AN EVOLUTIONARY PSYCHOLOGY APPROACH

TO UNINTENDED PREGNANCY

A Dissertation

submitted to the Faculty of the

School of Professional Studies

of Gonzaga University

in partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

by

Melinda Spohn

April 2005

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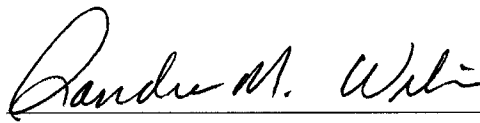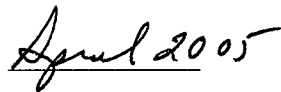
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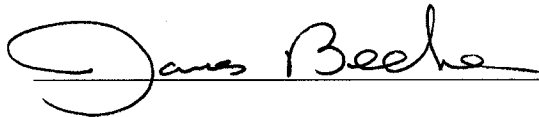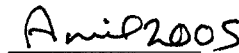

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Committee Chair
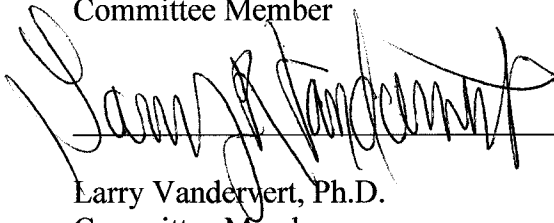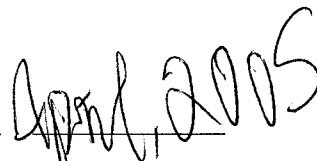
James Beebe, Ph.D.   April 2005
Committee Member

Larry Vandervert, Ph.D.   April 2005
Committee Member

DEDICATION

I dedicate this dissertation to the following people: To my mother Bettye Jane Spohn, who passed away September 16th, 2002. Although she passed on before I completed this dissertation, I know she has been with me and is beaming with joy. To my father James Vere Spohn, your love and support were vital during my academic endeavors. It's been a long and winding road and I couldn't have done it without you and Mom.

To Van Daren Conway and Mary Conway, who have been my mentors and best friends for the past 15 years. Thank you for believing in me, challenging me, enlightening me, and teaching me to be the architect of my life.

To my children, Ryel, Elan and Jamin, thank you for your patience and understanding during the 12 long years I have invested in my education and this doctorate. Finally, to "M," "G," and "WB," you know who you are…thank you…and keep working your magic.

ACKNOWLEDGMENTS

I would like to thank my dissertation committee Dr. Sandra Wilson, and Dr. James Beebe for their support in tackling a scope of work that was "outside the box," and Dr. Larry Vandervert for supporting my research in evolutionary psychology.

I would also like to thank the community college faculty and students who agreed to participate in this study. I would also like to thank Dr. Stern, and Dr. Tanas for their assistance and input.

A thank you must go to Kristi and Wendy, and other co-workers for their input. Finally, I would like to thank my sisters Lisa and Laurie for supporting my endeavors throughout the years.

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ABSTRACT

The science of Evolutionary Psychology, specifically mate selection theory, was used to frame the domestic and global issue of unintended pregnancy. Specifically, 8 preferred female mating characteristics: commitment, a partner's desire for home and family, physical attractiveness, ambition, good financial prospects, intelligence, physical fitness and health, and social status, were hypothesized to be risk factors for women to become pregnant when these characteristics are displayed by a partner or potential partner. Risk to become pregnant was defined as, a female who does not use a birth control method, uses a method inconsistently, and or does not require her partner to consistently use a birth control method.

Female respondents (N=385) were recruited from two community colleges located in Eastern Washington, and were enrolled in classes in a variety of academic disciplines. Special attention was given to survey construction. Survey questions for eight mating characteristics were presented in a Likert format and structured in such a way that respondents first had to reveal their perceptions of "other" women's preferences in a partner and willingness to risk pregnancy, before revealing their own preferences.

Data were analyzed using non-parametric methods. The results showed respondents perceived that "other" women, as well as themselves, preferred a partner or potential partner that displayed the 8 characteristics. They perceived "other" women were willing to risk pregnancy for these same 8 characteristics. They revealed they too were willing to risk pregnancy for these characteristics in lesser degree than "other" women

were. They revealed they had in the past, risked pregnancy in varying degrees, for these characteristics.

The science of evolutionary psychology, specifically mating preferences, provides fertile ground to expand the current model in interpreting "intention" concerning unintended pregnancy, as this study shows that women are willing to risk pregnancy, and have risked pregnancy when a partner or potential partner displays female mating preferences. In addition, the results of this study are poised to create a paradigm shift in how we develop social marketing campaigns when looking at unintended pregnancy and issues such as male contraception compliance, teenage pregnancy, and abstinence programs.

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CHAPTER I

INTRODUCTION

This study focused on evolved traits and behaviors that govern mating strategies, a theoretical tenet of evolutionary psychology. The science of evolutionary psychology describes the origins of human behavior and cognition in terms of Darwinian biological and adaptive principles. A major assertion of evolutionary psychology is that during the Pleistocene geologic-epoch (approximately the last one hundred and fifty million years) the brains of humans adapted to their physical and social environments in ways that resulted in identifiable traits and behaviors that became "hardwired" in the human brain. The meaning of "hardwired" is analogous to that of the human capacity for language, innate reflexes that can be observed in all human newborns such as the rooting and Moro reflex (Berger, 2001, p. 140), and innate behaviors that can be observed in all humans such as the fight or flight response. Among these Pleistocene-epoch adaptations, for example, were traits and behaviors for hunting and gathering, negotiation with friends and foes, defense against predators, childrearing, habitat selection, altruism, social dominance, reading facial and body language, and mate strategies (Barkow, Cosmides, & Tooby, 1992; Beckstrom, 1993; Buss, 2004; Cronk, Chagnon, & Irons, 2000; Gaulin & McBurney, 2001; Pawlowski & Dunbar, 1999; Pinker, 2002; Tooby & Cosmides, 1992; Trivers, 1972; Williams, 1966).

The principle tenets of evolutionary psychology maintain that because complex functional patterns are slow to evolve, not enough evolutionary time has passed to significantly change or alter these evolved traits and behaviors or mechanisms. Therefore,

these Pleistocene traits and behaviors continue to be exhibited in our modern social environment (Tooby & Cosmides, 1992, p. 5).

As a clinical therapist who has counseled pregnant women for over 9 years, I have been struck by the high rate of clients reporting an unintended pregnancy. When queried in a professional setting, women would often initially state their pregnancy was unplanned or, "an accident," due to contraception failure. However, upon further inquiry, women would often report their contraceptive use was intentionally sporadic, or they chose not to use a birth control method consistently. Pregnancies in women who professed they did not want to conceive led me to question whether their pregnancies should be considered a result of contraception failure, or whether these pregnancies were consciously or unconsciously planned. Women have also confided in me that they have taken chances to become pregnant, or risked a pregnancy, based on their partner's characteristics. For example, one woman said she risked pregnancy because she considered her boyfriend "marriage material." Others have implied they have risked pregnancy because they were pleased with their partner's earning potential or commitment to the relationship. One pregnant woman's self-report personified my interest in this topic. She reported she was intentionally inconsistent with her chosen method of birth control. When asked why she stated, "I figured if it happens it happens; besides J---- will make a good Dad. He has a good job and makes lots of money." I asked her, "Would you have been more careful if he was not such a great guy"? She responded, "Hell yes, I wouldn't want to be stuck with some loser guy to be the father of my baby and end up on welfare."

Other women are more brazen in risking pregnancy. The following highlights a recent interview and provides another example of risking pregnancy. When I met Karen, (not her real name) she was 5 months pregnant. Karen was 34 years old and had a 9 year old daughter from a previous relationship. At the beginning of the interview Karen stated her pregnancy with her boyfriend was unplanned, "an accident." However, through further inquiry, when she was more comfortable with my presence and we had developed a rapport, Karen revealed the truth. Unbeknownst to her boyfriend she had stopped using birth control because she wanted another baby. She stated, "I'm 34, I wanted to have another baby before I got too old." I asked Karen, how her boyfriend felt about the pregnancy knowing that she planned to get pregnant? Karen reported, "Oh he doesn't know, he thinks the pregnancy was an accident, besides, he'll still have to pay child support." Karen's confession that she had engineered her pregnancy is not uncharacteristic of the clientele I work with on a daily basis.

<div align="center">Background of the Problem</div>

Prior to the introduction of family planning in the 1920s, it was not uncommon for women to have large families with minimal to no child spacing, which resulted in high maternal and infant mortality rates (Chicago, 2003). After the establishment of Planned Parenthood in 1960s, along with the support of the Department of Social and Health Services, education on birth control methods and practice increased significantly.

Public Health organizations have actively encouraged family planning methods in an effort to support child spacing and avoid unintended pregnancies. However, in the US more than three million unintended pregnancies are reported annually (Spokane Regional

Health District, 2002). This ranks the US pregnancy rate among the highest in the western world, even though today's family planning methods are easily accessible, safe, and reliable. In Washington state between 1988-2000, an estimated 53% of all pregnancies were deemed unintended. "An estimated 71% of women less than 20 years of age, and 28% of women ages 30-34 reported births from unintended pregnancies" (Washington State, DOH, 2003).

Most of what is known about the intention status of pregnancy in the US is based on two surveys, the National Survey of Family Growth (NSFG), a periodic survey of all women of reproduction age (15-44), and the National Maternal and Infant Health Survey (NMIHS), which includes a broader age group (15-49). The most recent NMIHS survey conducted in 1988 revealed that 36% percent of births were reported as mistimed and 7% unwanted (Kost & Forrest, 1995, p. 11). While this survey reflected high percentages of unintended pregnancy, Trussell, Vaughan, and Stanford (1999) suggested that these rates are actually higher when considering NSFG's definition of pregnancy "intention." The difference occurs due to the classification of intention, and whether or not the woman was actively using birth control at the time of pregnancy. Trussell et al. explained,

> The system of classification does not consider whether women were still practicing contraception when they became pregnant. That a pregnancy can be classified as intended even though it occurred during contraceptive use raises questions about the meaning of pregnancy intention as measured in the NSFG. Given our results [1995 data survey] the actual number of unintended births conceived during contraceptive use would be 67%. (p. 247)

An in-depth qualitative study, conducted by the Public Health Department-Seattle and King County (PHD-S&KC) in Washington state revealed that 55% of all reported pregnancies in King County from 1994-1998 were unintended (Gerber, Pennylegion, & Spice, 2002). Reflecting upon the study, researchers stated, "One reason for persistently high rates of unintended pregnancy may be our failure to adequately understand the meaning, relevance, and experiences of 'pregnancy intention' among the women we target for family planning services (p. vii).

Major themes extracted from the PHD-S&KC study revealed conflicted motivations on conceiving and delaying pregnancy. Women expressed important prerequisites to childbearing that included financial security, a stable (preferably marital) relationship, completion of education, and the initiation of a career, yet felt there were disadvantages to consciously planning a pregnancy. Many participants felt that planning undermined nature, fate, or the influence of God. A contradiction clearly existed. Women preferred career and financial security, yet did not feel comfortable planning a pregnancy. Gerber, et al. (2002) stated,

> Instead of explicitly planning pregnancy, our data suggest that women's intent toward becoming pregnant is more often expressed as, "if it happens, it happens." Clearly, women's experiences of pregnancy are fraught with far more ambiguity than the simple intended versus unintended dichotomy allows. (p. ix)

The Assessment and Epidemiology Center at Spokane Regional Health District also conducted a study using the Pregnancy Risk Assessment Monitoring System (PRAM) developed by the Washington State Department of Health (2003), in an attempt

to determine factors that lead to unintended pregnancy. The most stated reason for an unintended pregnancy reported by SRHD client respondents was, "I did not think about it." The second most reported reason was, "It was luck or fate that I got pregnant" (SRHD, 2002). Yet, in the same study, 71% reported they had not wanted to become pregnant.

There is a plethora of research focused on unintended pregnancy (e.g., Allan Guttmacher Institute [AGI]; Brown & Eisenberg, 1995; Gerber et al., 2002; Henshaw, 1998; Kost & Forrest, 1995). Nonetheless, Gerber et al. explained,

[There is a] discrepancy between current frameworks for understanding unintended pregnancy and the beliefs and experiences of women most at risk for unintended pregnancy. It is our hope that researchers will continue to seek a deeper understanding of pregnancy-related beliefs and experiences, and come together with program planners, policy makes, providers, reproductive health advocates, and community members to develop effective approaches to preventing unintended pregnancy. (p. xii)

Despite the well-established literature, there is a lack of investigation into evolved female mating strategies, and how they may influence unintended pregnancy. In order to understand these strategies, it is necessary to define evolutionary theory beginning with theorist Charles Darwin.

Theory of Evolution

At the age of sixteen, Charles Darwin and his brother were sent by their father to Edinburgh, England to study medicine. Charles discovered he had no desire to become a

physician and left medical school. Influenced by his grandfather, Erasmus Darwin, who had argued that all living things were connected by a common descent from a single ancestral organism (Palmer & Palmer, 2002), and zoologist Robert Grant, Charles found himself drawn to the study of zoology. Persuading Robert Fitz Roy, Captain of the Beagle, to include Charles on an expedition, Charles journeyed to the Galapagos islands, Tahiti, South American, Africa, Australia, and other islands before returning to England. Following his return, Darwin began to focus on the fossils and carcasses he had collected during his expedition. He searched for "signs of how traits were handed down from one generation to the next and how they changed in the process" (Zimmer, 2001, p. 33).

Intellectually inspired by Thomas Malthus's essay, *An Essay on the Principle of Population* (1798, 1985), Darwin began to construct his theory of natural selection. Darwin wanted not only to explain why change took place over time in life forms, but also to account for the particular ways in which it changed. He wanted to explain why the component parts of animals existed in a particular form, for example why birds had wings, why cheetahs had spots. He also wanted to explain "the apparent purposive quality of those forms, or why they seemed to function to help organisms accomplish specific tasks" (Buss, 1999, p. 5).

In 1839 Darwin published his research that brought him fame as a naturalist. By 1844 he had written his theory of Natural Selection that included three essential ingredients: variation, inheritance, and selection. Buss (1999) explained,

> According to the theory of natural selection, variation is essential for the process of evolution to operate—it provides the raw materials for evolution. Only some of

these variation are *inherited*—that is, passed down reliably from parents to their offspring, which then pass them on to their offspring down though the generations. Favorable variations in the organisms tend to be preserved and unfavorable ones tend to die out. When this process is repeated generation after generation, the result is the formation of a new species. (p. 7)

As Charles constructed his theory of natural selection, simultaneously another researcher, naturalist Alfred Russell Wallace, had independently developed the theory of natural selection. In 1858, Darwin and Wallace collaborated and the theory was presented to the scientific community with excerpts from both Darwin and Wallace.

British philosopher and sociologist, Herbert Spencer (1820-1903) was initially best known for developing and applying evolutionary theory to philosophy and psychology. Spencer (1897) wrote, "If the doctrine of evolution is true, the inevitable implication is that Mind can be understood only by observing how Mind is evolved" (Leahey, 1997, p. 259). The main theoretical component of the theory of natural selection is adaptation. Adaptation is the product of an organism successfully adapting to the environment. However, it takes hundreds to thousands of generations to construct any complex adaptation (Symons, 1992, p.138). Larsen and Buss (2002) explained,

An "*adaptive problem*" is anything that impedes survival or reproduction. All adaptations must contribute to fitness (survival) during the period of time in which they evolve by helping an organism survive, reproduce, or facilitate the reproductive success of a genetic relative. Adaptations emerge from and interact

with recurrent structure of the world in a manner that solves adaptive problems
and, hence, aids in reproductive success. (p. 133)

Contemporary researchers Barkow, Cosmides, and Tooby (1992) defined adaptation as "a reliably developing structure" in the organism which, because it meshes with the recurrent structure of the world, causes the solution to an adaptive problem" (p. 104). The focus on "reliably developing structure" means that adaptations tend to emerge with regularity during the course of an organism's development. It is important to remember that evolution is not genetic determinism, as the environment is always necessary for the development of adaptations, given environmental events can enhance or interfere with development (Larsen & Buss, 2002, p. 133).

Similarities between Primates and Homo sapiens

Accepting the theoretical premise of human evolution, our hominid ancestors split from chimpanzees approximately 5 million years ago, and over the next approximate 3.5 million years, through the process of Natural Selection (defined as successful adaptation to the environment), hominids evolved into numerous distinct species (Zimmer, 2001, p. 271). Some species failed to adapt to the environment and died out that removed their genetic traits from the gene pool. Successful species included Australopithecus afarensis, Homo habillis, Homo erectus, and Homo sapiens neanderthalensis, but none were as successful as Homo sapiens sapiens (modern human). Zimmer explained that Homo sapiens adapted so successfully to the physical, social, and cognitive challenges of the environment they increased in significant numbers that enabled them to expand their environmental reach.

Homo sapiens share many of the physical, behavioral, and social characteristics of primates. This is not surprising as primates, like the great apes (African), the gorilla (gorilla gorilla) and the chimpanzee (Pan paniscus and Pan troglodytes), share 95 to 99% of their genetic material with humans. For example, like primates, humans are more altrical than other mammals, that is, a greater portion of their development takes place outside of the womb. This slower development process meant that primates would exhibit greater dependency during infancy in addition to a corresponding increase in parental investment, the time and energy parents put into their offspring (Pope, 2000, p. 60).

Behaviorally and socially, primates and humans demonstrate an intense need for social groups and interaction. Harlow (1958) demonstrated the importance of social interaction in normal primate development: "What they showed was that monkeys (and by inference all primates) require both social and tactile communication as part of growing up. In other words, primates cannot develop normally without some form of social nurturing" (Pope, 2000, p. 61). Contemporary investigation and research on human attachment has revealed that infants or children who do not form a secure attachment to a caregiver will most likely demonstrate aggressive behavior, withdrawal, avoidance, the potential for cognitive delays, and even death should human interaction be withheld (Berger, 2001). Other behavioral traits shared by primates and humans include predator defense mechanisms such as large canines (in primates), height, weight, and strength attributes, as well as intense competition for mates (Buss, 1994, 1999; Pope), social hierarchies, and the formation of alliances. Zimmer (2001) stated,

Judging from the bones and sequences of genes, several teams of scientists have estimated that biologically modern humans evolved in Africa between 200,000 and 100,000 years ago. Only around 50,000 years ago did they sweep out of Africa, and in a matter of a few thousand years replaced all other species of humans, including the separate species, Neanderthal, as recently as 30,000 years ago. (p. 295)

Natural Selection

Organisms are continually confronted by environmental stress and changes. Genetic traits that most effectively meshed with the environment are passed down to future generation through reproduction. For example, anthropologists speculate that the Neanderthal's short and stocky body traits contributed to their survival in the cold environment of Eastern Europe.

The theory of natural selection was essentially correct; the missing piece was gene theory, which would not be developed for another 150 years (Palmer & Palmer, 2002, p. 24). The discovery of the gene as a unit of inheritance led to the critical discovery of differential gene reproduction, defined as the reproductive success relative to others. Genes that reproduce more, are passed down to future generations more frequently than genes of those who reproduce less. Larsen and Buss (2002) explained, "Since survival is critical for reproductive success, characteristics that lead to greater survival get passed along" (p. 132). However, genes do not seal our genetic fate; genetic traits can change (or evolve) through exposure to the environment. The genes that make it into the next generation are the genes that solve and or adapt to a specific environmental problem.

Additionally, the degree to which genes affect behavior is undetermined. While there is some evidence that genes may contribute to behavioral tendencies, at this time researchers are cautious to say how much they influence behavior. Gaulin and McBurney (2001) explained,

> It is important to realize the difference between the field of *behavior genetics*, and evolutionary psychology because people commonly confuse the two. Behavior genetics focuses on the genetic basis of differences between people, whereas evolutionary psychology focuses on the (presumably genetic) mechanisms that are common to all people. Evolutionary psychology does not deny that there are differences among people. It is more interested in the adaptations that we all have. (p. 180)

These evolved mechanisms make up innate behaviors that can be observed in all humans with varying degree across the planet and include, for example, mate selection, parental investment, and altruistic behavior.

The following section defines the tenets of evolutionary psychology as well as focuses in on the theory of mate selection, which encompasses both male and female mating preferences and strategies. This section also addresses the purpose of the study, the significance of the study, and presents the research questions. This section concludes with an introduction to the topic of social marketing and how this field may benefit from the field of evolutionary psychology.

The Science of Evolutionary Psychology

The science of evolutionary psychology is gaining a significant foothold in mainstream psychology. Currently most major introductory psychology, social psychology, and personality psychology textbooks include a full discussion on evolutionary psychology (Buss, 1995). Buss continued, "Those who fail to understand the basics of inclusive-fitness theory, sexual selection theory, and parental-investment theory are increasingly found only among the backwaters of academia" (p. 81). Recently, fields outside of the psychological sciences have shown significant interest in how evolutionary psychology can expand their disciplines. These include: women's studies (Campbell, 2002, Smut, 1995), psychiatry (Greenspan, 2001; Stevens & Price, 2000), public policy (Bloom & Dess, 2003), marketing and consumer behavior (Lynn, Kampschroeder, & Pereira, 2000; Saad & Gill, 2000), environmental aesthetics (Voland & Grammer, 2003), economics (Laurent, 2003), and politics (Charlton, 1997).

The science of evolutionary psychology draws extensively from the fields of biology, sociobiology, anthropology, psychology, and sociology, and attempts to explain not how people behave, as that is often self-evident, but why people behave the way they do from an adaptive perspective. Evolutionary psychology has adopted a conceptual integration model. Cosmides, Tooby, and Barkow (1992) explained, "Conceptual integration—also known as vertical integration—refers to the principle that the various disciplines within the behavioral and social sciences should make themselves mutually consistent, and consistent with what is known in the natural sciences as well" (p. 5). Included in the conceptual framework of evolutionary psychology are the theories of

mate selection and mating strategies, altruism, dominance, parental investment, adaptive

psychological mechanisms, and inclusive fitness.

Inclusive Fitness

Inclusive fitness theory (Hamilton, 1964), refers to traits and behaviors that

facilitate survival. For example, according to inclusive fitness theory, you are more likely

to risk injury or death jumping into a raging river to save your brother or sister than

rescuing a stranger; this is because your brother and sister share approximately fifty

percent of your genes. Helping him or her to survive and reproduce, will also lead to the

spread of one's own genes (Larsen & Buss, 2002, p. 132). Carey (2003) offered another

example of inclusive fitness when describing the self-sacrificing behavior of mothering

ring neck pheasants and prairie dogs:

> If a large animal treads too close to her nest, [the female ring neck pheasant] will
>
> make a great deal of noise and run through the field, flapping her wings. The
>
> safest course of action for her is to be silent, run a few steps to build up the
>
> momentum for flight, and then soar away. Yet, she makes herself deliberately
>
> conspicuous to a potential predator and is sometimes caught in the process. Prairie
>
> dogs show similar behavior. The prairie dogs who initially spot a threat stand
>
> upright on their hind legs and issue a series of loud barks that act as alarm codes
>
> for their colony mates to run posthaste to their burrows. This behavior assists the
>
> colony as a whole, but at the expense of making the signaler conspicuous to the
>
> predator. (p. 263)

Coupled with the theory of inclusive fitness is the theory of altruism. Altruism can be defined as an individual accepting a cost, or outlay of some sort, in order to provide a benefit for another individual (Gaulin & McBurney, 2001, p. 65). Using an earlier example as a simplistic model of inclusive fitness, a sister is more likely to dive into a rushing river to save her little brother than she would to save a complete stranger. However, a stranger diving into the same river to save the little brother would be considered an altruistic act.

Reciprocal Altruism

According to the theory of inclusive fitness, self-preservation and the preservation of those who are genetically related is an innate psychological mechanism of human behavior. Why has altruistic behavior been selected through the evolutionary process? Why would an organism (human) risk death or injury by helping another, what is the benefit? Trivers (1971) provided an explanation for this dilemma by proposing that altruism could have evolved via reciprocity, by way of a "you-scratch-my-back-I'll-scratch-yours" system. In other words, the altruist receives an initial cost, the recipient gets a benefit, and the altruist banks on a future benefit. (Cosmides & Tooby, 1992; Gaulin & McBurney, 2001).

Food sharing is a form of reciprocal altruism and can be observed in hunter-gathering cultures, from which all cultures derived. Consider the Ache tribe of Paraguay where meat is a highly sought-after commodity. "On any given day, the odds that a hunter will come back with meat are only 40 percent" (Cosmides & Tooby, 1992, p. 213). On any particular day, one hunter will be successful while others will be

unsuccessful. "Within the Ache, meat is shared communally. Hunters deposit their kill with a 'distributor,' who then allocates portions to different families, based largely on family size" (Buss, 1999, p. 404).

In modern culture, reciprocal altruism can be observed through donations to charity (tax break), tithing (promise of heaven), and large political donations (favors and nepotism). Whether cognitively aware or not, according to the theory of reciprocal altruism, the altruist (the giver) is on some level expecting immediate or potential reciprocity. In part, reciprocal altruism illustrates how our environment has influenced our behavior. According to evolutionary psychology, these behavior characteristics, or behavioral mechanisms, are now inherent in the species.

Evolved Psychological Mechanisms

The brain is an information processing system crafted by the evolutionary process. It is an organ of computation, which means,

> Its physical structure embodies a set of programs that process information and the physical structure is there because it embodies these programs. The brain's functional components—its programs—are there because they solved a particular problem-type in the past. In systems designed by natural selection, function determines structure. (Tooby & Cosmides, 2000, p. 666)

Similar to a computer, the brain receives input from the environment, processes the data, and then instructs the person as how to respond. For example, if a car backfired at this moment your nervous system would react, and you would exhibit a startling reflex. Your body would surge with the hormone epinephrine, which is naturally produced by

the fear response, in turn, your liver would release glucose, which would make energy available to your muscles for a fight or flight response. In addition, your heart rate would increase; you might breathe more rapidly, which would increase the oxygen supply to the muscles (Buss, 1999, p. 86). However, in a matter of moments, your brain would process the information and you would realize that what you heard was a car backfiring, and the physiological response would gradually subside.

An evolved mechanism of behavior (EMB) is described as a form of information processing. (Barkow, Cosmides, & Tooby, 1992; Buss, 1999; Cosmides & Tooby, 1997; Gaulin & McBurney, 2001; Larsen & Buss, 2002; Palmer & Palmer, 2002). Buss explained,

> An evolved psychological mechanism exists in the form that it does because it solved a specific problem of survival or reproduction recurrently over evolutionary history. This means that the form of the mechanism, its set of design features, is like a key made to fit a particular lock. Just as the shape of the key must be coordinated to fit the internal features of the lock, the shape of the design features of a psychological mechanism must be coordinated with the features required to solve an adaptive problem of survival or reproduction. Failure to mesh with the adaptive problem meant failure to pass through the selective sieve of evolution. (p. 47)

Larsen and Buss (2002) further clarified the concept of evolved psychological mechanisms: "Most psychological mechanisms have three essential ingredients: inputs, decision rules, and outputs. This does not mean that all of our traits or psychological

mechanisms are activated at all times" (p.7). It is important to remember that humans

have an immeasurable inventory of psychological mechanisms, which are activated only

under particular situations. These mechanisms exist "because [they lead], on average, to

the successful solution to a specific adaptive problem for the organisms ancestors" (Buss,

1999, p. 49). A charging water buffalo, being surrounded by enemies, the disgust for

spoiled food, or an attractive man or woman signaling they are interested, all trigger

distinct responses that have been evolving in humans since the Pleistocene epoch and

before (De Becker, 1997).

