires and fertility outcomes; Ajzen, 1991; Islam & Bairagi, 2003; Schoen, Astone, Kim, Nathanson, & Fields, 1999; Schoen, Astone, Nathanson, Kim, & Murray, 2000), perceived norms regarding fertility decision-making (consistent with our baby-copying hypothesis), as well as perceived behavioral control over fertility-relevant decisions (however, Dommermuth, Klobas, and Lappegard (2011) found that perceived behavioral control was *not* predictive of fertility plans when certain individual differences were accounted for, such as age). However, this theory has been criticized for being too simplistic; in other words, the theory is considered to ignore important factors which influence decision-making processes (Liefbroer, 2011; Morgan & Bachrach, 2011). Specifically, the theory of planned behavior does not account for social factors (Morgan & Bachrach, 2011) which have been demonstrated in the current work to play an important role in shaping fertility attitudes and plans, such as relationship status and work focus. Indeed, when applied to data collected in study 2, we found that fertility attitudes and perceived cultural pressures to have a baby (or proxy for "perceived norms") only accounted for a marginally significant amount of the variation in fertility plans ($R^2 = .054$). These findings and various critiques of the theory of planned behavior as applied to fertility plans and outcomes suggest that our model is adding valuable prediction by including more factors which account for social context, as well as individual differences that might account for variations in *unintentional* conception (such as impulsivity and attachment style).

Limitations

While many of our proposed factors did indeed significantly predict fertility outcome variables, there were some unexpected findings and limitations associated with this three-study

project (see Figure 1.2 for our revised model, including the supported relationships across these independent studies). For example, although previous work suggests that sexual desires and desires for children should shift to exploit times of peak fertility, these predicted effects of ovulatory cycle were not apparent within this sample, as well as pilot samples (Pillsworth, Haselton, & Buss, 2004; Regan, 1996; Brase & Brase, 2012). Ovulatory stage did not emerge as a significant individual predictor of fertility attitudes, desires, or plans for the females in Study 3. It is possible that we failed to identify a relationship between ovulation and fertility desires because we relied upon the accuracy of the count-back method to estimate menstrual phase ("How many days have passed since the last day of your most recent menstrual cycle?"). Alternatively, it is possible that adaptive cues to peak fertility might indicate to females *when* they should pursue reproductive goals, but this might not influence what those goals are or might only work indirectly by changing women's sexual desires and mate choices (e.g., Pillsworth, Haselton, & Buss, 2004; Regan, 1996).

Further, although Hypothesis 8 predicted that early environment resource instability, promoting fast life history strategies, might produce patterns of impulsive decision-making that are responsible for increased fertility in these individuals; we did not find that impulsivity predicted fertility attitudes, desires, or plans. Indeed, life history strategy was not related to impulsivity in Study 2. It appears that the effect of life history strategy on fertility is better explained by differences in romantic attachment, which is consistent with previous work investigating life history strategy, attachment, and personality factors (Figueredo, Vasquez, Brumbach, Sefcek, Kirsner, & Jacobs, 2005).

Future Directions

The current findings suggest many directions for future research. Particularly, more empirical work is needed to better evaluate the baby-copying hypothesis. If exposure to babies does serve as a cue to individual decision-makers indicating optimal reproductive timing, then empirical work which directly manipulates exposure to children or children-relevant stimuli (baby clothes, pictures of babies, etc) should find corresponding shifts in fertility attitudes and desires. Such work is necessary to determine if exposure to children is causing the increases in fertility attitudes we have observed *or* if individuals with increased fertility attitudes are simply more likely to seek out social interactions with children.

Further, the strength of sociocultural factors included in our predictive model – such as expectations of motherhood, gender roles and identities, romantic attachment, and cultural pressures to become a parent – suggests that the individual fertility decision-making process might vary significantly across cultures. Indeed, recent cross-cultural work (Nauck, 2007) demonstrates that although resource stability is associated with fertility attitudes and outcomes, the social roles of women (their access to career and educational development) as well as culturally perpetuated ideas about fertility are key in shaping individual differences in fertility timing. Current ongoing research conducted by the author is addressing the effectiveness of current predictive factors in cross-cultural samples. The extent to which individual fertility decision-making processes differ across these cultures will be explored.

Conclusions

While the findings presented here are not without their shortcomings (null results concerning some proposed predictive factors) they do provide support for some specific predictions made about the importance of individual decision-making practices and fertility

dilemmas. Further, while this research does not definitively exclude roles for some of these variables, it provides some clear indications of which variables are *relatively* more important as influences on fertility attitudes and decision-making and can inform future development of a refined predictive model.

