

FAMILY PLANNING IN CONTEXT: SENSITIVITY OF FERTILITY DESIRES AND
INTENTIONS TO ECOLOGICAL CUES

by

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B. S., Florida State University, 2010

M. S., Kansas State University, 2013

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Department of Psychological Sciences
College of Arts and Sciences

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2015

Abstract

Although fertility decision-making has been the source of considerable theoretical and empirical investigation, the effect of several contextual variables on individuals' fertility decision-making processes are not yet understood. For example, are individuals more strongly influenced by social forces that are informational or normative? Also, do individuals change their fertility intentions based on their current and developmental economic conditions? Further, how 'shared' are reproductive decisions within a couple, are males or females more likely to get what they want? This 3-study program of research used both experimental and exploratory qualitative methods to elucidate the nature of these unresolved issues within the domain of fertility decision-making. Study 1 ($N = 344$, $M_{age} = 23$, $SD_{age} = 6.41$, 59.3% female) found that highly motivated individuals' fertility intentions were more susceptible to informational, compared to normative messages (the opposite was true for unmotivated participants). Study 2 ($N = 249$, $M_{age} = 24$, $SD_{age} = 6.10$, 61.4% female) found that exposure to mortality primes up-regulated fertility intentions for individuals with "fast" life history strategies, but facilitated the down-regulation of fertility intentions for individuals with "slow" life history strategies. Interestingly, resource scarcity primes were associated with the postponement of fertility plans in individuals' with "fast" life history strategies. Study 3 ($N = 120$, $M_{age} = 21$, $SD_{age} = 4.96$, 50% female) found that, contrary to predictions, the similarity of couples' gender role attitudes, career-orientations, and education levels did not significantly predict the frequency of their use of statements coded as compromise and agreement or persuasion and disagreement in their discussions regarding their future reproductive plans. Findings do suggest that individuals with higher levels of education were more likely to use persuasion and disagreement statements in their child timing and number

discussions with their romantic partner, indicative of greater decision-making power in that particular social exchange. Further, men and women in study 3 were equally likely to use statements coded as compromise and agreement, persuasion and disagreement, and concession when discussing both their future fertility plans as well as their future financial plans.

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Acknowledgements

To my mentor (Gary Brase) and committee members (Laura Brannon, Richard Harris, Chardie Baird, and Rick Scheidt), as well as the members of the Brase lab (including Blair McMillan and Connor Smith), I am so lucky to have your support. To my incredible parents, Linda Peaden, David and Janie Adair, I cannot thank you enough for everything you have done to support me on this journey. Without your time, advice, and patience, none of this work would have been possible.

Dedication

This work is dedicated to Adam Adair, who has always supported me in the pursuit of my dreams, and believed in me even when I did not believe in myself.

Chapter 1 – Introduction

The decision to become a parent has been the focus of considerable philosophical (Lombrozo, 2013), theoretical (Bongaarts & Watkins, 1996; Miller, 2011; Notestein, 1953), and empirical debate (McQuillan, Griel, Shreffler, Gentzler, Wonch-Hill, & Hathcoat, 2012; Griskevicius, Delton, Robertson, & Tybur 2011). In a recent philosophical argument, Paul (2013) elucidates just how impactful the decision to become a parent can be:

Having a child is not just a radically new epistemic experience, it is, for many people, a life-changing experience. That is, the experience may be both epistemically transformative and personally transformative: it may change your personal phenomenology in deep and far-reaching ways. A personally transformative experience radically changes what it is like to be you. (p. 8)

Besides illustrating the importance of family planning decisions given their deeply transformative nature, both to the way that individuals live and the way that they see the world, perhaps most interestingly Paul (2013) argues that it is not possible to make “rational” decisions about one’s reproductive career. Indeed, the existence and prevalence of rational decision-making in humans, as described in economic models as a careful analysis of all relevant costs and benefits associated with a particular course of action to calculate expected utility (Consluk, 1996), has come under tremendous scrutiny (Gigerenzer & Selten, 2002). Limitations in human’s knowledge, processing ability, and time imply that a more “bounded”, “deeply rational” approach to human decision-making is more accurate model of how the mind works (Gigerenzer & Selten, 2002; Kenrick, Griskevicius, Sundie, Li, Li, & Neuberg, 2009). This idea is of significant theoretical importance, given that historically, demographic theories regarding birth

rates have typically described family planning decisions as an outcome of a cost-benefit analysis (Basu, 2002; Hagewen & Morgan, 2005; Notestein, 1953).

It is likely that decisions to become a parent are made under conditions of tremendous uncertainty, where rather than integrating economically all relevant information about the costs (e.g., the cost of education and care for potential offspring and the potential life and relationship stress associated with parenting) and benefits (e.g., the potential for offspring to contribute to the household and the joys associated with parenting), individuals' use a few relevant aspects of their environment to help them make decisions about their reproductive futures. The collection and integration of all relevant information is unlikely to occur for two primary reasons, the first being that it is *costly*, given the expenditure of energy necessary to collect this information (Gigerenzer & Todd, 1999), and the time spent doing so wherein one's reproductive viability is in decline. Secondly, the collection of relevant costs and benefits associated with having children is perhaps *not even possible*, given that parenthood is epistemically transformative (Paul, 2013), making associated outcomes impossible to predict unless one has had the experience of becoming a parent.

When information search is costly and time is limited (in this case by fertility decline), decision-makers tend to rely on a few relevant pieces of information from their environment to make a choice (Gigerenzer & Todd, 1999). Specifically, when the collection of relevant costs and benefits of a particular choice is costly (Pruett-Jones, 1992) and when knowledgeable and experienced decision-makers are present in one's social environment (Stoehr, 1998), both human and non-human animals are likely to rely on socially acquired information (e.g., the preferences and decisions of conspecifics) to make their decision. Relying upon socially acquired information can improve one's decision by exploiting the experiences and efforts of other

decision-makers in one's environment, without the need to personally incur the costs of information search. Given the complexity of fertility-relevant decisions, and the costly nature of information search, it is likely that individuals assess particularly relevant aspects of their ecology to shape their fertility desires and intentions, including socially acquired information about family planning options, normative family structure ideas, partner's values and attitudes towards fertility, as well as cues indicating the status of resources in one's current and historical environment.

This alternative to economic cost-benefit analysis frameworks of fertility decision-making has received empirical support; changing economic conditions – which change the relative costs and benefits of having children – do not seem to strongly predict the onset of shifts in fertility rates (Bongaarts & Watkins, 1996). Applying a “rational” model to fertility decision-making, such as the demographic transition model, predicts that socioeconomic changes towards industrialization (increasing costs of childrearing, decreasing benefits as societies move away from reliance upon agriculture and farming) will produce declines in fertility rates (Notestein, 1953). While general trends towards industrialization are associated with declining fertility rates (Schutjer & Stokes, 1984), these changes in fertility decision-making seem to be better predicted by social interaction (Bongaarts & Watkins, 1996). In fact, dramatic fertility decline has been observed in some pre-industrialized societies that are bordered by, and share a common culture with, industrialized nations that have already experienced fertility decline (Bongaarts & Watkins, 1996). Theoretical development is much needed in the area of fertility decision-making to better understand these observed departures from generally accepted models and perhaps inform policy needed to address fertility rates that pose threats to public health (Wachter & Bulatao, 2003).

A Model of Individual Fertility Decision Making

The current work involves a series of empirical investigations to elucidate the nature of individual fertility decision-making, specifically how individuals' use particular aspects of their environment to shape their own fertility attitudes and intentions. Taken together, this work informs current issues and debates within the fertility modeling literature.

Most contemporary empirical investigations of fertility decision-making adopt, either explicitly or implicitly, a model that emphasizes the role of desires and intentions in shaping fertility outcomes (Berrington, 2004; Hagewen & Morgan, 2005; Thomson & Brandreth, 1995). A specific iteration of this model that has received considerable empirical support is known as the 'traits-desires-intentions-behavior' (TDIB) model (Loutfy et al., 2009; Miller, 2011; Miller, Severy, & Pasta, 2004). According to the TDIB model, the causal flow within an individual leading to a particular fertility-relevant behavior (see Figure 1) begins with a biological disposition towards childbearing (i.e., either a positive or negative motivation to pursue parenthood), which then gives rise to specific fertility desires, which shape an individual's fertility intentions, and finally intentions regarding whether or not to have children are predicted to proximally shape fertility-relevant behaviors (i.e., 'proceptive' behaviors aimed at conceiving or 'contraceptive' behaviors to prevent conception; Miller, 2011). Of particular consequence to the current work is a specific implication from this TDIB model; fertility desires and intentions provide a useful proxy of fertility behaviors and outcomes.

Fertility Modeling: Current Issues, Debates, and Unanswered Questions

The TDIB model applied to fertility decision making in the current work is important for the elucidation of a current debate within the fertility modeling literature: the intention-behavior gap. The intention-behavior gap refers to discrepancies identified between what an individual intends to do and what behavior they actually perform – such discrepancies between intentions

and behavior have been identified in decision-making about environmentally-conscious purchases (Kollmuss & Agyeman, 2002), exercise (Norman & Conner, 2005), seat-belt use, dental flossing, breast self-examination (Schwarzer, 2008), and fertility decision-making (Adsera, 2006). It is our prediction that this intention-behavior gap does not just reflect a weak causal relationship between fertility desires, intentions, and behaviors, rather that it is indicative of specific factors which might serve as barriers preventing the individual decision-maker from formulating intentions based on their fertility desires and subsequently realizing those intentions. Thus, the existence of these barriers does not weaken the empirical or theoretical usefulness of the TDIB model, instead it highlights certain conditions and populations that might be at risk for unintended pregnancy and certain empirical issues associated with operationalizing fertility intention.

Predicting fertility intentions and outcomes: Motivation and ability. Some empirical work within the domain of fertility decision-making has called into question the ability of fertility desires and intentions to predict fertility behaviors and outcomes (Adsera, 2006; Berg, Rotkirch, Vaisanen, & Jokela, 2013; Kendall, Afafe-Munsuz, Speizer, Avery, Schmidt, & Santelli, 2005; Toulemon & Testa, 2005). Investigations of these critiques within the Elaboration Likelihood Model (Petty & Cacioppo, 1986a) – among other dual-process models of persuasion and attitude change (the MODE model, Fazio, 1990) – provides important insights into conditions which might produce barriers to engaging in the traits-desires-intentions-behaviors decision-making sequence. Petty and Cacioppo's (1986a; 1986b) model explains that decision making can take two paths, a conscious/deliberative path or a spontaneous/automatic path, and specifically suggests that the extent to which one “elaborates” upon the quality and merits of the information relevant to the decision at hand determines which path one's decision-

making operations are likely to follow (Petty & Cacioppo, 1986a). By applying this framework, it is possible to identify fertility-relevant factors – normative pressures, lack of access to accurate information, economic constraints, partner disagreement – which might act as barriers to engaging in the TDIB decision-making sequence due to their affects on an individuals’ perceived control over their own fertility. According to Petty and Cacioppo’s (1986a) Elaboration Likelihood Model of persuasion, two conditions must be met in order for an individual to engage in conscious, deliberative decision-making (conditions which affect their “likelihood of elaboration”; Petty & Cacioppo, 1986a, p. 129); an individual must have both the motivation and the ability to deliberatively consider and choose. An application of this Elaboration Likelihood Model (Petty & Cacioppo, 1986a) to fertility decision making suggests that fertility decisions can follow one of two paths; 1) a path to intended pregnancy where individuals’ with the motivation and ability to engage in deliberative decision-making shape their reproductive futures according to their desires and intentions and 2) a path to unintended pregnancy where individuals’ without the motivation and ability to engage in deliberative decision-making instead experience reproductive futures that result from sexual risk taking and ambivalence, rather than a causal flow from desires to intentions and subsequent fertility behaviors.

While work investigating both intended and unintended pregnancy within the same line of inquiry is surprisingly scarce, some evidence suggests that unintended pregnancy is particularly likely to occur when individuals lack the normative motivation to engage in deliberative family planning (Kendall, Afafe-Munsuz, Speizer, Avery, Schmidt, & Santelli, 2005) and/or the ability to collect and use accurate information about fertility and reproduction to inform their fertility decisions (Berg, Rotkirch, Vaisanen, & Jokela, 2013; Santelli, Lindberg, Finer, & Singh, 2007). Specifically, where strong normative expectations prescribing that

individuals engage in deliberative family planning are absent, and access to accurate information about family planning is lacking, predictive relationships between fertility desires, intentions and behaviors are weak (Kendall, Afable-Munsuz, Speizer, Avery, Schmidt, & Santelli, 2005). In fact, in these environments, which are also characterized by low income, high rates of sexual risk taking and unintended pregnancy, intentions “seem like more of a rationalization after discovering a pregnancy than the outcome of deliberate and voiced choice” (Kendall, Afable-Munsuz, Speizer, Avery, Schmidt, & Santelli, 2005, p. 308). Importantly, these conclusions regarding the importance of motivation and ability in shaping deliberative fertility decision-making are based on structured interview observations and correlational designs; empirical work exploring these possible causal relationships between motivation, ability and fertility decision-making is needed. Of particular importance to the current investigation are the potential causal relationships between normative and informational influences and fertility decision-making.

Predicting fertility intentions and outcomes: Environmental structure. Some structural barriers to engaging in deliberative fertility decisions (where desires shape intentions, and intentions predict fertility behaviors) have been identified. Specifically, individuals are less likely to realize their fertility intentions by the end of their reproductive careers if they are single (Toulemon & Testa, 2005), disagree with their partners about their desired or intended fertility (Schoen, Astone, Kim, Nathanson, & Fields, 1999), or if they perceive their current economic conditions to be poor, unpredictable, and persistent (Adsera, 2006; Griskevicius, Delton, Robertson, & Tybur, 2011). There are few and conflicting results in the existing fertility decision-making literature as to the shared nature of reproductive decision-making (Adsera, 2006; Basu, 2002; Hakim, 2003; Schoen, Astone, Kim, Nathanson, & Fields, 1999), which provides the impetus for one of the current lines of investigation – how do relationship

experiences (e.g., power differentials, bargaining, collaborating, and compromising) shape couples' fertility desires and intentions? Further, the current work will use experimental methods to explore critical aspects of an individual's current and historical economic conditions that shape fertility desires and intentions.

Predicting fertility intentions and outcomes: Measurement. Alternatively, recent work suggests that some of the observed 'gaps' between intentions and behaviors are a result of how fertility intentions are operationalized (Schoen, Astone, Kim, Nathanson, & Fields, 1999). In order to observe more consistent relationships between fertility desires, intentions, and behaviors, experimenters and their participants need to carefully delineate the distinction between 'desire' and 'intent' (Miller, 2011). As such, the current work will implement specific instructions describing the difference between 'desires' and 'intentions' (see Miller, 2011). These methods should strengthen the ability of measures of fertility intentions in the current work to serve as a proxy for fertility behaviors and inform relevant fertility behavior related conclusions and implications.

Specific Aims

Through a series of studies, the current program of research will explore the role that these ecological factors – normative pressures, access to fertility-relevant information, couples' shared decision making, and economic conditions – play in shaping fertility intentions. Importantly, investigations of these fertility-relevant ecological cues in the current program of research will unite lines of inquiry across multiple disciplines (demography, sociology and psychology), shed light on current debates and inconsistent findings within the domain of fertility decision-making, and use experimental methods to elucidate hypothesized causal

relationships that have hitherto been investigated using correlational and interview methodologies.

Study 1 will investigate the role of normative and informational social influences in fertility decision-making, and explore the possibility that certain individual characteristics make individuals differentially responsive to these types of social influences. Study 2 will focus on the effect of economic factors on fertility decision-making, specifically exploring the role of predictability and persistence of current economic conditions as well as life history strategy. Finally, study 3 will turn to fertility decision-making within intimate relationships; specifically exploring the possibility that relationship participation changes individuals' fertility intentions.

Chapter 2 – Study 1: Normative and Informational Influences on Fertility Decision-Making

Fertility decision-making appears to be shaped by social forces both at an individual (Hagewen & Morgan, 2005; Hensvik & Nilsson, 2010; Kohler, Behrman, & Watkins, 2001) and demographic level (Bongaarts & Watkins, 1996). An account of social influences on fertility decision-making is relatively new to the literature, and suggests a particularly insightful avenue for future research given the possibility for social influence to explain some surprising demographic observations. Bongaarts and Watkins (1996) explain some observations that are inconsistent with a demographic transition model of fertility decision-making: a demographic transition model (Notestein, 1953) predicts that fertility rates are the outcome of a ‘rational’ analysis of the economic costs and benefits of childbearing, and therefore increasing costs and decreasing benefits associated with having children in industrialized nations should predict declining fertility rates. However, some societies experience an onset of fertility decline before they have undergone significant socioeconomic shifts (Bongaarts & Watkins, 1996). This lack of temporal precedence between the changing costs and benefits associated with having children and changing fertility rates challenges existing causal explanations regarding demographic accounts of fertility decline. Instead, Bongaarts & Watkins (1996) suggest that it is social forces that are causing changes in fertility rates in these pre-industrialized nations. They find support for a ‘shifting threshold’ model of national fertility decline, where declining fertility rates are strongly predicted by the onset of fertility decline in neighboring nations which share a common culture and language (Bongaarts & Watkins, 1996). This observation suggests that fertility intentions and outcomes are being shaped by social interaction across national borders, and

emphasizes the need for further research and theory development that accounts for the importance of social interaction in shaping fertility decision-making.

Shifting our focus to individual decision-making, social influence seems to shape individuals' reported fertility intentions and behaviors. Given the incredibly consequential nature of fertility decision-making – parenting is a transformative experience and therefore deciding whether or not to have a child necessitates reliance upon inferences about what parenting will be like (Paul, 2013) – deciding whether or not to have a child can require considerable effort, uncertainty, and time. When information search is costly and time is limited – by reproductive viability, for instance – individuals tend to rely on a few relevant pieces of information from their environment to make a choice (Gigerenzer & Todd, 1999). Specifically, when experienced and knowledgeable conspecifics are present in one's social environment, human and non-human animals exploit socially acquired information by relying upon the experiences and efforts of these other decision-makers (Stoehr, 1998). Therefore, miserly decision-makers can use social information to shape their own intentions and behaviors. For example, females simplify complex and effortful mate choice decisions by copying the preferences of other females, a phenomenon known as 'mate copying' (Place, Todd, Penke, & Asendorpf, 2010). As in mate choice decisions, fertility decision-making involves important consequences for the decision maker, and the effortful integration of information, such as mortality risk and resource abundance/stability in the environment (Adsera, 2006; Griskevicius, Delton, Robertson, & Tybur, 2011; Mace, 2000) and the potential child-rearing support that one might have if they decide to have a child (Hagewen & Morgan, 2005; Mace, 2000). Therefore, we predict that humans similarly use social information to inform their fertility decisions, a phenomenon we term 'baby copying'.

Specifically, social information and social influence on individual decision-making can take two different forms: 1) informational influence (sometimes referred to as ‘social learning’) refers to the effect of facts, knowledge, and ideas shared socially on individual decision-making and 2) normative influence (sometimes referred to as ‘social influence’) refers to the effect of common behaviors and attitudes within an individual’s environment, and specifically social expectations about what an individual decision-maker ought to do. These two types of social influence are differentiated by the presence of evaluative judgments – for example, imagining how others might react to an individual’s decided course of action – which are specific to normative types of social influence (Kohler, Behrman, & Watkins, 2001). These two types of social influence have rarely been differentiated in social decision-making literature, perhaps due to the fact that their relative effects are often difficult to disentangle (Bongaarts & Watkins, 1996).

