CHAPTER 5

SMALL WAIST + BIG HIPS = ATTRACTIVE LADY

EVOLUTIONARY PSYCHOLOGY: AN INTRODUCTION

Quite recently psychologists have begun to take notice of the explanatory power of evolutionary theory in understanding human behavior. Charles Darwin first proposed the contemporary version of evolutionary theory in 1859. It quickly became the basis for most thinking in biology because it explained many previously unexplained observations, and it unified data from many areas of biology. Although evolution is still called a "theory" and some details of what happened in the past are considered controversial by some, we will adopt the stance of the overwhelming majority of scientists that evolution is a fact. We are not so naive as to think that scientific facts are the *truth*. We understand that scientific facts can be modified by further research and that other factors (e.g., culture, learning, and genetics) are also likely to play significant roles. We believe that evolution happens. Although we hope that you will share this belief, there is no way that we can force you to agree. We do hope that you will work to understand evolutionary ideas whatever you happen to believe. It is possible to understand a position even if one does not believe it is correct, and this is all that is required to understand the research in this area.

Evolutionary theory proposes that among the variation we observe in structure or behavior within populations of organisms, there are some variants that make some individuals more likely to survive than others. If these characteristics are passed from parent to offspring, then the offspring of these individuals are also more likely to survive and to have surviving offspring themselves. In this way, the genes of the surviving and breeding individuals will, over generations, spread

Incorporating the research of D. Singh, "Adaptive Significance of Female Physical Attractiveness: Role of Waist-to-Hip Ratio," 1993, *Journal of Personality and Social Psychology, 65*, pp. 293–307.

through the population and take over. Genes of organisms that do not survive to reproduce will disappear, also known as being *selected out.* Notice two important things about this description. First, some individuals are taking over the population with their genes, so the competition here is *within* the species. This is the rabbits versus the rabbits, not the rabbits versus the foxes. Second, to be successful in this system, the individual must reproduce itself to a greater extent than other individuals—merely surviving or being healthy and strong are evolutionarily useless unless the individuals also outbreed the competitors. It is in this sense that the old catch phrase, *survival of the fittest*, is misleading. Survival of the fittest was a concept proposed by Herbert Spencer, not Charles Darwin.

The new thinking embodied in evolutionary psychology is that much of human behavior is adaptive; that is, it operates to ensure that individuals will survive and successfully reproduce. That is what we would expect, because the humans who are alive today are the descendents of many generations of evolutionarily successful competitors who managed to outbreed other humans. The result is us. We are not always aware of the evolutionary underpinnings of our behavior. For example, we are reluctant to eat food that smells bad. We would say, "That smells rotten, so I will not eat it." The rotten smell is the *proximal* or *immediate reason*, and it is usually the reason we give. The adaptive or long-term reason, called the *ultimate reason*, is that individuals who eat rotten food are likely to get ill, die, and therefore not reproduce. In the past, individuals who readily ate rotten food were selected out, leaving the rest of us. Evolutionary psychologists stress that we may be often blissfully unaware of ultimate reasons for most of our behavior. Conscious awareness of the ultimate reasons for our behavior does not matter for survival. What matters is that the behavior, in some way, promotes survival and reproductive success.

HUMAN MATING STRATEGY

Evolutionary psychologists note that in mammals, males and females have different goals when it comes to sexual reproduction. In addition, females are limited in the number of opportunities to pass on genetic material. That is, females have only a limited number of pregnancy cycles during the fertile portion of their life span. Males, in contrast, are almost unlimited in the numbers of potential offspring. Indeed the number of sperm in one ejaculation could fertilize all the women in the United States if dispensed door to door. Females are always certain that their offspring are their own—they are present at the birth. Males can never be totally certain that they are the parents of a mate's offspring. This is especially important for humans because males may invest considerable energy and resources for extended periods of time after the child is born. From an evolutionary standpoint, it would be a very costly error for a male to lavish attention, time, money, and other resources on a child who was genetically unrelated to him. Remember, conscious or not, the major goal of evolution is passing on your genes

to your children and subsequent descendents. Therefore, it may make no evolutionary sense for a male to contribute to the development of children he did not father. Males must maximize the chances of parenting their own genetic children. Women do not have any doubt that they are related to their children but, nevertheless, are at risk of being alone during the child-rearing years. The evolutionary task of a woman must be to maintain her mate's investment in the relationship with her and their children. If a man has an extramarital affair, his commitment to his marriage is at risk, and this can bring significant threat to the wife's ability to parent effectively. Evolutionary psychology would predict that a male's emotional investment in another woman would pose a major threat to his mate. A strong emotional investment, rather than a purely sexual affair, may lead to the demise of the marriage, resulting in the wife being burdened by the tasks of child rearing with limited or no spousal support. This burden significantly increases the risk of being less successful in passing on gene copies to the next generation.