Individuals' decisions about childbearing, as well as their desires to do so, are a product of adaptive and sociocultural forces, dynamically responding to aspects of the decision-maker and their environment to support fertility decisions that are (or should be) optimal. The gender roles and identities one occupies, the cultural pressures exerted upon them, expectations about motherhood, romantic attachment, relationship status, and the availability of economic resources all shape our plans and feelings regarding childbearing. Importantly, these findings suggest that population-level changes in fertility can be understood, with strong predictive models, at the individual-level of analysis. Expanding and deepening our understanding of fertility decision making processes can eventually speak to issues of public health (Wachter & Bulatao, 2003), such as insufficient labor forces (in the case of falling fertility fates) or deficits in life-sustaining resources (in the case of rising fertility rates) that plague our world's richest and poorest nations.

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Appendix A

Attitudes Towards Women Scale

Spence, J.T. & Helmreich, R.L. (1978). *Masculinity and femininity: Their psychological dimensions, correlates, and antecedents*. Austin, TX: University of Texas Press.

Instructions:

The statements listed below describe attitudes toward the roles of women in society which different people have. There are no right or wrong answers, only opinions. You are asked to express your feeling about each statement by indicating whether you (1) agree strongly, (2) agree mildly, (3) disagree mildly, or (4) disagree strongly.

1	2	3	4	5
Strongly Agree	Agree	Uncertain	Disagree	Strongly Disgree

1. Swearing and obscenity are more repulsive in the speech of a woman than a man.
2.* Under modern economic conditions with women being active outside the home, men should share in household tasks such as washing dishes and doing laundry.
3.* It is insulting to women to have the "obey" clause remain in the marriage service.
4.* A woman should be free as a man to propose marriage.
5. Women should worry less about their rights and more about becoming good wives and mothers.
6.* Women should assume their rightful place in business and all the professions along with men.

7. A woman should not expect to go to exactly the same places or to have quite the same freedom of action as a man.

8. It is ridiculous for a woman to run a locomotive and for a man to darn socks.

9. The intellectual leadership of a community should be largely in the hands of men.

10.* Women should be given equal opportunity with men for apprenticeship in the various trades.

11.* Women earning as much as their dates should bear equally the expense when they go out together.

12. Sons in a family should be given more encouragement to go to college than daughters.

13. In general, the father should have greater authority than the mother in the bringing up of the children.

14.* Economic and social freedom is worth far more to women than acceptance of the ideal of femininity which has been set up by men.

15. There are many jobs in which men should be given preference over women in being hired or promoted.

Appendix B

The Arizona Life History Battery – Mini-K

Figueredo, A.J. (2007) *The Arizona Life History Battery.* Unpublished Manuscript

Please indicate how strongly you agree or disagree with the following statements. Use the scale below and write your answers in the spaces provided. For any item that does not apply to you, please enter "0".

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Mildly Disagree	Neutral	Mildly Agree	Agree	Strongly Agree

1. I can head off a bad situation before it happens.

2. I can sense when an opportunity is coming my way

3. I am good at predicting what is going to happen to me.

4. I am good at figuring out how things will turn out.

5. Making sense of my past helps me figure out what to do in the future.

6. After something bad happens, I think about how I could have prevented it.

7. I try to make sense of the things that have happened to me.

8.I have had new insights into the way things have turned out.

9. When things don't go according to my plans, my motto is, "Where there's a will, there's a way."

10. When faced with a bad situation, I do what I can to change it for the better

11. Even when I feel I have too much to do, I find a way to get it all done.

12. When I encounter problems, I don't give up until I solve them

13. I rarely give up on things I'm doing, even when things get tough.

14. I find I usually learn something meaningful from a difficult situation.

15. When I am faced with a bad situation, it helps to find a different way of looking at things.

16. Even when everything seems to be going wrong, I can usually find a bright side to the situation.

17. I can find something positive even in the worst situations.

18. I like to make plans for the future.

19. I know what I want out of life.

20. I find it helpful to set goals for the near future.

Appendix C

Work Role Salience Scale

Greenhaus, J. H. (1971). An investigation of the role of career salience in vocational behavior. *Journal of Vocational Behavior*, 1, 209-216

Instructions:

Answer each question by selecting/circling the appropriate number corresponding to the following scale. There is no correct or incorrect response.