Attempts to disentangle these two types of social influence have suggested that a few factors might predict whether informational or normative forces will exert greater influence on decision-making; an individual’s level of uncertainty, their level of self-monitoring, and their motivation. Some correlational observations suggest that individuals who are more uncertain about their decision might be more susceptible to informational, compared to normative influence (Bongaarts & Watkins, 1996; Hensvik & Nilsson, 2010). For example, females in the workplace tended to use other females to inform their decisions about when to have a baby, particularly if they were uncertain about the costs and benefits (e.g., balancing work and family) of having a child at that particular time (Hensvik & Nilsson, 2010).

An individual’s level of self-monitoring has also been linked to their responsiveness to normative influence (Snyder & Gangestad, 1986). Self-monitoring refers to the extent to which

individuals monitor and adjust their expressive behavior and self-representations (Gangestad & Snyder, 2000). As Gangestad and Snyder (2000) explain, “the behavior of... high self-monitors may be highly responsive to social and interpersonal cues of situationally appropriate performances. By contrast... low self-monitors’ expressive behaviors are not controlled by deliberate attempts to appear situationally appropriate” (p. 530-531). High self-monitors are more likely to facultatively shape their self-presentation according to context, which has led many to infer that high self-monitors might be more likely to change their intentions and behaviors according to normative expectations. Indeed, high self-monitors appear to be more sensitive to normative influence, compared to low self-monitors (Ajzen, Timko, & White, 1982; Fazio, 1990; Snyder & Gangestad, 1986).

According to the Elaboration Likelihood Model (Petty & Cacioppo, 1986a; 1986b) of persuasion, an individual’s level of motivation also plays a key role in their susceptibility to normative influence. According to the Elaboration Likelihood Model (Petty & Cacioppo, 1986a), in order to observe the integration of normative influences into an individual’s intentions and behaviors (rather than a careful, thoughtful consideration of the merits of decision-relevant information), that individual must lack the motivation to engage in deliberative decision-making. Indeed, persuasion and attitude change which is consistent with normative information is often attributed to automatic/spontaneous processing, being referred to as reliance upon the “consensus implies correctness” heuristic (Chaiken & Stangor, 1987; Todorov, Chaiken, & Henderson, 2002).

In study 1 of this three-study program of research, priming procedures will be used to differentiate informational from normative influence on fertility intentions. Specifically, the role of individual differences in determining the susceptibility of fertility intentions to informational

and normative influences will be explored. It is expected that an individual's level of uncertainty, their level of self-monitoring, and their motivation will be particularly important in predicting whether their fertility intentions will shift based on the presentation of informational or normative social information. Hypotheses for study 1 are as follows:

H1: It is predicted that when individuals report greater uncertainty regarding their fertility intentions, their fertility intentions will be more strongly affected by informational, compared to normative primes.

H2: It is predicted that high self-monitors' reported fertility intentions will be more strongly affected by normative, compared to informational primes.

H3: In accordance with the Elaboration Likelihood Model, when individuals are motivated to engage in deliberative decision-making through validation concerns their fertility intentions will be more strongly influenced by informational, compared to normative influence.

Chapter 3 – Study 1 Methods, Results, and Discussion

Methods

Participants

Due to the ability for parenting experiences (e.g., parity, the sex of current children) to change individuals' fertility intentions (Schoen, Astone, Kim, Nathanson, & Fields, 1999; Quesnel-Vallee & Morgan, 2003), this work focused exclusively on the fertility decision-making practices of childless individuals. The sample was also limited to individuals of reproductively viable age; defined as ages 18-45 (see Toulemon & Testa, 2005). With this restriction imposed, the current work obtained a sample with an average age of 23 years ($SD = 6.38$); this is a relatively young sample, so any findings and implications from these findings should be limited to the fertility decision-making practices of young adults. Power analysis based on effect sizes found in a similar design (Griskevicius, Delton, Robertson, & Tybur, 2011) suggests that a sample size of 150 participants and an α level of 0.05 will provide sufficient power to detect the proposed effects (i.e., power estimate of approximately $1 - \beta \approx 0.80$). Using a general Internet sample (with participation facilitated through Qualtrics software (2013)), a total sample size of $N = 344$ was obtained (Mechanical Turk, $N = 162$; Facebook, $N = 16$; SONA, $N = 166$). Participants recruited through Mechanical Turk were compensated 25 cents for their participation, participants recruited through SONA were enrolled in a large Midwestern University and compensated with course credit for their participation, and participants recruited through Facebook did not receive compensation for their participation. The current sample was relatively more female (59.3%), Caucasian/Non-Hispanic (58.4%), heterosexual (81.7%), and involved in a romantic relationship (dating = 25.9%; engaged = 3.8%; married = 23.8%). There

was not a sufficient amount of variation in sexual orientation to allow for comparisons based upon sexual orientation (e.g., to allow for a comparison of the efficacy of our predictive models in heterosexual and homosexual individuals separately), so the potential moderating effect of sexual orientation is not included in our models described below. However, given that our predictions were not specific to heterosexual individuals – and following similar work which has included both heterosexual and homosexual individuals in their predictive models of decision-making (Griskevicius, Delton, Robertson, & Tybur, 2011; Griskevicius, Tybur, Delton, & Robertson, 2011) – individuals reporting homosexual orientation were included in subsequent analyses.

Procedure and Materials

To determine the effect of informational and normative social information on fertility decision making, as well as the potential moderating effects of self-monitoring, motivation, and certainty, participants were first asked to indicate their age, biological sex, ethnicity, annual household income, and relationship status (see Appendix A) — then they completed the 18-item Self-Monitoring Scale (SM Scale, Snyder & Gangestad, 1986; see Appendix B). Participants answering the SM Scale indicated whether or not statements such as “I make impromptu speeches even on topics about which I have almost no information” and “I’m not always the person I appear to be” are generally true (coded as “1”) or false (coded as “0”) of them; higher scores are indicative of higher levels of self-monitoring. This scale demonstrated good internal consistency in the current sample, Cronbach’s $\alpha = .64$.

Following completion of these individual difference measures, participants were randomly assigned to one of four conditions: high motivation/pro-childbearing informational influence (N = 89), high motivation/pro-childbearing normative influence (N = 70), low

motivation/pro-childbearing informational influence (N = 84), and low motivation/pro-childbearing normative influence (N = 101). First, individuals received instructions which served as a motivation manipulation (see Fazio (1990) and Briley and colleagues (2000)); participants either read instructions indicating that they will later be asked to describe both their fertility intentions and their reasons for endorsing these particular family plans (high motivation), or they received no special instructions (low motivation). In other words, “high motivation” will refer to participants asked to provide justification for their stated fertility intentions, and “low motivation” will refer to participants whom did not receive any special instructions. Then, participants were directed to an article containing pro-childrearing social information that was informational (see Appendix C) or normative (see Appendix D). These articles were created based on fertility-relevant information that has been previously defined as either informational or normative (see Kohler, Behrman, & Watkins, 2001), and tested to determine the extent to which they are interpreted as informational or normative. For example, information regarding parental leave with compensation from work was defined as informational influence, and information regarding the prevalence and social praise – from family members and friends – associated with two- and three-child families was defined as normative influence. These messages were designed, following Griskevicius and colleagues (2011), to resemble the formatting of web-based *New York Times* articles. As in Griskevicius et al. (2011), participants were told that these messages were part of a memory test and unrelated to the questions they were asked previously, to reduce any potential demand effects. Participants were told that after they read this passage, they would answer questions that are related to an entirely different study (but were actually dependent variable measures) in order to experience a time delay between their encoding and recall of the information contained in the passage.

Finally, participants read instructions indicating the difference between desires and intentions, defining desires as “What someone wants based on their feelings” and intentions as “A commitment to act based on your desires, wants, and your situation” (Miller & Pasta, 1995; see Appendix E). Then our criterion was measured by asking participants to indicate their fertility intentions; specifically, their child number intentions (i.e., “What is the ultimate (or largest) number of children you intend to have?”) and their child-timing intentions (i.e., “How soon do you intend to have our first child?”; see Miller & Pasta, 1995). Participants also indicated their fertility desires, by responding to items such as “How strongly do you feel the desire or “pull” to have a baby?” (adapted from Brase & Brase, 2012; see Appendices E and F) and their certainty regarding their plans for future reproduction, where scores ranged from “1” (“Very uncertain) to “5” (“Very certain”; adapted from Miller & Pasta, 1995; see Appendix E).

Study 1 Results

To determine the presence of main effects of our independent variables – motivation, certainty, self-monitoring, and type of social information – and the existence of predicted interactions, hierarchical regression methods (including standardized product terms) and 2x2 ANOVAs were employed (Aiken & West, 1991). We predicted three significant two-way interactions, such that (H1) fertility intentions will be higher/sooner for individuals who reported lesser certainty exposed to informational, compared to normative messages, (H2) fertility intentions will be higher/sooner for individuals with higher self-monitoring scores who were exposed to normative, compared to informational messages, and (H3) fertility intentions will be higher/sooner for highly motivated participants exposed to normative, compared to informational messages.

Manipulation Check

It does appear that, generally, our social influence messages were perceived as intended. For example, participants indicated that our normative social influence message more strongly “discuss(ed) what ‘most people’ in America are doing” ($t(342) = 5.07, p < .001, \delta = .56; M = 2.87, SD = .75$), compared to the informational social influence message ($M = 2.45, SD = .76$). As expected, participants were more likely to indicate that the informational social influence message “share(d) information about family planning WITHOUT saying what the ‘norm’ is?” ($t(342) = -2.70, p = .007, \delta = -.29; M = 2.36, SD = .90$), compared to the normative social influence message ($M = 2.10, SD = .82$). While these scores did not significantly differ, trends indicated that participants tended to perceive our normative message as more strongly “discuss(ing) what Americans are expected to do regarding their family planning” ($t(342) = 1.02, p = .308, \delta = .11; M = 2.68, SD = .77$), compared to the informational social influence message ($M = 2.58, SD = .93$). Additionally, we found that participants exposed to the informational social influence message reported *slightly* higher feelings of arousal after reading the story ($t(342) = -1.97, p = .050, \delta = -.21; M = 2.28, SD = 1.00$), compared to the normative social influence message ($M = 2.08, SD = .94$). Of note, while many of these t-test results are statistically significant, the mean differences observed here are actually quite small. It is possible, had the normative and informational social influence manipulations been more effective, that the effects detailed below might have been stronger.

Hypothesis 1

Child timing intentions. Using hierarchical regression we found that together, certainty about the age at which one intends to have their first child and their exposure to either normative or informational social influence relevant to this decision predicts 2.1% of the variance in reported age at which one intends to have their first child ($R^2 = .021, F(2, 244) = 2.59, p = .077, \eta^2 = .21$). The relationship between exposure to normative or informational social influence and

reported fertility intentions (e.g., age at which one plans to have their first child) did not change depending on certainty regarding this decision; in other words, the interaction between the type of social influence information they were exposed to and their certainty regarding their fertility intentions does not significantly predict reported fertility intentions (R^2 change $<.001$, $F(1, 243) = 0.10$, $p = .756$, $\eta^2 = .02$). Regarding the strength of individual predictors, certainty about fertility intentions did emerge as a marginally significant unique predictor of fertility intentions ($\beta = -.124$, $p = .052$), such that individuals with greater uncertainty regarding their fertility intentions tended to report more delayed fertility intentions, compared to those with that were more certain about these plans. The type of social influence information they were exposed to was not a significant unique predictor of fertility intent ($\beta = -.082$, $p = .199$).

Child number intentions. Using hierarchical regression methods we found that together, certainty about the number of children one intends to have and their exposure to either normative or informational social influence relevant to this decision only predicts 2.3% of the variance in reported number of children one intends to have ($R^2 = .023$, $F(2, 247) = 2.90$, $p = .057$, $\eta^2 = .02$). The relationship between exposure to normative or informational social influence and reported fertility intentions (e.g., the number of children one intends to have) did not change depending on certainty regarding this decision; in other words, the interaction between the type of social influence information they were exposed to and their certainty regarding their fertility intentions does not significantly predict reported fertility intentions (R^2 change = $.001$, $F(1, 246) = 0.31$, $p = .579$, $\eta^2 = .02$). Considering the strength of individual predictors in our model, certainty about fertility intentions did emerge as a significant unique predictor of fertility intentions ($\beta = -.151$, $p = .017$), such that individuals with greater uncertainty regarding their fertility intentions tended to report lower fertility intentions, compared to those with that were more certain about these plans.

The type of social influence information they were exposed to was not a significant unique predictor of fertility intent ($\beta < .001, p = .999$).

Hypothesis 2

Child timing intentions. Using hierarchical regression we found that together, levels of self-monitoring and their exposure to either normative or informational social influence relevant to this decision only predicted 0.9% of the variance in reported age at which one intends to have their first child ($R^2 = .009, F(2, 244) = 1.07, p = .345, \eta^2 = .008$). The relationship between exposure to normative or informational social influence and reported fertility intentions (e.g., age at which one plans to have their first child) does not change depending on level of self-monitoring. In other words, the interaction between the type of social influence information they were exposed to and their level of self-monitoring does not significantly predict reported fertility intentions ($R^2 \text{ change} = .004, F(1, 243) = 1.05, p = .307, \eta^2 = .01$). Regarding individual predictors, level of self-monitoring did not emerge as a significant unique predictor of fertility intentions ($\beta = -.056, p = .377$). The type of social influence information they were exposed to also was not a significant unique predictor of fertility intent ($\beta = -.072, p = .259$).

Child number intentions. Hierarchical regression methods revealed that together, levels of self-monitoring and their exposure to either normative or informational social influence relevant to this decision predicted <0.1% of the variance in reported number of children one intends to have ($R^2 < .001, F(2, 247) = 0.04, p = .960, \eta^2 < .001$). The relationship between exposure to normative or informational social influence and reported fertility intentions (e.g., the number of children one intends to have) did not change depending on level of self-monitoring; in other words, the interaction between the type of social influence information they were exposed to and their level of self-monitoring does not significantly predict reported fertility intentions ($R^2 \text{ change} = .003, F(1, 246) = 0.64, p = .425, \eta^2 = .002$). Considering individual predictors in our

model, level of self-monitoring did not emerge as a significant unique predictor of fertility intentions ($\beta = .018, p = .778$). The type of social influence information they were exposed to was not a significant unique predictor of fertility intent ($\beta = .002, p = .981$).

Hypothesis 3

Child timing intentions. A 2 (high motivation vs. low motivation) x 2 (normative influence vs. informational influence) ANOVA indicated that neither level of motivation ($F(1, 243) = 1.33, p = .212$) nor exposure to either normative or informational social influence relevant to this decision ($F(1, 243) = 1.33, p = .212, \eta^2 = .006$) individually predicted the age at which one intends to have their first child. Further, the relationship between exposure to normative or informational social influence and reported fertility intentions (e.g., age at which one plans to have their first child) did not change depending on level of motivation; in other words, the interaction between the type of social influence information they were exposed to and their level of motivation does not significantly predict reported fertility intentions ($F(1, 243) = 0.09, p = .764, \eta^2 < .001$).

Child number intentions. A 2 (high motivation vs. low motivation) x 2 (normative influence vs. informational influence) ANOVA revealed that neither level of motivation ($F(1, 246) = 0.21, p = .646, \eta^2 = .001$) nor exposure to either normative or informational social influence relevant to this decision ($F(1, 243) = 0.01, p = .933, \eta^2 < .001$) individually predicted the reported number of children one intends to have. However, the relationship between exposure to normative or informational social influence and reported fertility intentions (e.g., the number of children one intends to have) does change depending on level of motivation; in other words, the interaction between the type of social influence information they were exposed to and their level of motivation does significantly predict reported fertility intentions ($F(1, 246) = 4.41, p = .037, \eta^2 = .02$). Consistent with predictions, fertility intentions were higher for highly

motivated participants exposed to informational ($M = 3.19, SE = .21$), compared to normative social influence messages ($M = 2.70, SE = .24$). For participants that did not receive a motivational message, fertility intentions were higher when exposed to normative ($M = 3.07, SE = .20$), compared to informational social influence messages ($M = 2.62, SE = .22$; see Figure 2).

Study 1 Discussion

Study 1 found that individuals did differentially perceive messages that were designed to provide informational and normative types of pronatalist social influence; indeed, participants indicated that the normative message more strongly indicated what “‘most people’ in America are doing” and what “Americans are expected to do regarding their family planning”, compared to our informational message – which instead indicated “information about family planning WITHOUT saying what the ‘norm’ is” (see Figure 3). This represents the one of the few experimental manipulations to disentangle informational and normative social influence – other work has distinguished these types of social influence, but has been correlational and qualitative in nature (Kaplan & Miller, 1987; Kohler, Behrman, & Watkins, 2001). Contrary to current predictions, individuals were not differentially sensitive to informational and normative social influence depending upon their level of self-monitoring or their level of certainty regarding their fertility intent. Interestingly, individuals’ level of certainty regarding fertility decisions did predict interesting patterns in their reported fertility intent – such that more uncertain individuals tended to report lesser intentions to have children – but this did not change the way participants in study 1 responded to pronatalist social influence messages. Some have conceptualized the direction of causality differently regarding these constructs; specifically, informational influence has been proposed to increase decision certainty when this socially acquired information is consistent with one’s preexisting attitudes (Turner, 1982, 1991).

However, individuals did respond differently to the different types of social influence depending on their level of motivation. Individuals who were more highly motivated to think carefully about their fertility intentions were more strongly affected by informational social influence, compared to normative social influence. Individuals who did *not* receive a cue indicating that they should think carefully about their intentions (and provide a justification for their intention) were more strongly affected by normative social influence, compared to informational social influence (see Figure 2).

According to the Elaboration Likelihood Model (Petty & Cacioppo, 1986a) of persuasion, in order to observe the integration of normative influences into an individual's intentions, that individual must lack the motivation to engage in deliberative decision-making. Previous work has indeed found that individuals tend to report more normative-consistent attitudes when they are relying upon spontaneous, heuristic processing of decision-relevant information (Todorov, Chaiken, & Henderson, 2002). When individuals in this study were told that they would have to later justify their reported fertility intentions to another participant, they were more strongly swayed by informational pronatalist appeals, compared to normative messages. It is possible that, when encouraged to engage in deliberative decision-making, participants became resistant to normative information. Individuals do tend to report that normative information is unimportant and least motivating when asked to consider various types of information relevant to future behaviors (Nolan, Schultz, Cialdini, Goldstein, & Griskevicius, 2008). Further, when past decisions are perceived to be complex and individuals were more involved in those decisions (meaning that they perceive the decision to be important and significant; Zaichkowsky, 1994), they tend to be more likely to attribute these decisions to informational, compared to normative social influence (Lord, Lee, & Choong, 2001).

This work has deepened our understanding of social influence on fertility decision-making; specifically identifying characteristics that might make an individual's fertility intentions more susceptible to normative or informational influence. What remains to be understood in the body of literature suggesting social influence on fertility decision-making is *how* individuals acquire family planning normative information from their environments. Indeed, individuals do report being aware of normative expectations regarding their fertility; for example, individuals from normative two-child families report greater support and approval from their social groups (e.g., families, friends, acquaintances) than individuals with non-normative family structures (Hagewen & Morgan, 2005). Further, females that violate normative expectations and commit to voluntary childlessness report being stigmatized for their reproductive decisions – childless women are perceived as less warm and caring compared to mothers (LeMastro, 2001) – and perceiving social messages that encourage them to conform to more normative family structures (Gillespie, 2003).