The focus of Devendra Singh's research is what makes a woman attractive to a man. We often think of attractiveness in terms of facial beauty, hairstyle, clothing, status, and other variables. Women seem to spend a great deal of time and money to improve their appearance through cosmetics, dress, hair styling, and even plastic surgery. Singh's approach to the study of female attractiveness does not focus on these aspects but, instead, focuses on a relatively simple concept of beauty—the ratio between size of waist and hips. You might think this to be a very unusual concept, because we often think of the variables mentioned earlier (hair, dress) as the key dimensions of attractiveness. The waist-to-hip ratio (WHR) is really not a newly discovered dimension of beauty, but has historical roots. In Victorian society, a small waist and large hips were attained by wearing corsets that cinched the waist tightly and bustles, artificial structures attached to the rear of dresses to increase hip size.

The work of Singh grows out of the tradition of evolutionary psychology and specifically focuses on the role of attractiveness as a variable in mate selection. Evolutionary psychology suggests that both sexes desire mates who will enhance their own opportunities to reproduce more effectively. Women should choose high-status males who can provide the necessary resources to help raise children over a sustained period of time. A man should choose a woman who is fertile and capable of nurturing her offspring. It may not be too difficult to assess a man's status, because the resources associated with one's status are obvious. With women, however, status in terms of reproductive health may be less obvious.

Evolutionary psychologists state that because the major signs of female reproductive ability are hidden (e.g., ovulation), a potential mate must use other more indirect data (e.g., physical attractiveness) as a sign of health. Evolutionary psychology includes physical attractiveness as a sign of youth, and youth is a positive index of fertility. The difficulty with assessing attractiveness is that it is culturally specific, and the particular qualities may even vary over time within a culture. If one compares the standards of beauty in Renaissance paintings of women to contemporary standards of beauty as exemplified by fashion models,

one can readily see the difference over time and culture. Even during the past 40 years the preferred body shape of the Miss America participants has evolved in favor of a slimmer look. Taking a cross-cultural perspective, the difficulties of finding a uniform standard have proved difficult. Women differ considerably in terms of facial features, skin color, hairstyle, skin adornment, and alteration of body features. These characteristics are predominantly culturally based and are important.

However, if evolutionary theory plays a significant role, a cross-cultural biophysical marker of fertility must exist. It is vitally important that relatively obvious physical signs are available for males and females to use as significant factors in mate selection. Singh's research focuses on distribution of body fat, specifically in terms of a ratio between waist and hip size, as the biophysical measure. It is his thesis that WHR is a cross-cultural biophysical feature that relates to attractiveness because it is an indication of reproductive health. Singh certainly recognizes that culturally based variables play a part in the perception of attractiveness, but suggests that the biophysical factors, such as WHR, are of primary importance.

CALCULATING WHR

The calculation of WHR is made by dividing waist measurement by hip measurement. For example, if your waist measured 26 inches and your hips measured 36 you would have a WHR of .72. This ratio is low and indicative of attractiveness. However, if your waist measured 38 and your hips measured 42 your WHR would be approximately .90, a higher and less-attractive ratio. Remember, as you will see in this chapter, overall weight does also play a role.

WHY WAIST-TO-HIP RATIO?

It has been demonstrated that sex hormones affect the accumulation of fat. Testosterone, the male hormone, increases fat deposits in the abdominal area and decreases fat deposits in the hip-buttock-thigh area. In contrast, estrogen, the female hormone, inhibits fat in the abdominal region and increases fat deposits in the hip-buttock-thigh region. Therefore mature men and women have opposite body features in the waist and hip region due largely to the function of different hormones. WHR is seen to be a stable, easily obtained measure that reflects the underlying biological processes.

The next step that needs to be established is the link between WHR and reproductive health status. There is evidence that girls with lower WHR experience earlier endocrine activity (DeRidder et al., 1990). DeRidder's research established a relationship between WHR and fertility. In this research, females with higher WHR had more difficulty becoming pregnant and experienced their initial childbirth at a later age than females with lower WHR. WHR also serves

to indicate a general state of health. For example, research indicates that lower WHR is associated with decreased risk for diabetes, coronary disease, and stroke. Obviously women who are in a more favorable state of health may be better prepared for pregnancy, childbirth, and the demands of childcare and nurturing.