Evolutionary Psychology and Mate Selection

In our evolutionary history contraception as we know it was nonexistent;

therefore, conception and pregnancy in a fertile woman was incessant. Conversely,

modern contraception practice impedes reproduction, which is contradictory to the

female's biological predisposition to reproduce. Reflecting on contraception Beckstrom

(1993) explained,

> We can speculate that, during the Pleistocene, conscious planning for
>
> childbearing, if it even existed, was less important to successful reproduction by
>
> humans than was the urge to copulate. Now, along comes modern culture with its
>
> invention of contraceptive devices, which create roadblocks in that direct route
>
> leading from copulation to childbirth. Not enough time has elapsed for natural
>
> section to generally reflect these devices in human genetics behavioral
>
> programming. So the human behavioral mechanisms are still intent on copulation
>
> while something more is now needed for successful reproduction in those

societies where contraceptives are readily available—namely, a way to deal with these cultural devices that have short-circuited the ancient mechanisms' process. (p. 98)

The instinctive aptitude for males and females to assess and choose a mate, based on a prescribed set of physical and behavioral characteristics, is referred to as mating strategies or mate selection (Buss, 1988b, 1990, 1991; Ellis, 1992; Trivers, 1972; Jones, 2000). In accordance with natural selection, over time, those visual and behavior preferences became part of the information processing of the human brain referred to previously as evolved psychological mechanisms.

The theory of mate selection (Buss, 1992, 1994) maintains there must be an advantage to a specific evolved behavior in order for it to have been crafted by natural selection. For example, if males had no discernment in mate preference, aside from species recognition, males would mate randomly with females. Under these circumstances, males who mated with females who were no longer fertile would have low reproductive success, and their genetic characteristics would die out. Conversely, males who mated with young fertile females would enjoy a higher rate of reproductive success. "Over thousands of generations, this selection pressure would, unless constrained, fashion a psychological mechanism that inclined males to mate with females of high fertility over those of low fertility" (Buss, 1992, p. 249). Males who differentiated, and preferred females with a youthful-healthy appearance, sprightly gait, smooth skin, good muscle tone, all indicators of fertility (Buss et al., 1989, p. 2; Shackelford & Larsen, 1999), and had reached puberty [observable through waist-hip

ratio], (Streeter & McBurney, 2002; Singh, 1993), were more likely to produce offspring and invest their energy toward survival.

Males and females possess long-term and short-term mating strategies. Long-term strategies refer to characteristics that promote long-term mate retention. Short-term strategies refer to casual or short-lived sexual contact. For the male, a short-term strategy increases his reproductive successes (production of more offspring) with little or no investment compared to the female who has a nine-month investment. When considering a mate, males tend to look for females with high reproductive value: youth, health, physical beauty, and cues that suggest fidelity. Women prefer males who are willing to commit to long-term relationships in order to provide resources and protection. Men who exhibit cues of long-term investments (history of commitment, interest in having children, fidelity), attract more women, and therefore have a wider range of women from which to select (Buss, 1992, 1994; Palmer & Palmer, 2002; Shackelford & Larsen, 1999; Symons, 1995; Trivers, 1992; Wilson & Daly, 1992).

While it is not considered socially proper in Western and other global cultures for males and females to engage in short-term sexual encounters, these behaviors exist and have existed for eons of time. According to the principles of evolution, patterns of behavior advanced through the sieve of natural selection if they lead to reproductive success (Buss, 2004; Cronk et al., 2000; Wilson, 2000).

In 1989 Buss et al., conducted a study to explore mating preferences around the globe. The major goal of the study was to "provide basic, and previously absent, knowledge about mate preferences in samples from around the world that differ from

each other geographically, culturally, racially, religiously, ethnically, and politically" (p.

7). The study was conducted, with the use of collaborators, in thirty-seven cultures on 6

continents and 5 islands. The sample totaled 10,047 individual from a variety of

socioeconomic and cultural backgrounds. Subjects were asked to rate 18 characteristics

drawn from previous research (Hill, 1945; Hudson & Henze, 1969) on importance and

desirability in a mate. Buss (1990) explained,

> Substantial effects were found for culture and sex. Cultural effects were generally
>
> larger than sex effects, and occur for what may be called traditional values such as
>
> chastity, good cook and house keeper, and desire for home and children, as well
>
> as for an important set of personality variables. Substantially effects for sex occur
>
> for earning capacity, physical appearance and house keeping skills. With the
>
> exception of good cook and housekeeper, the interaction terms generally
>
> accounted for little variances, suggesting that sex differences are relatively
>
> uniform across cultures. (p. 18)

Seven characteristics used in this study were drawn from characteristics used in

Buss's (1989) study, however for this study, an additional characteristic, (commitment),

was added creating a total of 8 characteristics.

Purpose of Study

The purpose of this study was to explore female mating preferences

(characteristics) as risk factors for becoming pregnant when characteristics are displayed

by a partner or potential partner. The characteristics explored in this study include: (a)

Commitment, (b) a partners' desire for Home and Family, (c) Attractiveness, (d)

Ambition, (e) Good Financial Prospects, (h) Intelligence, (i) Physical Health and Fitness, and (j) moderate to high Social Status (Buss, 1989). The characteristic added to this study was commitment. In addition, wording of some the characteristics were modified from Buss's (1989) study: "desire for home and children" was changed to, a partner's desire for home and family, "good looks" was changed to physical attractiveness, "good health" was changed to physical fitness, and health, and "favorable social status" was modified to moderate to high social status. All characteristics relate to genetics quality, survival of self and off-spring, and support long and short-term mating bonds. Characteristics that display genetic quality, and are more likely to lead to healthy offspring include: physical attractiveness, intelligence, physical fitness and health. These characteristics tend to be preferred by females as they are cues that imply physical health, vitality, virility, and attractive off-spring (Gangestad & Thornhill, 1997, 2003). Characteristics that tend to assure survival include: commitment, a partner's (male) desire for home and family, ambition, good financial prospects, moderate to high social status. In a primordial, and to an extent a contemporary environment, these characteristics tend to support survival of oneself and one's children. In a primitive environment, if a male dies, is killed, or abandons his family, his mate and their offspring are left in a precarious situation; a situation that could lead to death and or the killing of her offspring without the help of family members or alliances (Hrdy, 2003). Finally, characteristics that tend to support mating bonds include: commitment, a partner's desire for home and family, and good financial prospects. While other characteristics support mating bonds, the female prefers

commitment in a mate as commitment tends to assure resources, protection, and help in raising offspring which leads to their survival (Buss, 1988b).

In this study, risk to become pregnant was defined as, a female who does not use a birth control method, uses a method inconsistently, and or does not require her partner to consistently use a birth control method. This study expands on Buss' study by exploring mate preferences as risk factors for unintended pregnancy. Survey questions asked respondents to consider "other" women's preference in a partner as well as their own. Respondents were also asked to consider "other" women's willingness to risk pregnancy, as well as their own. In addition, respondents were asked to disclose having risked pregnancy for 8 characteristics. The research questions were as follows:

Questions #1- What characteristics do respondents perceive, females in general, tend to desire in their partners? Are there significant relationships among responses for the 8 characteristics?

Question #2- What characteristics do respondents prefer in their own partners? Are there significant relationships among responses obtained for the 8 characteristics? Are there significant differences in ratings for other women's preferences in characteristics as compared to respondents' own preferences?

Question #3- To what extent do respondents perceive females, in general, tend to risk pregnancy given the 8 characteristics? Are there significant relationships among responses obtained for the 8 characteristics?

Question #4- To what extent are respondents willing to risk pregnancy given the characteristics? Are there significant relationships among responses obtained for the 8

characteristics? Are there significant differences between ratings for other women and ratings for themselves?

Question # 5- To what extent have respondent's risked pregnancy given 8 characteristics? Are there significant relationships among responses obtained for the 8 characteristics? Are there significant differences between respondent's willingness to risk pregnancy for characteristics, and having risked pregnancy for the characteristics?

Question #6- For each characteristic, is there a significant relationship between one's preferences in a partner, one's willingness to risk pregnancy, and whether they had risked pregnancy?

Question #7- Are there significant differences in respondents having risked pregnancy given age and childbearing status?

Question #8- Are there significant differences in respondents having risked pregnancy given relationship status?

A convenience sample (N=385) was obtained for this study. Female respondents, eighteen years old and over were recruited from 2 community colleges located in Washington state. Respondents ranged in age from 18 and above. Respondents who reported being over the age of 44, the top age included in the National Survey of Family Growth (NSFG), a periodic survey of all women of reproduction age, as well as respondents who considered themselves past childbearing years, were asked to respond to specific survey questions from the perspective of being within childbearing age (e.g., "in your twenties). Self-reported virgins were barred from answering questions that could

only be answered by respondents who had been sexually active. Respondent under the age of 18 were excluded from participating in the study.

My experience conducting clinical interview, and the preliminary surveys, suggested that woman have difficulty revealing a preference for specific partner characteristics. This most likely occurred, as women do not want to be perceived by others as possessing a "gold digger" attitude. Therefore, the survey was constructed in such a way that respondents would feel more at ease revealing their opinions. I structured the survey in a graduated format where respondents were first asked to express their opinion about "other women" before revealing their own opinions. The paper and pencil survey contained 5 main components; (a) the respondents perception of other woman's tendency to date men who display preferred characteristics; (b) the respondents personal preferences for preferred characteristics; (c) the respondents perception of other womens' risk of pregnancy for preferred characteristics; (d) the respondents personal risk to become pregnant for preferred characteristics, and (e) the respondents history of risk for preferred characteristics.

Significance of the Study

Despite well-established research in mate selection theory (Buss, 1989, 1991, 1992, 2004; Buss & Schmitt, 1993; Ellis, 1992; Symons, 1989, 1995; Trivers, 1992; Wilson & Daly, 1992) and unintended pregnancy (Gerber et al., 2002; Henshaw, 1998; Zabin, 1999), there is a lack of investigation into how female-mating preferences might influence unintended pregnancy. A review of the literature has failed to uncover any research that unites these domains. Traditionally, research on unintended pregnancy has

focused on socioeconomic issues, lack of education, and availability of family planning

methods (Paine-Andrews, Harris, Fisher, Lewis, Williams, Fawcett, Vincent, 1999).

While progress has been made in some areas, unintended pregnancy continues to be a

national priority. It is time to broaden the scope of causation and consider evolved human

behavior as a vital element within the realm of unintended pregnancy. The science of

evolutionary psychology may provide insight to the contradictions and ambiguities of

unintended pregnancy identified in previous research (Gerber et al., 2002; Henshaw,

1998). However, in order to understand the determinants of unintended pregnancy, it is

necessary to expand the current paradigm. This expansion includes exploring a

relationship between mate preferences, mating strategies and unintended pregnancy.

The research results provide a more comprehensive understanding of mate

selection, and subsequently encourage discussion among social scientists, family

planners, policy makers, and social marketers to develop public education campaigns that

incorporate both male and female mating strategies. Campaigns that address male and

female mating behavior may prove more effective at reducing unintended pregnancies

and the social and cultural challenges associated with them such as child abuse and

neglect, poverty, and abortion.

The repercussions of unintended pregnancy filter down into society and

potentially emerge as child abuse and neglect, infanticide, repeated abortion, and poverty.

Viewing this issue from an economic perspective, unintended pregnancies burden social

programs and state resources. Social policymakers attempt to address unintended

pregnancy through public education in an effort to create sustainable change in targeted population

We are inundated by audio and visual messages eager to sell us a vast array of consumer products. Other messages are placed into the public's consciousness such as don't smoke, wear your seat belt, and wear condoms. Surbey (2004) explained,

> Human beings are pretty good at avoiding concrete risks, but when risks are abstract or involve a calculus of odds and incomplete facts, self-deception may result in individuals taking unnecessary risks or engaging in acts harmful to themselves as well as others. The maintenance of unhealthy practices, such as smoking or eating excess fat, engages a number of mechanisms including denial and the biased processing of information about the health risks involved. (p. 137)

In an attempt to promote positive change in human behavior, public health departments, the Department of Health (DOH), and non-profit agencies rely on Social Marketing or "cause" marketing. Social marketing draws from many other bodies of knowledge such as psychology, sociology, anthropology, and communications theory to understand how to influence people's behavior (Kotler & Zaltman, 1971; Saad & Gill, 2000). For social marketers, the bottom line is to meet society's desire to improve its citizen's quality of life. "This is a much more ambitious—and more blurred—bottom line" when compared to traditional consumer marketing (MacFadyen, Stead, & Hastings, 1999).

Social Marketing offers a system for promoting positive behavior changes. Hawkins, Best, and Coney (2003) described social marketing as "the application of

marketing strategies and tactics to alter or create behaviors that have a positive effect on a targeted individuals or society as a whole" (p. 10). The goal of social marketing is to persuade carefully selected audiences to alter old ideas and behaviors, understand and accept new ideas, and value their new awareness enough to change attitudes and take positive action. Having a more in-depth understanding of evolved human behavior relating to unintended pregnancy has the potential to change how social marketing addresses unintended pregnancy in the larger population.

In addition to understanding the determinants of unintended pregnancy, there is a national agenda to reduce unintended pregnancy rates in the US (Allan Guttmacher Institute [AGI]). Therefore, social marketing campaigns are developed by non-profits agencies, local public health departments, and the Department of Health, in an attempt to reduce unintended pregnancy rates. These theory-based campaigns typically include (a) availability of family planning methods, (b) a model of behavioral prediction, which focuses on changing underlying beliefs as a way to change intention, (c) media priming theory, that "focuses on the association between beliefs and intention, and predicts that a strengthened association between beliefs and intention will ultimately results in a change in intention (Fishbein & Yzer, 2003, p. 164), and (d) the social construction model (Bandura, 2004, p. 144). These approaches have had limited success based on the consistent high rates of unintended pregnancy in the US. (Gerber et al., 2002, p. vii). Lynn et al. (1999) proposed, "Much of the work in evolutionary psychology is relevant to consumer behavior, but consumer researchers have been slow to embrace this theoretical perspective" (p. 226). Marketing campaigns that target unintended pregnancies must

acknowledge and consider the female's evolved mating strategies, anything less is a band-aid approach to a looming social problem. This study provides insight into how the field social marketing can use the science of evolutionary psychology to enhance its current model when addressing unintended pregnancy, by providing a deeper understanding of evolved human behavior and mate selection behavior.

Overview of the Dissertation

Chapter II presents research on the science of evolutionary psychology along with traditional psychological theories to interpret human behavior. This is followed by a discussion on mate selection theory, mating preferences and strategies. This chapter also introduces the topic of unintended pregnancy, and the concept of intention and deception as related to unintended pregnancy.

Chapter III addresses the research methods used in this study. The sample population is identified and the research questions are presented. This chapter also describes the survey instrument and how it was developed; female-mating preferences (characteristics) used in the survey, and describes how the data were collected. The chapter concludes with limitations of the study and ethical considerations.

Chapter IV presents the results of each research question along with a presentation of the data. Chapter V presents conclusions and a discussion that addresses: "other" women's preferences in a partner, respondent's preferences in a partner, "other" women's willingness to risk pregnancy for 8 characteristics, respondents' willingness for 8 characteristics, and their reports of having risked pregnancy for the same. This chapter concludes with a discussion on reexamining intention, how the research results effect

males, social marketing in relation to evolutionary psychology, and recommendations for further study.

CHAPTER II

REVIEW OF THE LITERATURE

To provide a theoretical framework for this study on female mating preferences in relation to unintended pregnancy, this chapter presents an in-depth review of the literature on evolutionary psychology, mate selection preferences and strategies, and unintended pregnancy. First the theoretical underpinning of evolutionary psychology are presented, followed by a discussion of evolved mechanisms of human behavior that describe human behavior from the perspective of how the human brain is "hardwired" through the evolutionary process. Evolutionary psychology is a relatively new science with its roots is sociobiology. Consequently, there are misunderstandings about evolutionary psychology that are discussed. While this study focuses on evolutionary psychology and mating strategies as a mechanism for risking pregnancy, there are other psychological approaches to understanding human behavior that are explored. Mate selection theory is introduced, along with an in-depth discussion of male and female mating preferences and strategies. The social issue of unintended pregnancy is discussed along with an overview of previous research that has addressed the ambiguous nature of unintended pregnancy, as well as alternative approaches in understanding unintended pregnancy. This exchange is followed by an introduction of deception as related to unintended pregnancy.

Evolutionary Psychology

Grounded in the theory of natural selection, E. O. Wilson first published in 1974

Sociobiology: The New Synthesis (2000) where he combined ecology and the biological

sciences along with the theories of inclusive fitness (Hamilton, 1964), parental

investment theory, parent-offspring, and theories of altruism (Trivers, 1971) to create a

new understanding of human biology and human behavior. Built upon the theory of

natural selection and the theories that encompassed sociobiology, the science of

evolutionary psychology emerged in the late 1980s and early 1990s to expand upon the

origins of human behavior and cognition from a biological and adaptive perspective. The

resulting body of work included extensive research on mate selection, mate preference,

and strategies, aggression, social dominance, parental investment, and adaptive

psychological mechanisms (Barkow, 1989; Buss, 1989, 1990, 2004; Campbell, 2002,

Daly & Wilson, 1985; Gangestad & Thornhill, 2003; Pinker, 2002; Symons, 1989, 1992;

Tooby & Cosmides, 1992; Trivers, 1971, 1972; Wilson, 2000).

Theoretical Underpinnings

Cosmides and Tooby (2000) emphasized that the science of evolutionary

psychology is "an approach to the psychological sciences in which principles and results

drawn from evolutionary biology, cognitive science, anthropology, and neuroscience are

integrated with the rest of psychology in order to map human nature" (p. 1). The authors

continued,

> The brain is an organ of computation that was built by the evolutionary process.
>
> to say that the brain was built by the evolutionary process means that it's

functional components—its programs—are there because they solved a particular problem-type in the past. In systems designed by natural selection, function determines structure. In addition, the science focuses on how the brain processes information and how the information processing generates behavior, how these behaviors have changed in harmony with the environment over millions of years. (p. 666)

In an effort to explain how information processing generates behavior, Cosmides and Tooby (1997) provide five foundational principles. The first principle states that the brain is a physical system. It functions as a computer. Its circuits are designed to generate behavior that is appropriate to your environmental circumstances (p.5). Neurotransmitters in the brain respond to physical, emotional, as well as environmental input. If you stub your toe, argue with a friend, or a stranger leaps out in front of you on a dark street, your brain instantaneously tells your body what to do, "circuits of the brain are designed to generate motion—behavior—in response to information from the environment. The function of your brain—this wet computer—is to generate behavior that is appropriate to your environmental circumstances" (p. 5).

The second principle states that our neural circuits were designed by natural selection to solve problems that our ancestors faced during our species' evolutionary history. Cosmides and Tooby offered an amusing description of this principle:

[Upon] detecting the presence of feces in the environment, appropriate behavior for a female dung fly is to move toward the feces, land on [it], and lay her eggs. [However, for humans] dung is a source of contagious diseases. Appropriate

behavior for humans is to move away from the source of the smell and potential disease. If however, some humans happen to be born with neural circuitry that made him want to ingest dung, they would most likely contract intestinal parasites or disease. If he got sick, he would be too tired to find much food, too exhausted to go looking for a mate, and he might even die a premature death. In contrast, a person with different neural circuits—ones that made him avoid dung—would get sick less often. He will therefore have more time to find food and mates and will live a longer life. The first person will eat dung and die; the second will avoid it and live. As a result, the dung-*eater* will have fewer children than the dung-*avoider*. Since the neural circuitry of children tends to resemble that of their parents, there will be fewer dung-eaters in the next generation, and more dung-avoiders. As this process continues, generation after generation, the dung-eaters will eventually disappear from the population. Why? They ate dung and died out. The only people left in the population will be those like you and me—ones who are descended from the dung-avoiders. (p. 4)

The third principal states,

Consciousness is just the tip of the iceberg; most of what goes on in your mind is hidden from you. As a result, your conscious experience can mislead you into thinking that our circuitry is simpler than it really is. Most problems that you experience as easy to solve are very difficult to solve—they require very complicated neural circuitry. (p. 7)

Offered earlier as an example, if a stranger lunged at you while walking home alone, you would not consciously think, "I am now going to gasp, stop, turn, scream, and run." Your reaction to such an event would be automatic, as your brain is biologically hardwired for survival. Your survival mechanisms ("fight or flight") were encoded over millions of years of natural selection. However, behavior mechanisms (instincts) are not rigid. "The more complex the mechanism, the greater the number of response options there will be" (Buss, 1999, p. 53). For example, negotiation could be an appropriate response, in lieu of or in addition to the fight or flight response, and in some situations, negotiation may be the only avenue available to insure survival.

The fourth principal is that different neural circuits are specialized for solving different adaptive problems (Cosmides & Tooby, p. 8). Over millions of years, the physical environment has offered the human genus countless opportunities to adapt. Referring back to the "eat dung and die" principle, neural circuitry that promoted avoidance of spoiled food, heights, and snakes solved an adaptive problem. The modern world, exploding with creature comforts and conveniences, is a minuscule slice of time compared to previous millions of years of environmental and mammalian expansion. Cosmides and Tooby continued,

> Our ancestors spent the last two million years as Pleistocene hunter-gatherers, and of course, several hundred million years before that as one kind of forager or another. These relative spans are important because they establish which set of environments and conditions defined the adaptive problems the mind was shaped to cop with: Pleistocene conditions, rather than modern condition. This conclusion

stems from the fact that the evolution of complex design is a slow process when contrasted with historical time. These Stone Age priorities produced a brain far better at solving some problems than others solve. For example, it is easier for us to deal with small, hunter-gatherer-band sized groups of people than with crowds of thousands; it is easier for us to learn to fear snakes than electric sockets, even though electric sockets pose a larger threat than snakes do in most American communities. In many cases, our brains are *better* at solving the kinds of problems our ancestors faced on the African savannahs than they are at solving the more familiar tasks we face in a college classroom or a modern city. (p. 5)

Evolved Psychological Mechanisms

The study of evolved adaptive behavior assumes that natural selection favors information processing and behaviors that, in particular environments, contribute to preservation and, as a result, the spread of one's genes. Evolved mechanisms of behavior (EMB), are described as a form of information processing inside an organism (Barkow et al., 1992; Buss, 1999; Gaulin & McBurney, 2001; Palmer & Palmer, 2002).

A prime example of an evolved psychological mechanism is the human behavior of fear, which often presents itself in dangerous situations. Fear protects us from danger. When presented with an alarming situation, the evolutionary process has provided us with a set of behaviors to cope with the situation, which can be seen in all humans in all cultures: freezing or immobility, escape or avoidance, aggressive defense, submission or appeasement. Without these behaviors humans would not survive the environment, and our genetic material would not pass to the next generation (Buss, 1999, p. 85).

However, psychological mechanisms are not activated at all times. "Consider the trait of courageousness. This trait is activated only under particular conditions, such as when people face serious dangers and threats to their lives" (Larsen & Buss, 2002, p. 7). Not every person exhibits the same amount of courage, and it is often the situation that reveals who is courageous. The environment, in itself, does not define behavior. The brain has encoded numerous behavioral responses triggered by the environment. Everyone has the hardwiring to act courageous; however, that behavior will be exhibited only when triggered by specific environmental triggers, and those triggers will be different for different personalities.

Misunderstandings about Evolutionary Psychology

Edward O. Wilson published, *Sociobiology: The New Synthesis* (1974; 2000). The book, in some ways, mirrored the "scientific and public uproar that rivaled the outrage caused by Charles Darwin in 1859. Reflecting upon the uproar, Wilson (2000) commented,

> [Critics] were scandalized by what they saw as two grievous flaws. The first is inappropriate reductionism, in this case the proposal that humans' social behavior is ultimately reducible to biology. The second perceived flaw is genetic determinism, the belief that human nature is rooted in our genes. It made little difference to those who chose to read the book this way that reductionism is the primary cutting tool of science, or that *Sociobiology* [or as it is currently referred to as Evolutionary Psychology] stresses not only reductionism but also synthesis and holism. [Referring to critics] represented by Stephen Jay Gould and Richard

C. Lewontin. They disliked the idea, to put it mildly, that human nature could have any genetic basis at all. They championed the opposing view that the developing human brain is a tabula rasa. Overall, there is a tendency as the century closes to accept that Homo sapiens is an ascendant primate, and that biology matters. (p. vi)

Geneticist Richard Lewontin, fearful of genetic determinism, which infers that behavior is controlled exclusively by genes, along with colleague and evolutionary biologist Stephen Gould, argued against the Darwinian view of gradual and slow adaptation. Gould viewed adaptation as a progression of fits and starts, a theory, known as punctuated equilibrium. Gould stated,

I do not deny that natural selection has helped us to explain phenomena at scales very distant from individual organisms, from the behavior of an ant colony to the survival of a redwood forest. But selection cannot suffice as a full explanation for the many aspects of evolution, for other types and styles of causes become relevant, or even prevalent, in domains both far above and far below the traditional Darwinian locus of the organism. (cited in Rose & Rose, 2000, p. 105)

While there is some evidence that genes may contribute to behavioral tendencies, at this time researchers are cautious to say how much they influence behavior, if at all. Gaulin and McBurney (2001) explained,

There is a significant difference between the field of behavior genetics, and evolutionary psychology. Behavior genetics focuses on the genetic basis of differences between people. Whereas evolutionary psychology focuses on the

(presumably genetic) mechanisms that are common to all people. Evolutionary psychology does not deny that there are differences among people. It is more interested in the adaptations that we all have. (p. 180)

Interestingly, only about thirty pages of *Sociobiology: The New Synthesis* (1974; 2000) addressed human behavior. The majority of the book focused on inclusive fitness theory (Hamilton, 1964), parental investment theory, parent-offspring, conflict theory, and theories of altruism (Trivers, 1971, 1972) that had already been developed by others. Buss' (2004) view was that Sociobiology offered "a synthesis of cellular biology, integrative neurophysiology, ethnology, comparative psychology, population biology, and behavior ecology; a synthesis under one umbrella a tremendous diversity of scientific endeavors that gave the emerging field a visible name" (p. 18).

To what extent genes affect human behavior is undetermined. As this century progresses, and with the strides science is making in genetic research, it is possible that we will eventually have a definitive answer. Genetic determinism argues that genes control human behavior, with little to no role assigned to the environment. Evolutionary theory does not imply genetic determinism. According to evolutionary theory, the environment must interact with an organism for an adaptation to manifest, in other words, the environment triggers the development and activation of previously evolved adaptations (Buss, 2004, p. 19; Cronk et al., 2000; Symons, 1992).

Alternative Perspectives in Understanding Human Behavior

To date there has been no systematic effort to explore how the tenets of evolutionary psychology, specifically mating strategies, relate to unintended pregnancy.

However, there are other approaches, distinct from the evolutionary models that provide a framework to explain human behavior and the drives that could lead to an unintended pregnancy.

Instincts and the Unconscious

Since the time of the Greeks and Plato, philosophers have tried to understand what drives human beings. Of the natural and physical sciences, the science of psychology was one of the last sciences to wean from philosophy. This departure occurred in the nineteenth century. During this era, British and American philosophers and psychologists began to ask questions about human consciousness, and how humans differed from animals.