Given this reported awareness of, and facultative shifting of family structures towards a married, two-child norm (Quesnel-Vallee & Morgan, 2003), it seems clear that individuals are garnering normative information from their social environments. It is possible that individuals encode information about normative family structures automatically from their visual environments; indeed, individuals' perceptions of potential mates and mate choice decisions tend to adjust based on visual assessments from an individual's social environment (Mishra, Clark, & Daly, 2007). Specifically, exposing men to images of attractive women is associated with subsequently lower attractiveness ratings for their own partners and more 'average-attractiveness' females (Kenrick & Gutierrez, 1980; Kenrick, Gutierrez, & Goldberg, 1989). Purportedly these changes in mating-relevant perceptions and decisions are caused by changes to

an individual's mating pool assessment; exposure to visual stimuli of several highly attractive, high-quality mates is indicative of a higher-quality mating pool (Mishra, Clark, & Daly, 2007). Similarly, we propose that individuals might acquire social information about the optimal family size and structure to pursue based on cues from their visual environment. While future research is needed in this area, some research suggests that both males and females do preferentially attend to baby stimuli in their visual environments (Brosch, Sander, & Scherer, 2007).

Chapter 3 – Study 2: Current and Historical Economic Conditions and Fertility Decision-Making

Ecological cues relevant to environment harshness and resource abundance also appear to shape individuals' fertility intentions and outcomes (Mace, 2000; Griskevicius, Delton, Robertson, & Tybur, 2011). Indeed, there is a general trend observed in the demographic literature wherein environmental changes associated with industrialization, such as decreases in mortality rates and increasing economic stability, have been associated with declining fertility rates (Bollen, Glanville, & Stecklov, 2007; Finer & Zolna, 2011; Kirk, 1996). This relationship between ecology and fertility is described by Life History Theory, which explains that individuals' reproductive paths are shaped by cues in their early environment (Kaplan & Gangestad, 2005). Specifically, individuals raised in an environment characterized by resource scarcity and instability, as well as harshness (i.e., high mortality rates or “dangerousness”) adopt a “fast” life history strategy or path; these individuals are more likely to invest in current reproductive efforts, rather than somatic efforts (e.g., investing in human capital such as knowledge, skills, and resources by pursuing education and career experiences; Kaplan & Gangestad, 2005). On the other hand, individuals raised in an environment characterized by resource abundance and stability, and low mortality rates (i.e., “safety”) are placed on a “slow” life history strategy or path; these individuals are more likely to invest in future reproductive efforts, by delaying marriage and childbearing to invest in somatic efforts (Kaplan & Gangestad, 2005).

Importantly, recent work has suggested that not only are individuals' reproductive decisions shaped by cues from their early environment, individuals are also sensitive to cues in

their current ecology (Griskevicius, Delton, Robertson, & Tybur, 2011; Griskevicius, Tybur, Delton, & Robertson, 2011; Griskevicius, Tybur, Sundie, Cialdini, Miller, & Kenrick, 2007). It seems that differences in reproductive decision-making shaped by early environmental cues may lie “dormant” until certain cues relevant to current environmental stability are encountered (Griskevicius, Tybur, Delton, & Robertson, 2011). These studies have demonstrated that when individuals with “fast” life history strategies are exposed to cues indicative of current environmental harshness – information regarding increases in violent crime and homicide – they tend to prefer smaller, more immediate rewards and indicate an intention to have children sooner (at the expense of somatic efforts such as investment in education; Griskevicius, Delton, Robertson, & Tybur, 2011; Griskevicius, Tybur, Delton, & Robertson, 2011). Further, when individuals with “slow” life history strategies are exposed to cues indicative of current environmental harshness, they tend to prefer larger, delayed rewards and indicate an intention to postpone childbearing to pursue education and career goals (Griskevicius, Delton, Robertson, & Tybur, 2011; Griskevicius, Tybur, Delton, & Robertson, 2011). However, these recent experimental investigations of the effects of both historical and current ecology on reproductive decision-making have only manipulated mortality-relevant information, in spite of the fact that Life History Theory contends that both resource and mortality-relevant ecological cues shape reproductive decision-making (Griskevicius, Delton, Robertson, & Tybur, 2011).

Existing fertility-decision making literature does suggest that information about the availability and stability of resources in one’s current environment shapes reproductive intentions and outcomes (Adsera, 2006; Kendall, Afable-Munsuz, Speizer, Avery, Schmidt, & Santelli, 2005; Schoen, Astone, Kim, Nathanson, & Fields, 1999; Toulemon & Testa, 2005). Importantly, this work suggests that conceptualizations of a negative relationship between

income and fertility rates are perhaps over-simplified (Toulemon & Testa, 2005). It seems that it is not income level alone that shapes fertility intentions and outcomes, rather females reported that it was their outlook regarding the persistence of current economic conditions, as well as how predictable they felt their current economic conditions were, that were critical in shaping their fertility intentions (Adsera, 2006). Of particular import for the current work, these females indicated that changes in economic conditions (such as a change in local unemployment rates and a change in husband's income) would cause them to re-adjust their fertility intentions (Adsera, 2006). To explore the possibility that cues regarding current economic conditions (specifically resource abundance and perceived predictability and persistence) shape fertility intentions, the current work will serve as the first experimental investigation of the nature of this relationship.

Life History Theory suggests the possibility that early environmental conditions will cause individuals to interpret cues regarding current environmental conditions differentially (Ellis, Figueredo, Brumbach, & Schlomer, 2009). Individuals with "slow" life history strategies should tend to interpret resource-relevant cues in their current environment as "intrinsic", meaning that current conditions are predictable and transient (Ellis, Figueredo, Brumbach, & Schlomer, 2009; Griskevicius, Tybur, Delton, & Robertson, 2011). This interpretation exploits the tendency for individuals with "slow" life history strategies to invest in somatic efforts and postpone reproduction; that is, if current socioeconomic conditions are predictable, the individual is therefore capable of controlling their own outcomes by facultatively changing their investments in somatic and reproductive efforts (Griskevicius, Tybur, Delton, & Robertson, 2011). Likewise, individuals with "fast" life history strategies should tend to interpret resource-relevant cues in their current environment as "extrinsic", meaning that current conditions are

unpredictable and persistent (Ellis, Figueredo, Brumbach, & Schlomer, 2009; Griskevicius, Tybur, Delton, & Robertson, 2011). Since current conditions appear to be unpredictable, individuals' cannot exert control over these circumstances, and should therefore employ their tendency to invest in smaller, more immediate rewards (e.g., current reproduction) and forego delayed rewards that they may never get the opportunity to 'cash in' (Griskevicius, Tybur, Delton, & Robertson, 2011). However, these predictions regarding differential interpretations of ecological cues as "extrinsic" or "intrinsic" have only been applied to mortality-relevant information; further, an empirical test of these predictions regarding differential interpretation based on life history strategy has yet to be conducted. To address this need, the current work will empirically determine the effect of current resource-relevant cues, as well as individuals' interpretations of these cues, on fertility intentions.

H5: Cues of resource scarcity will be more likely to be perceived as predictable and transient in individuals with "slow" life history strategies, whereas cues of resource scarcity will be more likely to be perceived as unpredictable and persistent in individuals with "fast" life history strategies.

H6: Cues of resource scarcity will be related to intentions to delay reproduction in individuals with "slow" life history strategies, whereas cues of resource scarcity will be related to intentions to reproduce sooner in individuals with "fast" life history strategies.

Chapter 4 – Study 2 Methods, Results, and Discussion

Methods

Participants

The same selection criteria and recruitment methods were imposed with study 2 as described in study 1 (see above). With this restriction imposed, we obtained a sample with an average age of 24yrs ($SD = 6.10$); as in study 1, this is a relatively young sample, so any findings and implications from these findings should be limited to the fertility decision-making practices of young adults. Power analysis based on effect sizes found in a similar design (Griskevicius, Tybur, Delton, & Robertson, 2011; Griskevicius, Delton, Robertson, & Tybur, 2011) suggests that a sample size of 100 participants and an α level of 0.05 will provide sufficient power to detect the proposed effects (i.e., power estimate of approximately $1 - \beta \approx 0.80$). Using a general Internet sample (with participation facilitated through Qualtrics software (2013)), a total sample size of $N = 249$ was obtained (Mechanical Turk, $N = 80$; Facebook, $N = 8$; SONA, $N = 55$; Reddit, $N = 106$). As in study 1, participants recruited through Mechanical Turk were compensated 25 cents for their participation, participants recruited through SONA were enrolled in a large Midwestern University and compensated with course credit for their participation, and participants recruited through Facebook and Reddit did not receive compensation for their participation. The current sample was predominantly female (61.4%), Caucasian/Non-Hispanic (79.1%), heterosexual (86.3%), and involved in a romantic relationship (dating = 31.7%; engaged = 2.8%; married = 17.7%). As in study 1, there was not a sufficient amount of variation in sexual orientation to allow for comparisons based upon sexual orientation (e.g., to allow for a comparison of the efficacy of our predictive models in heterosexual and homosexual individuals separately), so the potential moderating effect of sexual orientation is not included in our models

described below. Again, hypotheses in this study were not specific to heterosexual couples; therefore, individuals reporting homosexual orientation were included in subsequent analyses.

Procedure and Materials

To determine the effect of resource scarcity cues on fertility decision making, as well as the potential moderating effects of early environmental economic conditions (i.e., life history strategy), participants were first asked to respond to some demographic items (such as age, biological sex, ethnicity, current annual household income, and relationship status), then they completed a three-item measure of early environmental economic conditions (adapted from Griskevicius, Delton, Robertson, & Tybur, 2011; see Appendix G). Participants reported their childhood, and current, resource abundance by indicating their degree of agreement (“1: strongly agree” to “5: strongly disagree”) with statements such as “My family usually had enough money for things when I was growing up”, and “I grew up in a relatively wealthy neighborhood”; higher scores are indicative of a “slow” life history strategy. This scale demonstrated good internal consistency in the current sample, Cronbach’s α (childhood) = .82 and Cronbach’s α (current) = .80.

Following completion of these individual difference measures, participants were randomly assigned to one of three conditions: resource scarcity prime (N = 77), environmental harshness prime (N = 88), or control (N = 84). First (as in study 1), individuals received instructions designed to reduce the risk of demand characteristics, modeled after Griskevicius and colleagues (2011), in which participants were told that they were participating in a memory task regarding the passage they are about to read. Participants were told that after they read this passage, they would answer questions that are related to an entirely different study (but are actually our dependent variable measures) in order to experience a time delay between their

encoding and recall of the information contained in the passage. Participants then read an article designed to resemble a *New York Times* article (as in study 1 and Griskevicius and colleagues (2011)), containing either information regarding resource scarcity in the current economy (see Appendix H), the harshness of the current environment (see Appendix I), or a control scenario (see Appendix J). These three articles were chosen and used in research by Griskevicius and colleagues (2011 & 2013) based on findings suggesting that they are associated with similar emotional intensity and valence. To measure our first dependent variable, participants then indicated the extent to which they believe the conditions described in the scenario were 1) predictable or unpredictable and 2) persistent or temporary (see Appendix K).

Finally, as in study 1, participants read instructions indicating the difference between desires and intentions, defining desires as “What someone wants based on their feelings” and intentions as “A commitment to act based on your desires, wants, and your situation” (Miller & Pasta, 1995; see Appendix E). To measure our second dependent variable, participants then indicated their child-timing intentions (i.e., “How soon do you intend to have our first child?”; see Miller & Pasta, 1995). Participants also indicated their fertility desires, by responding to items such as “How strongly do you feel the desire or “pull” to have a baby?” (adapted from Brase & Brase, 2012; see Appendix E).

Study 2 Results

To determine the presence of main effects of our independent variables – life history strategy and priming condition – and the existence of any interactions, a 2 (“fast” vs. “slow” life history strategy) x 3 (resource scarcity, mortality, vs. control) between-subjects general linear model approach will be used. A median-split was used to create our “fast” and “slow” Life History Strategy categories, and such techniques have been demonstrated to make it more

difficult to detect main effects due to a loss of statistical power (Maxwell & Delaney, 1993). However, the use of hierarchical regression methods with product terms (following Aiken & West, 1991) revealed the same pattern of results described in the analyses using ANOVA methods below. Further, having obtained both a college sample and a general community sample, scores on our life history strategy measures were approximately normally distributed, rather than truncated at the “slow” end of the life history strategy spectrum; samples obtained from four-year institutions often underrepresent individuals from more resource scarce (i.e., low socioeconomic) environments (McDonough, 1997; Walpole, 2003). Therefore, individuals in our sample categorized as having a “fast” life history strategy did indeed have scores below the midpoint on our measures of life history strategy.

We predict one main effect, such that (H5) resource scarcity cues will be perceived as more unpredictable and persistent for individuals who reported a “fast” life history strategy, compared to individuals who reported a “slow” life history strategy. We also predict one interaction effect, such that (H6) fertility intentions will be sooner for individuals who reported a “fast” life history strategy and were exposed to a resource scarcity prime, compared to a control prime; further, fertility intentions will be later/postponed for individuals who reported a “slow” life history strategy and were exposed to a resource scarcity prime, compared to a control prime.

Hypothesis 5

Reactions to article primes. Using bivariate correlation methods we found that measures of life history strategy which relied upon assessments of early environmental conditions were related to several article prime reaction items (see Table 1). After being exposed to a mortality prime, individuals with *faster* life history strategies were more likely to indicate that the article made them think the world would become more uncertain ($r(75) = -.24, p = .039$), and the events

described in the article were more unpredictable ($r(75) = -.24, p = .039$). After being exposed to a resource scarcity prime, individuals with *faster* life history strategies were more likely to indicate that the article made them think the world would become more a more dangerous place ($r(68) = -.35, p = .003$), the world would become more unsafe ($r(68) = -.37, p = .002$), the national economy would become more unreliable ($r(68) = -.25, p = .036$), and the events in the story made them feel more emotionally aroused ($r(68) = -.33, p = .006$).

Using bivariate correlation methods we found that measures of life history strategy which relied upon assessments of current environmental conditions were related to several article prime reaction items (see Table 1). After being exposed to a mortality prime, individuals with *faster* life history strategies were more likely to indicate that the article made them think the world would become more uncertain ($r(75) = -.25, p = .032$). After being exposed to a resource scarcity prime, individuals with *faster* life history strategies were more likely to indicate that the article made them think the world would become more a more dangerous place ($r(68) = -.39, p = .001$), the economy/financial state of America was deteriorating ($r(68) = -.30, p = .012$), the world would become more unsafe ($r(68) = -.44, p < .001$), the national economy would become more unreliable ($r(68) = -.36, p = .002$), the world would become more unpredictable ($r(68) = -.52, p < .001$), the world would become more uncertain ($r(68) = -.42, p < .001$), the events in the story made them feel more emotionally aroused ($r(68) = -.40, p = .001$), and the events described in the story would be more persistent ($r(68) = .34, p = .005$).

Hypothesis 6

Child timing intentions. According to a 2 (“fast” vs. “slow” life history strategy) x 3 (resource scarcity, mortality, vs. control prime) ANOVA, life history strategy ($F(1, 206) = 4.70, p = .031, \eta^2 = .02$), but not exposure to either resource scarcity, mortality, or control priming

articles ($F(2, 206) = 2.50, p = .085, \eta^2 = .02$), individually predicted the age at which one intends to have their first child.

The relationship between exposure to resource scarcity, mortality, or control primes and reported fertility intentions (e.g., age at which one plans to have their first child) did not change depending on life history strategy; in other words, the interaction between the type of contextual information they were exposed to and their life history strategy does not significantly predict reported fertility intentions ($F(2, 206) = 1.47, p = .233, \eta^2 = .01$). Contrary to predictions, fertility intentions were more delayed for individuals who reported a “fast” life history strategy and were exposed to a resource scarcity prime ($M = 26.09, SE = 2.31$), compared to a control prime ($M = 19.47, SE = 2.24$). Interestingly, individuals with “fast” life history strategies only up-regulated their fertility intentions in response to the mortality prime ($M = 17.72, SE = 2.42$). As predicted, individuals with “slow” life history strategies reported more delayed/postponed fertility intentions in response to the resource scarcity prime ($M = 25.68, SE = 2.21$), compared to a control prime ($M = 24.81, SE = 2.18$). Interestingly, individuals with “slow” life history strategies responded in an almost identical fashion when exposed to a mortality ($M = 24.59, SE = 1.93$) or a control prime ($M = 24.81, SE = 2.18$; see Figure 4).

Measures of life history strategy assessing current/future resource abundance. A 2 (“fast” vs. “slow” life history strategy) x 3 (resource scarcity, mortality, vs. control prime) ANOVA revealed that neither life history strategy ($F(1, 206) = 1.63, p = .203, \eta^2 = .008$) nor exposure to either resource scarcity, mortality, or control priming articles ($F(2, 206) = 1.99, p = .141, \eta^2 = .02$), individually predicted the age at which one intends to have their first child.

However, the relationship between exposure to resource scarcity, mortality, or control primes and reported fertility intentions (e.g., age at which one plans to have their first child) did

(marginally) change depending on life history strategy; in other words, the interaction between the type of contextual information participants were exposed to and their life history strategy (marginally) significantly predicted reported fertility intentions ($F(2, 206) = 2.85, p = .060, \eta^2 = .03$). Contrary to predictions, fertility intentions were more delayed for individuals who reported a “fast” life history strategy and were exposed to a resource scarcity prime ($M = 27.51, SE = 2.21$), compared to a control prime ($M = 20.50, SE = 2.24$). Interestingly, individuals with “fast” life history strategies only up-regulated their fertility intentions in response to the mortality prime ($M = 18.31, SE = 2.18$). As predicted, individuals with “slow” life history strategies reported more delayed/postponed fertility intentions in response to both the resource scarcity ($M = 24.10, SE = 2.31$) and mortality primes ($M = 25.28, SE = 2.10$), compared to a control prime ($M = 23.83, SE = 2.18$).

Of note, when this analysis was run again including participants’ reported age as a covariate, the pattern of results is the same. A 2 (“fast” vs. “slow” life history strategy) x 3 (resource scarcity, mortality, vs. control prime) ANCOVA, with participants’ age entered as a covariate, revealed that neither life history strategy ($F(1, 206) = 1.65, p = .200, \eta^2 = .007$) nor exposure to either resource scarcity, mortality, or control priming articles ($F(2, 206) = 1.55, p = .215, \eta^2 = .01$), individually predicted the age at which one intends to have their first child.

However, the relationship between exposure to resource scarcity, mortality, or control primes and reported fertility intentions (e.g., age at which one plans to have their first child) did (marginally) change depending on life history strategy; in other words, the interaction between the type of contextual information participants were exposed to and their life history strategy (marginally) significantly predicted reported fertility intentions ($F(2, 206) = 2.87, p = .058, \eta^2 = .02$). Contrary to predictions, fertility intentions were more delayed for individuals who reported

a “fast” life history strategy and were exposed to a resource scarcity prime ($M = 25.73$, $SE = 2.03$), compared to a control prime ($M = 18.54$, $SE = 2.04$). Interestingly, individuals with “fast” life history strategies up-regulated their fertility intentions in response to the mortality prime ($M = 18.11$, $SE = 1.97$). Individuals with “slow” life history strategies responded similarly to the resource scarcity ($M = 22.26$, $SE = 2.28$), mortality ($M = 24.24$, $SE = 2.01$), and control primes ($M = 22.43$, $SE = 2.06$).