It is important to note that if the WHR is such a good index of general and reproductive health, then it is absolutely essential to this argument that males be able to detect this feature easily and use it to assess the attractiveness of a potential mate. It is important for readers to understand that, in mating from an evolutionary perspective, males are primarily focused in getting their genetic material represented in succeeding generations. In doing so, it makes most sense for them to select as mates the most fertile women. Singh's research studied whether men use WHR as important criteria in assessing the attractiveness of women.

Research has shown that even though the overall weight standard of female attractiveness has changed over the past three decades in favor of a lower overall weight, the hourglass figure as the ideal has remained unchanged. Measurements of Miss America participants from the 1940s through the mid-1980s indicate that WHRs have remained constant, even though body weight and height have changed (Mazur, 1986.) Gardner, Garfinkel, Schwartz, and Thompson (1980), in examining body measurement data for Playboy centerfolds from 1960 to 1978, found a fairly constant WHR that was very close to the Miss America data. In both samples a WHR of approximately .70 was found. The notion of women's bodies changing to a more androgynous, tubular look may find some support in the upper body, the bust. However the WHR, even in models that look similar to Twiggy, a famous twiglike English model, tend to have low WHR. Twiggy is said to have physical measurements of 31–24–33, which yields a WHR of .73. Therefore it appears that weight variations in females, high or low, do not invalidate the concept of WHR. Women who are most attractive to men have WHRs in the low .70s.

DO MEN USE WHR IN ASSESSING ATTRACTIVENESS OF WOMEN?

It is interesting to observe that Miss America contestants and Playboy magazine models have consistently conformed to WHRs in the low .70s. However, it is even more important to demonstrate that men use the WHR data as an important factor in determining a woman's attractiveness. Women have many other physical features such as legs, breasts, facial characteristics, and hairstyle that may convey information regarding general and reproductive health. If WHR is to be considered an important criterion, it has to be shown that men's ratings of women's beauty correlate with WHR. The following study does just that—if the researcher manipulates WHR, will men's ratings of a woman's attractiveness change?

In this first study, 106 Caucasian and Hispanic college men volunteered to participate as part of class requirements. This is a common practice in