Western psychological theory was founded on the biological approach. Sigmund Freud (1856-1939), and American psychologist William James (1842-1910), were the first contemporary psychologists to put forth theories that embraced the concept of human processing based on our biological nature. For James, human nature was comprised of numerous instincts. James contended that instincts were observable at birth and included, in part, staring, clasping objects, crying, and gagging. For example the Moro reflex observed in newborns is the ability to grasp when startled. This reflex is considered a primitive response to the innate fear of falling. The rooting reflex, the turning of the head when the cheek is stroked, is believed to be a primal response to seek out nourishment from the breast (Berger, 2001, p. 139). According to James, innate instincts do not end after infancy. Buss (1999) stated,

As a child grows and develops the instincts of imitation, vocalization, emulation, pugnacity, fear of definite objects, shyness, sociability, play curiosity, and acquisitiveness blossom. Still latter, adults display the instincts for hunting, modesty, love, and parenting. The fear instinct includes specific fears of strangers, animals, noises, spiders, snakes, dark places, such as holes and caverns, and high places such as cliffs. The key point about all of these instincts is that they evolved though natural selection and were adaptations to solve specific adaptive problems. (p. 24)

Freud (1943) alleged that human nature was bursting with sexual urges and aggressive impulses. According to Freud, the human mind consisted of three parts, (a) the conscious mind which contains current thoughts, feelings and images, (b) the preconscious mind where early memories, thoughts, feelings, and dreams are stored, and (c) the unconscious mind that contains unacceptable information that it is hidden from the conscious mind. Larsen and Buss (2002) explained,

> [Unacceptable] memories, feelings, thoughts, or urges are so troubling or even distasteful that being aware of them would make a person anxious. Many of the cases reported in the psychoanalytic literature involve distressing unconscious themes—such as incest, hatred toward siblings, parents, or spouses, and memories of childhood traumas. (p. 170)

In a clinical setting, treatment was often focused on insight, or creating a deeper understanding of motives, beliefs, and drives. Freud (1943) contended that sex and aggression were the two most distinct human drives. These drives, according the Freud,

were often buried deep in the unconscious, yet directed the majority of our daily behavior. In order to change unwanted behavior, a person would have to not only identify the behavior, but also learn from where the behavior derived (Myers, 2001; Leahey, 1997). For example, if a man had gone through his life unable to hold a job, Freudian analysis may reveal a conflict with his father who was never home due to his career. Critics of psychoanalysis argue that Freud's patients were few in number, "primarily wealthy, highly educated, and highly verbal women who had lots of free time to spend in frequent sessions with Freud, and lots of disposable income to pay his bills. (Larsen & Buss, 2002, p. 193). In addition, it was thought that Freud's emphasis on sexual drives was perhaps inappropriate, and may have reflected more of a preoccupation in the era in which he lived.

According to Morris and Maisto (2005), pioneering psychoanalysts (Neo-Freudians) such as Alfred Adler and Karen Horney veered away from Freud in two important ways. Adler placed more emphasis on the role of the conscious mind in interpreting experience and coping with the environment, and Horney doubted that sex and aggression were all-consuming motivations. Instead, they placed more emphasis on loftier motives and on social interaction (p. 364).

Behavioral Domain

Driven by the early works of Ivan Pavlov, Russian experimental researcher J. B. Watson advanced his theory of behavioral conditioning. Watson (1930) coined the infamous saying:

Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select—doctor, lawyer, artist, merchant-chief, and yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors. (p. 104)

B. F. Skinner (1904-1990) also aligned with the belief that external influences, not internal thoughts and feelings shaped behaviors, and by the mid-1950s behaviorism was firmly entrenched in the field of psychology. Skinner based his approach on operant conditioning; in other words, rewarding a behavior that is likely to achieve a desired result. Operant conditioning concludes that a behavior is strengthened if it is followed by reinforcement, or diminished if followed by a punishment. "Through operant conditioning subjects associate behaviors with their consequences. Thus, they become more likely to repeat rewarded (reinforced) behaviors and less likely to repeat punished behaviors" (Myers, 2001, p. 301). To use a stereotypical example, if a child screams for candy in the grocery store, and the parent buys the candy, the child is "rewarded" for her behavior. With each episode, the child becomes "conditioned" to throw a tantrum every time she goes to the store in order to receive candy. If the parent wants to extinguish the behavior, the parent must stop reinforcing the behavior. To do this the parent stops buying candy when the child throws a tantrum and attempts to shape the behavior toward a desired goal. In this scenario, the parent may tell the child that if she does not have a tantrum she will be rewarded by a trip to the park following the grocery store. If she does have a tantrum, she and the parent will leave the store immediately.

Viewing unintended pregnancy though the lens of behaviorism, it could be suggested that humans are conditioned to risk pregnancy though environmental conditioning. External stimuli such as welfare, child support, subsidized day-care, and a long-standing connection with the biological father, may "reward" women to risk unintended pregnancy.

Humanistic Domain

In the 1960s, Abraham Maslow (1908-1970) and Carl Rogers (1902-1987) began to question the behaviorist model and founded a new branch of psychology referred to as humanistic psychology. A characteristic of the humanistic model is an emphasis on the conscious awareness of human need, choice, and personal responsibility. Larsen and Buss (2002) expressed,

> This approach grew largely as a response to the psychoanalytic and behavioral traditions, both of which hold that people have relatively little free will in determining their actions. According to the psychoanalytic perspective, people are thought to be pushed and pulled by forces that operate mostly outside of conscious control. Humanistic psychologists, however, emphasize the role of choice in human life, as well as the influence of responsibility on creating a meaningful and stratifying life. (p. 244)

Carl Rogers was uncomfortable with the theory of behaviorism, and argued that behaviorism treated human beings as objects or animals. Determined to help people achieve self-actualization, inherent in Maslow's model, Rogers focused his attention on a therapeutic model, a client-centered approach to psychotherapy in an attempt to "enter

into the worldview of the client, helping the client to work through his or her problems so as to live the life that the client most deeply desired" (as cited in Leahey, 1997, p. 423).

Maslow's approach to humanism was to start with human need. Maslow contended that needs were hierarchical, with more basic needs toward the bottom of the hierarchy and the need for self-actualization at the top (Myers, 2001). The first need, situated at the base of the hierarchy is the physiological need. Similar to the biological approach of psychoanalysis, physiological needs include necessities such as food, water, sleep, and sex. The next level of need is safety such as shelter, security, and protection from dangers. Following safety is belonging and esteem. Maslow believed that humans, being social creatures, needed a sense of belonging. Larsen and Buss (2002) explained,

> Being accepted by others and welcomed into a group represents a somewhat more
> psychological need than the physiological needs or the need for safety. Some
> observers have argued that modern society provides fewer opportunities for
> satisfying our need to belong than it did in the past, when ready-made groups
> existed and people were automatic members (e.g., multi-generations of extend
> families and small towns in which virtually everyone felt like a member of the
> community. (p. 247)

Maslow supposed that the lower needs (physiological and safety) must be addressed or satisfied before proceeding to the other needs. Although there are exceptions, on average people tend to focus on necessities (survival needs) before branching out to satisfy other needs. In addition, because human lives are complex, it is not unusual for an individual to move within the hierarchy or work on a variety of needs

simultaneously. Considering Maslow's hierarchy of need, unintended pregnancy could be explained as a psychological fulfillment of need. For example, a female may risk pregnancy in an attempt to fill an emotional void in her life, thus a child represents a symbol of love and belonging.

Trait Behavior

Psychologists differ in their approach to understanding human traits and personality (Costa & McRae, 1988; Keirsey & Bates, 1984; Jung 1923). Weiten (1998) referred to personality as "an individual's unique constellation of consistent behavior traits" (p. 473). Personality traits are considered a static characteristic of people, which suggests they are disposed toward behavior in a particular way in diverse situations. McCrae and Costa (1987) maintained that most personality traits are derived from five higher order traits that have become known as the "Big Five": extraversion, neuroticism, openness to experience, agreeableness, and conscientiousness" (p. 81). For instance, people who score high in extraversion are characterized as outgoing, sociable, and assertive. Those who score high in neuroticism tend to be anxious, self-conscious, and hostile. Individuals characterized as open to experience are more apt to be curious, flexible, and hold unconventional attitudes. People who score high in agreeableness tend to be sympathetic, cooperative, modest, and straightforward. Finally, people who score high in conscientiousness are diligent, well organized, punctual, and dependable.

Carl Jung (1920) held that people were different in fundamental ways. When considering personality differences Jung assigned four psychological functions (archetypes): (S) sensation, (T) thinking, (F) feeling, and (P) intuition or perceiving. The

Myers-Briggs, a recognized personality test, is based on Jung's four psychological types.

The test provides a person with four personality domains; two are considered key aspects

of the personality. Keirsey and Bates (1984) explained,

> SP's [sensation and perceiving] must be free, he will not be tied or bound or
>
> confined or obligated. To do as he wishes when he wishes, that's the ideal. To
>
> wait, to save, to store, to prepare, to live for tomorrow—that is not the way. For
>
> the SP, Epicurus was right, today must be enjoyed, for tomorrow never comes. (p.
>
> 31).

Keirsey and Bates (1984) continued, "the NT [intuitive and thinking] loves intelligence,

which means: doing things well under varying circumstances. The extreme NT can even

be seen as addicted to acquiring intelligence, hooked on storing up wisdom." (p. 48). In

addition to the four archetypes, Jung added two attitudes (I) introversion, and (E)

extroversion. Adding these attitude elements to the core functions allow for numerous

combinations (e.g., ISTJ, ENTP) and can provide insight into one's personality or

temperament.

Another test widely used to rate personality is the (Minnesota Multiphasic

Personality Inventory (MMPI). This standardized assessment tool, "measures mostly

aspects of personality that, when manifested to an extreme degree, are thought to be

symptoms of disorders. Examples include traits such as paranoia, depression, and

hysteria" (Weiten, 1998, p. 509). To provide a personality profile, scores are plotted on

ten clinical scales. A qualified clinician then interprets the profile. The normal range for

scores on each subscale is 50 to 65. People with disorders frequently exhibit elevated

scores on several scales rather than just one (p. 511). In addition, the scale can suggest a "tendency" toward a specific pathology. For example, a raised score in Hypomania (Bi-Polar) suggests there may be a "tendency" to demonstrate behaviors such as impulsivity, grandiose thinking, and depression.

Although not a focus of this study, personality types may be a factor in understanding unintended pregnancy. For example, women with risk-taking personalities, or women with diagnosed personality disorders, may be more at risk for unintended pregnancy.

Social-Learning

Behaviorism emphasizes what can be observed, measured, and manipulated, and theorizes that environment causes behavior. Albert Bandura (1925-present) found behaviorism too simplistic and limiting to accurately interpret human behavior, for it avoids analysis of internal mental dialog. Therefore, Bandura investigated how environment, behavior, and psychological process (visual imagery and language) interacted as an explanation of personality. Bandura suggested, "environment causes behavior true; but behavior causes environment as well." He labeled this concept, "reciprocal determinism: the world and a person's behavior cause each other" (Boeree, 1998, p. 1).

Personal choice and self-control are considered components of social learning theory. You choose your environment and it then shapes you. Social learning theory also addresses gender roles and asserts that boys and girls are significantly influenced through

the observation of models. These models include mothers, fathers, siblings, teachers, and society in general. Larsen and Buss (2002) stated,

> Boys watch their fathers, male teachers, and male peers. Girls watch their mothers, female teachers, and female peer models. Boys see their fathers work. Girls see their mothers cook. Over time, even in the absence of direct reinforcement, these models provide a guide to behaviors that are masculine or feminine. (p. 497)

Mate Selection Theory

Natural selection has constructed strong psychological mechanisms surrounding reproduction (Darwin, 1859, Wilson, 2000). Charles Darwin supplied part of our understanding of sexual differences. Wilson elaborated,

> According to Darwin sexual selection is a special process that shapes the anatomical, physiological, and behavior mechanisms that function shortly before or at the time of mating and serve in the process of obtaining mates . . . . To use Darwin's own words, the distinction is between "the power to charm the females" and "the power to conquer other males in battle." As early as 1859, when he first used the expression "sexual selection," Darwin envisaged it as different from most forms of natural selection in that the outcome is not life or death but the production or non-production of offspring. (p. 318)

Eager to expand the concept of mating strategies, Buss, Abbott, Angleitner, Asherian, and Biaggio (1989) conducted a global study to explore mating preferences. The study stressed that natural selection related to sex, "[which was] one of Darwin's two

pivotal components of sexual selection. The second was competition between member of

the same sex for access to members of the opposite sex, or intrasexual selection (Darwin,

1859). Buss et al. (1990) continued,

> There were 5 major purposes in conducting the research: (1) to identify which
>
> characteristics individual valued in a potential mate; (2) to identify similarities
>
> among countries and their values, and to identify any "species-typical mate
>
> preferences that might exist; (3) to identify cultural differences in mate
>
> preferences; (4) to identify clusters of countries along with their similarities and
>
> differences and; (5) to identify sex differences within each country on the degree
>
> of valuation of each mate characteristic. (p. 7).

The major goal of the study was to "provide basic, and previously absent, knowledge

about mate preferences in samples from around the world that differ from each other

geographically, culturally, racially, religiously, ethnically, and politically" (p. 7). The

study was conducted, with the use of collaborators, in thirty-seven cultures on 6

continents and 5 islands. The sample totaled 10,047 individuals from a variety of

socioeconomic and cultural backgrounds. The sample ranged from "costal dwellers in

Australia to urban Brazilians to shantytown South African Zulus" (Buss, 1999, p. 108).

The survey instrument was divided into 3 sections. The first obtained biographical

information, the second, "requested information on the age at which the subject preferred

to marry, age difference preferred between self and spouse, who is preferred to be older

(self or spouse), and how many children are desired" (Buss et al., 1990, p.11). The third

section asked subjects to rate each of 18 characteristics (Hill, 1945; Hudson & Henze,

1969) on importance and desirability. The authors of the study acknowledged cultural limitations but tried to limit those limitations by having instrument translated first into native languages, back in to English to resolved language discrepancies.

Highlighting the results of some of the characteristics, women, overall, valued *good financial resources* and *good earning capacity* roughly twice as much as males. "Females generally valued good earning capacity in a potential mate more than males. [Associated] characteristics, *ambition* and *industriousness*, also showed a substantial effect for sex. Next in magnitude are the effects of sex for *good looks* and *physical attractiveness*" (Buss et al., 1990, p. 17).

Regarding cultural differences, the largest effect of culture occurred for the variable *chastity*. Countries that place the greatest importance on these characteristics were: China, India, Indonesia, Iran, Taiwan, and Palestinian Arab. Conversely, samples from Sweden, Finland, Norway, Netherlands, and West German "generally judged chastity to be irrelevant or unimportant" (Buss, 1990, p. 7). The desire for home and children and good housekeeper, showed large cultural differences in desirability, samples from, "South Africa (Zulu), Estonia, and Columbia place high values on [a] good housekeeper in a potential mate" (p. 17), while samples from the US, (mainland), Canada, and "all Western European samples, with the exception of Spain," placed relatively low value on good housekeeping. In summary, Buss et al. remarked,

Substantial effects were found for culture and sex. Cultural effects were generally larger than sex effects, and occur for what may be called traditional values such as chastity, good cook and house keeper, and desire for home and children, as well

as for an important set of personality variables. Substantially effects for sex occur

for earning capacity, physical appearance and house keeping skills. With the

exception of good cook and housekeeper, the interaction terms generally

accounted for little variances, suggesting that sex differences are relatively

uniform across cultures. (p. 18)

In another study focusing on mating strategies, Buss and Schmitt (1993) made

three predictions about sexual strategy theory that states that both men and women

possess psychological adaptations for short-term mating (p. 204). The first prediction

stated that males are more oriented toward short-term mating than females. Buss and

Schmitt added,

This prediction does not imply that all men are invariably and eternally short-term

maters. Instead, this prediction implies that because men minimally invest less in

each of their offspring than women, men will desire and seek short-term mating

opportunities more often than do women. (p. 218)

This prediction was empirically measured using men and women who were currently

seeking short-term mates. The study included college-aged men (N = 339) and women (N

= 710), in addition to men (N = 83) and women (N = 109). The average age of the

participants was 40. Using a Likert-type scale the results revealed that "men sought short-

term mates significantly more than women reported seeking short-term mates" (p. 219).

The second prediction stated, "For a given period of time (e.g., a month, a year, a decade,

or a lifetime), men will desire a larger number of mates than will women" (p. 221). The

basis for this prediction was derived from the likelihood that over our evolutionary

history men would have benefited reproductively by increasing the numbers of their sexual partners. Prediction two was tested by "measuring the extent to which college-aged men and women differ in the number of sex partners they would like to have over various time periods. In every case, men preferred significantly larger numbers of sex partners than women" (p. 221). The third prediction,

> [Measured] the extent to which college-aged men and women would consent to having sex with a desirable member of the opposite sex after certain periods of time had elapsed in knowing the potential mating partner. The results indicated that men were more likely than women to consent to sex after knowing a potential partner for time periods ranging from one-hour to two-years. (p. 221)

Exploring tactics used to promote sexual encounters between males and females, Greer and Buss (1994) conducted a two-part study. In the first study (N = 58), researchers identified 122 acts and 34 tactics for promoting sexual encounters. In the second study (N = 50), researchers examined the perceived effectiveness of each tactic used by a man and a woman. In the final study (N = 100), researchers examined the reported frequency with which men and women performed each tactic with the opposite gender. Greer and Buss explained their findings:

> The results suggested that tactics were generally perceived as more effective for women than men. Women were particularly effective when conveying signals of immediate sexual access and enhanced physical appearance. Despite the effectiveness of signaling immediate sexual access, women performed these acts infrequently. For the males, the most effective tactics for promoting a sexual

encounter involved investing time and attention, and communicating love and commitment to a woman. Overall, the sexes showed much similarity in what types of tactics they performed, despite the large differences in perceived effectiveness, largely because women typically refrained from performing the most effective tactics (directly requesting sex and verbalize desire for sexual contact) for promoting sexual encounters. (p. 185)

Male Mating Strategies

Males tend to be visually oriented when presented with sexually inviting behavior. When females toss their hair, behave in a coy manner, touch, and engage verbally—males respond physiologically. Most male vertebrate species possess neuroendocrine mechanisms that regulate behavior response cues from potential mates. In a study conducted by Roney, Mahler, and Maestripieri (2003), it was hypothesized that human males may exhibit a behavioral and endocrine courtship response that is similar to the nonhuman vertebrate species. The participants, heterosexual males (N = 39), engaged in brief conversation with men and women. Saliva samples were obtained before conversations with the men and women. Male and female confederates (stimulus persons) engaged with the participants for approximately five-minutes. A second saliva sample was collected twenty minutes following the conversation. The results were generally consistent with the possibility of a mating response in human males. Men, conversing with females, showed a significant increase in testosterone over baseline levels, and were rated as having expressed more polite interest, and display behaviors than were males conversing with males. In addition, those men who were rated as having directed more

courtship-like behaviors toward their female conversation partners, also showed more positive changes in t- levels and rated the female confederates as more attractive romantic partners (p. 373).

Males engage in long-term and short-term strategies to secure and retain mates. Often, long-term strategies in males are directly tied to strategies in the female. As Buss (2004) stated,

> For [natural] selection to have produced psychological mechanisms in men that incline them to seek marriage and commit years and decades of investment in women, it is reasonable to assume that there were adaptive advantages to long-term mating, at least under some circumstances. (p. 135).

If females preferred males who maintained long-term relationships, and provided help in rearing the children, it became a reproductive value for the male to demonstrate cues of commitment and loyalty toward a mate.

Retention of one's mate is often perceived as an exclusive male behavior. However, Buss (1998) remarked,

> Females, more than males, will retain their mates by providing them with the reproductive (i.e., sexual) opportunities that are inherent in male-mate selection criteria; included in these hypothesized retention tactics are attempts by the female to appear maximally reproductively valuable, which implies alteration of appearance to be attractive, youthful, and healthful. (p. 294)

A number of behaviors are exhibited when a male attempts to keep his mate to himself and away from other sexually competitive males. Mate guarding includes,

sequestering (inhibiting the female from gaining access to other males, and attracting and maintaining the favor of females). Mate guarding can be demonstrated as sexual jealousy to "ensure paternity, prevent alien insemination, and defend against investing in genetically unrelated young" (Buss, 1988a, p. 292). Unfortunately, behaviors associated with mate retention can become pathological, leading to stalking, violence, and murder.

In a study to determine how much sexual experience was desired by men and women for casual dating versus a marital relationship, Sprecher, Regan, McKenney, Maxwell and Wazienski (1997) asked participants to rate mate preferences. Included was an item that referred to chastity and level of sexual experience. In addition, the participants were asked how much they desired each trait in either a casual dating partner or marital partner. Sprecher et al. explained,

> The results indicated that chastity, regardless of whether it characterized a potential date or a potential spouse, was rated as significantly more desirable than both moderate and extensive sexual experience. Furthermore, moderate sexual experience was desired more (or was considered less undesirable) than extensive sexual experience. (p. 327)

Female Mating Strategies

In our evolutionary past, females who differentiated physical and behavioral characteristics (strength, intelligence, cunning, and protective behavior) in mates, or potential males, tended to increase their odds of survival, and potentially produced more offspring than females who did not consider a male's physical and or behavioral characteristics prior to mating (Ellis, 1992; Gangestad & Thornhill, 2003, p. 231;

Shackelford & Larsen, 1999; Townsend & Wasserman, 1997). Females tend to prefer a

mate who is able to provide resources for herself and her offspring. In a primitive

environment, resources would include hunting skills, the ability to trade or barter, and the

ability to build and maintain shelter. In our contemporary world, the male's ability to

acquire resources is commonly tied to his job, instead of presenting his family with a deer

to be cleaned and cooked; the male provides his mate and family with a paycheck.

According to mate selection theory (Buss & Schmitt, 1993), females, like males,

possess long-term and short-term mating strategies. The long-term strategy suggests that

women will prefer males who demonstrate characteristics such as love, commitment,

fidelity, attractiveness, and health. In addition, the woman looks for cues that suggest he

will be willing to invest in a family, and be a good father (Buss, 1991, 1992, 1994; Buss

& Malamuth, 1996; Campbell, 2002). Palmer and Palmer (2000) reported,

> Short-term strategies in women can be viewed as a sort of shopping around
>
> behavior. It allows her to assess a number of potential male mates and to clarify
>
> more precisely, which characteristics are more important to her in a long-term
>
> mate. Furthermore, in the process she is able to hone her own skills for acquiring
>
> and keeping a mate. (p. 112)

In addition, pursuing a short-term mating strategy would allow a woman to obtain

immediate resources. Put in its most base and graphic form, the world's "oldest

profession" reflects a form of short-term strategy—sex for resources. The movie Pretty

Woman (Marshall, 1990) shows a woman providing sex for resources. Ultimately, her

"shopping around" nets a millionaire with whom she starts a new life.

Have females historically engaged in short-term strategies? According to Buss (2004), short-term strategies in the female explains males' stereotypical sexual behaviors such as fear of infidelity and sexual jealousy (p. 325). Buss explained, "If ancestral women never engaged in short-term mating, men could not have evolved a powerful desire for sexual variety (p. 176), mate retention, and violence (Buss, 1996, 2000; Buss & Malamuth, 1996; Gillette, 1995; Buss, Larsen, Westen, & Semmelroth, 1992; Wilson & Daly, 1992).

In a study to determine the effect of male status on female willingness to engage in various romantic relationships, Townsend and Levy (1990) divided male models into two categories, handsome and homely. Some models were dressed to emulate a high-status male by wearing designer blazers and Rolex watches, and were described as being physicians. Other models wore plain white shirts to signify medium status, and were described as high school teachers. The remaining models were dressed in Burger King uniforms to denote low status, and were described as waiters in training. The respondents included both undergraduates and law students. They viewed slides of the models and stated their willingness to engage in relationships ranging from casual conversation to dating, sex, and marriage. Townsend and Levy found that "women were significantly more willing to engage in liaisons with the high-status/homely males that with eight of the medium-or low-status/handsome males at all six levels of sexual intimacy and marital potential" (p. 371).

In addition to status, resources, health, and fatherhood, females' tend to prefer mates that were older. "Older men might tend to be preferred by women because age is

associated with power, ability to provide resources, status, and financial assets" (Hayes,

1995, p. 126). In an attempt to determine if the preference for older partners, seen in the

heterosexual population would cross into the homosexual population, Hayes conducted a

study using personal advertisements (N = 5,209) published between 1992 and 1993. The

criteria for the advertisements was (a) the advertisement had to state his or her present

and precise age (b) a precise minimum and maximum age of the desired partner had to be

stated and (c) the advertiser had to state his or her own gender and the gender of the

desired partner. The results showed,

> The tendency of males to seek a younger partner and of females to seek an older
>
> partner was clearly presented (p < .001). Concerning the homosexual population,
>
> the older gay men showed more of a preference for younger partners than the
>
> younger men showed. The lesbians showed less preference for older partners than
>
> the heterosexual women did. (p. 128)

The mate switching hypothesis, mate manipulation hypothesis, and the genetic

benefit hypothesis, offer explanations as to why the female might engage in short-term

strategies. Mate switching (replacement, or expulsion of a mate) may occur if, for

example, the male stops bringing home resources (is fired, laid off, quits his job), begins

to abuse her or the children, or withdraws affection. Mate switching behavior provides

the female with back up, or "mate insurance," should her partner leave (Buss, 2004, p.

178; Greiling & Buss, 2000). Mate manipulation is defined as having an affair. In this

case, "By having an affair a woman might be able to gain revenge on her husband for his

infidelity, thus possibly deterring him from future infidelities" (Buss, 2004, p. 179).

Finally, genetic benefit hypothesizes that a female may engage in short-term relationships should her mate be impotent or infertile (p. 179).

According to parental investment theory (Trivers, 1972), the female, compared to the male, has a more significant investment (time and energy) in the process of reproduction. The female, should she become pregnant, is subject to a prolonged period of gestation (40 weeks), typically three to five years of lactation (in hunter-gatherer cultures), and when lactation declines, her body readies itself for pregnancy.

Pregnancy is strenuous on the female body, and for the primal female, it was often deadly. According to Nowak (1995) and Tsui, Waserheit, Judith, and Haaga (1997), a woman's lifetime risk of dying in childbirth in the 1990's was 1 in 10,000 in North America and Europe, 1 in 130 in Latin America and Caribbean, 1 in 1,065 in Asia, and 1 in 16 in Africa. Considering Africa's 1 in 16 risk level, one could speculate that the risk of maternal death for primordial females was even lower (in Berger, 2001, p. 120). Due to the significant investment of the female to reproduce and nurture her offspring, specific mating strategies have evolved in an effort to minimize maternal investment. Buss (2004) clarified,

> Because women in our evolutionary past risked investing enormously as a
> consequence of having sex, evolution favored women who were highly selective
> about their mates. A man in human evolutionary history could walk away from a
> casual coupling having lost only a few hours or even a few minutes. His
> reproductive success was not seriously compromised. A woman in evolutionary

history risked getting pregnant as a result and therefore could have incurred the costs of that decision for years. (p. 107)

Female Mating Preferences

The research variables presented in this study, commitment, the partners desire for home and family, physical attractiveness, ambition, good financial prospects, intelligence, physical fitness and health, and moderate to high social status have been explored as a female mating preferences (Buss, 1989; Glantz & Moehl, 2000; Neese, 2001; Sprecher et al., 1994). These characteristics, when categorized, show a relation to genetic fitness, enhancing survival, and support human pair bonding.

Characteristics that increase fitness include attractiveness, physical fitness and health, and intelligence. Facial and body symmetry denote good health. In the primordial environment, a sickly, or diseased partner, or physically challenged male would be less likely to provide resources for a partner and offspring, he would also be more likely to die leaving a partner and offspring unprotected and without resources. It is therefore reasonable to assume that over time, the female has evolved a preference for health, fitness, and attractiveness. Intelligence is also prized in a mate. A male with an average or high intellect is more likely to sire intelligent offspring. These characteristics continue to be prized in today's contemporary environment. According to mate selection theory, when choosing a mate, the female has an evolved preference for characteristics that increase fitness such as: attractiveness, intelligence, and good health and fitness as these characteristics suggest quality genes that will be passed on to her offspring. (Buss, 2004; Gangestad & Thornhill, 2003; Hamilton & Zuk, 1982; Shackelford & Larsen, 1999).