Child number intentions. According to a 2 (“fast” vs. “slow” life history strategy) x 3 (resource scarcity, mortality, vs. control prime) ANOVA, again life history strategy ($F(1, 206) = 12.73$, $p < .001$, $\eta^2 = .06$), but not exposure to either resource scarcity, mortality, or control priming articles ($F(2, 206) = 0.50$, $p = .610$, $\eta^2 = .005$), individually predicted the reported number of children one intends to have.

The relationship between exposure to resource scarcity, mortality, or control primes and reported fertility intentions (e.g., the number of children one intends to have) did not change depending on life history strategy; in other words, the interaction between the type of contextual information they were exposed to and their life history strategy did not significantly predict reported fertility intentions ($F(2, 206) = 0.58$, $p = .562$, $\eta^2 = .006$). Trends were consistent with our predictions, indicating that fertility intentions were higher for individuals who reported a “fast” life history strategy and were exposed to a resource scarcity prime ($M = 2.40$, $SE = .28$), compared to a control prime ($M = 2.11$, $SE = .27$). Interestingly, individuals with “fast” life history strategies responded similarly to the mortality ($M = 2.00$, $SE = .29$) and control primes ($M = 2.11$, $SE = .27$). Contrary to predictions, individuals with “slow” life history strategies reported higher fertility intentions in response to the resource scarcity ($M = 3.00$, $SE = .26$) and

mortality primes ($M = 3.11$, $SE = .24$), compared to a control prime ($M = 2.72$, $SE = .26$; see Figure 5).

Measures of life history strategy assessing current/future resource abundance. A 2 (“fast” vs. “slow” life history strategy) x 3 (resource scarcity, mortality, vs. control prime) ANOVA indicated that life history strategy ($F(1, 206) = 7.25$, $p < .001$, $\eta^2 = .03$), but not exposure to either resource scarcity, mortality, or control priming articles ($F(2, 206) = 0.65$, $p = .524$, $\eta^2 = .006$), individually predicted the reported number of children one intends to have.

The relationship between exposure to resource scarcity, mortality, or control primes and reported fertility intentions (e.g., the number of children one intends to have) did not change depending on life history strategy; in other words, the interaction between the type of contextual information they were exposed to and their life history strategy does significantly predict reported fertility intentions ($F(2, 206) = 1.51$, $p = .224$, $\eta^2 = .01$).

General findings

Strength of fertility desires. According to a 2 (“fast” vs. “slow” life history strategy) x 3 (resource scarcity, mortality, vs. control prime) ANOVA, neither life history strategy ($F(1, 207) = 1.50$, $p = .222$, $\eta^2 = .007$) nor exposure to either resource scarcity, mortality, or control priming articles ($F(2, 207) = 1.48$, $p = .231$, $\eta^2 = .01$) individually predicted the strength of one’s desires to have a child.

However, the relationship between exposure to resource scarcity, mortality, or control primes and reported fertility desires (e.g., the strength of one’s desires to have a child) did change depending on life history strategy; in other words, the interaction between the type of contextual information they were exposed to and their life history strategy does significantly predict reported fertility desires ($F(2, 207) = 3.27$, $p = .040$, $\eta^2 = .03$). Consistent with

predictions, fertility desires were higher for individuals who reported a “fast” life history strategy and were exposed to a resource scarcity prime ($M = 2.52$, $SE = .22$), compared to a control prime ($M = 2.37$, $SE = .20$) and a mortality prime ($M = 2.31$, $SE = .23$). As predicted, individuals with “slow” life history strategies reported the lowest fertility desires in response to the resource scarcity prime ($M = 2.11$, $SE = .20$), compared to a control prime ($M = 2.97$, $SE = .20$) and a mortality prime ($M = 2.74$, $SE = .18$).

Frequency of fertility desires. The results of a 2 (“fast” vs. “slow” life history strategy) x 3 (resource scarcity, mortality, vs. control prime) ANOVA suggest that neither life history strategy ($F(1, 208) = 1.69$, $p = .195$, $\eta^2 = .008$) nor exposure to either resource scarcity, mortality, or control priming articles ($F(2, 208) = .26$, $p = .769$, $\eta^2 = .003$) individually predicted the frequency of one’s desires to have a child.

However, the relationship between exposure to resource scarcity, mortality, or control primes and reported fertility desires (e.g., the frequency of one’s desires to have a child) did change depending on life history strategy; in other words, the interaction between the type of contextual information they were exposed to and their life history strategy did significantly predict reported fertility desires ($F(2, 208) = 3.31$, $p = .039$, $\eta^2 = .03$). Consistent with predictions, fertility desires were higher for individuals who reported a “fast” life history strategy and were exposed to a resource scarcity prime ($M = 2.44$, $SE = .20$), compared to a control prime ($M = 2.03$, $SE = .19$) and a mortality prime ($M = 1.96$, $SE = .21$). As predicted, individuals with “slow” life history strategies reported the lowest fertility desires in response to the resource scarcity prime ($M = 2.11$, $SE = .19$), compared to a control prime ($M = 2.31$, $SE = .19$) and a mortality prime ($M = 2.63$, $SE = .17$).

Study 2 Discussion

Study 2 found that individuals did respond differently to messages indicating that their current environment is increasingly dangerous (the mortality prime) or current economic conditions are degrading (the resource scarcity prime) depending on their life history strategy. It was predicted that individuals with “fast” life history strategies would respond similarly to primes indicating increasing mortality risk and increasing resource scarcity – as both of these environmental cues are theorized to operate similarly in producing differential strategies and decision making patterns across the lifespan of an organism, either increasing their investment in reproductive efforts (“fast”) or in somatic efforts (“slow”; Griskevicius, Delton, Robertson, & Tybur, 2011). For example, when exposed to increased predation risk (increased mortality; Fontaine & Martin, 2006) or food scarcity (increased resource scarcity; Lack, 1948; Martin, 1987), birds will facultatively adjust the size of their clutches in order to optimize their total fitness. Specifically, in environments characterized by either mortality risk or resource scarcity, organisms respond similarly by upregulating their fertility, and investing less in more offspring (Fontaine & Martin, 2006; Kaplan & Gangestad, 2005).

We did find that individuals with “fast” life history strategies tended to report that they intended to have children sooner in response to our mortality prime. However, when exposed to a resource scarcity prime, individuals with “fast” life history strategies tended to report that they intended to postpone having children. This differential responding to mortality and resource scarcity cues in individuals with “fast” life history strategies is consistent with Terror Management Theory (Solomon et al., 1991), which suggests that individuals respond to cues about their own mortality by disseminating their identity and sense of self to include their social group or their culture. By spreading out one’s identity in this way, one can suppress the negative

emotions associated with mortality salience and achieve immortality through one's culture and social group (Matthews & Sear, 2008). One can clearly achieve this kind of identity (and genetic) immortality by having children, and indeed individuals do tend to respond to mortality cues by upregulating their fertility desires and intentions (Fritsche et al., 2007; Wiseman & Goldberg, 2005). Terror Management Theory can explain – at least in part – why mortality cues uniquely precipitated the up-regulation of fertility intent in individuals with “fast” life history strategies.

Interestingly, results from study 2 also indicate that individuals with “slow” life history strategies were largely unaffected by the mortality or resource-relevant primes (see Figures 4 and 5). This poses an interesting problem for a Terror Management Theory interpretation of these findings, given that Terror Management Theory does not predict differential responding to mortality cues based on life history strategy or socioeconomic status; this may suggest that future work which applies a Terror Management theoretical framework should take into account participants' life history strategy when interpreting their findings. Of note, other individual difference factors have been found to affect individuals' responses following exposure to mortality cues, such as attachment style (Mikulincer & Florian, 2000), self-esteem (Harmon-Jones et al., 1997), depression (Simon, Arndt, Greenberg, Pyszczynski, & Solomon, 1998), and authoritarianism (Greenberg et al., 1990). One possible explanation for the differential effect of mortality cues on individuals' fertility intentions depending upon their life history strategy would be that individuals with “fast” and “slow” life history strategies have different cultural beliefs and values (termed their “worldview” in the Terror Management Theory literature; Greenberg, Pyszczynski, Solomon, Rosenblatt, Veeder, Kirkland, & Lyon, 1990). According to Terror Management Theory, the cognitive process by which mortality cues bring about certain reactions

and outcomes – including changes in reported fertility intentions (Fritsche et al., 2007), feelings about one’s romantic partner (Hirschberger, Florian, & Mikulincer, 2003), or one’s evaluations of others who do or do not share one’s own beliefs and values (Greenberg, Pyszczynski, Solomon, Rosenblatt, Veeder, Kirkland, & Lyon, 1990) – is through the activation of cultural beliefs and values (Greenberg, Pyszczynski, Solomon, Rosenblatt, Veeder, Kirkland, & Lyon, 1990). If we suppose that individuals with “fast” and “slow” life history strategies do indeed have different cultural beliefs and values, then it is possible that these differential cultural worldviews are precipitating the differences in reported fertility intentions. While literature supporting this supposition is limited (Liu, Soleck, Hopps, Dunston, & Pickett, 2004), some work does suggest that the different experiences associated with membership in different social classes (largely distinguished by socioeconomic status) does give way to different worldviews (see the Social Class Worldview Model; Liu, 2001)

Alternatively, it is possible that individuals with “slow” life history strategies were insensitive to cues relevant to their current environmental conditions because they were more likely to perceive this information as predictable and impermanent, compared to individuals with “fast” life history strategies. According to Life History Theory, individuals with “slow” life history strategies should tend to interpret resource-relevant cues in their current environment as “intrinsic”, meaning that current conditions are temporary and predictable (Ellis, Figueredo, Brumbach, & Schlomer, 2009; Griskevicius, Tybur, Delton, & Robertson, 2011). Likewise, individuals with “fast” life history strategies should tend to interpret resource-relevant cues in their current environment as “extrinsic”, meaning that current conditions are persistent and unpredictable (Ellis, Figueredo, Brumbach, & Schlomer, 2009; Griskevicius, Tybur, Delton, & Robertson, 2011). While these differential interpretations of ecological cues as “extrinsic” or

“intrinsic” have been observed in response to mortality cues (Griskevicius, Tybur, Delton, & Robertson, 2011), the current work represents the first demonstration of this pattern in response to resource scarcity cues. It is possible that individuals with “slow” life history strategies are not susceptible to manipulated information about their current environment because they perceive these conditions to be temporary and predictable, as this interpretation exploits their tendency to control their own outcomes by facultatively changing their investments in somatic and reproductive efforts to optimize the quality of their future offspring (Griskevicius, Tybur, Delton, & Robertson, 2011).

Chapter 5 – Study 3: Fertility Decision-Making Within Intimate Relationships

Fertility intentions also seem to shift as a function of relationship experience (Adsera, 2006; Basu, 2002). However, the nature of this male and female collaborative effort has yet to be clarified. There is a disagreement in the literature regarding how fertility decision-making is shared within heterosexual couples. That is, some work suggests that males and females engage in equitable, joint decision-making about their reproductive futures (Basu, 2002; Berrington, 2004), whereas other work suggests that decision-making tends to favor the fertility intentions of one partner (Adsera, 2006; Bankole & Singh, 1998; Hakim, 2003). Specifically, research suggesting a more shared approach to reproductive decision-making finds that couples tend to report similar desires and intentions about their intended family size (Basu, 2002; Berrington, 2004), and that when couples do disagree about fertility desires and intentions, sex is not predictive of which partner is more likely to experience fertility outcomes that are more consistent with their original intentions (Schoen, Astone, Kim, Nathanson, & Fields, 1999). However, consistent with Hakim's (2003) sentiment, "romantics like to believe that couples decide jointly, but in practice one partner has always had the overriding vote" (p. 369), there are instances where couples' disagreement regarding their fertility intentions tends to produce fertility outcomes that are more consistent with one partner's original intentions (greater female power in reproductive decision-making: Beegle, Frankenberg, & Thomas, 2001; Hakim, 2003; greater male power in reproductive decision-making: Adsera, 2006; Bankole & Singh, 1998). Taken together, these divergent findings indicate that the extent to which fertility decisions are

made based on shared collaboration hinges on power differentials and equality within the relationship.

This ‘social power’ interpretation of these inconsistent findings suggests that the contraceptive revolution produced shifts towards lower fertility rates because females were, for the first time in human history, afforded the opportunity to control their own reproductive outcomes (Hakim, 2003). Some work does suggest that control over reproductive decision-making (e.g., condom use, the use of hormonal contraceptive methods) tends to shift according to gender (in)equity: in patriarchal societies, males are more likely to control contraceptive decision-making within the couple (Lasee & Becker, 1997). Also, in households where females are more highly educated and career-oriented – indicative of more gender-equity within that family structure – females tend to dominate reproductive decision-making (Hollerbach, 1980).

While these studies have provided important insights into the effect of males’ and females’ reported intentions on subsequent reproductive outcomes (for example, see Miller and Pasta (1995) or Thompson, McDonald, and Bumpass (1990)), these measures of reported partner intent were acquired post-hoc. In other words, predictive models that include both males’ and females’ reported fertility intentions and subsequent contraceptive/proceptive behaviors have to date only measured couples’ intentions separately, after these individuals have been in their romantic relationship for some time (e.g., married couples that have been together for an average of 3.02 years; Miller & Pasta, 1995), and any changes to fertility intentions based on couples’ compromise or bargaining have likely already occurred. What is surprisingly absent from this research is information regarding the nature of the exchange between partners when making decisions about their reproductive futures. To address this need, study 3 is an exploratory, structured-interview study, designed to provide a preliminary explanation of how couples –

based on their attitudes towards gender equity, levels of education, and career-orientations – use persuasive arguments, concessions, and compromises to arrive at fertility intentions.

H7: We predict that more egalitarian attitudes, more equivalent levels of education, and more equivalent levels of career-orientation will be associated with greater compromise, compared to persuasion and concession, in fertility negotiations among couples.

Chapter 6 – Study 3 Methods, Results, and Discussion

Methods

Participants

The same selection criteria will be imposed with study 3 as described in studies 1 and 2 (see above), with a few additional restrictions. The study 3 sample had the additional restriction that participants were in a committed romantic relationship, and had been in their current relationship for no less than six months. Importantly, whereas other investigations of couples' reproductive decision-making have included only married couples (Miller & Pasta, 1995; Thompson, McDonald, & Bumpass, 1990) this research included both unmarried and married couples. Recent work suggests decreasing importance of marriage on fertility outcomes, as birth rates were strikingly similar between cohabitating and married couples (Toulemon & Testa, 2005). With these restrictions imposed, the sample for study 3 had an average age of 21 years ($SD = 4.96$); as in studies 1 and 2, this is a relatively young sample, so any findings and implications from these findings should be limited to the fertility decision-making practices of young adults. Power analysis based on effect sizes found in similar designs (Kaplan & Miller, 1987; Gottman & Levenson, 2000) suggests that a sample size of 60 couples and an α level of 0.05 will provide sufficient power to detect our proposed effects (i.e., power estimate of approximately $1 - \beta \approx 0.80$). Using a community and college-aged sample (with participation facilitated through SONA, wherein participants were students at a large Midwestern University and received course credit for their participation, as well as flyers and e-mail solicitation wherein general community members did not receive inducement for their participation) we obtained a total sample size of $N = 122$. Our sample was equally divided by biological sex (50% female), largely Caucasian/Non-Hispanic (86.9%), heterosexual (94.6%), and all were involved in a

romantic relationship (dating = 77.7%; engaged = 3.1%; married = 17.7%). Two of our participants did not respond to this item, however *all* of our participants were involved in romantic relationships for a minimum of six months. Given that there was not a sufficient amount of same-sex couples to allow for comparisons based upon sexual orientation (or to allow us to draw powerful conclusions about fertility decision-making in this population), and given that the predictions for study 3 were informed by studies based upon the decision-making practices of heterosexual couples (Adsera, 2006; Basu, 2002; Miller & Pasta, 1995), same sex couples were excluded from subsequent analyses.

Procedure and Materials

To determine the effect of attitudes towards gender equity, level of education and career orientation on shared fertility decision-making within couples, participants were first asked to respond to a series of demographic questions (e.g., age, biological sex, ethnicity, annual household income, and relationship duration; see Appendix A) and then completed a 6-item Gender Role Attitude Questionnaire (Berrington, 2004; see Appendix L). This scale demonstrated good internal consistency in the current sample, Cronbach's $\alpha = .81$. Participants indicated their degree of agreement ("1:strongly agree" to "5:strongly disagree") with statements such as "All in all, family life suffers when the woman has a full-time job"; higher scores are indicative of more traditional and less egalitarian attitudes towards gender roles. Then, participants indicated the extent to which they are committed to their careers by completing the 26-item Work Role Salience Scale (Greenhaus, 1971; see Appendix M). Participants indicated their degree of agreement ("1:strongly agree" to "5:strongly disagree") with statements such as "Planning for and succeeding in a career is my primary concern"; higher scores are indicative of

higher family-centered orientation, compared to career-centered orientation. Again, this scale demonstrated good internal consistency in the current sample, Cronbach's $\alpha = .82$.

Finally, couples were told that the study was about couples' fertility plans, and they were therefore instructed to discuss or re-enacted their discussion regarding (for those whom have already discussed family planning intentions) their family planning intentions; including both their child-number and child-timing intentions (as described in study 1 and Miller, 2011). Couples were instructed to be sure to be specific about their own desires and intentions before they entered their current relationship, share these desires and intentions with one another, and see if they can come to a unanimous decision (as in Kaplan & Miller, 1987). Additionally, they were asked to answer the following questions: "Have you talked about your future family desires and intentions with your partner before? If so, how long had the two of you been together when you first discussed these desires and intentions?"; "If you had to decide today how many children you intend to have (if any) and when (if ever) you intend to have them, what would your major considerations be? What do you think your partner's major concerns would be?"; "If you do desire and/or intend to have children, is there a specific gender you would prefer?"; "If you do desire and/or intend to have children, is there a specific number of years you would like between your children?". These instructions were read to them, and then they were given a sheet of paper detailing these same instructions to reference during their discussion as needed. Couples' discussions were taped ($M_{\text{duration}} = 13.52$ minutes, $SD = 7.14$), transcribed, and coded for the following themes: 1) statements of personal values, including family-focused values (e.g., "I want to stay at home with the kids"), career-focused values (e.g., "... if I had to choose a time to get pregnant it would not be during a residency"), and relationship-focused values (e.g., "Who knows? Is it (having a baby) going to strengthen us or keep us neutral the rest of our lives or

push us farther apart?”) 2) statements of desires, including positive desires (e.g., “I want to have a baby boy”), negative desires (e.g., “I don’t really like kids”), 3) persuasive statements (e.g., “I’m asking you to have four kids because that’s what my family had, and I really enjoyed it”), 4) concessions (e.g., “I am the one actually giving birth, so I would like at least 2 years in between each.” “Okay”), 5) compromise (e.g., “I want three years in between each kid and you only want one, so let’s meet in the middle and go with two years”), 6) agreement (e.g., “I want a max of three kids.” “Me too”), 7) disagreement (e.g., “I want only one year in between each kid.” “No way! That is not enough time for me to recuperate”), and 8) child timing and number intentions (e.g., “I would like to have 3 kids.” “I think we should start having kids in our mid-thirties”). Furthermore, while not directly related to stated hypotheses, couple’s were also instructed to reach consensus regarding a financial planning decision (i.e., “What would you do with \$1,500 that you received, but had not budgeted for?”), and this discussion was rated for persuasion, concession, compromise, agreement, and disagreement themes as well. The coding systems used to identify the presence of persuasive statements, concession statements, and generally which partner had more power in the social exchange, were adapted from similar studies which have involved qualitative coding of social interactions (Clark & Delia, 1976; Maguire & Dunn, 1997).

