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# Jealousy, Infidelity, and the Difficulty of Diagnosing Pathology: A CBT Approach to Coping with Sexual Betrayal and the Green-Eyed Monster

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**Abstract** Humans have evolved adaptations for infidelity, as well defenses against a partner's betrayal—centrally the emotion of jealousy. Both create problems that bring couples to therapy. Diagnosing jealousy as pathological versus normal turns out to be difficult, in part because infidelity has evolved to be concealed from the betrayed mate, which creates a signal detection problem. Because missing an infidelity committed by a mate has been more costly in evolutionary currencies than falsely suspecting a partner of cheating, selection has created an error management cognitive bias to over-infer a partner's betrayal. Moreover, adaptations for jealousy become activated by predictors of infidelity, such as mate value discrepancies, when no actual infidelities have occurred. Cognitive-behavior therapy (CBT) offers several ways to deal with these complexities. One way is to highlight potential mismatches, distinguishing between jealous emotions that were functional in ancestral environments but are less so in modern environments. A second is to distinguish between the goal of personal well-being and reproductive outcomes. Understanding the evolutionary logic of jealousy, in short, provides patients with conceptual tools for cognitively reframing jealousy and infidelity.

**Keywords** Jealousy · Infidelity · Error management · CBT

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## Introduction

Intense jealousy can be emotional acid that corrodes marriages, undermines self-esteem, triggers battering, and is a key motive in the murder of mates and ex-mates (Buss 2000a, b; Buss and Duntley 2011; Daly and Wilson 1988; Daly et al. 1982). Extreme jealousy has been given many names in the clinical and psychiatric literature—*The Othello Syndrome*, *Morbid Jealousy*, *Psychotic Jealousy*, *Pathological Jealousy*, *Conjugal Paranoia*, and *Erotic Jealousy Syndrome*. Jealousy, of course, can be pathological. It can destroy previously harmonious relationships, rendering them hellish nightmares of daily existence. Trust slowly built from years of mutual reliance can be torn asunder. Jealousy by romantic partners causes more women to flee in terror to shelters for battered women than any other cause (Wilson and Daly 1996).

A full 13 % of all homicides are spousal murders, and jealousy is overwhelmingly the leading cause (Buss 2005; Daly and Wilson 1988). When an adult woman is murdered, the odds are between 50 and 70 % that the perpetrator is a husband, boyfriend, ex-husband, or ex-boyfriend. A common sentiment expressed by these killers is "If I can't have her, no one can." Jealousy is a dangerous emotion that has driven lovers to such violent extremes that many cultures have laws specifically tailored to it—crimes of passion.

One pathological aspect of extreme jealousy, according to traditional psychiatric thinking, is not the jealousy itself. It is the delusion that a loved one has committed an infidelity when none has occurred. The rage itself upon the actual discovery of an infidelity is something people everywhere intuitively understand. In Texas until 1974, a husband who killed a wife and her lover when he caught them *in flagrante delicto* was not judged a murderer. In fact, the law held that a "reasonable man" would respond to such extreme provocation with acts of violence. Similar laws have been on the books worldwide. In France, Italy, the UK, Brazil, and Uruguay, for example, killing in this context typically resulted in reduced criminal charges, such as from murder to manslaughter, and reduced sentences if convicted. Extreme rage upon discovering a wife naked in the arms of another man is something that people everywhere find intuitively comprehensible. Criminal acts that would normally receive harsh prison sentences routinely get reduced when the victim's infidelity or a mate poacher's conduct are the extenuating circumstance. Why do people intuit that a "reasonable man" would be driven to such extremes? And are diagnoses of pathological jealousy destruction always warranted?

A professional couples' therapist related the following story. A young couple we will call Joan and Richard came to her with a presenting complaint of irrational jealousy. Without provocation, Richard would burst into jealous tirades and accuse Joan of sleeping with another man. His uncontrollable jealousy was destroying their marriage. Richard and Joan both agreed on this point. Could the therapist help cure Richard of irrational jealousy?

A common practice in therapy for couples is to have at least one session with each member of the couple individually. The first question the therapist posed to Joan during this individual interview was: Are you having an affair? She burst into

tears and confessed that, indeed, she had been carrying on an affair for the past 6 months. Having confessed to the therapist, Joan felt obligated to reveal this information to her husband. They ended up divorcing. Richard's jealousy, it turned out, had not been irrational after all. Presumably, he had been picking up on subtle cues that triggered his jealousy. Since he trusted Joan and she had assured him of her fidelity, however, he became convinced, with Joan's help, that his jealousy had been irrational. In a sense, Richard had failed to listen to his internal emotional wisdom.