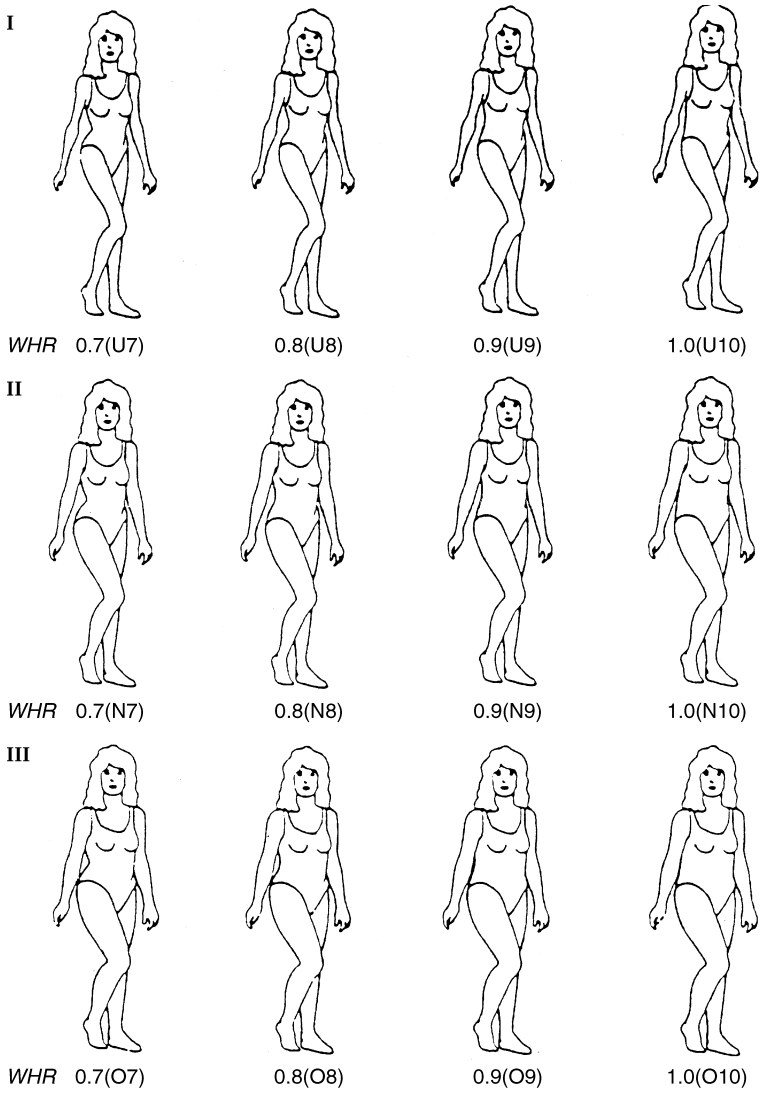

FIGURE 5.1 Line Drawings of Female Figures at Different WHR and Body Weight Levels. Stimulus figures used to represent three body weight categories (underweight, normal weight, and overweight) and four WHR ratings. Participants were given the 12 stimulus figures in random order without any notation of weight or WHR.

psychological research, even though it raises ethical questions. Are you really a volunteer if you participate as a course requirement? The participants were asked to rank 12 line drawings of average height female figures at four different levels of WHR (.7, .8, .9, and 1.0) and three levels of body weight (underweight—90 lbs., normal weight—120 lbs., and overweight—150 lbs.). The figures were printed on normal letter-size paper in a random order. Participants could review all figures prior to making ratings. The line drawings are presented in Figure 5.1.

The participants were told that they were in a research project concerning "Body Types and Personality." The participant's task was to review all 12 drawings and rank them from most attractive (i.e., 1) to least attractive (i.e., 12). Information about the participants such as age, height, weight, religion, and ethnic background was collected before the ranking task. After the ranking was completed participants were debriefed. Debriefing means that the research participants were given all the facts about the research project. In this research it was felt that giving the participants all the facts prior to the ranking would have altered the results. Therefore, participants are often given a "cover story" that will enable them to participate without knowing what the investigators are interested in studying. When this is done, it is mandatory to let participants know about the genuine purposes of the research after they complete their participation.

The attractiveness scores for both Caucasian and Hispanic participants in this study were compared and found to be similar. The participant's own body type, as assessed by a weight/height index, was not found to be a factor that impacted their ranking of attractiveness of the drawings. The attractiveness ranking scores are displayed in Table 5.1. This table depicts the percentage of participants ranking each of the drawings as most attractive (rank 1) and least attractive (rank 12); the choice is a function of body weight status (underweight, normal weight, overweight) and WHR (.7, .8, .9, and 1.0).

Within all three weight categories, the attractiveness rating, as seen in Table 5.1, increased as the WHR moved from 1.0 to .7. The normal weight figure with a WHR of .7 was ranked as most attractive, with the underweight WHR of .7 in second place. The figures in the normal weight category were overall most often assigned the highest rank (i.e., 1) and never assigned the lowest rank (i.e., 12) with the exception of the normal figure with the WHR of 1.0. Singh notes that the normal body weight figures accounted for approximately two-thirds of the attractiveness rankings, whereas the underweight figures accounted for approximately one-third of the attractiveness rankings. It is interesting to note that despite the widespread American belief that thinness is a marker of beauty, the data from this study indicate that men prefer normal weight when rating attractiveness. The low attractiveness ratings for overweight females were consistent with previous research (Harris, Walters, & Walshull, 1991), however, the lower attractive scores for underweight women were unexpected. Singh states that there is some evidence to suggest being under- or overweight can negatively impact reproductive health in the following ways: retardation of the onset

TABLE 5.1 Attractiveness Ranking Scores

	PERCENTAGE RATING MOST ATTRACTIVE	PERCENTAGE RATING LEAST ATTRACTIVE
UNDERWEIGHT FIGURES		
WHR = .7	20	0
WHR = .8	11	0
WHR = .9	0	3
WHR = 1.0	0	8
NORMAL WEIGHT FIGURES		
WHR = .7	48	0
WHR = .8	8	0
WHR = .9	2	0
WHR = 1.0	1	0
OVERWEIGHT FIGURES		
WHR = .7	0	3
WHR = .8	0	3
WHR = .9	0	9
WHR = 1.0	0	11

of menstrual cycle, increasing the length of menstrual cycle, and a higher incidence of infertility due to ovulation problems. Data also indicate that underweight women have offspring who are born at low birth weights, have delays in growth, and may suffer impairments in physical and cognitive development (Supy, Steer, McCusker, Steele, & Jacobs, 1988). Overweight women also experience reproductive health issues.