After coding was completed, 20% of the total sample (N = 12; a subset size recommended for generating estimates of inter-rater reliability; Hallgren, 2012; O’Neill & Riedl, 2014) was re-coded by an independent rater to check for inter-rater reliability. Using Cicchetti’s (1994) thresholds for acceptable levels of inter-rater agreement using intra-class correlations (acceptable levels of ICC estimates are those above .4 and .5), nearly all of our coding dimensions demonstrated good inter-rater agreement. Of note, ICC estimates are a particularly

conservative estimate of inter-rater reliability, which is why only quite small values (i.e., below .4) are typically considered to demonstrate “poor” inter-rater agreement (Hallgren, 2012). Importantly, these estimates as well as meetings with the raters demonstrated that two distinctions in the coding scheme were too fine, and were often being confounded in the rating process – the distinction between compromise and agreement, and the distinction between persuasion and disagreement. These sets of dimensions were combined, creating two new variables – compromise/agreement and persuasion/disagreement – which demonstrated considerably improved intra-class correlations. Using a two-way mixed model to calculate estimates of inter-rater consistency, the following intra-class correlation values were found: family-focused values (ICC = 0.70), career-focused values (ICC = 0.65), relationship-focused values (ICC = 0.75), positive desires (ICC = 0.22), negative desires (ICC = 0.51), persuasion/disagreement (ICC = .60), concessions (ICC = .44), compromise/agreement (ICC = .51), child timing intentions (ICC = .97), and child number intentions (ICC = .93). Regarding financial-planning relevant discussions, the following intra-class correlations were found: persuasion/disagreement (ICC = .43), compromise/agreement (ICC = .50), concessions (ICC could not be calculated because our ratings did not have sufficient variance, but only two disagreements were identified; see Table 2).

Study 3 Results

The presence of main effects of the independent variables – gender role attitudes, difference in level of education, and difference in career-orientation – was tested using simultaneous linear regression. Significant beta-weights for each predictor were predicted, such that (H7) couples reporting more egalitarian attitudes towards gender roles, as well as more similar education level and career-orientation scores will have more frequent coded mentions of

agreement and compromise in their fertility intention discussions, compared to couples with more traditional attitudes towards gender roles, and more divergent education level and career-orientation scores.

Hypothesis 7

Compromise and agreement for couples. Simultaneous regression with couples serving as individual data points ($N = 61$) found that together, the similarity of couples' gender role attitudes, career-orientation scores, and education levels predicts 1.3% of the variance in the frequency of coded mentions of compromise and agreement ($R^2 = .013$, $F(3, 55) = .238$, $p = .870$, $\eta^2 = .01$). Regarding the strength of individual predictors, none of the individual predictors emerged as significant unique predictors of the frequency of coded mentions of compromise and agreement in couples' discussions regarding their fertility intentions (similarity of career-orientation scores $\beta = -.087$, $p = .553$; similarity of education levels $\beta = .086$, $p = .554$; similarity of gender role attitudes $\beta = .072$, $p = .598$). While not significant, the relationship between career-orientation similarity and the frequency of coded mentions of compromise and agreement was in the predicted direction, such that more similar career-orientation scores were associated with more frequent coded mentions of compromise and agreement in intimate couples when discussing their fertility intentions. However, more dissimilar gender role attitudes and education levels were (nonsignificantly) associated with more frequent coded mentions of compromise and agreement (the same predictive model did not significantly predict the frequency of coded mentions of compromise and agreement in couples' discussions of their future financial plans, see Table 3).

Persuasion and disagreement for couples. Simultaneous regression with couples serving as individual data points ($N = 61$) found that together, the similarity of couples' gender role attitudes, career-orientation scores, and education levels predicts 7.0% of the variance in the

frequency of coded mentions of persuasion and disagreement ($R^2 = .070$, $F(3, 55) = 1.39$, $p = .255$, $\eta^2 = .07$). Regarding the strength of individual predictors, none of the individual predictors emerged as significant unique predictors of the frequency of coded mentions of persuasion and disagreement in couples' discussions regarding their fertility intentions (similarity of career-orientation scores $\beta = .067$, $p = .639$; similarity of education levels $\beta = .205$, $p = .149$; similarity of gender role attitudes $\beta = -.116$, $p = .382$). While not significant, the relationship between the similarity of career-orientation scores, the similarity of education levels and the frequency of coded mentions of persuasion and disagreement were in the predicted direction, such that more dissimilar education levels and more dissimilar career-orientation scores were associated with more frequent coded mentions of persuasion and disagreement in intimate couples when discussing their fertility intentions. Interestingly, more similar gender role attitudes were associated with more frequent coded mentions of persuasion and disagreement in intimate couples discussions (the same predictive model did not significantly predict the frequency of coded mentions of persuasion and disagreement in couples' discussions of their future financial plans, see Table 4).

Compromise and agreement for individuals. Simultaneous regression methods with individual members of intimate couples serving as individual data points ($N = 122$) found that together, gender role attitudes, career-orientation scores, and education levels predicts 3.9% of the variance in the frequency of coded mentions of compromise and agreement ($R^2 = .039$, $F(3, 118) = 1.61$, $p = .191$, $\eta^2 = .04$). Regarding the strength of individual predictors, career-orientation scores emerged as a significant unique predictor of the frequency of coded mentions of compromise and agreement in discussions regarding their fertility intentions ($\beta = .198$, $p = .039$), such that individuals with more family-focused orientations were more likely to mention

statements coded as compromise and agreement in discussion regarding their fertility intentions with their romantic partner. While not significant, higher education levels were associated with less frequent mention of statements coded as compromise and agreement in discussions with their partner regarding their reproductive futures (education levels $\beta = -.029, p = .750$). Further, more egalitarian gender role attitudes were (nonsignificantly) associated with more frequent mention of statements coded as compromise and agreement in these discussions ($\beta = -.113, p = .236$).

Persuasion and disagreement for individuals. Simultaneous regression methods with individual members of intimate couples serving as individual data points ($N = 122$) found that together, gender role attitudes, career-orientation scores, and education levels predicts 6.2% of the variance in the frequency of coded mentions of persuasion and disagreement ($R^2 = .062, F(3, 118) = 2.58, p = .057, \eta^2 = .06$). Regarding the strength of individual predictors, education level emerged as a significant unique predictor of the frequency of coded mentions of persuasion and disagreement in discussions regarding their fertility intentions ($\beta = .247, p = .007$), such that individuals with higher levels of education were more likely to mention statements coded as persuasion and disagreement in discussion regarding their fertility intentions with their romantic partner. While not significant, more family-focused orientations ($\beta = .037, p = .690$) and more egalitarian gender role attitudes ($\beta = -.012, p = .898$) were associated with more frequent coded mentions of persuasion and disagreement in these discussions.

General findings

Sex differences and similarities. Interestingly, a series of t-tests demonstrated that men and women were equally likely to mention family-focused values, career-focused values, relationship-focused values, concessions relevant to their fertility plans and financial plans, compromise/agreement relevant to their fertility plans and financial plans, and

persuasion/disagreement relevant to their fertility plans and financial plans. Taken together, this pattern of results suggests that power is relatively equally distributed between the sexes when intimate partners are making decisions relevant to their reproductive and financial futures. However, sex differences did emerge regarding individuals' reported fertility desires, desires for sexual gratification, and gender role attitudes, such that women were more likely to indicate stronger and more frequent desires to have children and more egalitarian gender role attitudes, compared to men (see Table 5). Further, men were more likely to indicate more frequent desires for sex, compared to women (see Table 5).

Concessions for couples. Simultaneous regression with couples serving as individual data points ($N = 61$) found that together, the similarity of couples' gender role attitudes, career-orientation scores, and education levels predicts 16.8% of the variance in the frequency of coded mentions of concessions when couples were discussing their financial plans ($R^2 = .168$, $F(3, 55) = 3.711$, $p = .017$, $\eta^2 = .06$). Regarding the strength of individual predictors, the similarity of couples' education levels emerged as a significant unique predictor of the frequency of coded mentions of concessions in couples' discussions regarding their financial planning decisions ($\beta = .431$, $p = .002$), such that couples with more dissimilar education levels were more likely to mention statements coded as concessions in their discussions regarding their finances. While not significant, more similar career-orientation scores ($\beta = -.165$, $p = .222$) and more dissimilar gender role attitudes ($\beta = .130$, $p = .298$) were associated with more frequent coded mentions of concessions in couples' financial planning discussions (the same predictive model did not significantly predict the frequency of coded mentions of concessions in couples' discussions of their future reproductive plans, see Table 6).

Concessions for individuals. Simultaneous regression methods with individual members of intimate couples serving as individual data points ($N = 122$) found that together, gender role attitudes, career-orientation scores, and education levels predict 9.3% of the variance in the frequency of coded mentions of persuasion and disagreement ($R^2 = .093$, $F(3, 118) = 4.05$, $p = .009$, $\eta^2 = .09$). Regarding the strength of individual predictors, career-orientation scores emerged as a significant unique predictor of the frequency of coded mentions of concessions in discussions regarding their financial planning decisions ($\beta = .308$, $p = .001$), such that individuals with more family-focused orientations were more likely to mention statements coded as concessions in discussion regarding their financial planning decisions with their romantic partner. While not significant, and higher education levels ($\beta = .099$, $p = .263$) and more egalitarian gender role attitudes ($\beta = -.085$, $p = .359$) were associated with more frequent coded mentions of concessions in these discussions (the same predictive model did not significantly predict the frequency of coded mentions of concessions in couples' discussions of their future reproductive plans, see Table 7).

Negative desires for individuals. Simultaneous regression methods with individual members of intimate couples serving as individual data points ($N = 122$) found that together, gender role attitudes, career-orientation scores, and education levels predict 15.6% of the variance in the frequency of coded mentions of negative fertility desires ($R^2 = .156$, $F(3, 118) = 7.291$, $p < .001$, $\eta^2 = .14$). Regarding the strength of individual predictors, education level emerged as a significant unique predictor of the frequency of coded mentions of negative fertility desires in discussions regarding their fertility intentions ($\beta = .343$, $p = .001$), such that individuals with higher levels of education were more likely to mention statements coded as negative fertility desires in discussion regarding their fertility intentions with their romantic partner.

While not significant, more career-focused orientations ($\beta = -.125, p = .164$) and more egalitarian gender role attitudes ($\beta = -.078, p = .385$) were also associated with more frequent coded mentions of negative fertility desires in these discussions.

When future reproductive plans were first discussed. A one-way ANOVA demonstrated that how early in the relationship couples' reported having first discussed their fertility plans did not significantly affect the frequency of their coded mentions of compromise and agreement when discussing these fertility plans in the lab ($F(4, 50) = .75, p = .562, \eta^2 = .04$). However, how early in the relationship couples' reported having first discussed their fertility plans did significantly affect the frequency of their coded mentions of persuasion and disagreement when discussing these fertility plans in the lab ($F(4, 50) = 2.70, p = .041, \eta^2 = .48$), such that couples who had never discussed their fertility plans before were less likely to mention phrases coded as persuasion and disagreement ($M = 2.73, SE = 1.06$) than couples that had discussed their fertility plans within the first 6 months of their relationship ($M = 8.50, SE = 1.45$; Tukey HSD $M_{diff} = -5.77, SE_{diff} = 1.79, p = .018$).

Study 3 Discussion

Study 3 found that, contrary to predictions, the similarity of couples' gender role attitudes, career-orientation scores, and education levels did not significantly predict the frequency of their use of statements coded as compromise and agreement or persuasion and disagreement in their discussions regarding their future reproductive plans. However, trends in the data do suggest that couples with more similar career-orientation scores more frequently mentioned statements coded as compromise and agreement when working towards consensus regarding their child timing and number intentions, compared to couples with more dissimilar career-orientation scores. Furthermore, trends indicate that couples with more dissimilar career-

orientation scores and education levels more frequently mentioned statements coded as persuasion and disagreement when working towards consensus regarding their child timing and number intentions, compared to couples with more similar career-orientations and education levels. This is consistent with previous work which finds that intra-household conflict regarding couples' future plans is far more likely when intimate partners have disparate education levels and values, compared to couples with more similar levels of education and career-aspirations (Basu, 1999 & 2002). This is also consistent with a more general body of literature explaining the distribution of power and the incidence of decision-making conflict in intimate relationships, which suggests that intimate partners with more similar values tend to engage in more shared decision-making practices (Falbo & Peplau, 1980).

When the same analyses were run using individuals (rather than couples) as individual data points, it demonstrated that gender role attitudes, career-orientation scores, and education levels significantly predicted the use of statements coded as persuasion and disagreement in discussions between intimate partners regarding their fertility intentions. Individuals with higher levels of education used significantly more persuasion and disagreement statements in their child timing and number discussions, compared to individuals with lower levels of education. As the use of persuasive statements is associated with having greater power in a given social exchange (Clark & Delia, 1976; Falbo, 1977; Maguire & Dunn, 1997), we may conclude that individuals with higher education levels had greater social power regarding their fertility planning decisions. Importantly, this relationship between education and power when making decisions about one's reproductive future did not depend on sex (see Table 8). This runs counter to a social power perspective on changing fertility rates which suggests that falling fertility rates can be explained by the growing number of women pursuing higher education and the associated greater social

power enjoyed by these women – this greater social power gives women the opportunity to realize their career and education related goals and down-regulate their fertility. This perspective suggests that the greater social power of more highly educated women does not shift reproductive decision-making from male-dominated to shared; instead, the implication is that these shifts place the reproductive decision-making power in the hands of women (Adsera, 2006; Hakim, 2003; Hollerbach, 1980). In fact, when men's and women's career and education backgrounds are used to predict current family size, previous work has found that only women's career and education significantly predicted fertility outcomes (Adsera, 2006).

Counter to this social power perspective on the nature of fertility decision-making in heterosexual couples, which suggests that fertility decision-making power has shifted from the hands of men to the hands of women, by and large results from study 3 are consistent with previous work suggesting that sex is not predictive of differential decision-making power (in fertility planning) in intimate couples (Schoen, Astone, Kim, Nathanson, & Fields, 1999). In fact, longitudinal data suggest that over time decision-making practices are becoming far more shared between the sexes in heterosexual couples (Volger, Lyonette, & Wiggins, 2007). Men and women in study 3 were equally likely to use statements coded as compromise/agreement, persuasion/disagreement, and concessions, when discussing both their future fertility plans as well as future financial plans. In other words, in the current sample men and women shared equal power – as measured by the use of persuasion, compromise, concession, agreement and disagreement – in shaping their child timing, child number, and financial plans. Importantly, study 3 *did* replicate commonly demonstrated sex differences; such as women's stronger and more frequent desires to have children and men's more frequent reported desires for sexual gratification (Brase & Brase, 2012; Peplau, 2003).

While not directly related to current predictions, results from study 3 do suggest that the relationship between the similarity of couples' career-orientation scores, gender role attitudes, and education levels and their use of persuasion/disagreement and compromise/agreement in future planning decisions may depend on the type of decision being made. The direction of the relationship between these predictors and the use of statements coded as persuasion/disagreement and compromise/agreement does change depending on whether couples were discussing fertility or financial plans. For example, more dissimilar gender role attitudes in an intimate couple were (nonsignificantly) associated with more frequent coded mentions of compromise and agreement when discussing fertility plans, but less frequent coded mentions of compromise and agreement when discussing how the couple would spend \$1,500 (see Table 3). Further, more dissimilar gender role attitudes were (nonsignificantly) associated with more frequent coded mentions of concessions when discussing how the couple would spend \$1,500, but more frequent mentions of concessions when discussing fertility plans (see Table 6). Taken together, these trends in data from study 3 suggest that the current predictive model may operate differently when predicting the distribution of decision-making power in different types of decisions made by intimate partners. There may be something unique about the distribution of decision-making power in intimate couples when making decisions about their reproductive futures, compared to the way decision-making power is distributed generally within that couple. Future work, with larger sample sizes, is needed to better discern these predictive relationships.

Results from study 3 also demonstrated that when couples first discuss their fertility plans may predict the extent to which they disagree and use persuasive tactics when later discussing these fertility plans. Specifically, couples that had discussed their fertility plans within the first 6 months of their relationship used much more frequent persuasion/disagreement phrases in their

discussion of fertility plans than did couples that had not yet discussed these plans with one another. These findings are consistent with previous work that suggests that over time couples are more likely to employ social strategies designed to gain their partner's compliance (Dillard & Fitzpatrick, 1985) perhaps due to the fact that the more time individuals invest in a partnership, the less likely they are to defect from that pairing (Coleman, 2009; Felmler, Sprecher, & Bassin, 1990). Therefore, the use of persuasive, compliance-gaining strategies may be 'safer' when both partners have invested more time and efforts into a particular relationship.

Chapter 7 – General Discussion

This 3-study program of research has provided important insights regarding the susceptibility of individual's fertility intentions to environmental factors. Specifically, findings from these studies have informed our understanding of the social transmission of fertility-relevant information, in particular whether some individuals' fertility intentions are more likely to be shaped by informational or normative influences. Study 1 found that individuals did differentially perceive messages designed to either provide informational or normative types of pronatalist social influence. While level of self-monitoring and intention certainty did not predict individuals' responses to informational versus normative social influence messages, individuals did differentially respond to these types of social influence depending on their level of motivation. Individuals who were more highly motivated to think carefully about their fertility intentions were more strongly affected by informational social influence, compared to normative social influence. Individuals who did *not* receive a cue indicating that they should think carefully about their intentions, and later justify their intention to another participant, were more strongly affected by normative social influence, compared to informational social influence. This is consistent with the Elaboration Likelihood Model of persuasion which suggests that increased motivation should make individuals less likely to integrate normative influences and expectations into their decision-making practices (Petty & Cacioppo, 1986a; 1986b). Indeed, individuals do tend to report that normative information is least important and least motivating regarding their decision-making practices (Nolan, Schultz, Cialdini, Goldstein, & Griskevicius, 2008) and they tend to be more likely to attribute complex and important decisions to informational, compared to normative social influence (Lord, Lee, & Choong, 2001). Therefore,

since our participants did perceive our normative social influence messages to be normative in nature, this may have led motivated decision-makers to be least likely to use this information when informing their later-stated fertility intentions.