Characteristics that enhance survival include ambition, status, and good financial

prospects. In our evolutionary past it took ambition and intelligence to lead a hunting

party, negotiate with neighboring clans, take risks, engage in warfare, and acquire

resources that led to status and enhanced resources. In contemporary culture, these

evolved preferences continue to be desired and sought after. Overall, these characteristics

tend to produce good financial outcomes and status among peers. Females tend to prefer

males that possess these traits as they lead to her own financial and social status, which in

turn, provides security for herself her offspring (Buss, 2004; Garfinkel & McLanahan,

1986; McLanahan & Sandfer, 1994; Wilson & Daly, 1987, 1998). For example, Kenrick,

Sadalla, Groth, and Trost (1990) conducted a study that revealed a level of attributes that

were acceptable in a marriage partner:

> Men and women indicated the 'minimum percentiles' of each characteristic they
>
> would find acceptable. . . . American college women indicate that their minimum
>
> acceptable percentile for a husband on earning capacity is the seventieth
>
> percentile, or about 70 percent of all other men, whereas men's minimum
>
> acceptable percentile for a wife's earning capacity is only the fortieth. Women
>
> also show higher standards for economic capacity in a dating partner, in a sexual
>
> relationship, and in steady dating context. (p. 103)

Characteristics that support pair bonding include a partner's desire for Home and

Family, and Commitment. Natural selection has selected for males who display

protective behavior and provide resources to their families, in part, to gain access to

sexual relations, and to increase the survival of offspring. For the female, a mate that

provides protection, resources, and nurturance toward offspring, increases the likelihood

of her survival, her children, and future children (Cosmides and Tooby, 1989; Daly &

Wilson, 1987; Buss, Larsen, Westen, & Semmelroth, 1992). In addition, women tend to

prefer males that display cues of willingness to investment in children. In a study on

parental investment Le Cerra (1994) tested the hypothesis that women prefer men that

display cues of willingness to invest in their children. Le Cerra constructed slide image of

men, using the same model in several different condition: (a) standing alone, (b)

positively interacting with an eighteen-month-old, (c) ignoring the child , who was

crying, (d) a man and a child facing forward in a neutral condition, and (e) vacuuming a

rug. Two hundred and forty women rated each image on "how attractive they found the

man in each slide as a date, as a sexual partner, as a marriage partner, as a friend, and as a

neighbor. The results showed,

> Women found the man interacting with the child positively to be more attractive
>
> as a marriage partner than the same man either standing alone, or standing
>
> neutrally next to the child. Second, women found the man who ignored the child
>
> in distress to be low in attractiveness as a marriage partner. Third, the effect of
>
> interacting positively with the child proved *not* to be a result of the man showing
>
> domestics proclivities in general. Women found that the man vacuuming, for
>
> example, to be less attractive than the man simply standing alone doing nothing.
>
> (p. 67)

La Cerra surmised that ratings for attractiveness in a potential mate increased when cues of affection were displayed toward a child, and decreased by cues of indifference toward a child in distress (p. 67).

Unintended Pregnancy and Intention

Most of what is known about the intention status of pregnancy in the US is based on two extensive surveys. The 1995 National Survey of Family Growth (NSFG), a periodic survey of all women of reproduction age (15-44). "For the United States, the most recent estimates of the prevalence of unintendedness come from the 1995 NSFG. Excluding miscarriages, but including pregnancies ending in abortion, 49% of pregnancies in 1994 were unintended" (Santelli, Rochat, Hatfield-Timajchy, Gilbert et al., (2003). The National Maternal and Infant Health Survey (NMIHS), which includes a broader age group (15-49), incorporates women who had had a live birth or late fetal death. The most recent NMIHS survey, conducted in 1988 from a nationally representative sample of live births (N = 9,953), revealed that thirty-six percent (36%) of births in 1988 were mistimed, and 7% were unwanted. "Although the level of unintended childbearing is high in almost all socioeconomic subgroups of women, the proportion of births that were mistimed or unwanted was fifty (50%) or more among age-groups 15-17 (78%), 18-19 (68%), and 20-24 (50%)" (AGI, 2002, p. 1). In addition, women who were not married at the time they gave birth were less likely than married women to have wanted the birth, and were more likely to report the birth as mistimed. This suggests that women prefer to have children in the context of marriage (Kost & Forrest, 1995, p. 17).

While these statistics reflect a high percentage of unintended pregnancies, Trussell et al., (1999) suggested these numbers are actually higher when considering NSFG's definition of pregnancy "intention." The discrepancy occurs due to the classification of intention, and whether or not the woman was actively using birth control at the time of pregnancy,

> [The NSFG] system of classification does not consider whether women were still practicing contraception when they became pregnant. That a pregnancy can be classified as intended even though it occurred during contraceptive use raises questions about the meaning of pregnancy intention as measured in the NSFG. Given our results [NSFG 1995 survey] the actual number of unintended births conceived during contraceptive use would be 67%. (p. 247)

An in-depth qualitative study, conducted by the Public Health Department-Seattle and King County (PHD-S&KC), Washington state, revealed that 55% of all reported pregnancies in King County from 1994-1998 were unintended (Gerber et al., 2002, p. vii). The sample consisted of Medicaid-eligible participants. The results revealed the reasons given for unintended pregnancies extended beyond access to contraceptives, education, and prevention:

> There is growing recognition that efforts to reduce rates of unintended pregnancy might not succeed without addressing the complex array of desires, motivation, and pressures both to conceive and avoid conception. Indeed, one reason for persistently high rates of unintended pregnancy may be our failure to adequately

understand the meaning, relevance, and experiences of 'pregnancy intention'

among the women we target for family planning services. (p. vii)

The major themes in the Gerber et al. (2002) study, revealed conflicted

motivations on conceiving and delaying pregnancy. They included relationships with

male partners, the reported need for love, as well as attachment with a child. The women

also described important prerequisites to childbearing that included financial security, a

stable (preferably marital) relationship, completion of education, and initiating a career.

The women saw value in delaying pregnancy until a more appropriate time in their lives,

yet "most of their pregnancies had occurred under less that optimal conditions: in poverty

and often without a partner" (p. ix).

How participants perceived planning a pregnancy varied. Many expressed a desire

to plan future pregnancies, yet reported a disadvantage to consciously planning to

conceive. Many participants felt that "planning" undermined nature, fate, or the influence

of God. For some participants, God was seen as highly deterministic, e.g. "God caused

conception to occur, and was instrumental in teaching particular lessons" (Gerber et al.,

p. 45). Yet, participants reported they felt they had some control over conception by

using contraceptives. A contradiction clearly exists. When researchers asked participants

to "qualify the degree of influence held by women, men, God, and fate, participants often

told us that they could not. All three were seen as part of an equation that could not be

easily articulated" (p. 46). The researcher cited a participant,

I'll say 95% [of getting pregnant is up to a woman] cause she's got to carry it. She

can lie and say she's on birth control and, and not. She can lie and say she had an

abortion and didn't, so. . . . I think God plays a major role because . . . if it wasn't

for him you wouldn't be able to conceive in the first place. . . . I think if He

didn't want you to carry that baby you wouldn't have conceived that baby. He has

that power. (p. 46)

There was a tendency for women in the study to value the concept of a planned

pregnancy, yet they seemed unable to internalize and demonstrate that value. A major

theme that emerged from the data was that participants tended to avoid planning a

pregnancy. Instead of explicitly planning pregnancy, Gerber et al. (2002) suggested that

women's intent toward becoming pregnant is more often expressed as, "if it happens, it

happens." Clearly, women's experiences of pregnancy are fraught with far more

ambiguity than the simple intended versus unintended dichotomy allows. (Zabin,

Huggins, Emerson, & Cullins, 2000).

In the PHD-S&KC (2002) and Spokane County (2002) surveys, the majority of

conceptions were reported as unintended. In an attempt to determine factors that lead to

unintended pregnancy, the Assessment/Epidemiology Center at Spokane Regional Health

District conducted a research study using the Pregnancy Risk Assessment Monitoring

System (PRAM), developed by the Washington State Department of Health (2001). The

sample consisted of individuals who accessed specific services offered at the health

district, which included the clinics, nutrition services, substance misuse services, and

public health nursing. The most reported reason for an unintended pregnancy by SRHD

client respondents was, "I did not think about it." The second most reported reason was,

"It was luck or fate that I got pregnant" (SRHD, 2002). Yet, in the same study, 71%

reported they had not wanted to become pregnant. The PHD-S&KC and Spokane surveys consisted of Medicaid-eligible, low-income, and high-risk individuals, yet unintended pregnancy is not just a problem associated with disadvantaged populations. This problem reaches beyond social and economic barriers. In a study where the majority of the women were married and educated, with incomes over $40,000, researchers concluded that "almost one-third of the births in the study period were an unintended pregnancy" ("Unintended Pregnancies: Not Just a Problem," 2002).

In an attempt to better understand the personality variables and contraceptive protection, researchers Gerrard and Luus (1995), conducted a quantitative study with 16-22 year old college age subjects. The primary goal of the study was to determine how women combined information about frequency of intercourse and effectiveness of birth control, and to determine whether specific personality variables associated with sexual and contraceptive behavior affect the integration of information about these two factors. The results indicated that women do understand that frequency of intercourse and contraceptive method effectiveness determines risk of pregnancy. Other findings indicated that locus of control and erotophobia (women with negative emotional responses to sexuality) related to ineffective contraception (p. 169).

The preceding quantitative and qualitative studies have revealed that women's feelings about pregnancy are multifaceted, and there are clearly many interpretations of pregnancy intention. In addition, women do understand that frequency of intercourse and method effectiveness determines risk of pregnancy. Reflecting on intendedness and pregnancy Zabin et al. (2000) stated,

Intendedness is a concept that has been explored largely from a demographic

perspective. Because demographers seek measures for populations, it is perhaps

not surprising that the constructs formulated to measure intendedness are not

appropriate in every context. To comprehend the relationship between

reproductive attitudes and intentions, and in turn the link between intentions and

behavior, a broader understanding and a more subtle definition of intention are

probably needed. (p. 39)

In a research study aimed at exploring a partner's effect on a woman's intention to

conceive, researchers Zabin et al. (2000) interviewed 250 ever-pregnant, low-income,

urban women who were prone to high-risk behavior and therefore "at high risk of

unintended conception." They reported,

If a woman reported that her intention at the time of conception was to have a

child, she was asked if she had wanted a child with the man with whom she had

conceived. Similarly, if she did not intend to conceive at the time, but wished to

do so in the future, she was asked if her reason for not wishing to get pregnant

was that she did not want to conceive with her current partner. (p. 41)

The results revealed that fifty-seven (57%) of reported pregnancies were unintended.

Overall, twenty-one (21%) of the participants wished they had not conceived, at least one

of their pregnancies, with the partner that had impregnated them. For women who

reported only unintended pregnancies, the percentage rose to thirty-three (33%). And, of

those women who reported no occurrence of an unintended pregnancy, eighteen percent

(18%) stated they had at least one unwanted conception with that particular partner (p. 39).

<center>*Possible Alternative Explanations of Unintended Pregnancy*</center>

Child Abuse

Behaviorist B. F. Skinner proposed that the environment defines human behavior. Humanistic theorist Maslow expanded on behaviorism by theorizing that people influence their environment through need and choice. Unintended pregnancy may also result from an individual's life experience. Exploring the relationship between sexual abuse and teen pregnancy, Stock, Bell, Boyer, and Connell (1997) conducted a study to determine if sexually abused adolescents were more likely to experience unintended pregnancy. Stock et al. (1997) wrote,

> We hypothesized that a history of perceived sexual abuse is associated with adolescent pregnancy, and predisposes girls to early pregnancy because of early initiation of sexual activity and other sexual risk factors. Our study goes beyond previous research in this area by comparing the pregnancy experiences of girls who have been sexually abused with those of girls with no history of abuse (p. 200)

Data collected from the 1992 Washington State Survey of Adolescent Health that included 3,128 girls in eighth, tenth, and twelfth grades, enrolled in 70 school districts. The multiple-choice survey included variables such as: ethnicity, drug and alcohol use, health risk factors, sexual activity, and experiences of physical and sexual abuse. Stock, Bell, Boyer, and Connell (1997) continued,

Adjusting for grade level, the results indicated that those who had been sexually abused were 3.1 times as likely as those who had not been abused to say they had ever been pregnant; in multivariate analyses, respondents who had experienced abuse were 2.3 times as likely as others to have had intercourse but were not more likely than other sexually active respondents to have been pregnant. However, those with a history of sexual abuse were more likely to report having had intercourse by age 15 (odds ratio, 2.1), not using birth control at last intercourse (2.0) and having had more than one sexual partner (1.4). Thus, an association between sexual abuse and teenage pregnancy appears to be the result of high-risk behavior exhibited by adolescent girls who have been abused. (p. 201)

This study suggests that those who have been sexually abused are more likely to experience an unintended pregnancy. Therefore, unless controlled for, these results may affect unintended pregnancy rates.

Cultural Differences

There is a vast discrepancy between unintended pregnancy rates in the US and in other developed countries. Focusing strictly on adolescent childbearing rates (before age 20), the US ranks the highest at 22%, followed by Great Britain 15%, Canada 11%, France 6%, and Sweden at 4% (Darroch, Singh, & Frost, 2001).

To study the high rates of teenage fertility and abortion rates in the US, Jones et al. (1985), selected five countries for case studies (Canada, England, Wales, France, the Netherlands, and Sweden). The criteria for selection included (1) a lower rate in adolescent pregnancy as compared to the US, (2) the belief that sexual activity among

young people was similar, and (3) their cultures and economic development were similar to the US.

Researchers identified five domains of interest. The desire for pregnancy, the risk of pregnancy, contraceptive use, sex education, and access to contraceptive and abortion services. There were no significant finding for "desire for pregnancy," and European countries did not maintain data in this area. However, Jones et al. (1985) were able to expand upon the explanation of unintended pregnancy. "The combined fraction of all pregnancies accounted for by abortions and non marital births is approximately three-quarters in the United States and Canada, close to two-thirds in England, Wales, and France, and only about one-half on the Netherlands" (p. 2).

When considering risk of pregnancy, "differences in sexual activity among teenagers in the six countries did not appear to be nearly as great as the differences in pregnancy rates. The data indicate that the variation in adolescent pregnancy rates cannot, by and large, be explained by differences in levels of sexual experience" (p. 3). Regarding contraceptive use Jones et al. continued,

> The United States had the lowest level of contraceptive practice among teenagers
> of all six countries. In particular, pill use appears to be less widespread among US
> teenagers that among those in the other countries. This difference suggests that
> American adolescents use less effective contraceptives to avoid accidental
> pregnancy, even if they are using a birth control method. (p. 3)

Access to contraceptive services appeared to be most accessible to teenagers in the following countries: England, Wales, the Netherlands, and Sweden. Clinics in Canada,

France, and the United States "appear to be less accessible than those found in other countries. A basic drawback of the US clinic system, however, is that it was developed as a service for the poor, and is often avoided by teenagers who consider clinics as places where only welfare clients go" (p. 4).

Fees for contraceptives were also considered. In England, Wales, and Sweden contraceptive services are provided free of charge. In France, services are free to women under 18 years of age. Those over 18, contraceptives services are reimbursable. Canadian health care pays for doctor and clinic fees, but citizens (accept low income) must pay for supplies. In the US, costs vary. Low-income persons and teens from low-income households receive free services. For those who do not fall within the low-income guidelines may access services for a small or graduated fee. Persons with a more moderate income must pay for services "out of pocket," or obtain services through private or employer paid healthcare plans.

Finally, sex education was examined. In Canada, England, Wales, and the US, sex education is contingent upon community approval, compared to Sweden where sex education is "compulsory and extends to all grade levels, and gives special attentions to contraception and the discussion of human and sexual relationships" (p. 10). Jones et al. reflected upon how sex is addressed in the US. "In the United States, sex tends to be treated as a special topic, and there is much ambivalence: Sex is romantic but also dirty; it is flaunted but also something to be hidden" (p. 11). Jones et al. continued,

> American teenagers seem to have inherited the worst of all possible worlds
>
> regarding their exposure to messages about sex: movies, music, radio and TV tell

them that sex is romantic, exciting, titillating; premarital sex and cohabitation are visible ways of life among the adults they see and hear about; their own parents or their parents' friends are likely to be divorced or separated but involved in sexual relationships. Yet, at the same time, young people get the message good girls should say no. Almost nothing that they see or hear about sex informs them about contraception or the importance of avoiding pregnancy. (p. 16)

There is a disparity between unintended pregnancy rates in European countries and the US. Cost for services, supplies, sex education, and accessibility appear to be significant factors that may explain high-unintended pregnancy rates in the US.

Human Error

Contraceptive failure leads to unintended pregnancy. Reporting on contraceptive methods, Trussell, Hatcher, Cates, Stewart, Felicia, and Kost (1990) revealed striking differences in the "ideal failure rate" of contraceptives, based on product clinical trials, and the "typical failure" rate derived from contraceptive users. For example, they found the ideal failure rate for condoms is 2%; the typical failure rate is 12%. The failure rate of the diaphragm is 3%; the typical rate is 18% (p. 558). Similarly, a French study found that, "a third of the pregnancies among women in their study were unplanned and two-thirds of these pregnancies occurred in contraception users" (European Society, 2003). These numbers suggest that while contraceptives themselves are exceedingly reliable, there is a significant human error factor that impact reliability.

The following section explores deception as a component of mating strategies. A benign example of deception is the billion dollar cosmetic industry that profits from

human's evolved preference for beauty (Cunningham, Roberts, Wu, Barbee, & Druen, 1995), and youth (Shackelford & Larsen, 1997, 1999). Women primp and preen to look prettier and younger to deceive the male. In turn, the male may use a false display of resources or status to attract a female. In a recent conversation, "Kassie" (not her real name) was miffed over a blind date. "He picked me up in a Lexus for our first date, on the second date he picked me up in an older 4-Runner, I asked why he didn't drive the Lexus? He confessed it was his mother's car." Deception, in relation to unintended pregnancy is subtle; nevertheless, deception is a component of the male and female mating strategy.

Unintended Pregnancy and Mating Strategies

Mating behavior is not always straightforward. Deception is a component of mate attraction and retention and is observed in the animal world as well as with insects. For example O'Sullivan(2004) explained,

> The male balloon fly offers an empty ball of silk to a female as a symbolic inducement to mate. It's theorized that this practice started off with the fly offering a ball of silk that contained a fresh prey item—kind of like a box of chocolates. Over time these male flies realized they could take a few bites out of the prey before wrapping it up, and the females would still accept it. Later they must have realized they could wrap up some dried leftovers, and the females would take it. Eventually they said, "The heck with it—these female flies will mate even if the box is empty. (p. 1)

Similar to the animal kingdom, humans are capable of deception. Researcher Eisenman (2003), found evidence that women had "forgot" to use birth control during ovulation. In a study, 104 women, ranging in age from 18-49 were interviewed,

Participants were asked about their last pregnancy, and whether or not birth control had been used. They were also asked if they intended to use birth control but had forgotten to do so, since pilot work had shown many cases of this. (p. 30)

The results were placed into 3 categories, (a) forgot to use birth control, (b) on purpose did not use birth control, (c) used birth control but it did not work. Statistical significance was found across categories. Thirty-two women said their last pregnancy occurred because that had forgotten to use birth control. Fifty-one revealed they had "on purpose" not used birth control, and 21 women reported birth control failure. Eisenman (2003) continued,

Perhaps the most amazing part of the findings is that about one-third of the sample "forgot" to use birth control. One wonders if this is motivated forgetting, in that ovulation caused them, in some way, to want to become pregnant. Although that cannot be proved with the present data, it is certainly something worthy of further investigation. Could it be that, at ovulation, one's physiology and brain chemistry sabotaged the desire to avoid pregnancy? (p. 35).

Self-Deception

Surbey (2004) described the human conscious experience, and the humans' assessment of our inner and social worlds as being "colored and biased by psychological mechanisms selected during the Pleistocene for a life of dependent sociality and problem

solving" (p. 117). Our brains have the capacity to view our environment through rose-colored glasses, from a perspective of reality, or what is. Surbey continued,

> People put aside worry, walk hand in hand with whom might otherwise be their enemy, give without necessarily receiving, and look forward to a better future while facing a certain death. Other times, the prism focuses sharply on what is crucial. Human beings are a reasoning species whose logical calculations must be both expedient and based on available, although often incomplete, information. Thus, people employ many mental shortcuts, rules of thumb, or "heuristics." (p. 119)

One of these mental shortcuts is humans' ability to deceive themselves. "Of particular interest are those mechanisms uniquely contributing to the illusory quality of our world by enabling people to conceal information from themselves" (Surbey, 2004, p. 118). For example, people with heart disease deceives themselves into thinking that just one donut will be OK rather than two. Or, using drugs during a pregnancy is OK because a neighbor did drugs and her baby seems OK. "Presumably, both conscious and unconscious processes have been subject to selection and it is perhaps their unique coexistence in our species that defines us" (p. 118).

Contraception and Deception

Modern birth control technology has enabled women to significantly alter their sexual behavior. Availability of birth control in today's industrial nations enables women to engage in short-term sexual encounters with minimal fear of pregnancy. However, it is important to remember that human sexual psychology evolved over millions of years,

well before the advent of modern contraceptive technology. While contraceptive use can facilitate sexual freedom, humans still possess underlying sexual psychology (mate preferences and strategies), even though the current environment has changed (Buss, 2004, p. 107). Symons (1992) concurred, stating, "Because modern contraceptive technology has existed for an evolutionarily insignificant amount of time, we have no adaptations specifically designed to deal with it" (p. 138). In other words, females have access to effective birth control yet their biological drive to have children may take precedence. Furedi (1997) added,

> A woman may assert her maternal ambitions by frequently "forgetting" to take her contraceptive pill, thereby becoming pregnant "accidentally on purpose." She may always insist that she conceived unintentionally, never admitting that she took chances that she would not have taken had she been committed to avoiding pregnancy. Men can just as easily manipulate things so that risk situations occur. He may "forget" to buy condoms yet insists, if they have sex, he will withdraw before ejaculation and then gets "carried away", or he may deliberately engineer situations where unprotected sex is likely. Sometimes these maneuvers are quite conscious and deliberate; at other times, they are unconscious and not even recognized by the people who perpetrate them. . . . . It is also possible for accidental pregnancies to be disguised as deliberate conceptions. A woman may be embarrassed to admit that a pregnancy is accidental in case she is thought to be stupid, or it confers some kind of stigma on her future child. Many other women

feel genuinely ambivalent about their pregnancy and are quite honestly unsure whether it was intended or "just happened."(p. 1)

An underlying cultural phenomenon suggests that some women will use their fertility to "trick" men into fatherhood. Surbey (2004) explained, "Where self-deception has enhanced fitness in our evolutionary past, humans will be motivated to self-deceive" (p. 121). For example, a reader of an advice column sharing his own experience with deception stated, " Two years ago, I was the victim of such manipulation. At the time, my girlfriend and I were both 30. We had been together just four months. She presumed such tactics would speed up our courtship and land her a husband" (Van Buren, 2003). Commenting on deceptive tactics Quan (2003) stated,

> It's quite easy to play to a man's laziness or selfishness where sex and birth control are concerned. Often, men aren't so much tricked as they are *led* into fatherhood by women who take advantage of the fact that most males regard birth control as a hassle. Many feminists would say it's unfair that we bear the responsibility for birth control, but for a woman determined to procreate against her partner's wishes, it's a bonus. The Pill, in particular, gives women the power to plan behind a man's back. Factors that might make it "better" from a guy's point of view—no bothersome IUD string rubbing against his flesh, no awkward pause to hunt for condoms, and no raincoat-in-the-shower symptoms—also make it possible for him to be deceived [or to deceive himself]. (p. 1)

To shed more light on the issue of deception with potential mates, Pawlowski and Dunbar (1999) analyzed personal advertisements in an effort to show that women may

decline to declare their age in order to appear younger than they really are. Their analysis

suggests that women, in the later stages of their reproductive years, seem more likely to

suppress (or be deceptive) regarding cues related to their chronological age in order to be

more demanding (demanding is described as stating the characteristics they want in a

male) of prospective partners.

In humans, the interests of males and females may conflict with respect to the

attribution of paternity. If a female has conceived through adultery, or changes mates

while she is in early pregnancy, she may protect her reproductive investment by

misassigning paternity. In Mali, West Africa, Dogon males attempt to prevent female

deception by mandating honest advertisement of menstruation. Strassmann (1996)

reported,

> This [menstrual] advertisement takes place at a menstrual hut where women are
>
> on display to all the members of their husband's lineage. Knowledge of the timing
>
> of menstruation is pivotal because no other physiological event is as useful in
>
> paternity assessments. (p. 304)

Cuckolded

According to scientists at paternity testing laboratories, at least one in ten children

are not sired by the man who believes he is the father "It is surprising how often the

mother is wrong about the person she thinks is the father," reported David Hartshorne,

spokesperson of Cellmark, a genetics-testing laboratory (Rogers, 2000). Genetic testing

used to establish parentage has only recently been available. The court system, DSHS, as

well as individual citizens can now determine parentage. However, in our evolutionary

past there was no such test. Outside of a child being a "spitting image of the father," fatherhood was often elusive.

According to parental investment theory (Trivers, 1972), men have evolved a greater desire for casual sex. In 1999, a case of paternity reached the public arena. After a husband's child was hospitalized with Cystic Fibrosis, it was determined that the child was not his biologically, as he himself was not a genetic carrier of the disease (both parents must carry the gene for cystic fibrosis). Subsequent testing revealed that three of the four children that he raised as his own were not biologically his. What brought this case to the forefront of the media was that the divorced husband was required to pay child support for children he did not sire (Rogers, 2000).

Contemporary women also have the ability to control fertilization through the use or misuse of contraceptives, a potentially dangerous combination for a male. A research participant in the Gerber et al. (2002) study commented, "I'll say 95% [of getting pregnant] is up to the woman cause she's got to carry it. She can lie and say she's on birth control. She can lie and say she had an abortion and didn't." (p. 46).

The "cost" of being a cuckolded male are many, and include the loss of trust toward his partner, a financial loss (child support), and for some men, the diminishing of love toward the children he did not sire. Children discover that they are the brunt of disruption within the family, and the man they called "daddy" is no longer theirs, as a result, children loose a sense of security and identity. Buss (1988) explained,

> Cuckolded males not only risk investing valuable resources in another's child, but
>
> risk losing entirely the time, energy, and resources they have devoted to acquiring

the mate initially. Severe reproductive penalties follow from failing to retain and acquired a mate. (p. 293)

Reflecting on cuckold males Mike (2003) stated,

> I contend that women in general want some guy to pay their bills. Trapping some poor schmuck into marriage or unwanted fatherhood accomplishes that goal nicely. They are capable of taking care of themselves, but many choose not to. In many cases, the better a woman looks, the more she feels entitled to be taken care of. Additionally, the better a woman looks the more men line up to pay her bills. The problem with this is that it limits the potential accomplishments of the woman living this lifestyle. What she is likely to accomplish is to become a wife of someone rich and or famous. (p.1)

Mate Retention

A number of behaviors are exhibited when a male attempts to keep his mate to himself, and away from other sexually competitive males. Components of mate guarding includes, sequestering (inhibiting the female from gaining access to other males, and attracting and maintaining the favor of females), and mate guarding, which can be viewed as sexual jealousy to "ensure paternity, prevent alien insemination, and defend against investing in genetically unrelated young" (Buss, 1988, p. 292). Unfortunately, the behaviors associated with mate retention can become pathological, leading to stalking, violence, and homicide (Buss, 1988). Buss (1994) elaborated,

> A jealous man might follow his wife when she goes out, call her unexpectedly to see whether she is where she said she would be, keep an eye on her at a party, or

read her mail. These actions represent vigilance. . . . A man might threaten a rival

whom he spotted with his wife, beat the rival with his fists, get his friends to beat

up the rival, or throw a brick through the rival's window. (p. 11)

When a female loses her mate, she looses access to his economic and material

resources. She must now invest time and energy in an attempt to secure another mate. A

cultural heuristic is the scenario of the girl who is "dumped" by her boyfriend or

husband; she subsequently looses ten pounds, changes her hair and make-up, and gets

herself back into the dating scene. From an evolutionary psychology perspective, she is

"husband hunting."