In scientific surveys of jealousy, nearly all men and women report having experienced at least one episode of intense jealousy (Buss 2000a, b). Thirty-one percent say that their personal jealousy has sometimes been difficult to control. And among those who admit to being jealous, 38 % say that their jealousy has led them to want to hurt someone. This intense emotion, in short, is not limited to spouse killers.

## The Evolution of Jealousy

Despite its dangerous manifestations, jealousy helped to solve critical reproductive quandaries for ancestral men and women. Consider first a fundamental sex difference in our reproductive biology—the fact that fertilization takes place inside women's bodies and not men's. Internal female fertilization is not universal in the biological world. In some species, such as the Mormon crickets, fertilization occurs internally within the male. The female takes her egg and literally implants it within the male, who then incubates it until birth. In other species, fertilization occurs externally to both sexes. The female salmon, for example, drops her collection of eggs after swimming upstream, the male follows and deposits his sperm on top, and then they die, having fulfilled the only mission in life that evolution gave them. But humans are not like salmon. Nor are we like Mormon crickets. In all 5416 species of mammals, of which we are one, and in all 350 species of primates, of which we are also one, fertilization occurs internally within the female, not the male. This posed a serious problem for ancestral men—the problem of uncertainty in paternity.

From an ancestral man's perspective, the single most damaging form of infidelity his partner could commit, in the currency of reproduction, would have been a sexual infidelity. A woman's sexual infidelity jeopardizes a man's confidence that he is the genetic father of her children. A cuckolded man risks investing years or even decades in another man's children. Lost would be all the effort he expended in selecting and attracting his partner. Moreover, he would lose his partner's labors, now channeled to a rival's children rather than his own.

Women, on the other hand, have always been 100 % sure that they are the mothers of their children—internal fertilization guarantees that their children are genetically their own. No woman ever gave birth and, watching the child emerge from her womb, wondered whether the child was really hers. One African culture captures this sex difference with a phrase more telling than any technical summary: "Mama's baby, papa's maybe." Biology has granted women a confidence in genetic parenthood that no man can share with absolute certainty.

Our ancestral mothers confronted a different problem—the loss of a partner's commitment to a rival woman and her children. Because emotional involvement is the most reliable signal of this disastrous loss, women key in on cues to a partner's feelings for other women. A husband's one-night sexual stand is agonizing, of course, but most women want to know: "Do you love her?" Most women find a singular lapse in fidelity without emotional involvement easier to forgive than the nightmare of another woman capturing her partner's tenderness, time, and attention (Shackelford et al. 2002). We evolved from ancestral mothers whose jealousy erupted at signals of the loss of love—mothers who acted to ensure the man's commitment.

But who cares who fathers a child or where a man's commitments get channeled? Shouldn't we love all children equally? Perhaps in some utopian future, we might, but that is not how the human mind is designed. Husbands in our evolutionary past who failed to care whether a wife succumbed to sex with other men and wives who remained stoic when confronted with their husband's emotional infidelity may be admirable in a certain light. Perhaps these self-possessed men and women were more mature. Some theories, in fact, propose that jealousy is an immature emotion, a sign of insecurity, neurosis, or flawed character. Non-jealous men and women, however, are not our ancestors, having been left in the evolutionary dust by rivals with different passionate sensibilities. We all come from a long lineage of ancestors who possessed the dangerous passion.

Jealousy, according to this theory, is an adaptation. An adaptation, in the parlance of evolutionary psychology, is an evolved solution to a recurrent problem of survival or reproduction. Humans, for example, have evolved food preferences for sugar, fat, and protein that are adaptive solutions to the survival problem of food selection. We have evolved specialized fears of snakes, spiders, and strangers that are adaptive solutions to ancestral problems inflicted by dangerous species, including ourselves. We have evolved specialized preferences for certain qualities in potential mates, which helped to solve the problems posed by reproduction. Adaptations, in short, exist in modern humans today because they helped our ancestors to combat all of the many "hostile forces of nature," enabling them to better survive and reproduce. Adaptations are coping devices passed down over millennia because they worked—not perfectly, of course, but they helped ancestral humans to struggle through the evolutionary bottlenecks of survival and reproduction.