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

1. I intend to pursue my job of choice even if it cuts deeply into the time I have for my family
2. It is more important to have some leisure time after work than to have a job in your chosen field, be devoted to it, and be a success at it
3. If you work very hard at your job, you can't enjoy the better things in life
4. Work is one of the few areas in life where you can gain real satisfaction
5. I intend to pursue the job of my choice even if it limits my personal freedom to enjoy life
6. To me, a job should be viewed primarily as a way of making good money
7. I really enjoy thinking about and making plans about my future career
8. It is difficult to find satisfaction in life unless you enjoy your job
9. Work is one of those necessary evils
10. Deciding on a career is just about the most important decision a young person makes
11. I don't think too much about what type of job I'll be in ten years from now

12. I'm ready to make many sacrifices to get ahead in my job
13. I look at a career as a means of expressing myself
14. I would consider myself extremely "career minded"
15. I could never be truly happy in life unless I achieved success in my job or career
16. I intend to pursue the job of my choice even if it allows only very little opportunity to enjoy my friends
17. I want to be able to pretty much forget my job when I leave work in the evenings
18. I started thinking about jobs and careers when I was young
19. I intend to pursue the job of my choice, even if it leaves me little time for my religious activities
20. It is more important to have a job in your chosen field of interest, be devoted to it, and be a success at it than to have a family that is closely knit and that shares many experiences
21. The whole idea of working and holding a job is kind of distasteful to me
22. Planning for and succeeding in a career is my primary concern
23. I often find myself thinking about whether I will enjoy my chosen field
24. It is more important to be liked by your fellow man, devote your energies for the betterment of man, and be at least some help to someone than to have a job in your chosen field of interest, be devoted to it, and be a success at it
25. Planning for a specific career is usually not worth the effort; it doesn't matter too much what you do
26. I would move to another part of the country if I thought it would help advance my career

Appendix D

Attitudes Towards Babies Scale

Brase, G. & Brase, S. (2012). Emotional Regulation of Fertility Decision Making: What Is the Nature and Structure of "Baby Fever"? *Emotion*.

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

1. After holding and cuddling someone else's baby, I want a baby of my own
2. Looking after other people's babies makes me want to have a baby of my own
3. Looking at baby clothes and baby toys makes me want to have a baby
4. Seeing a small baby, peacefully sleeping, makes me want to have a baby of my own
5. Seeing children growing up and becoming independent (own children, if applicable), makes me want to have a baby
6. Seeing family members who have babies makes me want to have a baby myself
7. Seeing pregnant women makes me want to have a baby
8. The smells of a baby (baby powder/baby wash) makes me want to have a baby of my own
9. Watching babies on TV makes me want to have a baby in real life
10. When I see children playing and laughing, I want to have a child of my own
11. Dealing with the needs and wants of children is annoying
12. I generally do not feel protective and nurturing towards children
13. Looking after other people's babies or children makes me want to never have children of my own

14. The disgusting aspects of babies (dirty diapers, spit-up, etc.) make me not want to have a baby
15. When I see a child having a tantrum, I want to get as far away from the noise as possible
16. When I see an infant crying, I want to get as far away from the noise as possible
17. When I see babies having a tantrum and crying, I know I will never have children of my own
18. I do not like looking after children
19. Having a baby of my own would be too damaging to my career/educational goals
20. Having a baby of my own would cost too much money
21. Having a baby would cut into my personal time too much
22. Having a baby would destroy my freedom to do whatever I want, whenever I want
23. Having a baby would destroy my social life
24. I do not have the time or energy to take care of a baby

Appendix E

Exposure to Children Questionnaire

Please answer the following questions about your experiences with children and babies as honestly and thoughtfully as possible.

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

1. I interact with babies/children almost every day.
2. Most of my friends have children.
3. I do not see babies/children very often in my day-to-day life.
4. I spend a lot of time with children in y family (nieces, nephews, cousins, etc.)
5. My job involves working closely with children.
6. I don't see/play with children very often.
7. I seem to see babies/children everywhere I go.
8. I don't really notice children when I am out in public.

Appendix F

Cultural Pressures for Parenthood Scale

Instructions: Below are a series of statements about sources of pressure to have children. Using the scale ranging from "Strongly Agree" to "Strongly Disagree", please indicate the extent to which the statement describes your experiences with pressures to become a parent.

Strongly Agree	Agree Somewhat	Neutral	Disagree Somewhat	Strongly Disagree
1	2	3	4	5

1. I don't experience any pressure from my family to have children. _____
2. I experience pressure from my family to have children. _____
3. My family will be proud of me if I delay parenthood to pursue my career. _____
4. My parents will be disappointed if I decide not to have children. _____
5. My family insists that I have children someday. _____
6. I don't feel any pressure from my family to have kids. _____
7. During family functions I feel pressured to have children. _____
8. My family will not care if I decide to not have kids. _____
9. My family will be let down if I delay becoming a parent. _____
10. If I decide to wait until I am over the age of 35 to have children, my family will think I am unfulfilled. _____
11. I feel compelled to have children from my family. _____
12. People at work ask me frequently if I plan on having children. _____
13. I don't feel pressure from my friends to become a parent someday. _____
14. My friends will be let down if I decide not to have children. _____
15. I feel compelled to have children from the media. _____