Further, this work builds on a recent body of literature suggesting that individuals' early environmental conditions might cause them to respond differently to cues regarding the conditions in their current environment. This work has demonstrated that when individuals with "fast" life history strategies exposed to cues indicative of current environmental harshness – information regarding increases in violent crime and homicide – they tend to indicate an intention to have children sooner, and individuals with "slow" life history strategies tend to indicate an intention to postpone childbearing to pursue education and career goals (Griskevicius, Delton, Robertson, & Tybur, 2011; Griskevicius, Tybur, Delton, & Robertson, 2011). However, these recent experimental investigations of the effects of both historical and current ecology on reproductive decision-making have only manipulated mortality-relevant information, in spite of the fact that Life History Theory contends that *both* resource and mortality-relevant ecological cues shape reproductive decision-making (Griskevicius, Delton, Robertson, & Tybur, 2011). Study 2 found that individuals did respond differently to messages indicating that their current environment is increasingly dangerous (mortality prime) or current economic conditions are degrading (resource scarcity prime) depending on their life history strategy. We replicated previous findings suggesting that individuals with "fast" life history strategies tend to report an intention to have children sooner in response to a mortality prime (Griskevicius, Delton, Robertson, & Tybur, 2011), and found that individuals with "fast" life history strategies tended to – alternatively – report an intention to postpone having children in response to a resource scarcity prime. Terror Management Theory, at least in part, explains this

differential responding depending on the type of cue relevant to one's current environment. According to Terror Management Theory (Solomon et al., 1991), individuals tend to respond to mortality cues by disseminating their identity and sense of self, in this case through the intent to have children (an effect previously demonstrated in the Terror Management Theory literature; Fritsche et al., 2007; Wiseman & Goldberg, 2005). Importantly, individuals with "slow" life history strategies were largely unaffected by our manipulations of cues relevant to their current ecology (i.e., mortality and resource scarcity primes). This presents an important problem for a Terror Management interpretation of these findings, given that Terror Management Theory perspective does not predict differential responding to mortality cues based on life history strategy or socioeconomic status. While other individual difference factors have been found to affect the way individuals respond to mortality cues (attachment style, Milkulincer & Florian, 2000; self-esteem, Harmon-Jones et al., 1997; depression, Simon, Arndt, Greenberg, Pyszczynski, & Solomon, 1998; authoritarianism, Greenberg et al., 1990), the effect of life history strategy has yet to be explored within the Terror Management Theory literature. This work suggests that future research which applies a Terror Management perspective should take into account participants' life history strategy when interpreting their findings.

The insensitivity of individuals with "slow" life history strategies' fertility intentions to mortality and resource scarcity cues is potentially attributable to the current finding that individuals with *slower* life history strategies were more likely to perceive mortality and resource scarcity-relevant information to be predictable and impermanent. This is consistent with Life History Theory, which explains that individuals with "slow" life history strategies should tend to interpret mortality and resource-relevant cues in their current environment as "intrinsic", meaning that current conditions are temporary and predictable (Ellis, Figueredo, Brumbach, &

Schlomer, 2009; Griskevicius, Tybur, Delton, & Robertson, 2011). Likewise, individuals with “fast” life history strategies should tend to interpret mortality and resource-relevant cues in their current environment as “extrinsic”, meaning that current conditions are persistent and unpredictable (Ellis, Figueredo, Brumbach, & Schlomer, 2009; Griskevicius, Tybur, Delton, & Robertson, 2011). Study 2 of the current work represents the first demonstration of this pattern of response to resource-scarcity cues.

Finally, the current work explored the nature of collaborative reproductive decision-making within unmarried and married couples. Importantly, this provides a first glance into the conditions that might favor compromise or domination in couples’ discussions of their reproductive futures. Using qualitative methods, study 3 found that the similarity of couples’ gender role attitudes, career-orientation scores, and education levels did not significantly predict the frequency of their use of statements coded as compromise and agreement or persuasion and disagreement in their discussions regarding their future reproductive plans. However, trends in the data did suggest that couples with more similar career-orientation scores more frequently mentioned statements coded as compromise and agreement when discussing their fertility intentions, compared to couples with more dissimilar career-orientation scores. Furthermore, trends indicated that couples with more dissimilar career-orientation scores and education levels more frequently mentioned statements coded as persuasion and disagreement when discussing their fertility intentions, compared to couples with more similar career-orientations and education levels. This is consistent with previous work which suggests that intimate partners with more dissimilar education levels and values are more likely to experience intra-household conflict when making plans about their futures (Basu, 1999 & 2002). Importantly, while a social power perspective suggests that decision-making within intimate relationships is largely inequitable –

shifting from male-dominated to female-dominated depending on the social power held by the particular sex – results from study 3 suggest that men and women in the current sample shared equal decision-making power regarding both fertility-planning and financial-planning decisions. Specifically, men and women in study 3 were equally likely to use statements coded as compromise/agreement, persuasion/disagreement, and concessions, when discussing both their future fertility plans as well as future financial plans.

As a whole, this 3-study program of research addresses unanswered questions within the domain of fertility decision-making, suggesting that individuals' fertility decision-making practices are sensitive to ecological cues. Rather than engaging in resource-costly (Gigerenzer & Todd, 1999) decision-making practices which integrate all relevant costs and benefits associated with becoming a parent, we predicted that individuals rely on socially acquired information – which can improve one's decision by exploiting the experiences and efforts of other decision-makers in one's environment, without the need to personally incur the costs of information search. This alternative to a “rational” model of fertility decision-making (such as the demographic transition model) is receiving increasing support (Bongaarts & Watkins, 1996). This work has found that individuals' fertility intentions are susceptible to normative, as well as informational social influence (depending upon their motivation to engage in conscious, effortful decision-making), information about the harshness and resource scarcity of their current environment (particularly if they grew up in a harsh, and resource-poor environment), as well as the desires and intentions of their intimate partner. Given the complexity of fertility-relevant decisions, and the costly nature of information search, we believe that individuals assess particularly relevant aspects of their ecology to shape their fertility desires and intentions, including socially acquired information about family planning options, normative family

structure ideas, partner's values and attitudes towards fertility, and cues indicating the status of resources in one's current and historical environment. Importantly, given that the samples used in the three studies described above are young – particularly considering that, according to the CDC, the average age at first birth for individuals in the United States is 26, and the average age of participants in studies 1, 2, and 3 ranged from 21 to 24) – the implications of this program of research only apply to the fertility decision-making practices of young adults.

Theoretical development is much needed in the area of fertility decision-making to better understand these observed departures from generally accepted models and perhaps inform policy needed to address fertility rates that pose threats to public health (Wachter & Bulatao, 2003). Particularly, current findings should be replicated; patterns of results identified in the current qualitative work should be tested in larger samples to determine if observed patterns become statistically significant. Also, *how* individuals assess this socially acquired information from their environment needs to be more clearly elucidated. For example, do individuals preferentially attend to fertility-relevant information in their visual world? Does this potential attentional adhesion depend on one's age or the reproductive status of one's peers? Further, can what we have demonstrated about the susceptibility of motivated decision-makers' fertility intentions to informational social influence be applied to intervention methods in populations where access to information about sexual health is limited? These questions (and many others) can and should be explored in future work exploring the fertility decision-making process.

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Appendix A

Demographics

Instructions: Please answer the following questions about yourself as honestly as possible.

1. What is your age _____
2. What is your biological sex?
 - a. Male
 - b. Female
 - c. Intersex

3. Which best describes your race/ethnicity?
 - a. White/Non-Hispanic
 - b. Hispanic
 - c. African American
 - d. Asian
 - e. American Indian or Alaska Native
 - f. Multiracial

4. Which best describes your sexual orientation?
 - a. Heterosexual
 - b. Homosexual
 - c. Bisexual/Other

5. What is the highest level of education you have received?
 - a. High school
 - b. Technical degree
 - c. Associates degree
 - d. Bachelors degree
 - e. Graduate degree

6. If you are in school, are you a full-time student?

7. If not, do you work outside the home?

8. If so, is your occupation:
 - a. Part-time
 - b. Full-time

9. Which best describes your relationship status?
 - a. Single
 - b. Casual dating/non-committed relationship
 - c. Dating/committed relationship
 - d. Engaged
 - e. Married
 - f. Separated/Divorced
 - g. Widowed

10. If you are in a relationship, for how long have you been in that relationship?

11. What is your current annual household income?
 - a. less than \$25,000
 - b. \$25,000-\$35,000

- c. \$35,000-\$45,000
- d. \$45,000-\$55,000
- e. \$55,000-\$65,000
- f. \$65,000-\$75,000
- g. more than \$75,000

12. Please choose the response that best indicates the reproductive status of your peers:

- a. None of my friends/acquaintances have children
- b. Very few of my friends/acquaintances have children
- c. Some of my friends/acquaintances have children
- d. Many of my friends/acquaintances have children
- e. Nearly all of my friends/acquaintances have children

13. Have you been pregnant in the past?

14. Are you pregnant?

15. Are you and your partner able to have children?

16. Estimate the typical length of your ovulatory cycle (days between the first day of your period to the last day of your next period).

17. How many days have passed since the last day of your most recent period?

18. Have you taken hormonal contraceptives in the past three months?

Appendix B

The Self-Monitoring Scale

Snyder, M.; & Gangestad, S. (1986). On the nature of self-monitoring: Matters of assessment, matters of validity. *Personality and Social Psychology*, 51(1), 125-139.

Instructions: Please whether or not each of the following statements is True (T) or False (F) about you. Read each item carefully and answer as honestly as possible.

1. I find it hard to imitate the behavior of other people. (F)

2. At parties and social gatherings, I do not attempt to do or say things that others will like.
(F)
3. I can only argue for ideas which I already believe. (F)
4. I can make impromptu speeches even on topics about which I have almost no information. (T)
5. I guess I put on a show to impress or entertain others. (T)
6. I would probably make a good actor. (T)
7. In a group of people I am rarely the center of attention. (F)
8. In different situations and with different people, I often act like very different persons.
(T)
9. I am not particularly good at making other people like me. (F)
10. I'm not always the person I appear to be. (T)
11. I would not change my opinions (or the way I do things) in order to please someone or win their favor. (F)
12. I have considered being an entertainer. (T)
13. I have never been good at games like charades or improvisational acting. (F)
14. I have trouble changing my behavior to suit different people and different situations. (F)
15. At a party I let others keep the jokes and stories going. (F)
16. I feel a bit awkward in public and do not show up quite as well as I should. (F)
17. I can look anyone in the eye and tell a lie with a straight face (if for a right end). (T)
18. I may deceive people by being friendly when I really dislike them. (T)

*Parentheses indicate the direction

Appendix C

Informational Social Influence Priming Article

Adapted from Griskevicius, V.; Delton, A.W.; Robertson, T.E.; Tybur, J.M. (2011).

Environmental contingency in life history strategies: The influence of mortality and socioeconomic status on reproductive timing. *Personality and Social Psychology*, 100(2), 241-254.

Instructions: You are going to participate in several different studies, the first of which will consist of a memory test. You will read a short news article and be asked to recall information about the article later in the session. However, because it is important to let some time pass before the memory recall task, you will work on another survey regarding family decisions in between the reading and recall tests. The article below has been chosen because it is exactly 600 words in length, which makes it ideal for psychological memory tasks.

The New York Times

Parenting in 21st Century Changing Policy for the Modern Family

By MORGAN JAMESTON, Senior Times Writer

Megan Langley-Hawver and Cole Hawver welcomed their first child into the world a month ago. Both employed, Megan as an administrator in a local community engagement firm and Cole as a defense attorney, they anticipated facing the conflict faced by most new parents: how to balance a demanding work and home life. Who will be responsible for taking time off work to care for the newborn? Today, the businesses employing Megan and Cole are required to provide both parents with paid leave. Today, Megan and Cole do not have to decide how to meet the demands of high-stress jobs outside and inside of the home.

Megan expresses her relief at the new policy granting both maternity and paternity leave, if desired, “we didn’t want to get left behind in the business world because of our family plans. We are so pleased that we both can take 6 months parenting leave, without sacrificing our jobs or – more importantly – our paychecks.” They are astonished at the recent state legislation which has made this time away from work possible. “Ten years ago, state governments only required employers to grant 2 weeks of maternity leave,” Joan Michaels, the director of the Council for Parental Rights, recalls. “Even two years ago employers were not required to support any paternity leave, and only 3 weeks of maternity leave with pay. The fluctuations are amazing. It is now socially, personally, and financially easier for working couples to have children than ever before.”

Michaels is shocked by the recent changes to maternity/paternity leave legislation by the state. “The Paternity Action Policy, enacted by state legislators on April 10th, 2013, represents the first requirement in United States history for employers to provide a minimum of 4 months paid leave to all new mothers and fathers. Furthermore, this policy requires that employers guarantee that those taking maternity/paternity leave be able to return to their position without being required to wait longer than their childless counterparts for promotion. This is going to change things

forever in our country, now parents can take months of leave from work to parent, regardless of sex, without earning less or being promoted less than their peers.”

The financial and professional benefits associated with becoming a parent have been growing over the past few decades. Patricia Wharton of the Maternity Action Organization points out that people mistakenly believe that today, deciding to parent means placing your family plans over your career aspirations. “It is certainly true that only five years ago, women taking time off work to parent were half as likely to receive a promotion that same year as their childless co-workers. But in the past year since the Paternity Action Policy was enacted across the United States, parents have actually been bringing home more income annually than similarly educated, childless couples. More than that, new parents which have worked only 70% of the week days in the past year have been promoted just as frequently as non-parents that worked the whole year long!”

The professional and financial benefits of this new maternal/paternal leave policy are being seen in families from all walks of life. Just a few years ago, it was almost unheard of that someone, regardless of their income and type of employment, would be able to finish their first year of parenthood without losing their job, losing a possible promotion, or incurring significant debts. Today, this is part of normal life. “I have spoken to families at the poverty line, middle-class parents, and even a lucky few in high-income homes,” notes director Joan Michaels. “We have seen how all of them can now become parents without sacrificing their jobs or finances. This new maternal/paternal leave policy is changing what it means to ‘balance’ work and family.”

As Megan and Cole enjoy nearly six months at home with their newborn, still bringing home the same amount of income, both still eligible for recent promotion, we can’t help but be reminded about how much the world in which we live is changing. For the first time in our history, mothers and fathers can be successful at home and at work, in a way that nearly eliminates the stressors previously associated with balancing work and family life. People need to brace themselves for a new reality in this changing world.

Appendix D

Normative Social Influence Priming Article

Adapted from Griskevicius, V.; Delton, A.W.; Robertson, T.E.; Tybur, J.M. (2011).

Environmental contingency in life history strategies: The influence of mortality and socioeconomic status on reproductive timing. *Personality and Social Psychology*, 100(2), 241-254.

Instructions: You are going to participate in several different studies, the first of which will consist of a memory test. You will read a short news article and be asked to recall information about the article later in the session. However, because it is important to let some time pass before the memory recall task, you will work on another survey regarding family decisions in between the reading and recall tests. The article below has been chosen because it is exactly 600 words in length, which makes it ideal for psychological memory tasks.

The New York Times

Parenting in 21st Century Changing Policy for the Modern Family

By MORGAN JAMESTON, Senior Times Writer

Megan Langley-Hawver and Cole Hawver welcomed their third child into the world a month ago. Both employed, Megan as an administrator in a local community engagement firm and Cole as a defense attorney, they met in college only four years ago. Both in their mid-twenties, certainly their family size is atypical in our current day-and-age? Surprisingly, today the family size that Megan and Cole have achieved is actually quite typical. Today, most families have 2 or 3 children, and most parents begin to have children in their early twenties.

Megan expresses her parents' and friends' pride and at their decision to have a family of five so early in life, "they had always told us how much they wanted us to have a few children. We are so pleased that we could have children around the same time as our friends from college – it seemed that all our friends were having children, and posting adorable pictures – now we are part of that world." They are astonished at the recent increases in birth rates, considering how now

(more than ever) Americans are both completing college degrees and having two children by the age of 30. “Five years ago, American families were only having an average of 1 child,” Joan Michaels, the director of the Council for Parental Rights, recalls. “Even two years ago American families were still very small, with many individuals deciding not to have children at all. Today, it is almost unheard of that an individual will reach the age of 35 and remain childless. It is now more socially praised and celebrated for individuals to have children than ever before.”

Michaels is shocked by the recent changes in birth rates. “A recent survey of Americans ages 18-45 found that the most liked, the most highly-esteemed of their peers have children. Furthermore, our sample reported having more social support – from friends, parents and co-workers – when they decide to have children, than we have ever seen before in our annual survey. This is going to change things forever in our country, now more people than ever are deciding to become parents, and parents are being supported and envied by those around them than ever before.”

The social and personal benefits associated with becoming a parent have been growing over the past few decades. Patricia Wharton of the Maternity Action Organization points out that people mistakenly believe that today, deciding to parent means placing your family plans over your personal aspirations. “It is certainly true that only five years ago, individuals deciding to become parents were half as likely to have at least two close friends that were also parents. In the world of yesterday, having children meant leaving your peers, your friends behind for family life. But in the past few years across the United States, individuals deciding to become parents have an average of four close friends with children. Today, we see that parents report even more social support, compared to similar but childless people. More than that, parents are reporting more personal happiness and closeness to their friends, co-workers, families, and partners than people without children!”

The social and personal benefits of this new rise in birth rates are being seen in families from all walks of life. Just a few years ago, it was almost unheard of that someone, regardless of their income and type of employment, would be able to finish their first year of parenthood without losing their job, losing time with their friends, or sacrificing their happiness or well-being. The social support that parents enjoy today makes it possible for individuals to parent without the stresses (daily stresses, relationship stresses) that used to be part of normal life. “I have spoken to families at the poverty line, middle-class parents, and even a lucky few in high-income homes,” notes director Joan Michaels. “We have seen how all of them can now become parents without sacrificing their relationships or friendships. This new love and esteem that our society has for parents is changing what it means to have a baby and a personal life.”

As Megan and Cole enjoy their maternal/paternal leave at home with their newborn, only in their mid-twenties and surrounded by their friends, nearly all parents, we can’t help but be reminded about how much the world in which we live is changing. For the first time in recent history, having two or three children is socially and culturally celebrated, nearly 85% of individuals 25 years of age have at least one child, and parents are reporting more happiness and support than childless people. People need to brace themselves for a new reality in this changing world.

Appendix E

Fertility Desire (vs.) and Intention Scale

Adapted from Miller, W.B.; & Pasta, D.J. (1995). Behavioral intentions: Which ones predict fertility behavior in married couple? *Applied Social Psychology, 25*(6), 530-555.

Instructions: Before answering the following questions regarding your own fertility desires and intentions, please read carefully how we distinguish between **desires** and **intentions**:

“**Desires** represent what the individual himself or herself wants. They are wishes and as such do not, as a general rule, lead directly to action. Rather, they are first translated into **intentions**, which are conscious commitments to act in a certain way or to try to achieve a certain goal at some future time. Intentions are different from desires in that they incorporate, or at least take in to account, the perceived desires of significant others, as well as other situational factors that prevent simply doing what one desires” (Miller & Pasta, 1995, pg. 533).

1. At what age did your parents decide to have children?
2. How old were you when you had your first child?
3. At what age do you plan to have your first (next) child?
4. How certain are you about this plan?

Very uncertain	Somewhat uncertain	Neutral	Somewhat certain	Very certain
1	2	3	4	5

5. What is the ultimate (or largest) number of children you would like to have?
6. How certain are you about this plan?

Very uncertain	Somewhat uncertain	Neutral	Somewhat certain	Very certain
1	2	3	4	5

7. How many children do you have?

8. How many siblings (other children in the family in which you grew up) do you have?
9. Do you ever have the desire for a baby of your own? That is, regardless of any realistic considerations about your economic, social, or personal circumstances do you at times feel a bodily desire for the feel, sight, and smell of an infant next to you?
10. When you feel this desire for a baby, how strong is the emotional effect, or “pull” on you?
11. How often do you have the desire to have a baby?
12. How often do you have the desire for a large amount of money (i.e. being wealthy)?
13. How often do you have the desire for sex (i.e. sexual gratification)?
14. How soon do you intend to have your first child?

Appendix F

Fertility Desires Scale

Adapted from Miller, W.B. (2011). Differences between fertility desires and intentions:

Implications for theory, research and policy. *Vienna Yearbook of Population Research 2011*, 9, 75-98.