Many expressions of jealousy, according to this perspective, are not signs of immaturity, but rather important passions that helped out ancestors, and most likely continue to help us today, to cope with a host of real relationship and reproductive threats. Jealousy, for example, motivates us to ward off rivals with verbal threats and cold primate stares (Shackelford and Buss 1996). It drives us to keep partners from straying with tactics such as escalating vigilance or showering a partner with affection. And it communicates commitment to a partner who may be wavering, serving an important purpose in the maintenance of love. Sexual jealousy is often a successful, although sometimes dangerous, solution to persistent predicaments that each one of our ancestors was forced to confront.

We are typically not conscious of these reproductive quandaries. Nor are we usually aware of the evolutionary logic that led to this dangerous passion. Men do not think: "Oh, if my wife has sex with someone else, the certainty that I'm the genetic father is jeopardized, thereby endangering my genetic legacy… I'm really mad!" Nor does a man whose partner uses birth control think, "Well, because Joan is taking the pill, it doesn't really matter whether she has sex with other men; after all paternity is not an issue." Nor does a woman think: "It's really upsetting that Dennis is in love with that shrew instead of me; this jeopardizes my hold on his emotional commitments to me and my children, and hence hurts my overall reproductive success." Instead, jealousy is an essential passion, just as our hunger for sweets and our craving for companionship are evolved adaptations. Jealousy can be considered a type of nonconscious emotional wisdom passed down to us over millions of years by our successful forebears.

Jealous men were more likely to reserve the expensive resource of parental investment for their biological children, rather than squandering it on the children of rivals. As descendants of a long line of men who acted to ensure their paternity, modern men carry with them the dangerous passion that led to their forebear's reproductive success.

According to this hypothesis, jealousy represents a form of ancestral wisdom that can have useful as well as destructive consequences. The view of extreme jealousy as inevitably pathological ignores a profound fact about an important defense designed to combat three real threats to intimate relationships—infidelity, potential mate poachers, and a partner's outright defection from the relationship. Jealousy is not always a reaction to an infidelity that has already been discovered. It can be an anticipatory response to adaptive problems such as a mate value discrepancy or to the sudden presence of potential mate poachers (Schmitt and Buss 2001). So it can be a preemptive strike to prevent an infidelity or defection that might occur. Labeling jealousy as delusional or pathological simply because a spouse has not yet strayed ignores the fact that jealousy can head off an infidelity that might be lurking on the horizon of a relationship.

## The Difficulty of Diagnosing When Jealousy is a Pathological Disorder

Some expressions of jealousy clearly qualify as psychologically disordered. The DSM notes one form—Delusional Disorder-Jealous Type (Easton et al. 2008). This requires clear evidence of delusions of a partner's infidelity when no infidelity has occurred. Consider this case. On Christmas eve, a man looked out of his living room window across the street, and noticed his neighbor's Christmas tree lights blinking. When he compared them to the analogous lights his wife had set on their tree, he noticed that they were blinking in synchrony with those of the neighbor. He concluded that his wife was having an affair. His wife insisted that he see a psychiatrist, who diagnosed him with delusional jealousy. As it turned out, his wife was indeed having an affair. Moreover, she was having an affair with that specific neighbor. So is delusional jealousy the proper diagnosis? Clearly, there was a delusional component; it is extremely improbable that there existed Christmas tree

light synchrony intentionally created by his wife and his neighbor. But his inference of his wife's infidelity was perfectly on target and not delusional.

Some have offered criteria for distinguishing normal from pathological jealousy. For example, Marazziti et al. (2003) identify these key criteria:

- Time taken up by jealous concerns.
- Difficulty in putting the concerns out of the mind.
- Impairment of the relationship.
- Limitation of the partner's freedom.
- Checking on the partner's behavior.

The difficulty with the application of these criteria is that they are overly broad. If a partner is indeed having an affair, or perhaps even considering having an affair, these expressions of jealousy may signal the normal operation of the adaptation of jealousy. Limiting the partner's freedom and even extremes of checking on the partner's behavior to the point of stalking are common manifestations of mate guarding (Buss 1988; Buss and Shackelford 1997a, b).