16. The news depicts parents as more fulfilled than childless people. _____

17. The media insists upon having children as necessary to be fulfilled. _____

18. I do not feel forced to have kids from the media. _____

19. Because of my moral beliefs, I feel that having children is an essential part of adulthood.

_____

20. My moral beliefs compel me to have kids someday. _____

21. My religious beliefs insist upon parenthood as necessary to feel fulfilled. _____

22. My religion is very supportive of the decision to have children. _____

23. My school's health class taught material which assumes we will all be parents someday.

_____

24. Federal health care does not make it easy to delay having kids. _____

25. It is easier to receive government support if you are a parent. _____

26. Contraceptive policy in this country favors parenthood, compared to childlessness.

_____

27. Most people think more positively of career-focused adults than parents. _____

28. Most people will think well of me if I decide to have children. _____

29. People without children are usually treated badly. _____

30. There is an expectation that I will have children. _____

31. Most people are surprised by the decision to put-off parenthood for other things. _____

32. Everybody knows that deciding to have children is an essential part of having a family.

_____

33. People wouldn't think anything of it if I decided to never have kids. _____

Appendix G

Attitudes Toward Mothering (i.e., Intensive Mothering Beliefs)

Walls, J. K. (2010). *Implications of Intensive Mothering Beliefs for the Well-Being of Full-Time Employed Mothers of Infants: Moderating Effects of Childcare Satisfaction and Workplace Flexibility* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses Database.

Below are a set of statements that people sometimes make about child care and ideal roles for mothers and women. By "child care" I mean anything you do to care for your future/current child(ren) that would have to be done by someone, if you were not available.

Please indicate how much you agree or disagree with each statement

Remember, we are interested in your opinions or beliefs about each statement. Even when we read statements about specific behaviors, like staying home with children, we want you to respond based on your opinions or beliefs, not your personal experience.

Strongly Agree	Moderately Agree	Neutral	Moderately Disagree	Strongly Disagree
1	2	3	4	5

1. Mothers should stay at home to care for their children. _____
2. Mothers need help from outside their household to raise a child. _____
3. A preschool program is good for all children, even if a mother is home. _____
4. Mothers should work outside of the home only if their families need the money. _____
5. Child care should be shared by men and women. _____
6. Child care is solely the responsibility of the mother. _____
7. Having a lower family income is worth it if mothers could stay home with their children._____

8. Being a mother is the most important thing a woman can do. _____
9. Mothers of young children (under 3 years old) should only work if their families need the money. _____
10. Men should leave the childrearing to women. _____
11. Child care is women's work. _____
12. Women are no better suited to taking care of children than are men. _____
13. Working outside the home can help women to be better mothers. _____
14. Mothers are primarily responsible for protecting children from the world's troubles. _____
15. Though children may benefit by having mothers who stay home with them full-time, mothers may be hurt by this arrangement. _____
16. Mothers are entitled to work outside the home if they choose to even when their children are small (under 3 years old). _____
17. Nurturing children is something that comes naturally to women. _____
18. Mothers should always place children's needs before their own. _____
19. Women's first obligation is to their children and to their families. _____
20. Mothers are ultimately responsible for how their children turn out. _____
21. There is no such thing as bad children, just bad parenting. _____

Appendix H

Experiences in Close Relationships

Brennan, K.A., Clark, C.L. & Shaver, P.R. (1998). Self report measurement of adult attachment: An integrative overview. In J.A. Simpson & W.S. Rholes (Eds), *Attachment theory and close relationships* (pp. 46-76). NY, Guildford Press.

The statements below concern how you feel in emotionally intimate relationships. We are interested in how you *generally* experience relationships, not just in what is happening in the current relationship. Respond to each statement by circling a number to indicate how much you agree or disagree with the statement.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Mildly Disagree	Neutral	Mildly Agree	Agree	Strongly Agre

1) I prefer not to show a partner how I feel deep down.
2) I worry about being abandoned.
3) I am very comfortable being close to romantic partners.
4) I worry a lot about my relationships.
5) Just when my partner starts to get close to me I find myself pulling away.
6) I worry that romantic partners won't care about me as much as I care about them.
7) I get uncomfortable when a romantic partner wants to be very close.
8) I worry a fair amount about losing my partner.
9) I don't feel comfortable opening up to romantic partners.
10) I often wish that my partner's feelings for me were as strong as my feelings for him/her.
11) I want to get close to my partner, but I keep pulling back.

12) I often want to merge completely with romantic partners, and this sometimes scares them away.

13) I am nervous when partners get too close to me.

14) I worry about being alone.

15) I feel comfortable sharing my private thoughts and feelings with my partner.

16) My desire to be very close sometimes scares people away.

17) I try to avoid getting too close to my partner.

18) I need a lot of reassurance that I am loved by my partner.

19) I find it relatively easy to get close to my partner.

20) Sometimes I feel that I force my partners to show more feeling, more commitment.