Instructions: We are interested in how you feel about having a baby. As you know, (your partner) getting pregnant and having a baby is a big event, one that has a lot of consequences. Some of these consequences, perhaps most of them may be positive to you. On the other hand, some of these consequences, perhaps most of them may be negative to you. It all depends on who you are and what the most important things are to you at this point in your life. Most people have at least some positive and some negative feelings about getting pregnant and having a child. For this reason we are going to ask you to think about all the feelings you have about the consequences (for you) of (your partner) getting pregnant and having a baby.

First, we are interested in positive feelings. Some of the positive feelings that people have about getting pregnant and having a child are related to:

- Feeling a baby move and kick inside me (my partner);
- Holding and cuddling a baby;
- Strengthening my marriage (relationship) through a child;
- Playing with my child;
- Teaching my child;
- Feeling more complete as a woman (man).

Of course, there were probably other positive consequences of (your partner) getting pregnant and having a baby that are important to you and we want you to think about those as well. Now, taking into account all the positive consequences that are important to you, how would you rate your desire to get pregnant (or, for your partner to get pregnant) and have a child? Rate your desire a 0 if you had no desire to get pregnant and have a child, rate it a 1 if you had a small amount of desire to get pregnant and have a child, rate it a 2 if you had a moderate amount of desire to get pregnant and have a child, rate it a 3 if you had a large amount of desire to get pregnant and have a child, and rate it a 4 if you had a very large amount of desire to get pregnant and have a child.

Rating scale

No amount of desire 0	Small amount of desire 1	Moderate amount of desire 2	Large amount of desire 3	Very Large amount of desire 4
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Second, we are interested in negative feelings. Some of the negative feelings that people have about getting pregnant and having a child are related to:

- (Watching my partner experience) Experiencing the discomforts of pregnancy and childbirth;
- Having to put up with a needy and demanding baby;
- Not having a stable marriage (relationship) for raising a baby;
- Not being able to do some of the other things I want to do, like working, going to school, or travelling;
- Worrying that I was not being a good parent;
- Being afraid that there would not be enough money to take good care of a child.

And again, there are probably other negative consequences of (your partner) getting pregnant and having a baby that are important to you and we want you to think about those as well. Now, taking into account all the negative consequences that are important to you, how would you rate your desire *not* to get pregnant (or, for your partner *not* to get pregnant) and have a child? Rate your desire a 0 if you had no desire not to get pregnant and have a child, rate it a 1 if you had a small amount of desire not to get pregnant and have a child, rate it a 2 if you had a moderate amount not to get pregnant and have a child, rate it a 3 if you had a large amount not to get pregnant and have a child, and rate it a 4 if you had a very large amount of desire not to get pregnant and have a child.

Rating scale

No amount of desire	Small amount of desire	Moderate amount of desire	Large amount of desire	Very Large amount of desire
0	1	2	3	4

Appendix G

Three-Item Measure of Early Environmental Economic Conditions

Griskevicius, V.; Delton, A.W.; Robertson, T.E.; Tybur, J.M. (2011). Environmental contingency in life history strategies: The influence of mortality and socioeconomic status on reproductive timing. *Personality and Social Psychology*, 100(2), 241-254.

Instructions: Please answer the following questions about your *childhood*. Using the scale provided below, indicate how well each statement describes what your *childhood* was like.

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

- (a) “My family usually had enough money for things when I was growing up”;
- (b) “I grew up in a relatively wealthy neighborhood”;
- (c) “I felt relatively wealthy compared to the other kids in my school.”

Instructions: Please answer the following questions about your life *now and what you expect it to be like in the future*. Using the scale provided below, indicate how well each statement describes what your *current and future life* is (going to be) like.

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

- (a) “I have enough money to buy things I want”;
- (b) “I don’t worry too much about paying my bills”;
- (c) “I don’t think I’ll have to worry about money too much in the future.”

Appendix H

Resource Scarcity Priming Article

Griskevicius, V., Ackerman, J. M., Cantú, S. M., Delton, A. W., Robertson, T. E., Simpson, J. A., ... & Tybur, J. M. (2013). When the economy falters, do people spend or save? Responses to resource scarcity depend on childhood environments. *Psychological science*, 24(2), 197-205.

Instructions: You are going to participate in several different studies, the first of which will consist of a memory test. You will read a short news article and be asked to recall information about the article later in the session. However, because it is important to let some time pass before the memory recall task, you will work on another survey regarding family decisions in between the reading and recall tests. The article below has been chosen because it is exactly 600 words in length, which makes it ideal for psychological memory tasks.

The New York Times

Tough Times Ahead: The New Economics of the 21st Century

By MORGAN JAMESTON, Senior Times Writer

Less than a year ago Jonathan Pierce had a stable, well-paying job. Having earned a college degree, Jon was doing well at age 25. He even believed he was about to be promoted. Today, however, Jon is yet again standing in the dreary unemployment line downtown. “I didn’t think this could happen to me,” he mutters while shaking his head. “I have a college degree and I can’t even get a job interview, let alone a job. I’m facing foreclosure on my house, and I just don’t know where the money is going to come from.”

This depressing scene is not unique. Unemployment lines are full across the country. “The numbers are staggering,” notes Oliver Windsor, the head of the U.S. Economic Commission. And it’s not just blue-collar jobs like construction and food service that are being cut. It’s the white-collar jobs like management and office work that are being hit the hardest. According to Windsor, “the worst is not over yet by a long shot.” Unfortunately, there is little that the

government can do to remedy the situation. As every economist knows, while government bailouts can slow the bleeding, it can't fix the underlying problems.

The economic crisis is only the beginning of the new reality faced by Americans. After decades of economic growth, experts agree that the U.S. is on the verge of an economic shift. "The economy of the 21st century is fundamentally different from that in the past," explains Dr. Patricia Wharton, chair of the panel for U.S. Economic Stability. "The sad truth is that this generation is certain to be the first generation to do worse than their parents. The housing bubbles, bank crises, skyrocketing food and energy prices, and the credit crisis only begin to scratch the surface of our economic problems. Instead of college graduates wondering whether they will be able to afford a flat screen TV, they'll soon be wondering where their next meal is going to come from, how they'll clothe themselves, and how they can possibly afford a place to live."

The fact that younger Americans should expect to have little economic advancement is only part of the imminent economic disaster. Skyrocketing worldwide population growth and scarcity of natural resources are both working together to transform the U.S. economy. To understand how these factors are changing life for Americans, Oliver Windsor, one of 80 leading scientists who contributed to the government report, reminds us of the basics: "There are literally billions of people out there competing with each other. And these people are not just competing for jobs. The truth is that they're competing for food, water, and air."

While it may be difficult for some to imagine that the U.S. might one day be in poverty, the world in the 21st century is highly inter-connected. Things that happen in China, India, and Africa have tremendous consequences for what happens in the rest of the world. As the people across the globe gain skills and opportunities, competition for scarce jobs and resources will only increase. As necessities such as safe food, drinkable water, and breathable air become scarcer and more expensive, the world as we know it will become a very different place. Instead of walking into a supermarket and buying a gallon of water for under a dollar, consumers may soon be spending as much as \$10 for only a small bottle of clean water.

Watching Jonathan Pierce wait in the unemployment line downtown, one can't help but be reminded of the Great Depression—a time in American history that most people only remember from their history classes. The images of the Depression are difficult to erase: Malnourished children begging for food, people standing in line all day to get a slice of bread and a cup of soup, everyone struggling to feed themselves and their families. The sad truth for people like Jonathan Pierce and countless others is that losing a job is only the beginning. Tough times are ahead.

Appendix I

Mortality Priming Article

Griskevicius, V.; Delton, A.W.; Robertson, T.E.; Tybur, J.M. (2011). Environmental contingency in life history strategies: The influence of mortality and socioeconomic status on reproductive timing. *Personality and Social Psychology*, 100(2), 241-254.

Instructions: You are going to participate in several different studies, the first of which will consist of a memory test. You will read a short news article and be asked to recall information about the article later in the session. However, because it is important to let some time pass before the memory recall task, you will work on another survey regarding family decisions in between the reading and recall tests. The article below has been chosen because it is exactly 600 words in length, which makes it ideal for psychological memory tasks.

The New York Times

Life in 21st Century More Dangerous and Unpredictable Than Most Think

By MORGAN JAMESTON, Senior Times Writer

Jonathan Pierce died at 5:37 am last Tuesday in the quiet pre-dawn hours at Memorial Hospital. The cause—a gunshot wound. Just last night, Jon was driving home from work. Suddenly, in the middle of a seemingly safe intersection that he had crossed hundreds of times, he was shot six times by a gunman in a nearby car. Police have no motive for the shooting, chalking it up to yet another random act of violence.

The staff at the police station is worried. They are astonished at the exponential increase in deaths from random acts of violence. “Ten years ago, these kinds of deaths accounted for maybe 30 or 40 deaths a year,” Joan Michaels, a captain at the police station, recalls. “Two years ago we had over 200. This year it’s tripled to over 600. The fluctuations are amazing. You just don’t know what tomorrow is going to bring.”

Michaels is shocked by the senselessness of many of these deaths. “It seems that at least half of these attacks occur for no reason. An innocent young man just happens to be wearing the wrong

colored shirt and is gunned down by gang members. A young woman is waiting for a bus, and she's assaulted by a group of men she's never seen before. What really gets me is that the person who dies is often not even the target. The person was just standing nearby, minding his own business. Anyone is a potential victim for this new wave of violence."

The high prevalence of random violence is also being seen in emerging studies from Harvard Medical School. Dr. Douglas Kenrick, head of the research project, notes a worrisome pattern: "Comparing violent crime across the last century, we find that it is very difficult to predict what's going to happen from year to year. For example, people today are at a much higher risk of being violently assaulted and killed than people merely a few years ago." The evidence shows that our cities, neighborhoods, workplaces, and schools are essentially under attack. "This has important implications," Dr. Kenrick points out. "Because you never know what's going to happen and how the environment is going to fluctuate, people will need to take this into account when they're deciding how to behave."

The risks associated with random acts of personal violence only exacerbate the terrorism threat that has been growing over the past few decades. Patricia Wharton of the Federal Bureau of Investigations points out that people mistakenly believe foreign attacks, such as 9/11, to be the only terrorism threat facing our nation. "It is certainly true that Islamic terrorism poses a grave threat to Americans' safety. Another hijacking, radioactive dirty bombs, or a rogue nuclear weapon stolen from Iran or Pakistan could kill thousands or millions of Americans with little to no warning."

"But what people forget is that the vast majority of terrorist acts are committed by Americans. It is our own neighbors who are killing us." Take several examples. The Oklahoma City bombings from the last decade were committed by Timothy McVeigh, an individual from New York who many thought was a normal person. The Olympic Bombings in Atlanta were committed by Eric Rudolph, a person born in Florida. The 2001 anthrax attacks were carried out by Bruce Ivins, a man from Ohio. The 2002 Washington D.C. sniper shootings that killed over a dozen people in several weeks were committed by two Americans. These are just a few of the countless examples in which American citizens carried out lethal attacks against random, innocent compatriots.

The random nature of violence is clearest in schools and universities across the world. Just a few years ago, it was almost unheard of that someone would be shot at school or at work. Today, this is part of normal life. "The Police can't be at every corner of every street," notes captain Joan Michaels. "We know that even video cameras do little because most of these violent individuals have no regard for their own lives. More and more, citizens find themselves injured or even dying on the street for reasons beyond their control, hunted down for no discernible purpose."

As Jonathan Pierce waits to be buried after being the latest victim of random violence, we can't help but be reminded about the unpredictability of the world in which we live. Whether it is random acts of violence, outbreaks of new diseases, or the uncertainty of mother nature, the ability to predict what next year—or even tomorrow—will bring is impossible. People need to brace themselves for a new reality in this unpredictable and dangerous world.

Appendix J

Control Condition Article

Griskevicius, V.; Delton, A.W.; Robertson, T.E.; Tybur, J.M. (2011). Environmental contingency in life history strategies: The influence of mortality and socioeconomic status on reproductive timing. *Personality and Social Psychology*, 100(2), 241-254.

Instructions: You are going to participate in several different studies, the first of which will consist of a memory test. You will read a story and be asked to recall information about the story later in the session. However, because it is important to let some time pass before the memory recall task, you will work on another survey regarding family decisions in between the reading and recall tests. The story below has been chosen because it is exactly 600 words in length, which makes it ideal for psychological memory tasks.

Imagine that it's Tuesday afternoon during the semester. Your classes are pretty difficult this semester and you've been getting pretty stressed out about everything that you need to do. You're hanging out at home doing homework, but it's getting boring and you're feeling tired. You know that you still have to go to the supermarket before it's too late, so you decide to call it a night and go to the store.

As you go to get your keys from the counter, you don't see them there. The keys are nowhere in sight. Thinking that it's a little awkward, you feel your pockets. No keys in there either. You try to think back to where you last saw the keys, but you can't remember. You know you had them earlier yesterday, and you're usually pretty good about leaving your keys right on the counter.

You sometimes put your keys in your backpack, so that seems the logical place to look. You search through your bag. Books, folders, pens, but no keys. You turn the bag upside down and shake it. Nothing but junk. Now you start getting a little annoyed, and a little worried. Where the heck are your keys?

You decide to search around the house. You look all around your desk. You open the drawers. You search deep in the drawers. But they're not anywhere. You look through your bedroom floor, but all you find is junk.

Getting more desperate, you look through the laundry. Maybe they're in another pocket somewhere? You find some pieces of paper, but no keys. Feeling angrier, you go into your

closet and start throwing things to the floor. No keys. You run to the kitchen and start looking on the counters. You open all the cupboards and drawers. You have no idea why the keys would be there, but you need to look somewhere. In fifteen minutes, your kitchen looks like a disaster area. But still no keys!

You're feeling really frustrated at this point. Your hands start to shake a little. You think back to when you last remember having the keys and try to retrace your steps. You clearly remember having them earlier, but you just don't know where you put them.

Remembering that you had gone outside to take out the garbage earlier, you run out into the driveway. Maybe the keys fell out there? You look in the grass, the bushes, underneath cars. You see nothing. You think to yourself: did I really lose my keys? As you walk back inside the house in complete frustration, you feel as though you're ready to pull your hair out. Your keys have disappeared. You knew this was coming sometime, but why now? You start thinking about what you need to do when someone loses their keys. It's so annoying. You just wanted to go to the store.

You plop onto your living room couch in disgust. Sighing, you look back to the counter where you normally put your keys. To your astonishment, there they are. Your keys are on the counter! How could you have missed them? You run over there to check it out. You can't believe it. Something like this always happens to you.

You sit back down to take a breather, shake your head, and put your hand on your chest. Wiping the sweat that was beginning to form on your forehead, you begin to laugh. You don't think you've ever felt so relieved in your life. It was just keys, but you had gotten so upset. Your relief quickly turns into elation. You only found your wallet, but it's as though you won the lottery. In a fantastic mood, you leave the house to finally go to the store.

Appendix K

Reactions to Article Primes

Griskevicius, V.; Delton, A.W.; Robertson, T.E.; Tybur, J.M. (2011). Environmental contingency in life history strategies: The influence of mortality and socioeconomic status on reproductive timing. *Personality and Social Psychology*, 100(2), 241-254.

Instructions: Please indicate your reactions to the article that you just read. As you answer each question, think carefully about what you read in the article, and how it made you feel.

Not at all

Very much

1

2

3

4

5

6

7

1. To what extent did the story make you think the world will become a more dangerous place?
2. To what extent did the story make you think the economy/financial state of America is deteriorating?
3. To what extent did the story make you think the world will become unsafe?
4. To what extent did the story make you think the national economy will become unreliable?
5. To what extent did the story make you think the world will become more unpredictable?
6. To what extent did the story make you think the world will become more uncertain?
7. To what extent did the story make you feel emotionally aroused?
8. To what extent do you believe the events described in the story were predictable?
9. To what extent do you believe the events described in the story are going to be temporary?

Appendix L

The Gender Role Attitude Questionnaire

Berrington, A. (2004). Perpetual postponers? Women's, men's and couple's fertility intentions and subsequent fertility behavior. *Population Trends*, 117, 9-19.

Instructions: Please answer the following questions about your attitudes towards family life as honestly and thoughtfully as possible.

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

1. A pre-school child is likely to suffer if his or her mother works.
2. All in all, family life suffers when the woman has a full-time job.
3. A woman and her family would all be happier if she goes out to work.
4. Both the husband and wife should contribute to the household income.
5. Having a full-time job is the best way for a woman to be an independent person.
6. A husband's job is to earn money, a wife's job is to look after the home and family.

Appendix M

Work Role Salience Scale (Career Salience Scale)

Greenhaus, J.H. (1971). An investigation of the role of career salience in vocational behavior. *Vocational Psychology*, 1(3), 209-216.

Instructions: Below are a series of statements about your career and/or family. Using the scale ranging from “Strongly Agree” to “Strongly Disagree”, please indicate the extent to which the statement describes your attitudes and plans regarding your career and/or family.

Strongly Agree Agree Somewhat Neutral Disagree Somewhat Strongly Disagree

1 2 3 4 5

1. I intend to pursue the job of my 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 on 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 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 usually is 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.
27. I never really thought about these types of questions very much.

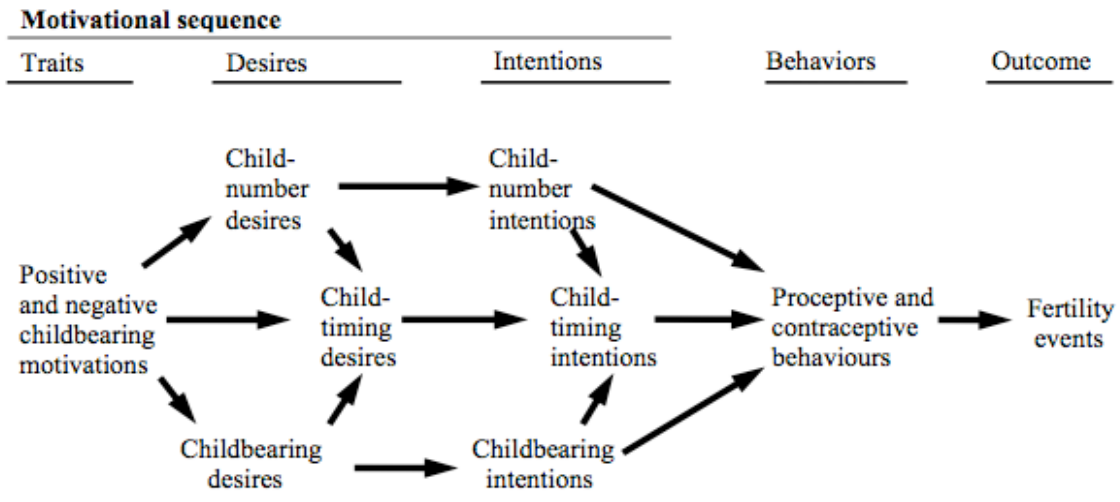


Figure 1. TDIB model as presented in Miller (2011).