Kingham and Gordon (2004) offers these common symptoms of pathological jealousy:

- Accusing partner of looking or giving attention to other people.
- Questioning of the partner's behavior.
- Interrogation of phone calls, including wrong numbers or accidental phone calls, and all other forms of communication.
- Going through the partner's belongings.
- Always asking where the partner is and whom they are with.
- Isolating partner from their family and friends.
- Not letting the partner have personal interests or hobbies outside the house.
- Controlling the partner's social circle.
- Claiming the partner is having an affair when they withdraw or try to escape abuse.
- Accusing the partner of holding affairs when the marriage's sexual activity stops because of the abuse.
- Lack of trust.
- Verbal and/or physical violence toward the partner, the individual whom is considered to be the rival, or both.
- Blaming the partner and establishing an excuse for jealous behavior.
- Denying the jealous behavior unless cornered.

Again, however, all of these behaviors have been documented as common mate guarding and retention tactics whose frequency is increased when someone faces one of the adaptive problems of partner infidelity, threat of mate defection, presence of mate poachers, or all three (Buss 2000a, b). Even threats of harm to self if a partner threatens to leave the relationship and verbal or physical violence directed a partner are common expressions of mate guarding across cultures (Buss 1988; Buss 2000a, b; Buss and Duntley 2011). A threat of suicide if a partner leaves sometimes solves an adaptive problem of mate retention and the partner stays. And often, violence and threats of violence cause a woman to stay in a relationship, even if she

wants to get out, again solving the problem of mate retention. Although physical violence toward a spouse is illegal in some cultures, but by no means all, laws against wife-beating and spousal rape are relatively recent and have not characterized most of the centuries in which humans have had written laws. Four additional problems render a diagnosis of pathology problematic—the signal detection problem, the on-average effectiveness problem, error management logic, and sensitivity to predictors of infidelity even when none has occurred.

## The Signal Detection Problem

Although infidelity is often morally condemned and seen as a sign of dysfunction, a good case can be made that affairs evolved to solve adaptive problems. For men, the historical reproductive benefits of infidelity were fairly straightforward—increased sexual access to fertile women translated into more offspring and greater reproductive success (Symons 1979). For women, infidelity is more puzzling, since rarely could it have translated into higher reproductive output (the exception being married to a man who was impotent or infertile). The two leading evolutionary hypotheses for female infidelity are (1) securing good genes from an affair partner while securing investment from a regular partner (Gangestad and Haselton 2015), and (2) the mate switching function, by which affairs secure a backup mate, pave the way for exiting a bad relationship, trading up to a higher mate-value partner, or all three (Buss et al. in press).

Because it has been advantageous for some individuals to have an affair, and the affair comes at a potentially steep cost to the partner, defenses evolved to prevent its occurrence. The psychological complex of jealousy and its behavioral output in mate guarding and retention, as discussed above, are the primary co-evolved defenses. As defenses against a partner's infidelity evolved, more sophisticated strategies for conducting affairs evolved. Chief among these were secrecy. As jealousy evolved and became more elaborate in design specificity, infidelity got driven underground, cloaked in great secrecy. As one sex became more and more sensitive to subtle cues of infidelity, such as unexplained absences, strange scents, changes in sexual interactions, and many others (Shackelford and Buss 1997), the other became more adept at concealing these cues. The resulting co-evolutionary arms race created a signal detection problem—how could a calamitous infidelity be detected when cues to its occurrence were so skillfully concealed? Consequently, motivated monitoring, seemingly paranoid suspicions, cutting off a spouse's social contacts, isolating a partner, snooping through their belongings—all seen by some as signs of pathology—may instead be the normal behavioral output of an adaptation working effectively to detect intentionally concealed subtle signals. The signal detection problem, in short, poses a problem for distinguishing normal from pathological jealousy.

## The On-Average Effectiveness of the Jealousy Adaptation

Another problem is that solutions to adaptive problems evolve because, on average across the sample space of instances, they solve or ameliorate the problem better than alternative designs extant in the population at the time of their evolution. Callus-

producing adaptations are designed to protect the anatomical and physiological structures beneath the skin, but those structures sometimes still get damaged despite the presence of calluses. Adaptations for coalitional warfare can evolve, even if these result in the death of the attackers some of the time or even a lot of the time (Tooby and Cosmides 2010). In other words, there are many "instance failures" of adaptations, despite their on-average effectiveness (Cosmides and Tooby 1999).