The Paradox of Mating Strategies

Extensive research in the field of female mating preferences and strategies has

revealed that females tend to prefer males with resources (income), potential resources,

status, commitment, health, and attractiveness (Buss, 1989; 1991; 1992, 2004; Buss &

Barnes, 1986; Campbell, 2000; Ellis, 1992; Gangestad & Thornhill, 2003; Greiling &

Buss, 2000; Palmer & Palmer, 2002; Pope, 2000; Streeter & McBurney, 2003; Symons,

1987,1979; Wilson, 2000). Yet, there appears to be a contradiction, or a paradox between

research and women's self- report. Ellis, reflecting on Buss' et al. (1990) cross cultural

study, noted a contradiction between women's stated preference for financial prospects

and social status, and previous research that states that women prefer males with good

financial resources and status:

The results are contradictory compared to the body of research, which states that

women prefer males with good financial prospects and social status. It is known

that in the United States the men whom women actually choose to marry make

50% more money, on average, than men of the same age whom they do not

choose to marry. (p. 281)

Ellis continued with another example of a study conducted by Buss and Barnes (1986):

Both women and men rated "dominant" as among the least desired mate

characteristic. Yet as we have seen, most women respond positively to actual

dominance traits expressed in videotapes, pictures, or written descriptions, at least

when dominance was expressed toward other men (p. 281).

A discrepancy unquestionably exists between the preferences stated on

questionnaires, provided during interviews, and observed in experimental settings. Ellis

(1992) offered four possibilities:

1. Conflation of group and dyadic dominance. This concept suggests that women

may respond negatively to the word "dominance," as they may perceive it as a tendency

for a male to dominate them. It would be interesting, in future research, to replace the

word "dominance" with "authority" and reevaluate the results.

2. The social desirability issue. This concept suggests that women are possibly

interested in forming relationships with dominant or high status men, but are reluctant to

admit such motives. Others perceive women, who admit to seeking out and obtaining

dominant or high status men, as "gold diggers."

3. The preference for dominant, high-status men may be real but unconscious.

Referring to previous research on height preferences Ellis stated,

Women seemed to be responding to a dominance cue (height), while at the same time insisting that height was not important. It is possible that many women are simply not aware of their inclination to perceive and evaluate status and dominance cues favorably. Perhaps these cues evoke an emotional response in women that affects their feeling of attraction toward a male, without them being consciously aware that their response was activated by these cues. Their response might be automatic and its cause not consciously accessible. (p. 282)

4. Women's questionnaire responses may be biased by "threshold effect." This concept suggests that when women fill out a questionnaire on mate preferences, they are thinking only about those males who are above their status threshold and thus within the range of vision. Within that range, status differences may be relatively unimportant, as compared with other qualities such as kindness or honesty, which are consistently rated as highly desirable mate characteristics by women (p. 282).

In other words, "A woman honing in on a man for his status and income is met with contempt by both men and women. Men don't want to be perceived as the "sacrificial victim" of the woman, and the woman does not want other women giving away her "game plan." (V. D. Conway, personal communication, August 20, 2001). When these concepts are considered in relation to this study, it is possible to predict that women might risk pregnancy to "trap" high-status males, rather than reveal a conscious desire to share his resources, status, commitment, attractiveness, and genes. Conversely, a woman might consciously or unconsciously reduce her risk of pregnancy with a "low" status male.

Not all women seek out males based on their resources. Buss (1991) offered a distinction between underlying mechanisms and manifest behavior when examining human mating strategies,

> Mate preferences are clearly only a determinant of actual mate choice behavior. Not all women are able to actualize their preferences and secure mates with resources. Not all men possess resources, and some that do fail to invest them in women and their children. But none of these observations implies the nonexistence of a species-wide female preference for men with resources. (p. 403)

Summary

This chapter provided a review of the literature for the field of evolutionary psychology and the theoretical underpinnings that included, mate selection theory, unintended pregnancy, and its relation to unintended pregnancy, mate selection, and deception.

The science of evolutionary psychology derived from the founding research of Charles Darwin; the pioneering work of E. O. Wilson, (2000), Trivers (1972), and Hamilton (1964), and has emerged as a new discipline due to the work of contemporary researchers and theorists which include but are not limited to (e.g., Barkow, 1989; Buss, 2004; Cosmides & Tooby, Crawford & Krebs, 1998; Daly & Wilson, 1982; Dawkins, 1989; Ellis, 1992; Hrdy, 2003; Pinker, 2002; Symons, 1979). The tenets of evolutionary psychology emerged from Sociobiology. Theorists in evolutionary psychology have clarified some of the original concerns of being associated with sociobiology, namely the field of evolutionary psychology does not align with genetic determinism, remember that

" the environment is always necessary for the development of adaptations, given environmental events can enhance or interfere with development (Larsen & Buss, 2002, p. 133).

A major assertion of evolutionary psychology is that during the Pleistocene geologic-epoch the brains of humans adapted, through natural selection, to their physical and social environments. Natural selection has favored information processing and behaviors that, in particular environments, contribute to preservation and, as a result, the spread of one's genes (Tooby & Cosmides, 2000). This information processing or "evolved hardwiring" is with us today as not enough time has past to significantly change information processing in the brain. Babies are still born with instinct and reflects that anchor back to primate behavior (e.g., suckling, moro reflex), human still possess fear as cues to avoid danger (De Becker, 1997), and males and female still prefer certain traits and behaviors in a mate (Buss, 1989).

Mate selection, an intrical component of evolutionary psychology, maintains that humans have an array of evolved traits and behaviors for attracting and keeping a mate, and furthermore, males and females value some traits and behaviors in a mate or potential (Buss, 2004).

Previous research on unintended pregnancy has brought to the foreground the ambiguous nature of unintended pregnancy and intention (Gerber et al., 2002; Zabin et al., 2000). Contradictions exist between women's report of intention to become pregnant, the use of birth control, and contraception failure (SRHD, 2002). When unintended pregnancies were explored in relation to mating strategies, reports of deceptive tactics in

relation to intention and birth control use presented a disturbing picture (Gerber et al., 2002). Alternatives in understanding unintended pregnancy included cultural and educational differences, and history of child abuse.

Finally a paradox of mating strategies was examined to better understand the contradictions between previous research in mate selection, and women's self report of mating preferences. Ellis (1992) concluded, in part, that women's mating preferences may be unconscious, and or, women may not want to be perceived as "gold diggers."

CHAPTER III

RESEARCH METHODS

Mate selection theory states there is an evolved tendency for females to prefer mates who display, among other characteristics: commitment, a partner's desire for a home and family, attractiveness, ambition, good financial prospects, intelligence, health and fitness, and social status (Buss, 1989). These characteristics are considered external mating stimuli as they are often observable in the environment. When external mating stimuli are demonstrated by a male, underlying mating responses are triggered in the female. These underlying mating responses correspond with positive reproductive outcomes, self-preservation, and survival of one's offspring. Translated into research variables, underlying mating responses are dependent upon, or are triggered by, external mating stimuli.

This study hypothesized that these female mating preferences were also variables associated with the females' risk to become pregnant. The research questions answered by this study are as follows:

Questions #1- What characteristics do respondents perceive, females in general, tend to desire in their partners? Are there significant relationships among responses for the 8 characteristics?

Question #2- What characteristics do respondents prefer in their own partners? Are there significant relationships among responses obtained for the 8 characteristics?

Are there significant differences in ratings for other women's preferences in characteristics as compared to respondents' own preferences?

Question #3- To what extent do respondents perceive females, in general, tend to risk pregnancy given the 8 characteristics? Are there significant relationships among responses obtained for the 8 characteristics?

Question #4- To what extent are respondents willing to risk pregnancy given characteristics? Are there significant relationships among responses obtained for the 8 characteristics? Are there significant differences between ratings for other women and ratings for themselves?

Question # 5- To what extent have respondent's risked pregnancy given 8 characteristics? Are there significant relationships among responses obtained for the 8 characteristics? Are there significant differences between respondent's willingness to risk pregnancy for characteristics, and having risked pregnancy for characteristics?

Question #6- For each characteristic, is there a significant relationship between one's preferences in a partner, one's willingness to risk pregnancy, and whether they had risked pregnancy?

Question #7- Are there significant differences in respondents having risked pregnancy given age and childbearing status?

Question #8- Are there significant differences in respondents having risked pregnancy given relationship status?

This chapter describes the methods used to carry out this study. More specifically, the chapter describes survey research methods, population and sampling, the survey

instrument, data collection, data analysis, limitations of the study, and ethical

considerations.

Survey Research

Surveys used in this study provided descriptive and quantitative information, with

respondents as the units of analysis. Survey is an appropriate method to gather original

data when describing a population too large to directly observe (Babbie, 2001). Surveys

most often provide two styles of questions, open-end and closed-end questions. Open-end

questions allow the respondent to provide his or her own answer. Closed-end questions

ask respondents to select an answer from a list of possible responses. In this study,

respondents were offered closed-ended question with a Likert-type scale from which to

respond. A Likert scale asks respondents to "check or write the number corresponding to

their level of "agreement or "disagreement' with each of a series of statements that

describes the attitude object under investigation (Schiffman & Kanuk, 2004, p. 37).

However, Likert formats offer advantages and disadvantages over other formats. Babbie

stated,

> Respondents will probably find it faster to complete a set of questions presented
>
> in this fashion. In addition, this format may increase the comparability of response
>
> given to different questions for the respondents as well as the researcher.
>
> [However], there are some dangers inherent in using this format. Its advantages
>
> may encourage you to structure an item so that the responses fit into the matrix
>
> format when a different, more idiosyncratic set of responses might be more
>
> appropriate. Also, the matrix question format can foster a response-set among

some respondents: They may develop a pattern of, say, agreeing with all the

statements. (p. 248)

A principal benefit of the Likert scale is that it gives the researcher the option of

considering the responses to each statement separately, or of combining the responses to

produce an overall score. In this study, scores were combined and analyzed using

quantitative analysis.

The use of survey has strengths and weaknesses. Strengths include the ability to

reach large population in diverse environments and location, including the use of

telephone, mail, and on-line surveys (Schiffman & Kanuk, 2004). Babbie (2001)

continued,

> In one sense surveys are flexible. Many questions maybe asked on a given topic,
>
> giving you considerable flexibility in your analyses. Whereas experimental design
>
> may require you to commit yourself in advance to a particular operational
>
> definition of a concept, surveys lets you develop operational definition from
>
> actual observations. (p. 268)

Survey also allows respondents to complete questions privately, perhaps in their own

home when they have the time to commit to answering the questions.

Conversely, surveys have weaknesses, for example, often surveys are not

standardized, "by designing questions that will be at least minimally appropriate to all

respondents, you may miss what is most appropriate to many respondents. In this sense,

surveys often appear superficial in their coverage of complex topics" (p. 268). While

survey research has its limitations, careful construction of the instrument, attention to

phrasing of questions, and careful consideration of environmental factors, survey is a useful tool in describing the characteristics of a large population.

Population and Sampling

A convenience sample (N=385) was used in this study. This sample size provided sufficient statistical power to be able to detect small effect sizes for comparison purposes (Cohen, 1990). A minimum age of 18 was required to participate in the study. There was no maximum age. Respondents who reported as being over the age of 44, as well as respondents who considered themselves past childbearing years, were asked to respond to specific survey questions from the perspective of being within childbearing age. Self-reported virgins were asked to not respond to survey questions that suggested a history of sexual intercourse.

Female respondents were recruited from 2 community colleges located in Eastern Washington. Community colleges were selected, as community colleges tend to attract students with diverse socioeconomic background, as well as students with a broad age range and life situations (Community Colleges Human Resources Department, 2005). Respondents were recruited from twenty-nine classrooms within these 2 community colleges, and were enrolled in a wide variety of academic disciplines (see Table 1).

Survey Instrument

The 8 characteristics (Commitment, a partner's desire for Home and Family, Physical Attractiveness, Ambition, good Financial Prospects, Intelligence, Physical Fitness and Health, and Social Status) measured for this study, relate to female mating

preferences that previous research has deemed as important characteristics in mate

selection (Buss, 1989; Glantz & Moehl, 2000; Neese, 2001; Sprecher, Aron, Hatfield,

Cortese, Potapova, & Levitskaya, 1994).

Table 1

Classrooms Surveyed by Discipline
(N=385)

Subject	# of Classrooms	N
Anthropology	1	18
Art	2	21
Psychology	2	45
English	5	46
Intro to college	3	34
Mathematics	2	27
Medical	1	13
Physical Ed.	3	36
Sociology	6	102
Spanish	1	11
Women's Programs	3	32

Levitskaya, 1994). The characteristics presented in the survey instrument are

characteristics that promote genetic quality, survival, and human pair bonding, and are

among those characteristics included in Buss' global study on mating preferences (Buss,

1989). For better understanding of how characteristics facilitate genetic quality, survival

and pair bonding, characteristics have been assigned to the following categories:

1. *Physical Attractiveness, Physical Fitness and Health, and Intelligence*: These characteristics display genetic quality, for example, facial and body symmetry denote good health Gangestad & Thornhill, 2003). In the primordial environment, a sickly, or diseased partner, or physically challenged male would be less likely to provide resources for a partner and offspring, he would also be more likely to die leaving a partner and offspring unprotected and without resources. It is therefore reasonable to assume that over time, the female has evolved a preference for health, fitness and attractiveness. Intelligence is also prized in a mate. A male with an average or high intellect is more likely to sire intelligent offspring and be more likely to solve complex problems. (Buss, 2004; Shackelford & Larsen, 1999).

2. *Commitment, Ambition, Status, and Good Financial Pro*spect: These characteristic enhance survival of self and offspring. In our evolutionary past it took ambition and intelligence to lead a hunting party, negotiate with neighboring clans, take risks, engaging in warfare, and acquire resources, which led to status and enhanced resources. In contemporary culture these evolved preferences continue to be desired and sought after. Overall, these characteristics tend to produce good financial outcomes and status among peers. Females tend to prefer males with these traits as they lead to her own financial and social status, which in turn, provides security for herself her offspring (Buss, 2004; Buss & Schmitt, 1993; Wilson & Daly, 1992).

3. *Desire for Home and Family, and Commitment in Relationships*: These characteristics tend to support pair bonding and are preferred characteristics in a long-term mating strategies. Natural selection has selected for males who display protective

behavior and provide resources to their families, in part, to gain access to sexual relations, and to increase the survival of offspring. For the female, a mate that provides protection, resources and nurturance toward offspring, increases the likelihood of her survival, her children, and future children (Buss et al., 1992; Cosmides and Tooby, 1989; Daly & Wilson, 1982; Fisher, 1993).

Respondents were asked to complete a five page, paper and pencil, survey divided into five main sections (a) demographics, (b) other women's preferences in men they date, (c) one's own preferences in a partner, (d) other women's willingness to risk pregnancy, one's own willingness to risk pregnancy, and (f) one's self-report of having risked pregnancy (see Appendix A). Careful consideration was given to the survey's construction, as the main sections touched on sensitive issues of a sexual nature. A review of the literature showed that some females might display deception concerning male selection and childbearing. Therefore, the survey instrument was design to encouraged a sense of alliance with "other" women, by first asking respondents to reveal their perceptions of "other" women's behavior, before reveal their own (Ellis, 1992; Morris & Maisto, 2005; Tooby & Cosmides, 1997)

Each section presented the research questions in a graduated format. For example, respondents were asked to reveal their perceptions of other women's preferences in a partner and risk of pregnancy, before providing information about their own preferences in a partner and risk of pregnancy. This was done in an attempt to illicit more candid responses as I felt women would be more willing to reveal their own risk of pregnancy if they first expressed their perception of other women's willingness to risk.

The first section gathered demographic information on age, relationship status, ethnicity, income, childbearing status, and sexual identity. The remaining sections measured responses for the eight characteristics. Respondents rated each characteristic on a Likert scale. The second section, where Yes= 6 and No= 1, asked respondents to express their perception of other women's preference for 8 characteristics in men they date, assuming that women tend to date men they are interested as a partner or potential partner. The third section, where Extremely Important= 5 and Not Important= 1, asked respondents to express their own preference for each characteristic in a partner. The fourth section, where Yes= 6 and No=1, asked respondents to express their perception of other women's willingness to risk pregnancy for each characteristic. The final section, where Yes=6 and No= 1, asked respondents to report having risked pregnancy for each characteristics.

In developing the survey, consideration were given to respondent's sexual identity and childbearing status, and how that status might affect responses. Regarding sexual identify, respondents who reported as being virgins were asked to skip questions that addressed "having" risked pregnancy. Self-identified lesbians were also asked to skip questions that addressed "having" risked pregnancy, only if they had never been sexually intimate with a male. Bi-sexual respondents were asked to respond to questions addressing "having" risked pregnancy from the perspective of intimacy with a male. Respondents who classified themselves as "other" under sexual identity (N = 3), were asked to respond to survey questions from the perspective of sexual relations with a male. Regarding childbearing status, respondents who reported they were post-childbearing

years were asked to answer questions that addressed "willingness" to risk pregnancy from

the perspective of being within childbearing year, e.g., "in your twenties."

Data Collection

Classroom instructors at the two community colleges were contacted about having

their classes participate in the study through an email. Instructors who were interested in

having their classrooms participate emailed me directly. Instructors were given a brief

explanation of the study, and were reminded not to share any specifics with their students

before I was to administer the survey. Dates and times were established over a 4-month

period of time span to survey students. A total of twenty-nine classroom instructors

agreed to participate in the study.

Upon arrival to each classroom I introduced myself, described my purpose in the

classroom, provided privacy and consent information, and a belief introduction to the

survey: "This survey is exploring how women perceive relationships and also

incorporates some questions about pregnancy."

Environmental factors present during the administration of the survey were also

considered. My experience in clinical interview had suggested that females tend to be

reluctant to express their birth control use or misuse with their partner in the room. I

assumed this reluctance would extend into the research environment. Therefore, just

before the female respondent's began to complete the survey, the males in the room were

asked to wait outside. On two occasions, due to poor weather, males in two classrooms

were asked to move to the opposite side of the room rather than go outside. After the

males left the classroom, I reminded respondents to not put their names or any other

identifying marks on the survey. Showing respondents a sample survey, I referred to the consent form. I instructed the respondents, when they had completed their survey, to tear off the consent form so there would be no way to identify their survey. The surveys were to be placed in one pile, the consent form in another. Respondents were reminded they could ask questions before, during, or after participation.

The visual and physical exodus of the males from the room created an atmosphere of female cohesion or unity. In some instances when the males left the classroom, one or two female respondents made verbal comments such as, "Yea, you guys leave, we don't want you here." Another respondent was heard to say, "This is just for the women!" Some males were heard in response, "That's typical, no one wants our opinion", and "This is bias!" In a few instances, after the males were reunited with their classmates, they wanted to know why they had been excluded from the study. I informed them that the men were excluded from the study because I wanted to better understand women's perspective on male and female relationships. In addition, this survey included questions about pregnancy, and I wanted to provide a private environment in which the women could respond. In two instances where males were obviously irritated by being excluded, I continued by saying, "Think about when you are out with your buddies, you most likely talk about women differently, than if a woman was in your presence." When this additional explanation was provided, they seemed to understand.

Data were analyzed using non-parametric methods. Descriptive statistics were collected for demographic data. Frequency analysis was used to establish percentages, means, and standard deviation scores for each characteristic. Data were further analyzed

using bivariate correlation analysis to determine statistically significant relationships between variables. The Wilcoxon (Two Sample Test) was utilized to determine statistically significant differences within groups, and the Kruskal-Wallis was used to determine statistically significant differences between groups.

Limitations of the Study

A convenience sample was used to collect data for this study. In using a convenience sample, there is no assurance that the sample is an accurate representation of the larger population. In addition, because college students were used in this study, person's who cannot attend college due to personal, intellectual restrains, or financial reasons were excluded. Finally, there were fewer responses from ethnically diverse individuals due to the large Caucasian population at these two colleges, and therefore results cannot be generalized. I attempted to administer the surveys before class began to avoid some students rushing through the survey in order to leave early. Occasionally, respondents who were sitting next to each other would briefly converse with each other while completing their surveys, their brief discussions may have influenced one or the others responses.

There were limitations in how each of the 8 characteristics may have been interpreted by respondents. For Commitment, respondents were asked to reveal their willingness to risk pregnancy and having risked pregnancy when a partner displayed this characteristic. The level or degree of commitment in any given relationship is relative to the couple's understanding. For some couples, commitment could be interpreted as a lifetime commitment, for others, a committed relationship could be interpreted as a 2-

week liaison, or, commitment could be perceived as exclusivity in the relationship. A partner's desire for Home and Family may have varied in how it was perceived by respondents. Respondents originating from a home or family that would be considered maladaptive could have responded negatively to the characteristic. For Ambition, there may have been limitations in how one perceived ambition. For some respondents, ambition could have been perceived as a negative character trait. Good Financial Prospects may have been ambiguous, for "good" is a relative term that could be interpreted differently by respondents. Social Status also could have been interpreted as an undesirable characteristic, for example snobbery.

Respondent were asked to reveal their willingness to risk pregnancy when their partner display 8 characteristics. However, it was not determined if they desired to have a child with their current partner. Respondent may have been willing to risk with a different partner or future partner (Zabin, 2000).

When analyzing data for having risked pregnancy by age, it is unclear whether older childbearing respondents (e.g., 30-34, 35-39) were reflecting on their current relationship, or previous relationship at a younger age.

When analyzing data for married and committed respondents, it is unknown whether there history of risk occurred during a marriage or before marriage, or within or outside of their current relationship.

Ethical Considerations

This section summarizes ethical consideration present in this study, based on Fishman's (2000) description of ethical conduct in social science research:

1.Voluntary Participation. I informed students that participation was voluntary, surveys were anonymous, and the information would be held in confidence. Respondents were reminded to make no identifying marks on their survey.

2. Inducement. Participants did not receive an inducement, payment, or class credit. However, if an individual instructor chose to offer participation credit, the instructor was reminded that the male students who did not participate in the survey must also receive participation credit.

3. Minors. Underage students were identified and were excused from participating in the study.

4. Review of Results. Respondents were informed that they would be able to review the results of the study by contacting their instructor in May of 2005. A synopsis of the research findings were emailed to all of the instructors.

5. Risks/Benefits. I informed respondents that the survey requested information on issues of relationships and pregnancy. Respondents were not asked to reveal their personal choice or form of family planning.

6. Risk Reduction. I was available after administering the survey to answer questions about the research and mitigate any psychological discomfort. As a Licensed Mental Health Counselor (WA) I was willing to meet, in a public place, with any student who relayed to me they were experiencing psychological discomfort due to their participation in the study. Had an adverse reactions occurred in which I felt I was unqualified to treat, I would have referred the respondent to free counseling within the community. No respondents approach me to disclosed psychological discomfort.

7. Informed Consent. Students were informed that participation in the study was voluntary. Instructors were reminded that students who chose not to participate were to receive no punitive action.

8. Confidentiality. To assure anonymity and confidentiality after the administration of the survey, respondents were instructed to remove the consent form from their survey. Surveys and consent forms were placed, faced down, in separate pile. Surveys were then placed in an envelope and remained in my possession.

9. Do No Harm- Respondents were not physically harmed during the administration of the survey. There was potential for mild psychological discomfort, as respondent were asked to speculate what a hypothetical character might do in a sexual situation, as well as themselves. However, because of the age group participating in the study, and the current cultural norms surrounding sexual behavior, the psychological discomfort was never revealed as a concern for respondents.

10. Deception. Respondents were told that the survey was exploring their perception of male and female relationships, in addition to questions about pregnancy. I did not use the term female mating strategies. This modification in vocabulary was necessary as I did not want to risk triggering defense mechanisms by using the terms mating and strategies, which might suggest intent.

CHAPTER IV

RESEARCH RESULTS

The purpose of this study was to explore female mating preferences as risk factors in becoming pregnant. Female mating preferences observed in this study include: (a) Commitment, (b) a partner's desire for Home and Family, (c) Physical Attractiveness, (d) Ambition, (e) Good financial prospects, (f) Intelligence, (g) Fitness and Health, and (h) Social Status (Buss, 1989). Risk in becoming pregnant was defined as a female who does not use a birth control method, uses a method inconsistently, and or does not require her partner to consistently use a birth control method. Results of this study are presented in two sections. The first section summarizes demographic data for respondents. The second section presents data regarding the research questions answered by this study.

Description of Respondents

Table 2 presents summary statistics for demographic characteristics of respondents. The majority of the respondents, 54.0%, were between the ages of 18 and 24. The sample reflected the geographic ethnicity of the region, with, 83.8%, identifying as Caucasian. The next largest groups were Multi-Racial, 5.0%, Hispanics and Asians both at, 4.2 %, Native Americans, 3.1 %, and Blacks, .3 %.

Thirty-six percent, 36.1 %, reported themselves to be single, while, 20.8%, reported to be married. Thirteen percent, 13.5 %, reported themselves to be divorced or separated. The remaining twenty-nine percent, 29.6 %, reported to be in a committed relationships. Fifty-nine percent, 59.4 %, of the respondents reported a

Table 2

Demographics of Respondents

Age			Ethnicity		Sexual Identification			Children Bearing Age		
18-24	208	(54.0 %)	Asian	4 (3.7%)	Virgin	44	(11.5%)	Within	304	(79%)
25-29	42	(10.9 %)	Black	1 (0.3%)	Heterosexual	317	(83.0%)	Post	81	(21%)
30-34	37	(9.6 %)	Caucasian	321 (83.8%)	Lesbian	6	(1.6%)			
35-39	25	(6.5 %)	Hawaiian/P. Is.	0 (0.0%)	Bisexual	12	(3.1%)			
40-44	23	(6.0 %)	Hispanic	16 (4.2%)	Other	3	(.8%)			
over 45	50	(13.0 %)	Multi-Racial	19 (5.0%)						
			Native Amer.	12 (3.1%)						

Relationship Status			Monthly Income		Children		
Single	139	(36.1 %)	< 1k	59.4%	Has Children	317 (47.0 %)	
Married	80	(20.8 %)	< 1-2	24.0%	No Children	204 (53.0 %)	
Divorced	40	(10.4 %)	< 2-3	8.4%			
Separated	12	(3.1%)	< 3-4	4.5%	*Note: Has children includes raising		
Committed<1yr	42	(10.9 %)	< 4-5	.8%	another's child or expecting a baby.		
Committed<3yr	47	(12.2%)	>over 5k	2.9%			
Committed>3yr	25	(6.5%)					

personal take-home income of less than one thousand dollars per month. Twenty-four

(24.0 %) percent reported a take home income of between $1,000 and $2,000 per month,

and the remaining 16.6% reported an income greater than $2,000 per month. Seventy-

nine percent, 79.0 %, of respondents reported to be within childbearing years. Twenty-

one percent, 21.0 %, reported as being post-childbearing years. Of the N=385

respondents, 53.0 %, reported having children and, 44.9%, reported having no children,

while the remaining 2.1% reported raising another's child or expecting a child.