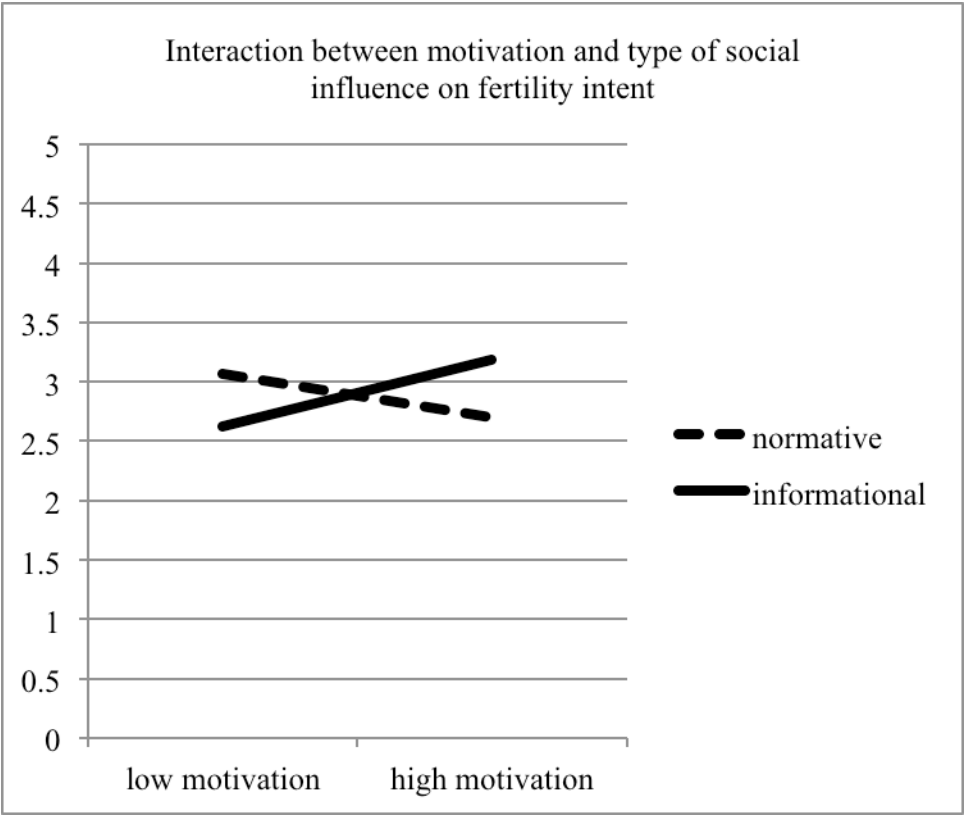


Figure 2. Fertility intentions were higher for highly motivated participants exposed to informational, compared to normative social influence messages. For participants that did not receive a motivational message, fertility intentions were higher when exposed to normative, compared to informational social influence messages.

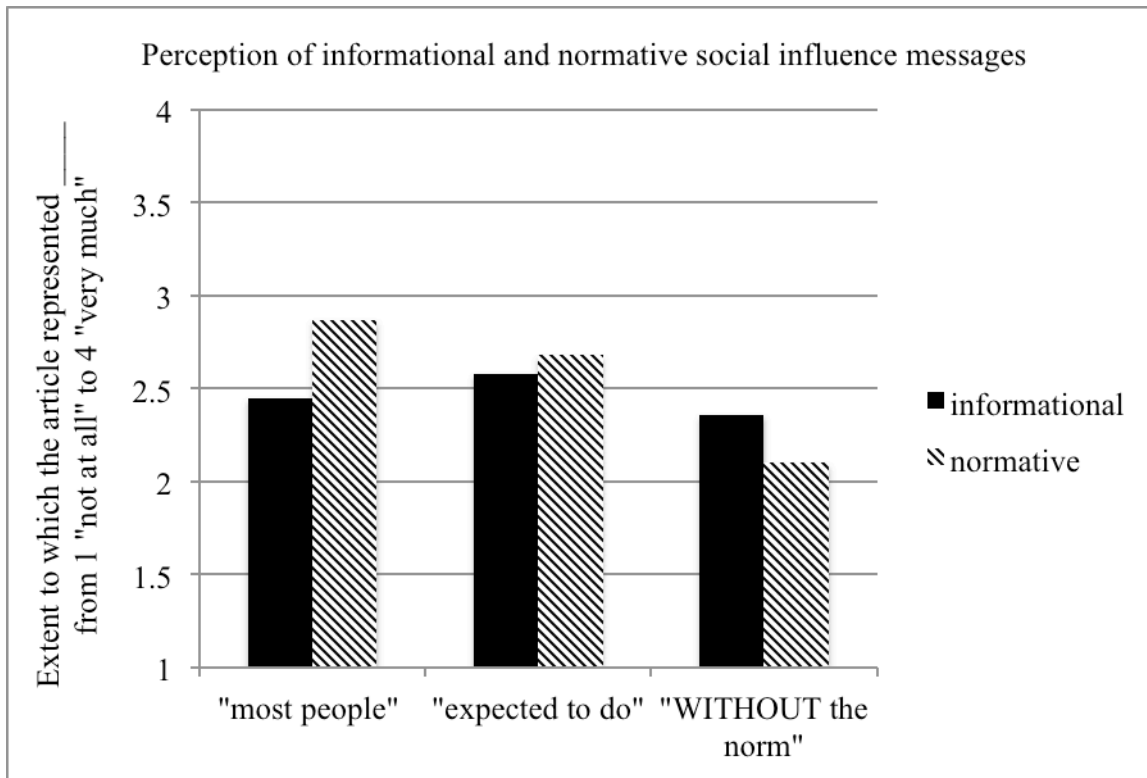


Figure 3. As a manipulation check, participants were asked to indicate the extent to which messages, designed to be informational or normative, shared information without indicating what the “norm” is (i.e., informational social influence) or shared information relevant to what most people are doing or what most people are expected to do (i.e., normative social influence). Generally, our messages were perceived as intended.

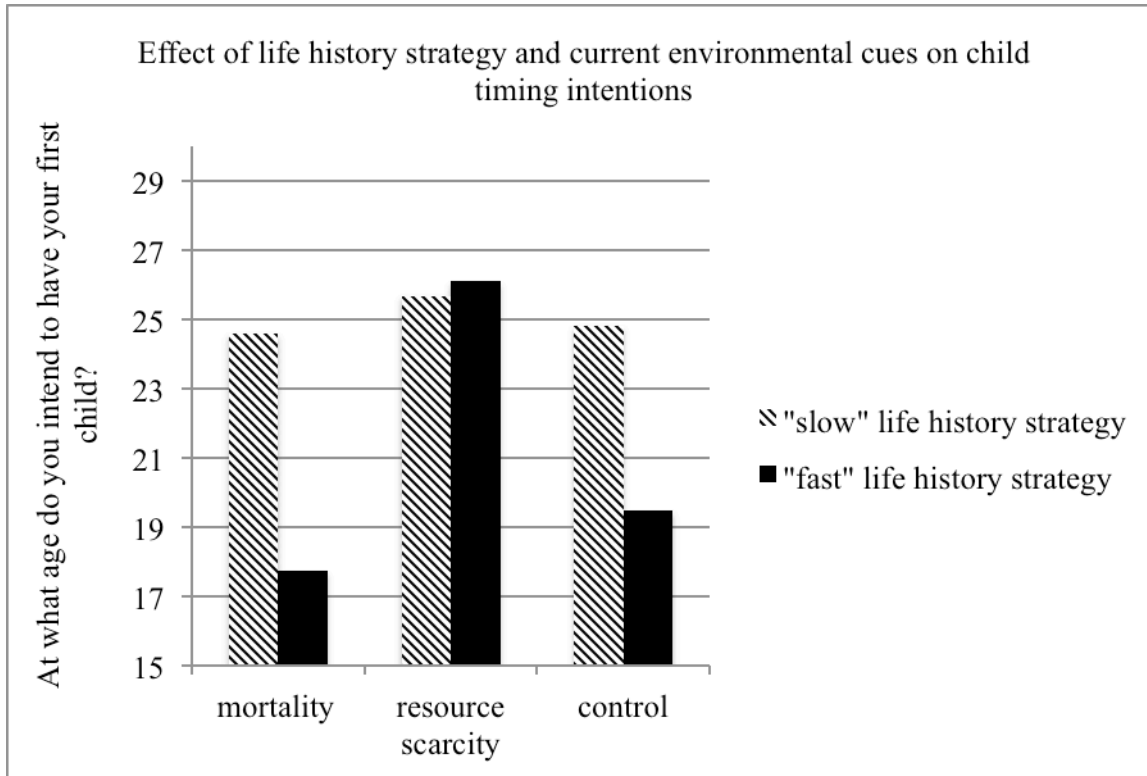


Figure 4. We found that individuals with “fast” life history strategies upregulated their fertility intentions in response to a mortality cue, but downregulated their fertility intentions in response to a resource scarcity cue. Interestingly, individuals with “slow” life history strategies were largely unresponsive to our cues regarding current environmental conditions.

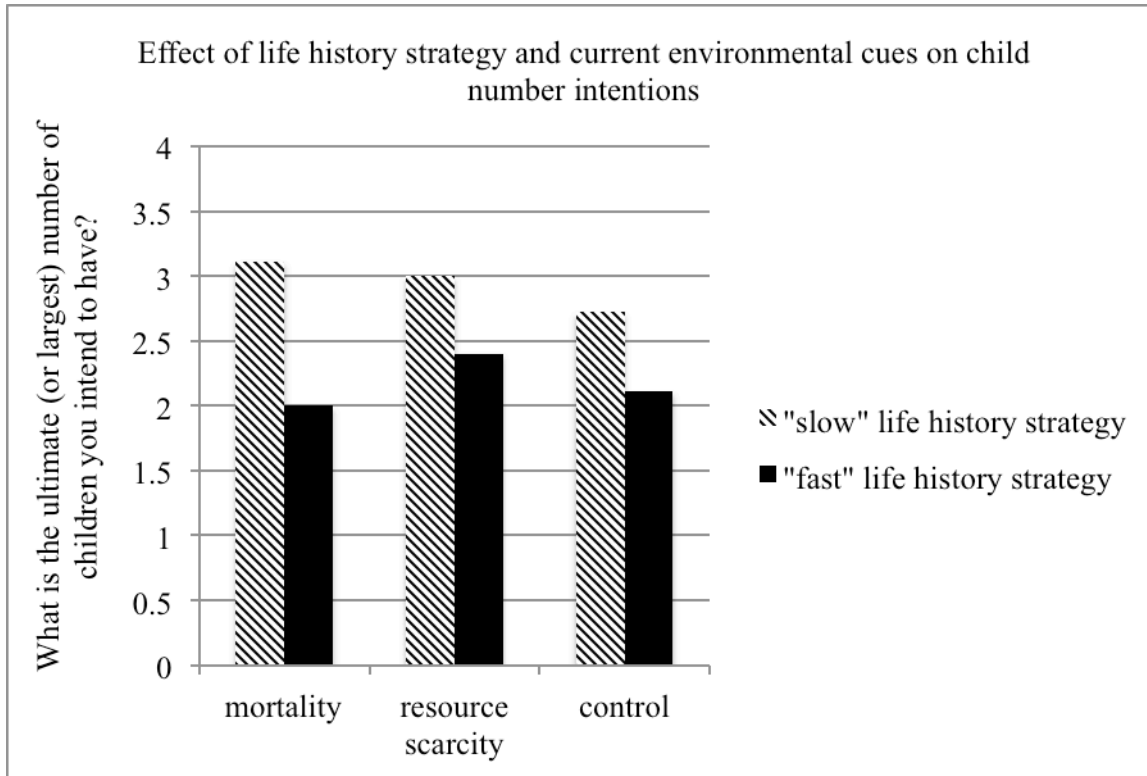


Figure 5. We found that individuals with “fast” life history strategies upregulated their fertility intentions in response to a resource scarcity cue, but downregulated their fertility intentions in response to a mortality cue. Interestingly, individuals with “slow” life history strategies were largely unresponsive to our cues regarding current environmental conditions.

Table 1

Relationship between Life History Strategy and reactions to article primes, which all begin “To what extent did the story make you think the...”

Reaction to article prime	Mortality cue		Resource scarcity cue		Control	
	EarlyLHS	CurrentLHS	EarlyLHS	CurrentLHS	EarlyLHS	CurrentLHS
... world will become a more dangerous place?	-.102	-.092	-.351*	-.392**	.389**	.157
... economy/financial state of America is deteriorating?	-.037	.003	-.162	-.304*	.306*	.011
... world will become unsafe?	-.205	-.181	-.368*	-.440**	.310*	-.004
... national economy will become unreliable?	-.048	.029	-.254*	-.364*	.292*	.113
... world will become more unpredictable?	-.156	-.206	-.217	-.520**	.112	.089
... world will become more uncertain?	-.239*	-.248*	-.211	-.419**	.258*	.184
... (make you feel) more emotionally aroused?	.062	-.013	-.332*	-.402**	.133	.113
... (do you believe) the	-.239*	-.067	.003	-.101	-.104	.054

events described were predictable?						
... (do you believe) the events described are going to be temporary?	.008	-.002	.230	.337*	-.020	.254*

Table 2

Inter-rater reliability estimates for study 3

Dimension	ICC	95% CI		Cronbach's α
		Lower bound	Upper bound	
Child number intentions	0.93	0.85	0.97	0.97
Child timing intentions	0.97	0.93	0.99	0.99
Family-focused values	0.70	0.42	0.86	0.82
Career-focused values	0.65	0.34	0.83	0.79
Relationship-focused values	0.75	0.51	0.88	0.86
Positive desires	0.22	-0.19	0.57	0.36
Negative desires	0.51	0.15	0.76	0.68
Persuasion (fertility)	0.48	0.11	0.74	0.65
Concessions (fertility)	0.44	0.06	0.71	0.61
Compromise (fertility)	0.20	-0.21	0.55	0.33
Agreement (fertility)	0.60	0.27	0.81	0.75
Disagreement (fertility)	0.15	-0.26	0.51	0.27
Compromise/agreement	0.51	0.14	0.75	0.67
Persuasion/disagreement	0.60	0.27	0.80	0.75
Persuasion (financial)	0.30	-0.11	0.62	0.46
Concessions (financial)	cannot be calculated due to insufficient variance			
Compromise (financial)	-0.09	-0.47	0.32	-0.20
Agreement (financial)	0.37	-0.03	0.67	0.54
Disagreement (financial)	0.50	0.10	0.73	0.65
Compromise/agreement	0.50	0.08	0.73	0.64
Persuasion/disagreement	0.43	0.04	0.70	0.60

Table 3

Simultaneous regression to determine the predictive quality of the similarity of couples' education levels, career-orientation scores, and gender role attitudes regarding the frequency of mentions of statements coded as compromise and agreement in couples' financial planning discussions

	B	SE B	β	<i>p</i>
(Constant)	3.346	.465		<.001
Education disparity	-.007	.213	-.005	.974
Career-orientation disparity	.227	.754	.043	.765
Gender role attitude disparity	-.793	.475	-.222	.101

Note. $R^2 = 0.049$.

Table 4

Simultaneous regression to determine the predictive quality of the similarity of couples' education levels, career-orientation scores, and gender role attitudes regarding the frequency of mentions of statements coded as persuasion and disagreement in couples' financial planning discussions

	B	SE B	β	<i>p</i>
(Constant)	2.168	.643		.001
Education disparity	.018	.295	.009	.951
Career-orientation disparity	1.889	1.042	.254	.075
Gender role attitude disparity	-.691	.657	-.137	.297

Note. $R^2 = 0.028$.

Table 5

Sex differences and similarities

	Males	Females	
Dimension	Mean (SD)	Mean (SD)	t-test
Family-focused values	1.29 (1.32)	1.75 (2.28)	$t(120) = -1.341, p = .182, \delta = -.24$
Career-focused values	1.03 (1.23)	.92 (1.27)	$t(120) = .499, p = .619, \delta = .09$
Relationship-focused values	.27 (.61)	.44 (1.14)	$t(120) = -1.031, p = .305, \delta = -.19$
Persuasion (fertility)	1.71 (2.05)	1.81 (2.52)	$t(120) = -.234, p = .816, \delta = -.04$
Concessions (fertility)	.28 (.49)	.33 (.51)	$t(120) = -.498, p = .619, \delta = -.09$
Compromise (fertility)	.44 (.57)	.32 (.50)	$t(120) = 1.274, p = .205, \delta = .23$
Agreement (fertility)	2.05 (1.65)	2.38 (1.60)	$t(120) = -1.120, p = .265, \delta = -.20$
Disagreement (fertility)	.77 (.87)	1.03 (1.33)	$t(120) = -1.228, p = .222, \delta = -.22$
Compromise/agreement	2.49 (1.75)	2.70 (1.76)	$t(120) = -.652, p = .516, \delta = -.12$
Persuasion/disagreement	2.49 (2.37)	2.84 (2.96)	$t(120) = -.718, p = .474, \delta = -.13$
Persuasion (financial)	1.10 (1.20)	1.05 (1.25)	$t(120) = .244, p = .808, \delta = .04$
Concessions (financial)	.03 (.18)	.10 (.34)	$t(120) = -1.212, p = .228, \delta = -.22$
Compromise (financial)	.10 (.30)	.16 (.45)	$t(120) = -.817, p = .415, \delta = -.15$
Agreement (financial)	1.29 (.91)	1.35 (.94)	$t(120) = -.365, p = .716, \delta = -.07$
Disagreement (financial)	.19 (.43)	.27 (.51)	$t(120) = -.964, p = .337, \delta = -.18$
Compromise/agreement	1.39 (.98)	1.51 (.99)	$t(120) = -.658, p = .512, \delta = -.12$
Persuasion/disagreement	1.28 (1.28)	1.31 (1.35)	$t(120) = -1.559, p = .122, \delta = -.28$
Strength of fertility desires	2.56 (1.16)	3.02 (1.39)	$t(120) = -1.964, p = .052, \delta = -.36$
Frequency of fertility desires	2.44 (1.08)	2.84 (1.18)	$t(120) = -1.946, p = .054, \delta = -.36$
Frequency of sexual desires	3.78 (.85)	3.46 (.84)	$t(120) = 2.085, p = .039^*, \delta = .38$
Gender role attitudes	2.65 (.70)	2.39 (.78)	$t(120) = 1.920, p = .057, \delta = .35$
Career-orientation scores	2.87 (.47)	2.83 (.40)	$t(120) = .521, p = .603, \delta = .10$

Table 6

Simultaneous regression to determine the predictive quality of the similarity of couples' education levels, career-orientation scores, and gender role attitudes regarding the frequency of mentions of statements coded as concessions in couples' reproductive planning discussions

	B	SE B	β	<i>p</i>
(Constant)	.803	.195		<.001
Education disparity	.078	.090	.123	.388
Career-orientation disparity	-.067	.317	-.030	.833
Gender role attitude disparity	-.300	.199	-.198	.139

Note. $R^2 = 0.056$.

Table 7

Simultaneous regression to determine the predictive quality of individual's education levels, career-orientation scores, and gender role attitudes regarding the frequency of mentions of statements coded as concessions in couples' reproductive planning discussions

	B	SE B	β	<i>p</i>
(Constant)	.082	.322		.799
Education disparity	-.016	.032	-.047	.610
Career-orientation disparity	.029	.111	.025	.793
Gender role attitude disparity	.069	.064	.104	.282

Note. $R^2 = 0.016$.

Table 8

Simultaneous regression to determine if the relationship between education level and the use of persuasion and disagreement in discussions regarding fertility intentions depends on biological sex

	B	SE B	β	<i>p</i>
(Constant)	2.841	.339		<.001
Step 1				
Sex	-.350	.487	-.065	.474
Education level	.454	.169	.241	.008
Step 2				
Sex X Education level	.079	.355	.033	.825

Note. $R^2 = 0.062$.