Jealousy, an adaptation designed to defend against a partner's infidelity and potential defection, also produces many instance failures. Some partners still cheat despite jealous mate guarding. Some partners still defect, despite the deployment of the most effective mate retention tactics at a person's disposal. These instance failures do not falsify the hypothesis that jealousy is a well-designed adaptation, since all adaptations work based on their on-average success, not based on their success in each and every case in which the relevant problem is confronted. The inevitability of instance failures creates a second problem for distinguishing normal from pathological jealousy.

## Jealousy Embodies Error Management Logic

When faced with conditions of uncertainty, there are two ways to err—failing to detect a problem that exists and falsely detecting a problem when none exists. A rustling in the leaves may signal a poisonous snake or a harmless sound stemming from a gust of wind. The costs of inferential errors differ in this case. Inferring a snake's existence when there is no snake produces relatively trivial caution and avoidance. Failing to infer a snake's existence when there is one could result in death. In short, there is often a cost asymmetry in inferential errors under conditions of uncertainty. According to Error Management Theory, recurrent cost asymmetries of this sort result in the evolution of cognitive biases to err in the direction of avoiding the more costly error (Haselton and Buss 2000). A smoke alarm is set sensitively by design to produce many false positives because the cost of missing an actual fire is far steeper than the cost of dealing with annoying alarm sounds when there is no actual fire.

Error management theory logic applies with equal force to the evolved design of jealousy (Buss 2000a, b). Failing to detect an actual infidelity is generally costlier than falsely suspecting one that has not occurred. Jealousy-motivated vigilance or suspicion is generally less costly than being oblivious to an infidelity. Falsely suspecting a spouse of infidelity, of course, can have costs from small to large. It could produce relationship conflict, wasting valuable effort on a problem that does not exist. Persistent jealousy also sometimes drives a partner out of a relationship or into the arms of others. But if the on-average cost of erring by falsely suspecting infidelity exceeds the average cost of missing an infidelity or defection, jealousy thresholds will evolve to avoid the more costly error.

## Jealousy is Triggered by Predictors of Infidelity When No Infidelity Has Occurred

The difficulty of diagnosing when jealousy is pathological becomes further compounded by the fact that jealousy is designed to be activated not just by cues to

the actual occurrence of infidelity, but also to statistically recurrent predictors of infidelity when no infidelity has actually occurred. Consider mate value. People generally couple based on overall mate value; the 8s tend to pair up with other 8s, the 6s with other 6s (Buss 2003; Conroy-Beam & Buss 2016). Over time, however, mate value discrepancies can emerge. A man or woman might receive a large promotion at work or large status boost from a career breakthrough, dramatically improving their mate value. A man or a woman could become ill, suffer a debilitating injury, or suffer a status loss, dramatically lowering their mate value. Because the components that contribute to mate value are never static and always change over time, mate value discrepancies inevitably emerge. If they get large enough, they predict infidelity, defection, and mate switching (Buss et al. in press ; Buss and Shackelford 1997b). If jealousy is designed to be triggered by a mate value discrepancy, even if no infidelity or defection has occurred, it can seem pathological when it is not.

Mate value discrepancies are not the only statistical predictors. Other candidates include erectile dysfunction, orgasm difficulty, sexual dissatisfaction, decline in sexual desire or drive, the sudden introduction of new sexual positions, abrupt changes in clothing style, innocuous but unexplained absences, and many others (Buss 2000a, b; Shackelford and Buss 1997). A man who experiences erectile dysfunction or whose wife becomes sexually dissatisfied may suspect that she will seek sexual gratification elsewhere. Abrupt changes in clothing or sexual positions may signal infidelity, but may simply be innocuous attempts to spice up a life of quiet desperation. Since jealousy is designed to become activated by statistical predictors of infidelity, even if it has not occurred and might never occur, it can seem pathological when in fact it is functioning precisely as it was designed to function.

From an evolutionary perspective, a diagnosis of disorder requires that an evolved mechanism not function as it was designed to function (Wakefield 2005). In the case of jealousy, if it gets activated in contexts it was not designed to get activated, is triggered by drugs or alcohol that produce delusions or abnormally lower thresholds for suspicion for example, it is not functioning as it was designed to function and so can become pathological or disordered. But the signal detection problem, the on-average success of adaptations that produce many instance failures, the adaptive error management biases designed to avoid the more costly errors even at the expense of more frequent but less costly errors, and the fact that jealousy is activated by statistical predictors of events that have not occurred, render a diagnosis of jealousy as pathological diabolically difficult.