In order to determine if older men would rank female attractiveness in the same way as the college-age males, a second study using the same methodology was undertaken. The participants in this study were Caucasian males ages 25 to 85. A wide range of socioeconomic and educational status was included in this participant group. The findings in this second study were remarkably similar to the initial investigation. No age group differences were noted. This second study, a replication, provides additional strength for the concept that males utilize WHR as a sign of physical attractiveness. Indeed, these findings imply that the WHR plays a critical role in male decisions regarding attractiveness. Certainly the data indicate that weight is an important factor and the two physical variables (weight and WHR) are both central to male decision making regarding a woman's beauty

status. To be considered highly attractive, a woman must have a low WHR and a normal body weight. If a woman's weight deviates from normal or if her WHR increases, she is likely to be judged less attractive by males. These results indicate that males have the ability to detect the WHR signal and utilize the information in formulating judgments regarding beauty.

IS WHR ADAPTIVE?

Men and women have radically different energy requirements when it comes to the process of reproduction. Women need to supply energy for the development of the fetus during a nine-month gestation period. After birth, the need to supply milk for nursing continues to demand significant energy. A woman's success in the reproduction and child rearing process requires a high level of stored fat. The fat deposits women have in the hips, buttocks, and thigh region are used almost exclusively during pregnancy and during the nursing of infants. There is considerable evidence that the reproductive process in a woman cannot begin until a reasonable amount of fat is stored to ensure the viability of the pregnancy, the birth process, and lactation. It is obvious that the investment in fat storage for a man's reproductive success is irrelevant. In fact, for males to store fat in a pattern similar to women would be counterproductive, as they would be less able to protect and defend their mates and offspring. What is required for males is muscularity and strength. Singh notes that another advantage of gluteofemoral fat in women is that it may serve as a signal to males of reproductive ability. It is a good signal because it can be seen well from side, front, or back. Women's breasts, often associated with attractiveness, do not have the same signal potential and do not always mirror reproductive health.

IS WHR THE ONLY THING THAT MATTERS?

Singh does not mean to suggest that men select women only on the basis of WHR. He does make the case that WHR is likely to be involved in the initial process of decision making about a woman's beauty. Singh regards men as using WHR as an initial screening filter to exclude some women who may be poor candidates for reproductive success. If a woman passes this initial screening, based on WHR, other finer, more discreet filters may be applied to serve in decision making regarding attractiveness. At the next level of decision making, the forces of culture come to bear and operate. These may include body stature, facial features, skin decoration, hairstyle, and use of cosmetics, jewelry, and ornamentation. These variables are seen to operate as long as they do not interrupt or interfere with the biological signals (i.e., WHR) that are viewed as taking primary importance. Facial characteristics have been given considerable attention as an important dimension because of the ability of the human face to convey signals.

Eibl-Eibesfeldt (1989) found that facial expression of emotion is relatively free of cultural constraints and is used to convey sexual intentions. Singh contends that the third level of decision making regarding female attractiveness (1st = WHR, 2nd = cultural) involves personality factors and learned societal variables. Some examples of these factors would be religious identification, attitudes, personality traits, and family values. In order to provide further support for Singh's views, especially the hierarchical arrangement that places WHR as a primary filter, it would be necessary to collect cross-cultural data. If his thesis is correct, other biological factors such as body stature, breast size, and facial features, as well as cultural factors and personality factors, should be of lower importance than WHR.

In 1995 Singh and Luis published a cross-cultural study that replicated the research procedures described in this chapter with young Indonesian, African American, and Caucasian American participants of both sexes. The findings indicate that neither the sex nor the cultural background of the participants affected their ratings of female attractiveness. Normal weight females with low WHR were rated as most attractive. Note that in this study, female participants also had similar ratings to their male counterparts. These findings are important because they show that the evolutionary hypothesis operates in a similar manner in very different cultures.

Singh does not deal directly with the issue of male attractiveness to women in this study. However, one can speculate that a single or cluster of biophysical markers for male attractiveness may not be found to be useful in modern society. It is likely that in primitive human societies a man's strength, endurance, and speed as evidenced by a muscular, athletic physique would provide such a marker. In primitive societies those characteristics, evidenced in body type, would mark a male as a potentially better provider who could sustain a woman through pregnancy, and, more importantly, be a strong, supportive partner during the years of child rearing. In today's society, the characteristics in a male who will demonstrate nurturance, support, and protection for his mate and offspring seem not to be available through a biophysical marker. A person's socioeconomic status is likely to be a better indicator of characteristics that women look for in a potential mate in order to be assured of protection and support. Bill Gates is now the ideal, not Tarzan.

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