21) I find it difficult to allow myself to depend on romantic partners.

22) I do not often worry about being abandoned.

23) I prefer not to be too close to romantic partners.

24) If I can't get my partner to show interest in me, I get upset or angry.

25) I tell my partner just about everything.

26) I find that my partner(s) don't want to get as close as I would like.

27) I usually discuss my problems and concerns with my partner.

28) When I'm not involved in a relationship, I feel somewhat anxious and insecure.

29) I feel comfortable depending on romantic partners.

30) I get frustrated when my partner is not around as much as I would like.

31) I don't mind asking romantic partners for comfort, advice, or help.

32) I get frustrated if romantic partners are not available when I need them.

33) It helps to turn to my romantic partner in times of need.

34) When romantic partners disapprove of me, I feel really bad about myself.

35) I turn to my partner for many things, including comfort and reassurance.

36) I resent it when my partner spends time away from me.

Appendix I

Impulsivity and Sensation Seeking Scale

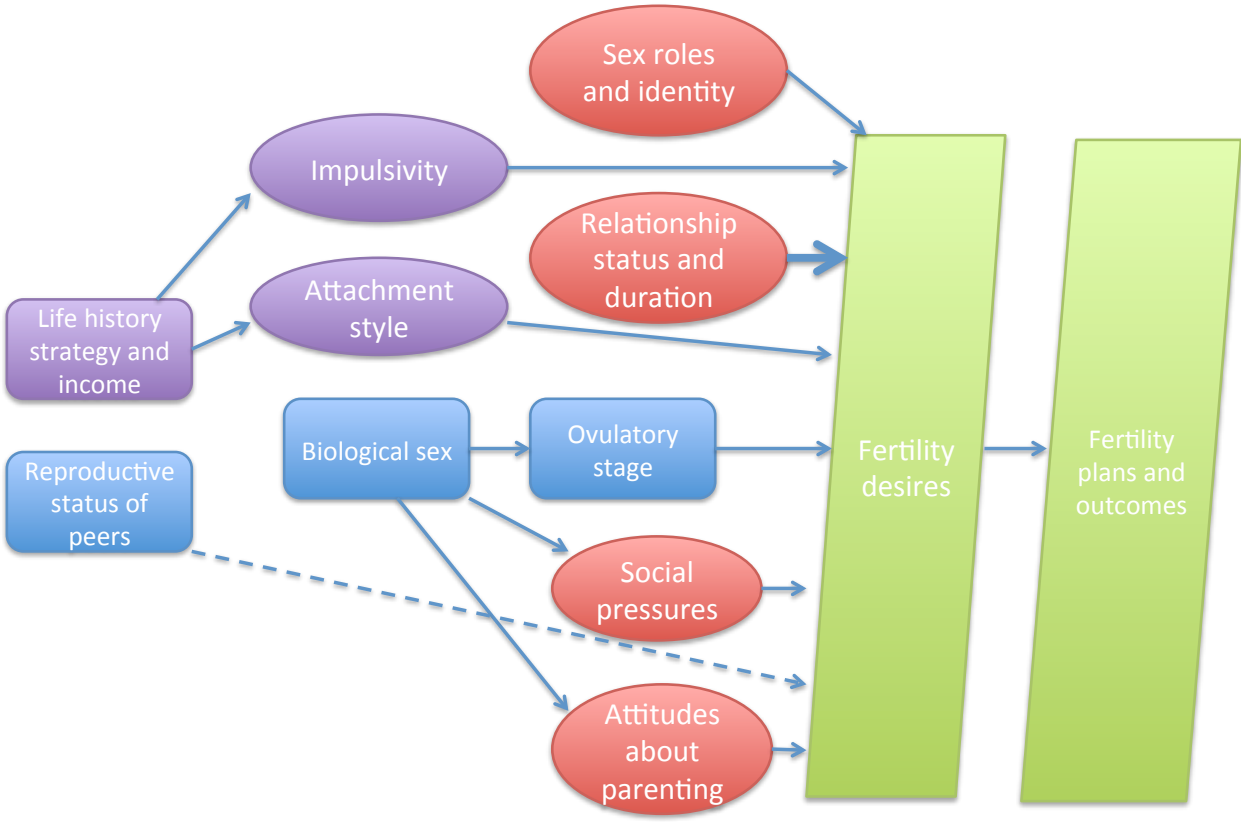
Webster, G. D. & Crysel, L. C. (2012). “Hit me maybe, one more time”: Brief measures of impulsivity and sensation seeking and their prediction of blackjack bets and sexual promiscuity. *Journal of Research in Personality*, in press.

Please indicate if the following statements are true of you (1: "true") or not (0: "false"). Before responding, carefully consider your own experiences, behaviors, and attitudes.