Cognitive behavior therapy, however, can produce insights into these difficulties and help patients with presenting problems of jealousy.

## Rational-Emotive/Cognitive Behavior Therapy (RE/CBT) Applied to Jealousy or Infidelity

Although an evolutionary perspective compellingly depicts jealousy as an adaptation, it is one that can be perceived as maladaptive in many modern social settings. Until very recently, there were fewer normative values against violence, murder or

any other socially disagreeable manifestations of jealousy (Pinker 2011). Prior to written laws, judges, juries, and jails, a jealous male could violently assault or kill any perceived competitor without formal consequences. Of course the victim's family, tribe, or clan might seek retribution; but such reprisals were far less assured than those confronted by a violently jealous man today. From a purely adaptive point of view, it was advantageous for a male to use any effective means to remove a competitor, at least if one could implement this removal in a manner carried out to minimize the costs of doing so (e.g., victims fight back or even kill to prevent being killed). If a potential competitor were killed without consequence, the risk of being cuckolded or losing a mate plummeted. Moreover, women had little recourse when severely restricted or battered by a mate. Indeed, if women in some present cultures face restrictions in dress, social behavior, and sexual expression, one can only imagine what a social order exclusively dominated by the strongest males would impose on women.

Sex differentiated mating strategies have evolved in humans. These include sex-differentiated mate preferences, with men prioritizing cues to fertility such as physical appearance and youth, and women prioritizing a man's willingness and ability to channel resources to herself and her children (Buss 1989). Both women and men share preferences for long-term mates who are healthy, kind, and intelligent. Given the large gender asymmetry in minimum obligatory parental investment, men have evolved stronger motivations to seek short-term sex, including a desire for partner variety, letting little time elapse before seeking sexual intercourse, a high sex drive, minimizing entangling commitments, and many others (e.g., Buss 2015; Jonason and Buss 2012; Schmitt 2003).

The male in his quest to gain sexual access to females had to compete with other males with the same agenda. This led males to be competitive, protective of their mates, and aggressive with competing males. A male who provided material support in the early stages of infant development would improve the survival chances of his offspring. So a strategy that included controlling, protecting, and providing some care for both the mother and his offspring was used (Buss 1988; Buss and Shackelford 1997a, b; Fisher 1992, 2004).

Of course, women evolved in parallel to men and also possess inclinations that are adaptations to the environments in which they evolved. Female evolution appears to include several strategies that increased their reproductive success. One of these included bonding with a male and fending off other females by actively seeking the male's attention. And in ancestral settings, females would use verbal aggression to diminish the competing female's standing in the social order—a strategy still present in modern times (Buss and Dedden 1990; Campbell 1999). Female jealousy evolved to take a more defensive and less physically risky style. Female jealousy evolved as a mate retention adaptation, functioning to protect against the hazard of committing reproductive resources in a male, nurturing his children (and genes), only to have him divert his resources to other females. Women who lost a man's commitment to another woman would have faced the loss of protection and provisioning, putting themselves and their young at risk.

Women prone to jealousy are less likely to bear children from unfaithful mates. In other words, they will detect the men who are not committed to caring for them

and their children during their most vulnerable time—from pregnancy until the offspring is approximately 4 years old and weaned from the mother (Fisher 1992, 2004). The jealous woman not only wards off female competitors for the male's affections, but also continues to assess his commitment to the partnership. In effect, jealousy is a kind of vigilance to identify a deceptive male's feigned commitment, developed to prevent the male from impregnating another female, leaving the partnership, and devoting his resources to another family.

Adaptations for infidelity under certain circumstances have evolved in both men and women (Buss 2015). The male who impregnated more females would have more descendants. Females whose reproductive potential is limited by long gestation and breast feeding, may still benefit from infidelity if it leads to procuring genes from males whose appearance suggests good health (Gangestad and Haselton 2015) or from using affairs to switch mates—to leave one mating relationship and trade up to a better or less cost-inflicting one (Buss et al. in press). For example, women are more attracted to men with greater physical symmetry, larger body size, superior physical strength (Puts 2010), and men who are successfully polygynous. This latter criterion may seem to be counterintuitive, but may be explained by the "sexy son hypothesis" (Weatherhead and Robertson 1979; Weatherhead 1979). Specifically, women who seek males who are highly polygynous, and otherwise desirable, will tend to produce a larger number of comparable sons. These polygynous sons will experience higher reproductive success, thereby increasing the reproductive success of the mothers who produced them.