Results for Research Questions

Research Question 1

The first research question focused on what characteristics respondents perceived

other women tend to prefer in men they date. Table 3 summarizes the ratings obtained for

each of the eight characteristics. Each characteristic was rated on a 6-point scale (where

Yes = 6, Most Likely= 5, Likely= 4, Unlikely= 3, Very Unlikely= 2 and No= 1). A

ranked order of means obtained for the characteristics, from highest to lowest follows:

1. Commitment	5.49
2. Ambition	5.33
3. Intelligence	5.29
4. Attractiveness	5.22
5. Home and Family	5.21
6. Financial Prospects	5.14
7. Fitness and Health	4.97
8. Social Status	4.48

Table 3

Respondents' Perception of Characteristics Other Women Prefer in a Partner

Characteristics	Yes	Likely	Unlikely	No	M*	Sd
Commitment	244 (63.4 %)	135 (35.1 %)	5 (1.3 %)	1 (.3 %)	5.49	.774
Desire for Home and Family	180 (46.8 %)	198 (51.4 %)	5 (1.3 %)	2 (.5 %)	5.21	.879
Physical Attractiveness	183 (47.8 %)	195 (50.9 %)	4 (1.0 %)	1 (.3 %)	5.22	.859
Ambition	205 (53.7 %)	168 (44.0 %)	8 (2.1 %)	1 (.3 %)	5.33	.840
Good Financial Prospects	172 (44.9 %)	201 (52.5 %)	9 (2.3 %)	1 (.3 %)	5.14	.904
Intelligence	199 (51.7 %)	177 (46.0 %)	8 (2.1 %)	1 (.3 %)	5.29	.856
Physical Fitness and Health	133 (34.5 %)	240 (62.3 %)	10 (2.6 %)	2 (.5%)	4.97	.919
Moderate to High Social Status	84 (22.0 %)	241 (63.1 %)	49 (12.8 %)	8 (2.1%)	4.48	1.13

*Mean scores based on a 6 pt. scale (Yes= 6, Most Likely= 5, Likely= 4, Unlikely= 3, Very Unlikely= 2, No= 1).

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All mean scores ranged between "Most likely and Yes," with the exception of Physical Fitness and Health and Social Status, which ranged between "Likely and Most Likely." Percentage scores for all characteristics in the "Likely to Yes" range were between 96 % and 98 %, with the exception of Social Status showing at 85 %. This shows respondents agreed that other women tend to prefer a partner or potential partner who displays these 8 characteristics.

Respondents also were asked to consider what percentages of women tend to date men based on each characteristic (see Table 4). The survey scale was a four point scale (0-25= 1, 25-50= 2, 50-75= 3, 75-100=4). The data were recoded into a 2-point scale as follows, (50-100= 1, and 0-50= 2). Characteristics with the highest to lowest mean scores were as follows:

1. Commitment   1.16
2. Physical Attractiveness 1.19
3. Ambition   1.22
4. Home and Family   1.23
5. Intelligence   1.26
6. Financial Prospects   1.30
7. Fitness and Health   1.30
8. Social Status   1.42

Examining the rank order, respondents perceived more women were seen as being likely to prefer Commitment, followed by Attractiveness, and Ambition.

Characteristics were further analyzed to determine if there were significant relationships across characteristics (see Table 5). Bivariate Spearman-rho analyses

Table 4

Percentage of Other Women Who Prefer Characteristics in a Partner

Characteristics	50-100%	0-50	M*	Sd
Commitment	320 (83.1 %)	65 (16.9 %)	1.16	.375
Desire for Home and Family	294 (76.4 %)	91 (23.6 %)	1.23	.425
Physical Attractiveness	311 (81.0 %)	73 (19.0 %)	1.19	.392
Ambition	294 (77.2 %)	87 (22.8 %)	1.22	.420
Good Financial Prospects	299 (77.7 %)	85 (22.1 %)	1.30	.167
Intelligence	284 (74.0 %)	100 (26.0 %)	1.26	.439
Physical Fitness and Health	265 (69.0 %)	119 (31.0 %)	1.30	.463
High to Moderate Social Status	217 (57.1 %)	163 (42.9 %)	1.42	.495

* Mean scores based on a 2-point scale (50-100= 1, 0-50= 2).

showed significant relationships among characteristics. Characteristics with the highest

correlations were between Social Status and Physical Fitness/Health ($r_s = .665$). Good

Financial Prospects and Intelligence ($r_s = .606$), and Good Financial Prospects and

Fitness/Health ($r_s = .631$). These positive correlations imply that the higher respondents

rated a given characteristic, the higher they tended to rate the associated characteristic.

The lowest correlation was between Commitment and Social Status ($r_s = .210$). It should

be noted that while this correlation was statistically significant, the significance level was

based on a large sample size (N=385) and therefore, even slight correlations could be

detected.

Research Question 2

Respondents were asked to rate the importance of each characteristic when

considering what they prefer in a partner (see Table 6). Each characteristic was rated on a

5-point scale (from Extremely Important =5 to Not Important = 1). The ranked order of

means of each characteristic, from highest to lowest, showed the following:

1. Commitment	4.79
2. Ambition	4.22
3. Home and Family	4.19
4. Intelligence	3.91
5. Financial Prospects	3.48
6. Fitness and Health	3.31
7. Attractiveness	3.00
8. Social Status	2.46

Table 5

Respondents' Perception of Other Women's Preferences in a Partner: Bivariate Correlations

	Comm	H & F	Att	Amb	F. Pros	Intel	Fit & H	S. Status
Commitment	—							
Home and Family	.533**	—						
Physical Attractiveness	.313**	.322**	—					
Ambition	.434**	.472**	.468**	—				
Financial Prospects	.316**	.426**	.528**	.489**	—			
Intelligence	.321**	.365**	.439**	.547**	.606**	—		
Health and Fitness	.234**	.294**	.582**	.431**	.631**	.577**	—	
Moderate to High Social Status	.210**	.274*	.477**	.316**	.563**	.422**	.665**	—

*$p < .05$ and **$p < .001$.

Table 6

Preferred Characteristics in One's Own Partner

Characterisitics	Ex to Very Important	Important	Less to Not Important	$M*$	Sd
Commitment	377 (97.9 %)	7 (1.8 %)	1 (0.3 %)	4.79	.482
Home and Family	297 (77.3 %)	52 (13.5 %)	35 (9.1 %)	4.19	1.04
Physical Attactiveness	96 (24.9 %)	180 (46.8 %)	109 (28.3 %)	3.00	.907
Ambition	323 (84.3 %)	56 (14.6 %)	4 (1.1 %)	4.22	.741
Good Financial Prospects	180 (46.8 %)	164 (42.6 %)	41 (10.6 %)	3.48	.901
Intelligence	262 (68.1 %)	114 (29.6 %)	9 (2.4 %)	3.91	.814
Physical Fitness and Health	151 (39.2 %)	176 (45.7 %)	58 (15.1 %)	3.31	.868
Moderate to High Social Status	57 (14.9 %)	122 (31.9 %)	204 (53.3 %)	2.46	1.00

* Mean scores based on a 5-point scale. (Extremely Important= 5, Very Important= 4, Important= 3, Less Important= 2, Not Important= 1)

Respondents rated Commitment, Home and Family, and Ambition, "Very

Important to Extremely Important " characteristics in their own partner. The remaining

characteristics, Attractiveness, Good Financial Resources, Intelligence, and Physical

Fitness/Health, were rated as "Important to Very Important," with the exception of Social

Status, which was rated as "Less Important to Important."

Characteristics were analyzed further to determine if there were significant

relationships among characteristics (see Table 7). Spearman-rho analyses revealed

statistical significance for various characteristics; however, correlations were within the

low to moderate range. Characteristics with the highest correlations were between Good

Financial Prospects and Social Status ($r_s = .507$), and Fitness/Health and Attractiveness

($r_s = .503$). The lowest statistical correlations were between Commitment and Financial

Prospects ($r_s = .152$), and Intelligence and Social Status Intelligence ($r_s = .175$).

Mean differences were compared between other women's preferences in men they

date, to one's own preferences in a partner (see Table 8). Note that due to a difference in

scales, data for what other women prefer in a partner, and what oneself prefers in a

partner were recoded. The original scale for what other women preferred was a 6-point

scale, (Yes=6, Most Likely= 5, Likely= 4, Unlikely= 3, Very Unlikely= 2, No= 1). The

original scale for what respondent's prefer in their own partner was a 5-point scale

(Extremely Important= 5, Very Important= 4, Important= 3, Less Important= 2, Not

Important= 1). Both scales were recoded into a 4-point scale as follows:

Table 7

Preferred Characteristics in One's Own Partner: Bivariate Correlations

	Comm	H & F	Att	Amb	F. Pros	Intel	Fit & H	S. Status
Commitment	—							
Home and Family	.388**	—						
Attractiveness	.016	.042	—					
Ambition	.189**	.189**	.238*	—				
Financial Prospects	.140**	.188**	.435**	.299**	—			
Intelligence	.067	.076	.279**	.350**	.314*	—		
Health and Fitness	.014	.054	.503**	.328**	.436**	.359**	—	
Social Status	.020	.057	.472**	.186**	.507**	.175**	.430**	—

*p< .05 and **p< .01.

Table 8

Other Women's Preference in a Partner Compared to Preference in Own Partner: Two Related Sample Test

	Other Women's Preference			Prefer in Own Partner				
	N	M	Sd	N	M	Sd	Z	Sig
Commitment	385	3.87	.391	385	3.98	.249	-4.846	.000
Home and Family	385	3.75	.492	384	3.67	.721	-1.959	.050
Attractiveness	383	3.74	.475	385	2.94	.803	-13.54	.000
Ambition	382	3.80	.462	383	3.83	.415	- .845	.398
Financial Pros	383	3.70	.520	385	3.34	.727	- 8.48	.000
Intelligence	385	3.77	.480	385	3.66	.558	- 3.60	.000
Fitness and Health	385	3.63	.562	385	3.23	.753	- 9.01	.000
Social Status	382	3.30	.771	383	2.43	.949	-13.09	.000

Mean scores based on a 4-point scale (Most Likely= 4, Likely= 3, Unlikely= 2, No= 1).

New Scale	*Previous Scales*	
	(Other Women)	(Own Preferences)
Most Likely = 4	5 & 6	5 & 4
Likely = 3	4	3
Less Likely = 2	3 & 2	2
No = 1	1	1

A Wilcoxon test for two related samples was used to compare the mean scores.

Results showed significant differences for all characteristics in self-preferred and in other

women, with the exception for Ambition. Based on these recoded scores, respondents'

mean scores for other women's preferences in a partner were higher than their own

preferences except for Commitment, which was higher for themselves.

Research Question 3

Research question 3 asked respondents to assess other women's willingness to

risk pregnancy for the 8 characteristics (see Table 9). Each characteristic was rated on a

6-point scale (where Yes = 6 and No = 1). Characteristics with the highest to lowest

mean rankings are as follows:

1. Home and Family	4.94
2. Commitment	4.85
3. Financial Prospects	4.33
4. Attractiveness	4.07
5. Social Status	3.94
6. Fitness and Health	3.85
7. Ambition	3.80
8. Intelligence	3.65

Table 9

Respondents' Perception of Other Women's Willingness to Risk Pregnancy

Characteristics	Yes	Likely	Unlikely	No	*M**	*Sd*
Commitment	134 (35.0 %)	201 (52.5 %)	43 (11.2 %)	5 (1.3 %)	4.85	1.14
Desire for Home and Family	140 (36.5 %)	211 (54.9 %)	28 (7.3 %)	5 (1.3 %)	4.94	1.07
Physical Attractiveness	72 (18.9 %)	189 (49.6 %)	104 (27.3 %)	16 (4.2 %)	4.07	1.34
Ambition	39 (10.2 %)	190 (49.9 %)	134 (35.2 %)	18 (4.7 %)	3.80	1.24
Good Financial Prospects	84 (22.0 %)	211 (55.2 %)	74 (19.4 %)	13 (3.4 %)	4.33	1.26
Intelligence	36 (9.4 %)	176 (46.2 %)	148 (38.8 %)	21 (5.5 %)	3.65	1.24
Physical Fitness and Health	45 (11.7 %)	207 (53.9 %)	110 (28.6 %)	22 (5.7 %)	3.85	1.28
Moderate to High Social Status	56 (14.7 %)	193 (50.7 %)	112 (29.4 %)	20 (5.2 %)	3.94	1.34

* Mean scores based on a 6-pt scale (Yes= 6, Most Likely= 5, Likely= 4, Unlikely= 3, Most Unlikely= 2 and No= 1).

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The mean scores for Home and Family, Commitment, Attractiveness, and Good Financial Prospects, were between "Likely and Most Likely," showing respondent's perceived other women are willing to risk pregnancy for these characteristics. The remaining characteristics, Social Status, Physical Fitness/Health, Ambition, and Intelligence, showed respondents perceived other women were "Likely to Unlikely" to risk pregnancy for the characteristics.

Respondents also were asked to consider the percentages of women that tended to risk pregnancy for each characteristic (see Table 10). The survey scale was a four point scale (0-25= 1, 25-50= 2, 50-75= 3, 75-100= 4). The data were recoded into a 2-point scale as follows, (50-100= 1, and 0-50= 2). Characteristics with the highest to lowest mean scores were as follows:

1. Home and Family   1.16
2. Commitment   1.19
3. Financial Prospects   1.33
4. Attractiveness   1.43
5. Intelligence   1.60
6. Ambition   1.50
7. Fitness and Health   1.53
8. Social Status   1.60

The first four characteristics held the same rank position as in Table 9. This matching rank order shows that respondents perceived other women would more likely prefer a partner's desire for Home and Family, Commitment, Financial Resources, and Attractiveness when risking pregnancy compared to other characteristics.

Table 10

Percentage of Other Womens' Willingness to Risk Pregnancy

Characteristics	50-100% = 1	0-50% = 2	M*	Sd
Commitment	307 (80.4 %)	75 (19.6 %)	1.19	.397
Desire for Home and Family	318 (83.2 %)	64 (16.8 %)	1.16	.373
Physical Attractiveness	217 (56.8 %)	165 (43.2 %)	1.43	.496
Ambition	188 (49.6 %)	191 (50.4 %)	1.50	.500
Good Financial Prospects	253 (66.2 %)	129 (33.8 %)	1.33	.473
Intelligence	152 (39.8 %)	230 (60.2 %)	1.60	.490
Physical Fitness and Health	176 (46.1 %)	206 (53.9 %)	1.53	.499
High to Moderate Social Status	186 (49.2 %)	192 (50.8 %)	1.50	.500

*Mean scores based on a 2-point scale (50-100= 1, 0-50= 2).

Spearman-rho analysis revealed statistically significant correlations among all

characteristics (see Table 11). The highest correlations were between Commitment and

Home and Family (r_s = .740), Ambition and Intelligence (r_s = .725), and Fitness and

Health and Social Status (r_s = .644). The lowest significant correlation was between

Commitment and Social Status (r_s = .241).

Research Question 4

Research question 4 asked respondents to report their personal willingness to risk

pregnancy for each characteristic (see Table 12). Characteristics with the highest to

lowest mean scores (where Yes= 6, and No= 1) are as follows:

1. Home and Family   3.34
2. Commitment   3.24
3. Financial Prospects   2.78
4. Ambition   2.66
5. Intelligence   2.59
6. Fitness and Health   2.50
7. Attractiveness   2.44
8. Social Status   2.35

The majority of mean scores describing respondent's willingness to risk

pregnancy were between "Most Unlikely and Unlikely." The exceptions were a partner's

desire for Home and Family and Commitment with means between "Unlikely and

Likely." Mean ranked scores were similar to other women's willingness to risk

pregnancy, with Home and Family, Commitment, and Financial Prospects in the top

Table 11

Respondents' Perceptions of Other Women's Willingness to Risk Pregnancy: Bivariate Correlations

Characteristics	Comm	H & F	Att	Amb	F. Pros	Intel	Fit & H	S. Status
Commitment	—							
Home and	.740**	—						
Attractiveness	.335**	.270	—					
Ambition	.269**	.286**	.529**	—				
Financial Prospects	.308**	.351**	.474**	.565**	—			
Intelligence	.244**	.270**	.471**	.725**	.626**	—		
Health and Fitness	.265**	.271**	.617**	.588**	.503**	.637**	—	
Social Status	.241**	.228**	.532**	.450**	.591**	.521**	.644**	—

**p< .01.

Table 12

Respondents' Willingness to Risk Pregnancy for Characteristics

Characteristics	Yes	Likely	Unlikely	No	M*	Sd
Commitment	77 (20.1 %)	104 (27.2 %)	76 (19.8 %)	126 (32.9 %)	3.24	1.94
Home and Family	88 (23.0 %)	103 (26.9 %)	69 (18.0%)	123 (32.1 %)	3.34	1.97
Physical Attractiveness	26 (6.8 %)	68 (17.8 %)	120 (31.4 %)	168 (44.0 %)	2.44	1.57
Ambition	37 (9.7 %)	83 (21.8 %)	103 (27.0 %)	148 (41.5 %)	2.66	1.71
Good Financial Prospects	43 (11.2 %)	93 (24.3 %)	95 (24.8 %)	152 (39.7 %)	2.78	1.76
Intelligence	31 (8.1 %)	85 (22.2 %)	104 (27.2 %)	163 (42.6 %)	2.59	1.66
Fitness and Health	25 (6.5 %)	82 (21.5 %)	111 (29.1 %)	164 (42.9 %)	2.50	1.58
Social Status	20 (5.3 %)	72 (19.0 %)	109 (28.8 %)	178 (47.0 %)	2.35	1.54

* Mean scores are based on a 6pt. scale (Yes= 6, Most Likely= 5, Likely= 4, Unlikely= 3, Very Unlikely= 2, No= 1)

positions. This shows that respondents placed a similar importance on characteristics for willingness to risk pregnancy for themselves as they did for other women. However, there was a shift in the 4th position. Ambition moved up into the 4th ranked position, displacing Attractiveness, which was considered to be more important for other women.

Except for Home and Family and Commitment, the overall means for the remaining characteristics revealed a substantial drop in willingness to risk pregnancy, as compared to other women's willingness to risk. In most cases, this drop was a full 2 points on a 6-point scale. Characteristics with the highest percent scores in the "Likely to Yes" were Home and Family (49.9%) and Commitment (47.3%). The remaining characteristics ranged between 35% and 24% for "Likely to Yes" in willingness to risk pregnancy.

Spearman-rho analysis revealed high to moderately high statistical significance relationships across all characteristics (see Table 13). The highest correlations were between Commitment and Home and Family (r_s = .943), followed by Ambition and Intelligence (r_s = .905), and Attractiveness and Fitness and Health (r_s = .920). The characteristic with the lowest correlation was Home and Family and Social Status (r_s = .686). These values show that if respondents rated one characteristic high, there were likely to rate other characteristics high (or visa versa).

Data were further analyzed to determine if there were significant mean differences between other women's willingness to risk pregnancy, and respondents' personal willingness to risk. The Wilcoxon Related Sample Test was used to analyze the data (see Table 14). All Z values were statistically significant (p < .000).

Table 13

Respondents' Willingness to Risk Pregnancy for Characteristics: Bivariate Correlations

Characteristics	Comm	H & F	Att	Amb	F/Pros	Intel	Fit & H	S. Status
Commitment	—							
Home and Family	.943**	—						
Attractiveness	.716**	.709**	—					
Ambition	.794**	.793**	.848**	—				
Financial Prospects	.802**	.808**	.814**	.899**	—			
Intelligence	.759**	.756**	.875**	.905**	.892**	—		
Fitness and Health	.751**	.742**	.920**	.895**	.859**	.915**	—	
Social Status	.689**	.686**	.865**	.851**	.844**	.866**	.894**	—

$**p< .01.$

Table 14

Other Women's Willingness to Risk Pregnancy Compared to Own Willingness to Risk

	Other Women's Willingness to Risk			Own Willingness to Risk				
	N	*M*	*Sd*	N	*M*	*Sd*	*Z*	*Sig*
Commitment	383	4.85	1.14	383	3.24	1.94	-12.617	.000
Home and Family	384	4.94	1.07	383	3.34	1.97	-12.492	.000
Attractiveness	381	4.07	1.34	382	2.44	1.57	-13.745	.000
Ambition	381	3.80	1.24	383	2.66	1.71	-10.758	.000
Financial Pros	382	4.33	1.26	383	2.78	1.76	-12.180	.000
Intelligence	381	3.65	1.24	383	2.59	1.66	-09.922	.000
Fitness and Health	384	3.85	1.28	382	2.50	1.58	-12.294	.000
Social Status	381	3.94	1.34	379	2.35	1.54	-12.661	.000

Mean scores based on a 6-pt scale (Yes=6, Most Likely=5, Likely=4, Unlikely=3, Very Unlikely=2, No=1).

The results showed respondents perceived that other women were more likely to risk pregnancy for each characteristic than themselves.

Research Question 5

For research question 5, respondents were asked to reveal if they had risked pregnancy for each of the eight characteristics (see Table 15). Each characteristic was rated on a 6-point scale (where Yes = 6 to No = 1). Ranked orders of means for each characteristic, from highest to lowest, are as follows:

1. Commitment	3.61
2. Home and Family	3.26
3. Attractiveness	2.69
4. Ambition	2.56
5. Financial Prospects	2.48
6. Intelligence	2.44
7. Fitness and Health	2.44
8. Social Status	2.19

The majority of mean scores describing respondents' having risked pregnancy were between "Most Unlikely and Unlikely." The exceptions were for Home and Family, and Commitment, which had means between "Unlikely and Likely."

Respondents' willingness to risk pregnancy (see Table 12) were higher for Home and Family, which held the 1st position, and Commitment the 2nd position. Comparing these results to having risked pregnancy, these characteristics were reversed. Financial Prospects held the 3rd position in willingness to risk pregnancy; this position was

Table 15

Respondents' Having Risked Pregnancy for Characteristics

Characteristics	Yes	Likely	Unlikely	No	$M*$	Sd
Commitment	139 (41.5 %)	46 (13.7 %)	17 (5.1 %)	133 (39.7 %)	3.61	2.29
Desire for Home and Family	112 (33.5 %)	44 (13.2 %)	27 (8.1 %)	151 (45.2 %)	3.26	2.26
Physical Attractiveness	65 (19.5 %)	50 (15.0 %)	46 (13.8 %)	173 (51.8 %)	2.69	2.02
Ambition	53 (16.0 %)	51 (15.4 %)	47 (14.2 %)	181 (54.5 %)	2.56	1.94
Good Financial Prospects	44 (13.2 %)	56 (16.8 %)	49 (14.7 %)	185 (55.4 %)	2.48	1.88
Intelligence	40 (12.0 %)	60 (18.0 %)	53 (15.9 %)	181 (54.2 %)	2.44	1.86
Physical Fitness and Health	43 (12.9 %)	53 (15.9 %)	51 (15.3 %)	187 (56.0 %)	2.44	1.86
High to Moderate Social Status	29 (8.7 %)	48 (14.5 %)	57 (17.2 %)	198 (59.6 %)	2.19	1.69

* Mean scores based on 6-pt scale (Yes= 6, Most Likely= 5, Likely= 4, Unlikely= 3, Very Unlikely= 2, No= 1).

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displaced by Attractiveness for having risked. Ambition was ranked 4th for willingness to risk pregnancy, and continued to rank 4th for having risked. The characteristics Good Financial Prospects ranked in 3rd position for willingness to risk pregnancy but moved to the 5th position for having risked.

Spearman-rho analysis revealed statistically significant relationships across all characteristics that were moderately high to high in value (see Table 16). The highest correlations were between Ambition and Good Financial Prospects (r_s = .897), Physical Fitness and Health and Social Status (r_s = .887), and Good Financial Prospects and Intelligence (r_s = .874). The characteristic with the lowest correlation was Home and Family, and Attractiveness (r_s = .588).

Data were further analyzed to determine if there were significant mean differences between respondents' willingness to risk pregnancy, and having risked pregnancy across characteristics in the previous research question (question 5). The Wilcoxon Related Sample Test was used to analyze the data (see Table 17).
There were statistically significant differences for the characteristics Commitment, Attractiveness, Financial Prospects, and Social Status. Higher scores were observed for "having risked "pregnancy" for Commitment and Attractiveness; whereas higher scores were observed for "would you risk pregnancy" for Good Financial Prospects and Social Status.

Research Question 6

Data were analyzed to determine if there were significant relationships between respondents' preferences in their own partner and willingness to risk pregnancy

Table 16

Respondents Having Risked Pregnancy for Characteristics: Bivariate Correlations

Characteristics	Comm	H & F	Att	Amb	F/Pros	Intel	Fit & H	S. Status
Commitment	—							
Home and Family	.811**	—						
Attractiveness	.644**	.588**	—					
Ambition	.672**	.721**	.779**	—				
Financial Prospects	.654**	.729**	.743**	.897**	—			
Intelligence	.633**	.679**	.779**	.870**	.874**	—		
Health and Fitness	.618**	.606**	.838**	.839**	.830**	.853**	—	
Social Status	.603**	.618**	.796**	.855**	.843**	.822**	.887**	—

**p< .001.

Table 17

Respondents' Willingness to Risk Pregnancy Compared to Having Risked Pregnancy

	Would You Risk		Have You Risked			
	M	*Sd*	*M*	*Sd*	*Z*	*Sig*
Commitment	3.24	1.94	3.61	2.29	-3.075	.002
Home and Family	3.34	1.97	3.26	2.26	-0.958	.338
Attractiveness	2.44	1.57	2.69	2.02	-2.246	.025
Ambition	2.66	1.71	2.56	1.94	-1.642	.101
Financial Pros	2.78	1.76	2.48	1.88	-3.333	.001
Intelligence	2.59	1.66	2.48	1.85	-1.562	.118
Fitness and Health	2.50	1.58	2.44	1.86	-1.027	.305
Social Status	2.35	1.54	2.19	1.69	-2.127	.033*

Mean scores based on a 6-pt scale (Yes= 6, Most Likely= 5, Likely= 4, Unlikely= 3, Very Unlikely= 2, No= 1).

(see Table 18). Although in the low range, Spearman-rho analysis showed significant relationships among characteristics. The characteristic Social Status had the highest number of correlations. The highest correlation was between one's own preference for Social Status in a partner, and willingness to risk pregnancy for Social Status ($r_s = .278$).

Data were further analyzed to determine if there were statistical relationships between respondent's preferences in their own partner and having risked pregnancy. Spearman-rho analysis showed significant relationships among characteristics (see Table 19). Again, the correlation values were low. The characteristics with the highest correlations were between one's preference for Social Status and having risked pregnancy for Social Status, and one's preference for Attractiveness and having risked pregnancy for Attractiveness.

Research Question 7

In analyzing the data, a differentiation was made between respondents who reported being within childbearing years and those past childbearing years. As can be seen in (Table 20), for the 18-24 age group, the majority of characteristics for having risked pregnancy ranged between "Most Unlikely and Unlikely." Good Financial Prospects and Social Status had even lower means, ranging between "No and Most Unlikely."

The 25-29 year olds were "Unlikely to Likely" to have risked pregnancy for Commitment and Home and Family, the remaining characteristics ranked between

Table 18

Respondents' Preference In Own Partner and Willingness to Risk Pregnancy: Bivariate Correlations

	Prefer in Own Partner							
	Comm	H & F	Att	Amb	F/Pros	Intel	Fit & H	S. Status
Willingness to Risk								
Commitment	—	—	—	—	—	—	—	.106*
Home and Family	—	—	—	—	—	—	—	—
Attractiveness	—	—	.125*	—	—	—	—	.202**
Ambition	—	—	—	—	—	—	—	.168**
Financial Prospects	—	—	—	—	.128*	—	—	.166**
Intelligence	—	—	—	—	—	—	—	.166**
Health and Fitness	—	—	.103*	—	—	—	—	.204**
Social Status	—	—	.113*	—	—	—	—	.278**

*p= < .05. **p= < .01.