1. I tend to begin a new job with much advance planning on how I will do it.
2. I usually think about what I am going to do before doing it.
3. I often do things on impulse.
4. I very seldom spend much time on the details of planning ahead.
5. I like to have new and exciting experiences and sensations even if they are a little frightening.
6. Before I begin a complicated job, I make careful plans.
7. I would like to take off on a trip with no pre-planned or definite routes or timetable
8. I enjoy getting into new situations where you cannot predict how things will turn out
9. I like doing things just for the thrill of it.
10. I tend to change interests frequently.
11. I sometimes like to do things that are a little frightening.
12. I will try anything once.
13. I would like the kind of life where one is on the move and traveling a lot, with lots of change and excitement.
14. I sometimes do ‘‘crazy’’ things just for fun.

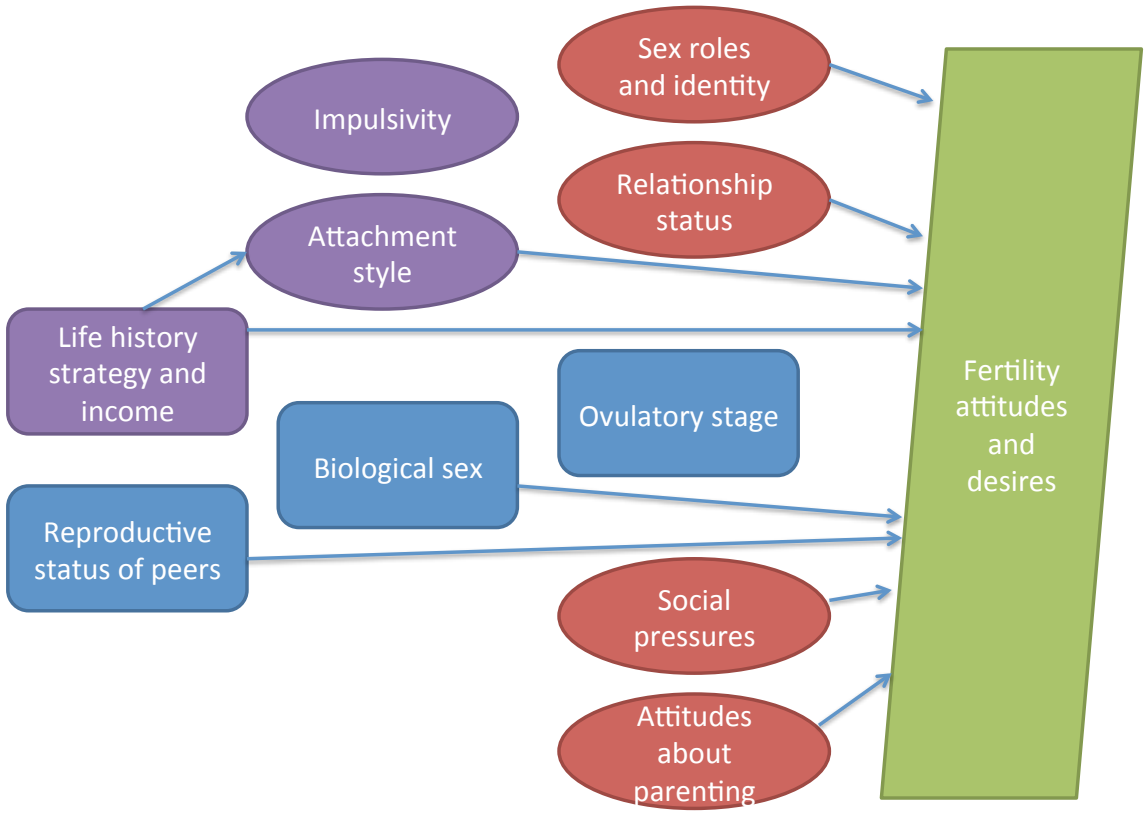
15. I like to explore a strange city or section of town by myself, even if it means getting lost
16. I prefer friends who are excitingly unpredictable.
17. I often get so carried away by new and exciting things and ideas that I never think of possible complications.
18. I am an impulsive person.
19. I like wild and uninhibited parties.

Figure 1.1 A proposed predictive model of fertility decision-making



Note. The arrows have been adapted to reflect the anticipated relative predictive strength of the relevant factors. For example, previous research suggests that relationship status should emerge as the strongest predictive factor of fertility desires and plans (Schoen, Astone, Kim, Nathanson, & Fields, 1999); and pilot data have called into question the predictive utility of family structure and the reproductive status of one's peers. Further, the color-coding reflects the factors that were investigated with independent samples across three studies.