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Table 19

Respondents' Preference in Own Partner and Having Risked Pregnancy: Significant Bivariate Correlations

Prefer in Own Partner

Would You Risk	Comm	H & F	Att	Amb	F/Pros	Intel	Fit & H	S. Status
Commitment	—	—	—	—	—	—	—	—
Home and Family	—	.189**	—	—	.108*	—	—	—
Attractiveness	—	—	.225**	—	.119**	—	.201**	.157**
Ambition	—	—	.166**	—	.161**	—	.134*	.165**
Good Financial Prospects	—	—	.198**	—	.178**	—	.121*	.168**
Intelligence	—	—	.142**	—	.149*	—	.126*	.124*
Physical Fitness and Health	—	—	.192**	—	—	—	.179*	.184**
Social Status	—	—	.216**	—	.168**	—	.164**	.277**

*p= < .05. **p= < .01.

Table 20

Childbearing Respondents' Having Risked Pregnancy by Age Group

Characteristics	18-24 (N=156)		25-29 (N=36)		30-34 (N=31)		35-39 (N=13)		40-44 (N= 7)		> 45 (N= 5)	
	M*	Sd	M*	Sd	M*	Sd	M*	Sd	M*	Sd	M*	Sd
Commitment	2.94	2.25	3.91	2.30	4.12	2.27	4.23	2.38	3.28	2.28	n/a	n/a
Desire for Hm & Family	2.48	2.07	3.82	2.39	3.77	2.31	3.53	2.33	2.85	2.41	n/a	n/a
Physical Attractiveness	2.10	1.78	2.34	1.84	2.70	2.06	3.30	2.25	2.85	1.95	2.00	1.41
Ambition	2.10	1.78	2.34	1.84	2.70	2.06	3.58	2.42	2.00	1.29	1.80	1.30
Good Financial Pros	1.96	1.65	2.22	1.69	2.87	2.12	3.30	2.13	1.85	1.21	2.20	1.64
Intelligence	2.08	1.74	2.11	1.60	3.03	2.15	2.92	2.17	1.85	1.21	1.80	1.30
Physical Fit & Health	2.01	1.72	2.02	1.58	2.45	1.92	2.69	1.97	2.71	1.88	1.80	1.30
Social Status	1.91	1.63	2.02	1.58	2.45	1.92	2.46	1.76	1.71	1.25	1.75	1.50

*Mean scores based on a 6-point scale (Yes=6, Most Likely= 5, Likely= 4, Unlikely= 3, Very Unlikely=2, No=1).
N/A- Data missing.

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"Unlikely and Very Unlikely". This age group also had the highest mean score, compared to other age groups for having risked pregnancy for Home and Family.

The 30-34 age group were "Likely to Most Likely" to have risked pregnancy for Commitment. Mean scores for Home and Family and Intelligence ranged between "Unlikely to Likely." The remaining characteristic ranged between "Very Unlikely to Unlikely." This age group, compared to other age groups, had the highest mean score for having risked pregnancy for Intelligence.

The 35-39 age group were "Likely to Most Likely" to have risked for Commitment. Attractiveness, Ambition, and Good Financial Prospects ranged between "Unlikely and Likely." The remaining characteristics ranged between "Very Unlikely and Unlikely." This age group had the highest mean score, compared to other age groups, for Attractiveness, Ambition, and Good Financial Prospects, and Social Status.

The 40-44 age group had "Unlikely to Likely" risked pregnancy for Commitment. Home and Family, Attractiveness, Ambition, and Health/Fitness ranged between "Very Unlikely and Unlikely." The remaining characteristics ranged between "No and Very Unlikely." This age group had the highest mean score for Physical Fitness/Health, however it should be noted that the sample size for this group was (N= 7). There were (N=5) respondents over age 45. For this group means ranged between "No and Most Unlikely."

Table 21 shows results obtained for the Kruskal-Wallis test, comparing the scores obtained for the varying age groups (see Table 21). The results showed significant mean differences for Commitment, Home and Family, and Good Financial Prospects.

Table 21

Respondents' (Childbearing) Having Risked Pregnancy by Age: Kruskal-Wallis Test

Characteristics	N	$M*$	Sd	X^2	Sig
Commitment	248	3.27	2.31	16.06	.007
Home and Family	247	2.87	2.22	18.59	.002
Attractiveness	247	2.46	1.99	5.95	.310
Ambition	245	2.28	1.86	7.65	.176
Financial Prospects	247	2.18	1.77	11.70	.039
Intelligence	247	2.23	1.80	8.64	.124
Fitness and Health	247	2.16	1.76	5.87	.319
Social Status	245	2.02	1.66	5.46	.361

Mean scores are based on a 6-pt scale (Yes= 6, Most Likely= 5, Likely= 4, Unlikely= 3, Very Unlikely= 2, No= 1).

	Highest	*Lowest*
Commitment	35-39	18-24
Partner's desire for Home and Family	25-29	18-24
Good Financial Prospects	35-39	40-44

Data from post-childbearing respondents (N= 81) were analyzed separately, as on the survey these respondents were instructed to respond to "having risked pregnancy" from a point of view of being within childbearing years "in your twenties" (see Table 22). Characteristics were rated on a 6-point scale from (Yes = 6 to No = 1). Ranked order of means for each characteristic, from highest to lowest, are as follows:

1. Commitment   4.59
2. Home and Family   4.39
3. Attractiveness   3.38
4. Ambition   3.36
5. Financial Prospects 3.34
6. Intelligence   3.25
7. Fitness and Health 3.18
8. Social Status   2.69

Based on the mean scores, Commitment and Home and Family ranged between "Likely and Most Likely." The remaining characteristics ranged between "Unlikely and Likely," except for Social Status which ranged between "Most Unlikely and Unlikely." Finally, the mean score for the characteristic Social Status ranged between "Most Unlikely and Unlikely."

Table 22

Respondents' (Post-Childbearing) Having Risked Pregnancy for Characteristics

Characteristics	Yes	Likely	Unlikely	No	M*	Sd
Commitment	49 (57.0 %)	16 (18.6 %)	5 (5.8 %)	16 (18.6 %)	4.59	1.96
Desire for Home and Family	43 (50.0 %)	18 (20.9 %)	8 (9.3 %)	17 (19.8 %)	4.39	1.99
Physical Attractiveness	21 (24.4 %)	20 (23.3 %)	19 (22.1 %)	26 (30.2 %)	3.38	1.98
Ambition	21 (24.4 %)	19 (22.1 %)	19 (14.2 %)	27 (31.4 %)	3.36	1.96
Good Financial Prospects	18 (20.9 %)	24 (27.9 %)	17 (19.8 %)	27 (31.4 %)	3.34	1.93
Intelligence	13 (15.1 %)	26 (30.2 %)	20 (23.3 %)	27 (31.4 %)	3.18	1.83
Physical Fitness and Health	17 (19.8 %)	23 (26.7 %)	18 (20.9 %)	28 (32.6 %)	3.25	1.91
High to Moderate Social Status	9 (10.5 %)	20 (23.3 %)	23 (26.7 %)	34 (39.5 %)	2.69	1.71

* Mean scores based on 6pt scale (Yes= 6, Most Likely= 5, Likely= 4, Unlikely= 3, Very Unlikely= 2, No= 1. Respondents reported having risked pregnancy when they were younger e.g., "in your twenties."

Research Question 8

Research question 8 focused on an association between having risked pregnancy and respondent's relationship status. Characteristics were rated on a 6-point scale from (Yes = 6 to No = 1). As can be seen on Table 23, for the Married group, Commitment and Home and Family fell between "Unlikely and Likely," the remaining characteristics fell between "Most Unlikely and Unlikely." In the Single group, Commitment ranged between "Unlikely and Likely," the remaining characteristics fell between "Most Unlikely and Unlikely." For the divorced or separated group, Commitment and Home and Family ranged between "Likely and Most Likely," with the remaining characteristics between "Unlikely and Likely, except for Social Status which ranged between "Very Unlikely and Unlikely." Finally, respondents who reported they were in a committed relationship, Commitment fell between "Unlikely and Likely," the remaining characteristics fell between "Most Unlikely and Unlikely." The high and low mean scores for relationship status are as follows:

	Highest	*Lowest*
Commitment	Div/Sep	Single
Home and Family	Div/Sep	Committed
Attractiveness	Div/Sep	Single
Ambition	Div/Sep	Single
Financial Prospects	Div/Sep	Committed
Intelligence	Div/Sep	Committed
Fitness and Health	Div/Sep	Committed
Social Status	Div/Sep	Committed

Table 23

Respondents' Having Risked Pregnancy by Relationship Status

	(N= 102) Married		(N= 101) Single		(N= 52) Div/Sep		(N=102) Comm	
	M	Sd	M	Sd	M	Sd	M	Sd
Commitment	3.85	2.28	3.24	2.26	4.38	2.18	3.39	2.31
Home and Family	3.75	2.30	2.88	2.19	4.31	2.11	2.74	2.15
Attractiveness	2.71	2.02	2.45	1.94	3.41	2.03	2.56	2.04
Ambition	2.62	1.92	2.28	1.89	3.33	1.97	2.39	1.91
Financial Prospects	2.66	1.90	2.29	1.91	3.29	1.95	2.12	1.66
Intelligence	2.60	1.91	2.33	1.87	3.23	1.83	2.15	1.70
Fitness and Health	2.60	1.92	2.21	1.85	3.17	1.86	2.17	1.73
Social Status	2.13	1.58	2.08	1.76	2.84	1.73	2.02	1.63

Mean scores are based on a 6-point scale (Yes= 6, Most Likely= 5, Likely= 4, Unlikely= 3, Very Unlikely= 2, No= 1).

Table 24

Respondents' Having Risked Pregnancy by Relationship Status: Kruskal-Wallis Test

Characteristics	N	M*	Sd	X^2	Sig
Commitment	335	3.61	2.29	11.50	.009
Home and Family	334	3.26	2.26	24.04	.000
Attractiveness	334	2.69	2.02	9.22	.026
Ambition	332	2.56	1.94	13.02	.000
Financial Prospects	334	2.48	1.88	16.76	.001
Intelligence	334	2.48	1.85	15.03	.002
Fitness and Health	332	2.44	1.86	14.54	.002
Social Status	385	2.19	1.69	13.09	.004

The Kruskal-Wallis test showed significant differences among the marital status groups for all characteristics (see Table 24). The Divorced/Separated group scored significantly higher mean scores for having risked pregnancy for all 8 characteristics. The two groups less likely to have risked pregnancy for characteristics were those who were single or committed relationships

Summary of Findings

1. Respondents' Perception of Other Women's Preferences

a. Respondents perceived "other" women preferred all eight characteristics in a partner or potential partner. All mean scores ranged between, Likely to Yes, with percent scores between 85.1% and 98.5%.

b. Commitment, Ambition, Intelligence, Physical Attractiveness, a partner's desire for Home and Family, and Financial Prospects were perceived as being most important.

c. Respondents' perceived, the majority of other women preferred eight characteristics in a partner or potential partner.

d. Relationships among the characteristics were in the low to moderate range, indicating that respondents differentiated among the characteristics.

e. The highest moderate correlations were between Financial Prospects and Intelligence, and Financial Prospects and Fitness and Health, and Fitness and Health and Social Status.

2. Respondents' Preferences in One's Own Partner or Potential Partner

    a. Respondents rated Commitment, a partner's desire for Home and Family, and Ambition as, Very Important to Extremely Important, in a partner. The remaining characteristics were between, Important to Very Important, except Social Status which was rated between, Less Important to Important.

    b. Comparing mean differences, respondents rated six characteristics lower in preference for themselves, as compared to other women's preference (Home and Family, Attractiveness, Financial Prospects, Intelligence, Physical Fitness and Health, and Social Status).

    c. Respondents rated Commitment and Ambition higher in preference for themselves than other women.

    d. Relationships among the characteristics were moderate to low, indicating respondents differentiated among the characteristics.

    e. The highest moderate correlation was between Good Financial Prospects and Social Status.

3. Other Women's Willingness to Risk Pregnancy for Characteristics

    a. Respondents' perceived other women were, Likely to Most Likely, to risk pregnancy for a partner's desire for Home and Family, Commitment, Financial Prospects, and Attractiveness.

b. Respondents' perceived other women were, Unlikely to Likely, willing to risk pregnancy for Social Status, Physical Fitness and Health, Ambition, and Intelligence.

c. Respondent's perceived the majority of other women would risk pregnancy for eight characteristics.

d. Relationships among the characteristics were overall low to moderate, indicating that respondents differentiated among the characteristics.

e. The highest correlations were between Commitment and Home and Family, and Ambition and Intelligence.

4. Personal Willingness to Risk Pregnancy for Characteristics.

a. The characteristics Commitment, and a partner's desire for Home and Family showed the highest mean scores ranging between, Unlikely and Likely, with percent scores of 47.3% and 49.9% respectively. The remaining characteristics were rated between, Most Unlikely and Unlikely.

b. Respondents' rated their own willingness to risk pregnancy lower as compared to other women's willingness to risk pregnancy.

c. Correlations between characteristics were high which suggests strong relationships among characteristics.

d. Characteristics with the highest correlations were Commitment and Home and Family, Attractiveness and Health and Fitness, and Intelligence and Health and Fitness.

5. Having Risked Pregnancy for Characteristics

a. The characteristics Commitment, and a partner's desire for Home and Family, showed the highest mean scores ranging between, Unlikely and Likely, with and percent scores of 55.2% and 46.7% respectively. The remaining characteristics were rated between, Very Unlikely and Unlikely.

b. Relationships among characteristics were moderate to high. The highest correlations were between Ambition and Financial Prospects, Physical Fitness and Social Status, and Good Financial Prospects and Intelligence.

c. There were significant differences between respondent's willingness to risk pregnancy and having risked pregnancy for Commitment, Attractiveness, Good Financial Prospects, and Social Status. Commitment and Attractiveness had higher mean scores for having risked pregnancy, as compared to willing to risk pregnancy. Good Financial Prospects and Social Status had higher mean scores for willingness to risk pregnancy as compared to having risked.

d. There was a ranked order difference among characteristics between willingness to risk and having risked. Home and Family and Commitment were ranked 1st and 2nd respectively for willingness to risk, however, these positions were reversed for having risked pregnancy. The characteristic Good Financial Prospect ranked in 3rd position for willingness to risk, but was displaced by Attractiveness for having risked.

6. Respondents' Preferences in One's Own Partner and Willingness to Risk Pregnancy

    a. The characteristic Social Status had the highest number of correlations.

    b. Those that preferred Social Status were more willing to risk for Social Status.

    c. Relationships among the characteristics were in the low range, indicating that respondents differentiated among the characteristics.

7. Respondents' Preferences in One's Own Partner and Having Risked Pregnancy

    a. Relationships among the characteristics were in the low range, indicating that respondents differentiated among the characteristics.

    b. There were substantially more correlations among characteristics for having risked pregnancy than for willingness.

    c. The preferences that had the most significant correlation among characteristics were Attractiveness, Good Financial Prospects, Fitness and Health, and Social Status.

8. Having Risked Pregnancy and Age (Childbearing Women)

    a. There were significant differences in having risked pregnancy for Commitment, Desire for Home and Family, and Good Financial Prospects.

    b. Commitment, and Good Financial Prospects were rated highest by the 35-39 age group. A partner's desire for Home and Family was rated highest by the 25-29 age group.

c. Eighteen to twenty-four year-old respondents rated the lowest in having risked pregnancy among all characteristic compared to respondents less than 40 years of age, which contradict national unintended pregnancy rates.

d. The 25-29 year-old age group rated higher than the 18-24 age group for having risked pregnancy, which places this age group more inline with national unintended pregnancy rates.

9. Having Risked Pregnancy and Age (Post-Childbearing)

a. Post-childbearing respondents, responding to risking pregnancy, "in their twenties", showed a higher rate of having risked pregnancy than respondents reporting to be within childbearing years.

10. Having Risked Pregnancy and Respondents' Relationship Status

a. Significant differences exist in having risked pregnancy among all characteristics based on relationship status.

b. Divorced/Separated groups rated themselves higher on having risked pregnancy than did other groups for all eight characteristics.

c. Overall mean scores showed Divorced/Separated respondents had risked pregnancy more than other relationship groups.

d. The Single group had the lowest mean scores for Commitment, Attractiveness, and Ambition.

5. The Committed group had the lowest mean scores for Home and Family, Good Financial Prospects, Intelligence, Fitness and Health, and Social Status.

11. Write-in Responses

1. In addition to 8 characteristics, respondents had the option to write-in characteristics. Write-in responses were minimal, however some respondents perceived other women tended to date men that displayed the "same religion," "morals," "respect," and "good personality." For personal willingness to risk, some respondents included "love," and "spirituality." For having risked pregnancy, some respondents included "humor," and "good communication."

CHAPTER V

CONCLUSIONS, DISCUSSIONS, AND RECOMMENDATIONS FOR FURTHER
STUDY

The purpose of this study was to explore evolved female mating preferences as

factors for risking pregnancy. Female mating preferences (variables) included: (a)

Commitment, (b) a partner's desire for Home and Family, (c) Physical Attractiveness, (d)

Ambition, (e) Good financial prospects, (f) Intelligence, (g) Fitness and Health, and (h)

Social Status (Buss, 1989). Seven of the characteristics explored in this study were found

in previous research. (Buss, 1989). The characteristic Commitment was added as a

variable (Greer & Buss, 1994). All characteristics support long and short-term mating

strategies, a preference for genetic quality, and survival of self and offspring. Risk to

become pregnant was defined as, a female who does not use a birth control method, uses

a method inconsistently, and or does not require her partner to consistently use a birth

control method.

The science of evolutionary psychology, based on Darwinian theory, maintains

that natural selection has favored information processing in the brain, which has become

"hardwired" as traits and behaviors, otherwise defined as evolved mechanisms of

behavior (Barkow et al., 1992; Buss, 2005; Cosmides & Tooby, 1997). To better

understand evolved mechanisms of behavior, Cosmides and Tooby put forth five

foundational principles. First, the brain is a physical system designed to "generate

behavior that is appropriate to your environmental circumstances (p.5). Second, our

neural circuits are designed by natural selection to solve problems our species faced in

our primordial past. Third, "consciousness is just the tip of the iceberg; most of what goes on in your mind is hidden from you. As a result, your conscious experience can mislead you into thinking that our circuitry is simpler than it really is" (p. 7). For example, the "fight or flight" mechanism is unconscious or "hidden," activated only when confronted by a threat. Fourth, our neural circuits are specialized for solving different adaptive problems (p. 8). Mate selection, for example, is an adaptive problem different from the pursuit of food and water. The fifth principle states that our modern skulls house a Stone Age mind, and not enough time has past to significantly alter evolved behavior.

The current approach used to address unintended pregnancy is based on a behavioral and humanistic model (Washington Department of Health, 2005; Paine-Andrews et al., 1999). The behavior model proposes that external influences, not internal thoughts and feelings, shape behaviors that are then strengthened if followed by reinforcement, or diminished, if followed by a punishment (Myers, 2001). The humanistic model emphasizes the conscious awareness of human need, choice, and personal responsibility (Larsen & Buss, 2002).

The current approach to sex education in the US, promotes access, correct use of birth control methods, and vigilance (forethought, responsible action, and economic sanctions). This model has been firmly in place for more than forty years, and more recently abstinence-only programs have been incorporated into sex education. However, unintended pregnancy rates continue to be among the highest in the western world. Gerber et al. (2002) reiterated,

There is growing recognition that efforts to reduce rates of unintended pregnancy might not succeed without addressing the complex array of desires, motivation, and pressures both to conceive and avoid conception. Indeed, one reason for persistently high rates of unintended pregnancy may be our failure to adequately understand the meaning, relevance, and experiences of 'pregnancy intention' among the women we target for family planning services. (p. vii)

Unintended pregnancy can be viewed differently through the lens of evolutionary psychology. During the Pleistocene geologic-epoch, the brains of humans adapted, through natural selection, to their physical and social environments. As a result, mating preferences and mating strategies are in place (hardwired) to fulfill the male and female propensity to reproduce. The evolved instinct for reproduction is much like the instinct for survival, attempts to bypass or thwart this evolved mechanism will be met with resistance. Beckstrom (1993) asserted,

We can speculate that, during the Pleistocene, conscious planning for childbearing, if it even existed, was less important to successful reproduction by humans than was the urge to copulate. Now, along comes modern culture with its invention of contraceptive devices, which create roadblocks in that direct route leading from copulation to childbirth. Not enough time has elapsed for natural section to generally reflect these devices in human genetics behavioral programming. So the human behavioral mechanisms are still intent on copulation while something more is now needed for successful reproduction in those societies where contraceptives are readily available—namely, a way to deal with

these cultural devices that have short-circuited the ancient mechanisms' process.

(p. 98)

The results of this study supported the hypothesis that evolved mating preferences are risk factors for pregnancy. However, it is should be noted that willingness to risk for pregnancy varied by characteristic. It should also be noted that the population sampled was not ethnically diverse, and therefore the results cannot be generalized to a larger population. There may also be cultural and socioeconomic differences, not measured in this study that may affect willingness to risk pregnancy for mating preferences. Nonetheless, the results reveal a new dimension in interpreting and understanding unintended pregnancy; and shows that women, in varying degrees, may bypass birth control methods for evolved mating preferences that support (a) a long-term mating strategy, (b) a preference for resources that support survival of self and offspring, and (c) a preference for potential genetic quality.

Conclusions and Discussion

In discussing evolved female mating preferences, it is essential to bear in mind that the level of importance placed on each of the 8 characteristics described in this study is relative to a person's family experiences, social status, life experiences, and desirability (as perceived by the opposite gender). For example, a woman who was raised in a wealthy family may have a higher level of preference for a partner that displays Commitment and Social Status, rather than Good Financial Prospects or Ambition. Conversely, a woman living in poverty with little hope for change may be highly attracted to the local drug dealer. He may not display Commitment, or a desire for Home

and Family, but may possess Good Financial Prospects (a growing drug business), Social

Status (admiration among his or her peers or gang members), and Physical Fitness/Health

(a visual cue of protection, and genetic quality). Given individual circumstances, a

woman may overlook or minimize some characteristics in place of others.

Preferences in a Partner or Potential Partner

Respondents perceived that the majority of other women tend to date men that

display all 8 characteristics. The characteristics, listed in ranked order, were between

85.1% and 98.5%, for "Likely to Yes" in preference. Social Status was rated at 85%.

1. Commitment
2. Ambition
3. Intelligence
4. Physical Attractiveness
5. Home and Family
6. Good Financial Prospects
7. Physical Fitness and Health
8. Social Status

According to mate selection theory (Trivers, 1972), and findings from Buss's

global study (1989), women preferred characteristics that support long-term mating

(commitment, home and family), resources (good financial prospects), status (ambition,

and social status), and genetic quality (attractiveness, intelligence, physical

health/fitness). Relationships among the characteristics were in the low to moderate

range, indicating that female respondents differentiated among the characteristics, rating

one characteristic high did not presume other characteristics would be rated high. However, the highest moderate relationships were between:

1. Good Financial Prospects and Intelligence
2. Physical Fitness and Social Status
3. Good Financial Prospects and Fitness and Health

These are logical relationships as it takes a degree of intelligence to acquire and maintain resources. Similarly, physically fit and healthy males tend to be preferred over unfit or sickly males, and Physical Fitness/Health and Good Financial Prospects tend to increase a male's Social Status (Buss, 2004, p. 119).

When respondents considered their own preference in a partner, they rated all characteristics between Important and Extremely Important, with the exception of Social Status, which was rated as Less Important (46.8%). The following characteristics had the highest mean scores, with percent scores between 90.8% and 99.7%:

1. Commitment
2. Ambition
3. Home and Family

The remaining characteristics ranged between Important to Very Important, with percent scores between 71% and 97%. Overall, respondents' preferences in a partner mirrored what respondents perceived other women preferred as well. Preference for these characteristics suggest that women prefer partners that will support a long-term mating bond, and will be ambitious enough to acquire resources from the environment to support the family.

Comparing mean differences, respondents rated Commitment and Ambition higher in importance for themselves than for other women, which may have indicated a more candid reflection of one's own preferences, as compared to a general perception of other women's preferences. Relationships among characteristics were moderate to low, indicating differentiation among the characteristics. However, there was a moderate correlation between Good Financial Prospect and Social Status. This too is a logical relationship as the ability to acquire and maintain resources tends to increase social status in a male, which is a preferred characteristic by females (Betzig, 1986; Buss, Shackelford, Kirkpatrick, & Larsen, 2001; Wiederman & Allgeier, 1992).

The results revealed congruence between what other women prefer in a partner and what respondents themselves prefer in a partner. These findings support previous research that asserts that mating preferences are evolved mechanisms and desired by females (Buss, 1989, 1999; Cosmides & Tooby, 1992). At the same time, these results tend to invalidate responses by some women, that women do not prefer partners that display resource-providing characteristics, and characteristics that display potential genetic quality such as attractiveness, ambition, money, and status. This denial is unwarranted as the females' preference for a high-quality male is "hardwired" into the female psyche. That is, during the Pleistocene-epoch natural selection endowed females with the capacity to discern consciously or unconsciously traits and characteristics that would enhance her own survival and the survival of her offspring. Perhaps a woman's preference for a quality male, rather than denied, should be worn as a badge of honor as to her evolutionary origins.

Women Risking Pregnancy

Respondents were asked to consider other women's willingness to risk pregnancy, as well as their own willingness. Respondents perceived that the majority of other women were willing to risk pregnancy for all eight characteristics, which support a long-term mating bond, survival of self and offspring, and potential genetic fitness. Respondents perceived other women were, Likely to Most Likely, willing to risk pregnancy for the following characteristics:

1. Home and Family
2. Commitment
3. Financial Prospects
4. Attractiveness

Percent scores for the above characteristics ranged between 68% and 91%. For the remaining characteristics, respondents' perceived other women were, Likely to Unlikely, willing to risk pregnancy for the following characteristics, with percent scores ranging between 55% to 65%:

1. Ambition
2. Social Status
3. Physical Health and Fitness
4. Intelligence

There were high correlations between Commitment and Home and Family, and Ambition and Intelligence, which again, supports long-term mating, a preference for resources, and the potential for genetic quality. Overall, the characteristics for willingness

to risk pregnancy were consistent with what other women preferred in a partner and what respondents preferred in their own partner.

Consistent with the hypothesis, that female mating preferences may be risk factors for pregnancy, the results indicated that women are, in varying degrees, willing to risk pregnancy for mating preferences, especially those characteristics that support long-term mating strategies, resources-producing characteristics, and potential genetic quality.

Respondents' perceptions of other women's willingness to risk pregnancy, is in affect, reflecting their own willingness to risk pregnancy. As genetic and competitive participant observers in all phases of mating strategies, women have been selected to be capable of interpreting innate behavior in their own gender. Describing how other women behave is in essence, describing one's own behavior (Campbell, 2002; Macionis, 2001, p. 43; Martin, 1993; Pinker, 2002, p. 337). This is supported by the results in which respondents' preferences in a partner mirrored their perception of what other women would prefer in a partner, and respondents' perception that the majority of other women were willing to risk pregnancy.

Respondents were asked to reveal their own willingness to risk pregnancy for characteristics. Forty-seven (47.3%) of respondents reported they were, Likely to Yes, willing to risk pregnancy for Commitment. Nearly fifty percent (49.9%) reported they were, Likely to Yes, willing to risk for a partner's desire for Home and Family. The following are the top rank-ordered characteristics for which respondents were willing to risk pregnancy:

1. Home and Family
2. Commitment
3. Good Financial Prospects
4. Ambition

Except for Commitment and Home and Family, mean scores for the remaining

characteristics dropped significantly ranging between, Very Unlikely and Unlikely, with

percent scores between, 24% and 31%.