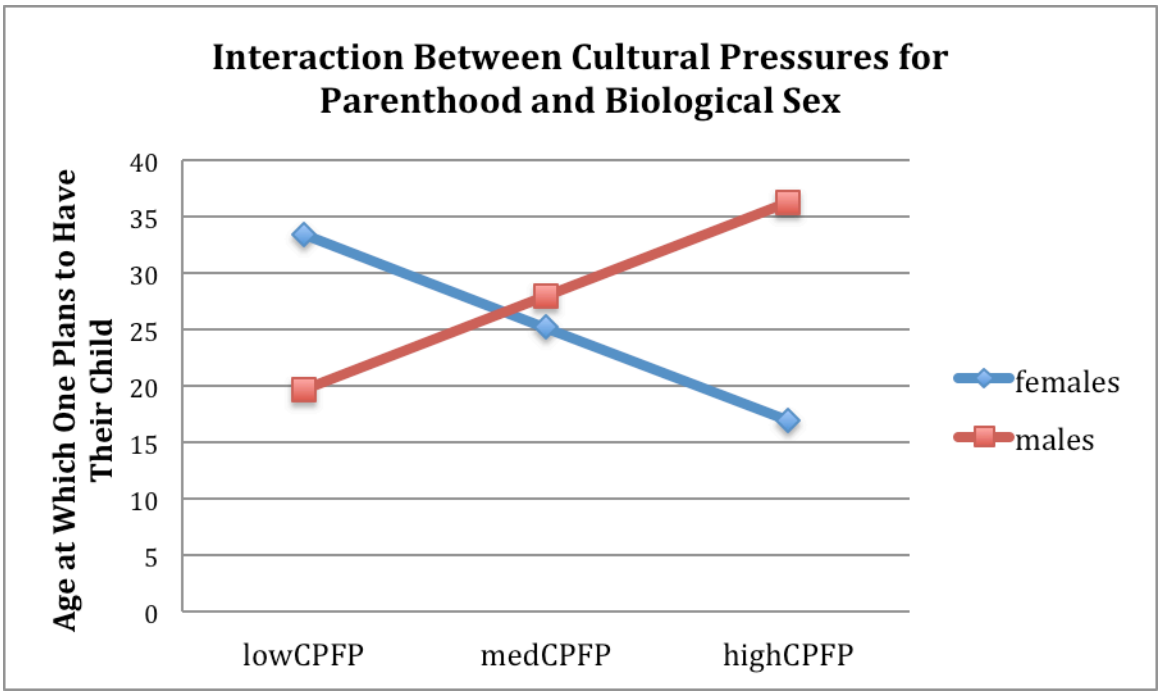
Figure 1.2 A proposed predictive model of fertility decision-making – empirically-supported relationships



Note. Above the presence (and absence) of arrows demonstrates the relationships according to systematic regression analyses across three studies. The color-coding reflects the factors that were investigated with independent samples across these three studies. Although income consistently emerged as a significant individual predictor of fertility desires and attitudes, life history strategy *only* significantly predicted fertility desires and attitudes (in the context of all the other measured factors in our model) in women and parents. However, insecure attachment demonstrated stronger and more consistent predictive relationships with our criterion(s) (including partially and completely mediating relationships between life history strategy and fertility desires). Importantly, reported stage of ovulation did not emerge as a significant individual predictor in any of our tested regression models; and impulsivity only individually

predicted a single fertility decision-making criterion (the ultimate number of children desired).

Figure 2.1 The interaction Between Cultural Pressures for Parenthood and Biological Sex for Study 1



Note. Here we can see that cultural pressures for parenthood are producing different fertility plans for men and women. For men, stronger pressures to become a parent are associated with delayed fertility plans. For women, stronger pressures to become a parent are associated with expedited fertility plans.

Table 1.1 Tests of Sex Differences on Attitude Measures for Study 1

Sex Differences on Measures	Men	Women	
What is the ultimate (or largest) number of children you would like to have?	3.30	2.96	$t(226)=.88$, $p=.412$
How often do you have the desire to have a baby?	3.21	3.59	$t(226)=-1.12$, $p=.266$
How often do you have the desire for a large amount of money (i.e., being wealthy)?	6.60	6.57	$t(226)=.10$, $p=.919$
How often do you have the desire for sex (i.e., sexual gratification)?	6.89	5.39	$t(226)=5.19$, $p<.001$
At what age do you plan on having children (or your next child)?	28.79	25.31	$t(226)=2.03$, $p=.043$
Regardless of realistic considerations, do you feel a bodily desire for the feel, sight, and smell of an infant?	3.21	4.07	$t(226)=-2.29$, $p=.023$
When you do have the desire to have a baby, how strong is this pull on you?	5.64	5.62	$t(226)=.05$, $p=.963$
ABS negative exposure subscale	2.82	2.26	$t(226)=3.91$, $p<.001$
ABS positive exposure subscale	2.58	3.07	$t(226)=-3.01$, $p=.003$
ABS trade-offs subscale	3.22	3.02	$t(226)=1.23$, $p=.220$
Work Role Salience Scale	3.11	3.17	$t(226)=-.68$, $p=.496$
Cultural Pressures for Parenthood Scale	2.97	3.03	$t(226)=-.70$, $p=.488$
Intensive Mothering Beliefs Scale	3.05	3.15	$t(226)=-.90$, $p=.368$
Attitude Towards Women Scale	3.21	3.49	$t(226)=-2.01$, $p=.046$

Note. Consistent with previous findings (Abbey, 1982; Brase & Brase, 2012; Ostovich, 2005; Peplau, 2003), men in our sample reported stronger desires for sex, compared to women. Also consistent with our predictions, women were found to exhibit a stronger visceral desire for the touch, scent, etc. of a baby and were more likely to endorse positive exposure items from the ABS, compared to men (Brase & Brase, 2012).

Table 2.1 Tests of Sex Differences on Attitude Measures for Study 2

Sex Differences on Measures	Men	Women	
What is the ultimate (or largest) number of children you would like to have?	3.03	3.25	$t(229)=-.86$, $p=.388$
How often do you have the desire to have a baby?	3.03	3.93	$t(230)=-2.52$, $p=.013$
How often do you have the desire for a large amount of money (i.e., being wealthy)?	6.05	6.58	$t(230)=-1.66$, $p=.098$
How often do you have the desire for sex (i.e., sexual gratification)?	6.59	5.38	$t(230)=4.02$, $p<.001$
At what age do you plan on having children (or your next child)?	29.06	26.13	$t(224)=1.87$, $p=.062$
Regardless of realistic considerations, do you feel a bodily desire for the feel, sight, and smell of an infant?	3.23	4.27	$t(230)=-2.59$, $p=.010$
When you do have the desire to have a baby, how strong is this pull on you?	5.81	6.33	$t(230)=-1.09$, $p=.279$
ABS negative exposure subscale	2.59	2.18	$t(223)=2.76$, $p=.006$
ABS positive exposure subscale	2.51	3.20	$t(223)=-4.44$, $p<.001$
ABS trade-offs subscale	3.09	2.82	$t(223)=1.59$, $p=.114$
Mini K	5.18	5.67	$t(220)=-3.41$, $p=.001$
Experiences in Close Relationships (avoidant)	3.38	3.03	$t(209)=1.98$, $p=.049$
Experiences in Close Relationships (anxious)	3.71	3.62	$t(209)=.56$, $p=.579$
Impulsivity and Sensation-Seeking	29.11	29.52	$t(208)=-.62$, $p=.537$

Note. Consistent with previous findings (Abbey, 1982; Brase & Brase, 2012; Ostovich, 2005; Peplau, 2003), men in our sample reported stronger desires for sex, compared to women. Also consistent with our predictions, women were found to exhibit a stronger visceral desire for the touch, scent, etc. of a baby, more frequent desires to have a baby, and were more likely to endorse positive exposure items from the ABS, compared to men (Brase & Brase, 2012).

Table 3.1 Tests of Sex Differences on Attitude Measures for Study 3

Sex Differences on Measures	Men	Women	
What is the ultimate (or largest) number of children you would like to have?	2.56	2.88	$t(330)=-1.38$, $p=.167$
How often do you have the desire to have a baby?	3.41	4.10	$t(331)=-2.38$, $p=.018$
How often do you have the desire for a large amount of money (i.e., being wealthy)?	6.38	6.57	$t(330)=-.793$, $p=.428$
How often do you have the desire for sex (i.e., sexual gratification)?	6.81	5.39	$t(331)=5.96$, $p<.001$
At what age do you plan on having children (or your next child)?	31.26	26.16	$t(316)=3.32$, $p=.001$
Regardless of realistic considerations, do you feel a bodily desire for the feel, sight, and smell of an infant?	3.47	4.39	$t(331)=-2.88$, $p=.004$
When you do have the desire to have a baby, how strong is this pull on you?	6.02	6.50	$t(331)=-1.35$, $p=.179$
ABS negative exposure subscale	2.73	2.34	$t(312)=3.31$, $p=.001$
ABS positive exposure subscale	2.64	3.14	$t(312)=-3.76$, $p<.001$
ABS trade-offs subscale	3.06	2.92	$t(312)=1.08$, $p=.281$
Exposure to children	2.71	2.88	$t(312)=-1.50$, $p=.135$

Note. Consistent with previous findings (Abbey, 1982; Brase & Brase, 2012; Ostovich, 2005; Peplau, 2003), men in our sample reported stronger desires for sex, compared to women. Also consistent with our predictions, women were found to exhibit a stronger visceral desire for the touch, scent, etc. of a baby and were more likely to endorse positive exposure items from the ABS, compared to men (Brase & Brase, 2012).