The results of this analysis were broadly consistent with respondents' report of

other women's willingness to risk pregnancy, yet there were significantly lower means,

which may have been the result of cultural and social norms, rationalization, or

respondents' unwillingness to risk pregnancy with their current partner. Characteristics

that did not exhibit a significant drop in mean scores were Commitment and Home and

Family. These characteristics may have elicited higher mean scores because in western

culture, risking pregnancy with a male who is committed to the relationship or desires a

home and family may be considered more virtuous than risking pregnancy for money,

ambition, and attractiveness. Risking pregnancy for non-virtuous reasons is often seen in

western culture as possessing a "gold digger" attitude (Ellis, 1992). The female's

resistance to reveal to a male a preference for his attributes, may reflect a subtle female

mating strategy. If the female advertises to the male he is favored because of his

attributes, he may not remain in the relationship for fear of being exploited.

Self-serving bias may also explain the lower mean scores for one's own

willingness to risk pregnancy. Self-serving bias suggests that people have a tendency to

perceive oneself as favorably (Myers, 2004, p. 41). A term borrowed from psychoanalytic theory provides additional insight. Psychoanalytic theory, in part, suggests that humans possess a defense mechanism defined as projection (a form of denial). This term asserts that we sometimes see in others traits and behaviors that we find unacceptable in ourselves (Morris & Maisto, 2005, p. 396). Larsen and Buss (2005) explained,

> We literally 'project' (i.e., attribute) our own unacceptable qualities onto others. We can then hate them, instead of hating ourselves, for having those unacceptable qualities. At the same time, we can disparage the tendencies or characteristics in question without admitting that we possess them. Other people become the target by virtue of their having qualities that we intensely dislike in ourselves. (p. 290)

Finally, there may be a difference between respondents' preferences in a partner, and willingness to risk pregnancy with their current partner (Zabin, 2000). Respondents showed a strong preference for 8 characteristics in a partner; yet, they reported they were, Very Unlikely to Unlikely, willing to risk pregnancy for characteristics, with the exception of Commitment and Home and Family. This suggests the possibility that some respondents may not have wanted to risk pregnancy with their current partner, which implies respondents were demonstrating an evolved mating strategy to reproduce with a male that meets the females mating preferences. Because the female exhausts significant amounts of energy during pregnancy, lactation, and childrearing, it is imperative that she be as selective as possible with whom she mates.

Respondents were asked to reveal if, in the past, they had risked pregnancy for the 8 characteristics. Fifty-four percent (55.2%) reported they had, Likely to Yes, risked

pregnancy for the characteristic Commitment, and nearly forty-seven percent (46.7%) reported they had, Likely to Yes, risked pregnancy for a partner's desire for Home and Family, with mean scores between Unlikely to Likely. The following were the top rank-ordered characteristics for which respondents had risked pregnancy:

1. Commitment
2. Home and Family
3. Social Status
4. Physical Fitness/Health
5. Financial Prospects and Intelligence (tied)

Except for the characteristics, Commitment and Home and Family, mean scores for the remaining characteristics dropped significantly ranging between Very Unlikely to Unlikely, with percent scores between, 23% and 34%.

Comparing ranked order of means for having risked pregnancy, Commitment was in 1st position, and Home and Family in 2nd. For willingness to risk pregnancy these characteristics were reversed. One possible interpretation is that when risking pregnancy, Commitment is more important to females than the male's desire for Home and Family. The characteristic Good Financial Prospects ranked in 3rd position for willingness to risk, yet was displaced by Attractiveness for having risked. Seemingly, respondents placed more value on Good Financial Prospects, but when not available due to perhaps the socioeconomic climate, Attractiveness may have been a suitable replacement.

Statistically significant differences between willingness to risk pregnancy and having risked pregnancy were found for the following characteristics:

1. Commitment

2. Attractiveness

3. Good Financial Prospects

4. Social Status

Having risked pregnancy for Commitment and Attractiveness had a higher mean score

than willingness to risk, which suggests that respondents followed through on their

willingness to risk pregnancy. For Good Financial Prospects and Social Status the

opposite was true; willingness to risk pregnancy was higher than having risked, which

suggests respondents had not yet followed through on their willingness, perhaps due to a

lack of eligible males that display preferred characteristics.

The results support the hypothesis that women are not only willing to risk

pregnancy for characteristics, in varying degrees, but have risked, most consistently for

Commitment and a partner's desire for Home and Family. These characteristics lead to

the fulfillment of long-term mating bonds, reproduction of the species, and survival of

self and offspring.

Pleistocene adaptations are ingrained in the female psyche. Women's admission

that they have risked pregnancy for displays of Commitment, and a desire for Home and

Family, and other mating preferences in varying degrees, may be a disturbing finding for

males. Behavioral cues displayed by males such as: talking about a future together,

looking at rings at the mall, moving-in together, or a male enjoying a playful romp with

his nieces and nephews (being a good father), may be consciously or unconsciously

interpreted by the female as cues to take the next step toward motherhood. The results

invalidate the preconception that women do not manipulate contraceptive practices to become pregnant. This new information can be used to educate males of the potential risk of being led into fatherhood in a surreptitious manner.

Age Differences

The research results also revealed having risked pregnancy differed by age. There were statistically significant differences for the following characteristics:

1. Commitment
2. Home and Family
3. Good Financial Prospects

The 35-39 age group were, Likely to Most Likely, to have risked pregnancy for Commitment and Good Financial Prospects. The desire for these characteristics in a male are most important for women nearing the end of their childbearing years. In a primal environment, an older female may be less likely able to find a mate willing to invest in her due to her questionable fertility (Buss, 2004, p. 137). As well, an older female is less able to compete for a young quality male; therefore, as she ages, she is inclined to prefer a male that will commit to her and provide economic stability (Buss, 2004; Campbell, 2000, p. 49). For single women in this age group, if they have yet to have a family, they may be more likely to risk pregnancy when their partner displays cues of desiring children. Additionally, this age group had more likely risked pregnancy for a partner with Good Financial Prospects. Good Financial Prospects, combined with Commitment, are characteristics that support the female's survival and the survival of her offspring; therefore, it is reasonable that women, especially in their later childbearing years would

risk pregnancy when these characteristics were displayed by their partner or a potential partner.

The 25-29 age group showed the highest mean score for having risked for Home and Family, which ranged between Unlikely and Likely. Risking pregnancy for a partner's desire for Home and Family suggests a focus on beginning or completing a family. As well, contemporary women in this age range may be pursuing careers or education while their biological clock continues to tick; if a partner displays cues of desiring a Home and Family, a woman may be more willing to risk pregnancy. In a primal environment, by the time a woman was 25-29, she was past her prime childbearing year (Holladay, 2000). Therefore, it is reasonably to presume respondents in the 25-29 year old age group had more likely risked pregnancy for a partner's desire for Home and Family, as biologically and psychically, she was ready to fulfill motherhood.

Most interesting were the low mean scores for the 18-24 age group. National unintended pregnancy rates place this age group at the forefront for unintended pregnancy. National unintended pregnancy rates for 18-19 year olds are reported as being approximately 75%, and 59% for 20-24 year olds (Henshaw, 1998). A contradiction clearly exists. This contradiction shows that mating strategies are unconscious, as this age group appeared disinclined to acknowledge their having risked pregnancy (Freud, 1943; Cosmides & Tooby, 1992).

Data from post-childbearing respondents were analyzed separately, as to not confound the data for willingness to risk and having risked pregnancy. Mean scores showed they had, Likely to Most Likely, risked pregnancy for Commitment, and a

partner's desire for Home and Family. The remaining characteristics ranged between, Unlikely to Likely, except for Social Status, which was between, Most Unlikely to Unlikely. The results showed that post-childbearing respondents, reflecting on their past sexual behavior, reported they had more likely risked pregnancy across all characteristics than did childbearing respondents, except for Social Status. The results may reveal an uninhibited reflection of their past sexual behavior "in their twenties."

Relationship Status

In discussing having risked pregnancy by relationship status, it is important to note that for married and committed respondents, it is unknown whether their history of risk occurred during a marriage or before marriage, or within or outside of their current relationship. The results showed statistically significant differences across all characteristics. Overall mean scores showed that Divorced/Separated respondents had risked pregnancy more than other relationship groups. For the characteristics Commitment, and Home and Family, mean scores were between Likely and Most Likely. The remaining characteristics were between, Unlikely and Likely, except for Social Status which ranged from, Most Unlikely to Unlikely.

Divorced or separated women, attempting to reestablish a relationship through risking pregnancy, may be demonstrating a reproductive strategy to not only reproduce with a new male, but to gain access to additional resources to support her previous offspring. In a primordial environment, a female left without a mate due to death, disease, or injury would place the female in a precarious position. For example, a rogue male could usurp the female's mating strategy to reselect a quality male. Furthermore,

dependent upon her age, she could be perceived by other males as having little reproductive value, and therefore be less desirable (Symons, 1995). Therefore, it is in the females' best reproductive interest to secure a new mate quickly.

The results have shown that risking pregnancy for mate preferences is effected by age and relationship status. This new information can be used by family planning organizations to develop age appropriate and relationship appropriate messages to prevent unintended pregnancies. The results clearly demonstrate that family planning is not a one-size-fits-all operation.

Additional Discussion

No Responses

In the survey, respondents had the opportunity to select "No" for all questions that centered on risking pregnancy or having risked pregnancy. Excluding "No" responses, 32.1% to 52.9% of respondent were to some degree, willing to risk pregnancy for 8 characteristics. Excluding "No" responses for having risked pregnancy, 40.4% to 60.3% of respondents had, to some degree, risked pregnancy for 8 characteristics. This supports the hypothesis that the 8 mating preferences are related to the female's risk to become pregnant.

Lack of Preference for Social Status

Respondents perceived that other women preferred Social Status in a partner, and in willingness to risk pregnancy. In addition, previous research has shown that women tend to prefer high status dominant males, as they tend to possess higher socioeconomic

status (Betzig, 1986; Buss et al., 2001; Wiederman & Allgeier, 1992). Betzig (1986)

explained,

> Women appear to desire men who command a high position in society because
>
> social status is a universal cue to the control of resources. Along with status come
>
> better food, more abundant territory, and superior health care. Greater social
>
> status bestows on children social opportunity missed by the children of lower-
>
> ranked males. (p. 114)

Yet, respondents consistently rated the characteristic Social Status as the least

preferred characteristic for one's own partner, in willingness to risk pregnancy, and in

having risked pregnancy. One possible explanation for this contradiction is sexual

competition. A woman may not want a high status male as other women may compete for

his affection and resources. In a primitive environment, as in our contemporary

environment, females compete against other females for males. This competition had

evolutionary ties to reproduction and survival (Campbell, 2000). Pregnancy and lactation

is an expensive condition that consumes energy (calories) and typically removes the

female from perusing other males, therefore, it is crucial that a female hold on to her

mate. If a female mates with a high status male, as time goes on, she runs the risk of

loosing him to a younger, more fertile, and more beautiful female.

Propensity to Reproduce

Women's willingness to bypass contractive methods, thereby risking pregnancy

consciously or unconsciously, supports the female's biological propensity to reproduce

and the hypothesis of this study. These results demonstrate why the traditional

behavioral/humanistic model, currently used to address unintended pregnancy, has had limited success, as the human biological drive to reproduce will not be thwarted. While many women and men are able to use logical consequences to postpone pregnancy, the results suggest that if a woman desires a baby (consciously or unconsciously), and the male fits her expectation of deliverable characteristics, she may misuse or not use her birth control methods in order to fulfill motherhood. However, if she is given insincere cues, or does not effectively assess the male's attributes such as, he lacks commitment, ambition, financial prospects, and becomes pregnant, she may seek out resources from alternative sources (child support enforcement, TANF, social service programs). In other words, the state would become the ersatz father.

Reexamining Intention

The result of this study elicit questions about how pregnancy intention is defined. Are intention rates inflated due to survey participants' report that their pregnancy was unintended pregnancy, when in actuality was consciously or unconsciously engineered? Typically, interviewers and surveys do not address intention from the perspective of mate selection theory, which leaves the concept of intention ambiguous (Center of Disease Control). However, in the Gerber et al. 2002 study, participants were asked about pregnancy intention in relation to engineering a pregnancy. Participants suggested that, "many women become pregnant believing that a baby will stabilize a relationship by keeping the man involved in his partner's life" (p. 24). Gerber et al. continued to report:

> Some women characterized the act of getting pregnant to stabilize a relationship
> as "trapping a man." "Trapping" was defined as discontinuing a birth control

method with the intention of getting pregnant, without the knowledge of the male

partner. However, no one used the label "trapping" to describe her own behavior.

This inconsistency leads us to wonder if women interpret this behavior differently

in themselves than in others, and perhaps, whether women were conveying

commonly held stereotypes rather than observed behavior. (p. 24)

The results of this study show that women, in varying degrees, are willing to risk

pregnancy for a range of 8 characteristics. Therefore, it is possible that unintended

pregnancy rates are artificially inflated due to women reporting a pregnancy as

unintended pregnancy, even though the women consciously or unconsciously risked

pregnancy. Should a pregnancy be labeled unintended if the woman was willing to

become pregnant through the lack of use or misuse of a birth control method?

Furthermore, contraceptive failure rates may also be exaggerated. Trussell et al.,

(1990) addressed this point:

A striking difference in the "ideal failure rate" of contraceptives, based on

product clinical trials, and the "typical failure" rate derived from contraceptive

users. For example, they found the ideal failure rate for condoms is 2%; the

typical failure rate is 12%. The failure rate of the diaphragm is 3%; the typical

rate is 18%. (p. 558)

The results of this study raise the possibility that unintended pregnancy rates are

exaggerated. The term unintended pregnancy may need to be redefined, and

contraceptive failure rates recalculated. The outcome may reveal that US unintended

pregnancy rates are lower that are currently thought.

Impact of the Results on Men

There were three major findings in this study. First, women preferred men that display 8 female mating preferences. Secondly, women were, in varying degrees, willing to risk pregnancy for those preferences, especially for characteristics that promote long-term mating, resources, and quality in a male. Thirdly, women have risked pregnancy most specifically for characteristics that support long-term mating. These major findings impact males, for they could potentially be led unwillingly into fatherhood especially when males display cues of Commitment, and a desire for Home and Family.

Women's ongoing complaint about men, "He won't commit to the relationship," may have primordial origins. Males may instinctively know that females' possess an evolved preference for commitment. Cues of commitment, when displayed by a male, tell the female he is willing to invest in her his time, energies, and resources. These cues may take a variety of forms, for example: talking about a future together, looking at rings at the mall, or moving in together. No matter how innocently displayed by the male, the female may consciously or unconsciously interpret these cues as a sign of long-term mating and risk pregnancy.

The results from this study change how we view unintended pregnancy, in general, and from the male perspective. This is not to suggest that males should be seen as victims, as men have an equal responsibility for birth control. However, the results showed that women are willing, and have risked pregnancy for mating preferences. Unfortunately, males often place the responsibility for birth control on their partner (Hooke, Capewell, & Whyte, 2000); when this is done, the male must trust his partner to

adhere to her chosen method of birth control. If the female risks, and becomes pregnant, she may affix blame on contraceptive failure, and the male would not know differently. Therefore, in family planning and sex education, males should continue to be strongly advised to take a more active role in contraception decisions with their partner(s).

<div align="center">Social Marketing</div>

The results of this study are poised to create a paradigm shift in how we develop social marketing campaigns when looking at issues such as: unintended pregnancy, teenage parents, contraceptive education, and abstinence programs. Examining human behavior from an evolutionary perspective is pivotal to understanding our most prominent social issues (Beckstrom, 1993; Crawford, 2004).

Social marketing, aimed at creating sustainable change in targeted populations, is grounded in traditional consumer marketing theory. This construct, which relies heavily on cognitive and behavioral theory, focusing on demographics, stratification, attitude, motivation, response, and feeling (Hawkins, Best, & Coney, 2004, pg. 392), neglects our most base human behaviors that evolved during the Pleistocene-epoch. Evolved human behavior and social marketing should intertwine. Outside of this study, no in-depth research was found linking evolutionary psychology to social marketing. Only recently, have a handful of researchers begun to look at evolutionary psychology in conjunction with traditional consumer-based marketing (Saad & Gill, 2000). Saad and Gill explained, "There is a virtual absence [of the application of evolutionary psychology] in marketing. The evolutionary framework can be used to explain the findings that have already been documented in the current literature of marketing" (p. 1029).

To better address the social problem of unintended pregnancy, social marketing campaigns could be more effective by integrating evolved human behavior at the conceptual phase. For example, a marketing campaign focusing on men and unintended pregnancy could address women's willing to risk pregnancy for Good Financial Prospects. When a male displays resource-based cues (gifts, new car, money), a female may interpret these cues as a sign of future security for herself and her future offspring, thus risking pregnancy.

In developing social marketing campaigns, we must bear in mind that humans are conducting themselves as they were designed from an evolutionary perspective, and therefore must incorporate this perceptive to create sustainable change. Our Pleistocene brains have yet to catch up with the twenty-first century where extended families have disbursed, and western individualism has replaced the collectivist culture of our evolutionary past.

Recommendations for Further Study

Further research is needed to better define unintended pregnancy through more advanced data collection methods. Unintended pregnancy rates maybe distorted by women reporting pregnancies as unintended, when in actuality, there were willing to risk pregnancy through the lack of use or misuse of a birth control method.

Replicating the study in a different population of women would be valuable in light of the limitations of the existing study.

As well, it would be interesting to repeat this study using male subjects to determine the male perception of other male's mating preferences in women, willingness

to risk pregnancy, and having risked pregnancy for characteristics males' prefer in

females.

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APPENDIX A

THIS IS A CONFIDENTIAL SURVEY
Please answer all questions as honestly as possible.

1. Your Age
    1.___18-24
    2.___25-29
    3.___30-34
    4.___35-39
    5.___40-44
    6.___45-over

2. Your relationship status
    1.____single
    2.____married
    3.____divorced
    4.____separated
    5.____in a committed relationship 0-1 year.
    6.____in a committed relationship 1-2 years.
    7.____in a committed relationship over 3 years.

3. Ethnicity:
    1.____Asian
    2.____Black
    3.____Caucasian
    4.____Hawaiian/Pacific Is.
    5.____Hispanic/Latino
    6.____Multi-Racial
    7.____Native American

4. Your Monthly Income ("take home")
    1.__ less than $1,000 a month
    2.__ $1,000 - $2,000 a month
    3.__$2,000 - $3,000 a month
    4.__$3,000 - $4,000 a month
    5.__$4,000 - $5,000 a month
    6.__ more than $5,000 a month

5. Sexual Identity

1. ___Heterosexual   (please answer all survey questions).

2. ___Lesbian   (please answer all questions, except questions #13 and #14
      if you have *never* been intimate with a male)

3. ___Bisexual (please answer all questions from the perspective of sexual intimacy
      with a male)

4. ___Other (please answer questions from the perspective of sexual intimacy with a
      male)

NOTE: If you have never had sexual intercourse with a male, answer all questions except question # 14.

6. Do you have children?
1. ___Yes
2. ___No
3. ___currently expecting a baby
4. ___helping to raise another's child, not my biological child.

7. Do you consider yourself past childbearing age?
1. ___No

2. ___Yes (IMPORTANT- answer the last two questions in the survey (#13 and #14)
      from the perspective of being within childbearing years, (e.g., in your twenties)

8. In general, is there a tendency for women to date men when the men display:

	(6)	(5)	(4)	(3)	(2)	(1)
Commitment to the relationship	___Yes	___Most likely	___Likely	___Unlikely	___ Very unlikely	___No
A desire for a home and family	___Yes	___Most likely	___Likely	___Unlikely	___ Very unlikely	___No
Physical attractiveness	___ Yes	___Most likely	___Likely	___Unlikely	___ Very unlikely	___No
Ambition (hopes and dreams)	___Yes	___Most likely	___Likely	___Unlikely	___ Very unlikely	___No
Good financial prospects	___Yes	___Most likely	___Likely	___Unlikely	___ Very unlikely	___No
Intelligence	___Yes	___ Most likely	___Likely	___ Unlikely	___ Very unlikely	___No
Physical fitness and health	___Yes	___ Most likely	___Likely	___Unlikely	___ Very unlikely	___No
High to moderate social status	___Yes	___ Most likely	___Likely	___Unlikely	___ Very unlikely	___No
Other_____	___Yes	___ Most likely	___Likely	___Unlikely	___ Very unlikely	___No

9. In your opinion, what <u>percentage</u> of women tend to date men when the men display:

	(4)	(3)	(2)	(1)
Commitment to the relationship	___ 75 to 100	___75 to 50	___50 to 25	___25 to 0
A desire for a home and family	___ 75 to 100	___ 75 to 50	___ 50 to 25	___25 to 0
Physical attractiveness	___ 75 to 100	___ 75 to 50	___50 to 25	___25 to 0
Ambition (hopes and dreams)	___ 75 to 100	___ 75 to 50	___ 50 to 25	___25 to 0
Good financial prospects	___ 75 to 100	___ 75 to 50	___ 50 to 25	___25 to 0
Intelligence	___ 75 to 100	___ 75 to 50	___ 50 to 25	___25 to 0
Physical fitness and health	___ 75 to 100	___ 75 to 50	___ 50 to 25	___25 to 0
High to moderate social status	___ 75 to 100	___ 75 to 50	___ 50 to 25	___25 to 0
Other_____	___75 to 100	___ 75 to 50	___ 50 to 25	___25 to 0

10. How important is it to you, that your partner:

Be committed to your relationship-

(5)	(4)	(3)	(2)	(1)
___extremely important	___very important	___important	___less important	___not important

Desires a home and family-   (5)   (4)   (3)   (2)

(1)

___extremely important ___very important ___important ___less important ___not important

Be physically attractive-   (5)   (4)   (3)   (2)

(1)

___extremely important ___very important ___important ___less important ___not important

Has ambition (hopes and dreams) –   (5)   (4)   (3)

(2)   (1)

___extremely important ___very important ___important ___less important ___not important

Has good financial prospects-

(5)	(4)	(3)	(2)	(1)
___extremely important	___very important	___important	___less important	___not important

Be intelligent-

(5)	(4)	(3)	(2)	(1)
___extremely important	___very important	___important	___less important	___not important

Be physically fit and healthy-

(5)	(4)	(3)	(2)	(1)
___extremely important	___very important	___important	___less important	___not important

Has moderate to high social status-

5)	(4)	(3)	(2)	(1)
___extremely important	___very important	___important	___less important	___not important

Other_____

(5)	(4)	(3)	(2)	(1)
___extremely important	___very important	___important	___less important	___not important

IMPORTANT DEFINITION

The phrase "risking a pregnancy" is defined as a woman who does not use a birth control method, uses a method inconsistently or sporadically, or does not require her partner to always use a birth control method.

11. In general, is there a tendency for women to risk pregnancy when their partner displays:

	(6)	(5)	(4)	(3)	(2)	(1)
Commitment to the relationship	___Yes	___ Most likely	___ Likely	___Unlikely	___Very unlikely	___ No
A desire for a home and family	___Yes	___ Most likely	___ Likely	___Unlikely	___Very unlikely	___ No
Physical attractiveness	___ Yes	___ Most likely	___ Likely	___Unlikely	___Very unlikely	___No
Ambition (hopes and dreams)	___Yes	___Most likely	___ Likely	___Unlikely	___Very unlikely	___No
Good financial prospects	___ Yes	___Most likely	___ Likely	___Unlikely	___ Very unlikely	___No
Intelligence	___Yes	___ Most likely	___Likely	___Unlikely	___ Very unlikely	___No
Physical fitness and health	___Yes	___ Most likely	___Likely	___Unlikely	___ Very unlikely	___No
High to moderate social status	___Yes	___ Most likely	___Likely	___Unlikely	___ Very unlikely	___No
Other_____	___Yes	___ Most likely	___Likely	___Unlikely	___ Very unlikely	___No

12. In your opinion, what <u>percentage</u> of women risk pregnancy when their partner displays:

	(4)	(3)	(2)	(1)
Commitment to the relationship	___75 to 100	___ 75 to 50	___50 to 25	___ 25 to 0
A desire for a home and family	___ 75 to 100	___ 75 to 50	___50 to 25	___ 25 to 0
Physical attractiveness	___ 75 to 100	___ 75 to 50	___50 to 25	___ 25 to 0
Ambition (hopes and dreams)	___ 75 to 100	___ 75 to 50	___50 to 25	___ 25 to 0
Good financial prospects	___ 75 to 100	___ 75 to 50	___50 to 25	___ 25 to 0
Intelligence	___ 75 to 100	___ 75 to 50	___50 to 25	___ 25 to 0
Physical fitness and health	___ 75 to 100	___ 75 to 50	___50 to 25	___ 25 to 0
Moderate to high social status	___ 75 to 100	___ 75 to 50	___50 to 25	___ 25 to 0
Other_____	___ 75 to 100	___ 75 to 50	'___50 to 25	___ 25 to 0

13. Would you risk a pregnancy if your partner displayed:

	(6)	(5)	(4)	(3)	(2)	(1)
Commitment to the relationship	___Yes	___Most likely	___Likely	___Unlikely	___ Very unlikely	___ No
A desire for a home and family	___Yes	___Most likely	___Likely	___Unlikely	___ Very unlikely	___No
Physical attractiveness	___ Yes	___Most likely	___Likely	___ Unlikely	___ Very unlikely	___No
Ambition (hopes and dreams)	___Yes	___Most likely	___ Likely	___Unlikely	___ Very unlikely	___No
Good financial prospects	___Yes	___Most likely	___Likely	___Unlikely	___ Very unlikely	___No
Intelligence	___Yes	___ Most likely	___Likely	___Unlikely	___ Very unlikely	___No
Physical fitness and health	___Yes	___ Most likely	___Likely	___Unlikely	___ Very unlikely	___No
High to moderate social status	___Yes	___ Most likely	___ Likely	___Unlikely	___ Very unlikely	___No
Other_____	___Yes	___ Most likely	___Likely	___Unlikely	___ Very unlikely	___No

Remembering that, "risking a pregnancy" is defined as a woman who does <u>not</u> use a birth control method, uses a method <u>inconsistently</u> or <u>sporadically</u>, or does not require her partner to <u>always</u> use a birth control method:

14. In the past, have you risked pregnancy when your partner displayed?

	(6)	(5)	(4)	(3)	(2)	(1)
Commitment to the relationship	___Yes	___Most likely	___Likely	___Unlikely	___ Very unlikely	___No
A desire for a home and family	___Yes	___Most likely	___Likely	___Unlikely	___ Very unlikely	___No
Physical attractiveness	___ Yes	___Most likely	___ Likely	___Unlikely	___ Very unlikely	___No
Ambition (hopes and dreams)	___Yes	___Most likely	___ Likely	___Unlikely	___ Very unlikely	___No
Good financial prospects	___Yes	___Most likely	___Likely	___Unlikely	___ Very unlikely	___No
Intelligence	___Yes	___ Most likely	___Likely	___Unlikely	___ Very unlikely	___No
Physical fitness and health	___Yes	___ Most likely	___Likely	___Unlikely	___ Very unlikely	___No
High to moderate social status	___Yes	___ Most likely	___Likely	___Unlikely	___ Very unlikely	___No
Other_____	___Yes	___ Most likely	___Likely	___Unlikely	___ Very unlikely	___No

Thank you for participating in this survey!

APPENDIX B

CONSENT FORM

I agree to participate in this research study administered by Melinda Spohn PhD(c). This research study is part of a doctoral dissertation being completed at Gonzaga University. The Internal Review Board (IRB) has approved this survey. The results will be presented and described in a doctoral dissertation, future research papers, public forums, and conferences.

- I understand my identity will be protected from disclosure.

- I understand that the survey is anonymous.

- I understand the survey is confidential.

- I understand that participation in this research is voluntary, and I have the right to withdraw from participating at any time.

- I understand that I have the right to ask questions before, during, or after I begin the survey.

Signature_____ Date_____

Print Name_____