The evolutionary perspective discussed here is critical in appropriately applying Rational-Emotive/Cognitive Behavior Therapy (RE/CBT) in cases of jealousy and infidelity. If the clinician dogmatically interprets jealousy as pathological and infidelity as immoral, the client will not be adequately aided. Clinicians not well versed in evolutionary theory often intuit that infidelity cannot be pathological simply because it is so common. The same is true for jealousy. The jealous person viscerally feels that he or she is protecting him or herself from a perceived danger (Buss and Shackelford 1997a, b; Buunk et al. 1996). Telling 0this person that they are pathological for being jealous, is neither helpful nor accurate. If a clinician understands and communicates that these desires and behaviors are often part of the proper functioning of human mating adaptations, then the client will be helped with attaining self-acceptance. A client who has self-acceptance is more able to objectively evaluate their actions and change to more adaptive behaviors in the current environment. Acceptance that a client's perspective is natural does not necessarily endorse or encourage its perpetuation. Indeed, there are great many natural phenomena that are pernicious and harmful that are rejected by societal mores and laws (Curry 2006).

Jealously, and the infidelity it guards against, developed with concomitant strategies. The deceptive partner has evolved abilities to furtively deceive the partner, and the jealous suitor has evolved mechanisms to detect the deception. These strategies may be considered culturally immoral, but they are not pathological using Wakefield's (1992) evolutionary definition of psychological disorder. Rather, both infidelity and jealousy in modern humans are ancestral reproductive strategies that may or may not be adaptive in the modern environment. Thus, jealousy and

infidelity are closely related problems for the therapist. The former refers to the emotions and behaviors related to defending an intimate relationship. The latter involves the emotional distress that results when those defenses fail. Jealousy is not a pleasant emotion; it is perceived by most people as a type of urgent vigilance (Maner et al. 2009; Maner and Shackelford 2008), and certainly produces much subjective distress (Buss 2000a, b). The perceived necessity and non-agentic aspect of jealousy needs to be appreciated by clinicians. It needs to be viewed as an evolved emotion that feels necessary for the affected individual. The jealous person typically does not feel neurotic or foolish, despite the distress the emotion is evoking in him or her. The jealous person believes that he or she is inferring a risk of a great loss, and jealousy is the consequential emotion that is apprehended as necessary to defend against the potential loss.

## RE/CBT for Individuals or Couples

In the mid-1950s Albert Ellis observed that the preponderance of clients seeking his help for sexual or relationship problems suffered from distortions of thinking. Despite his psychoanalytic education, he did not find repressions, libidinal cathexes, ill-formed psychic objects, or any of the other Freudian pathologies. Instead, he found a consistent pattern of people distressing themselves with their own rigid, demanding, or inflexible beliefs (Ellis 1957). His work led to the first cognitive behavior therapy that he would ultimately refer to as Rational-Emotive Behavior Therapy. By the mid-1960s Aaron Beck independently came to similar conclusions about psychopathology when working with depressed people. Over the next few decades their work, along with others like Arnold Lazarus, Donald Meichenbaum, and Michael Mahoney, led to the clinical approach now referred to as cognitive behavior therapy (CBT). In this article we will use the term RE/CBT to refer to these therapies, including elements of Ellis's original approach, combined with more recent protocols.

The RE/CBT approach to jealousy and infidelity in couple therapy (Abrams 2012) seeks to uncover and modify each partner's distinctive cognitions that contribute to the struggles that brought them to counseling. When RE/CBT is used to help people with jealousy it is usually after it has become a significant impediment to the relationship (De Silva 1997). The person seeking help often recognizes that jealousy is problematic, or may seek help because the partner is rebelling against the jealousy and insists on the mate getting help. In either case the treatment would be similar.

A different approach is taken for couples seeking help. Therapy for two people in conflict requires that all interventions consider the often competing interests of the participants. As the evolutionary perspective makes clear, there are usually evolved psychological adaptations operating behind the stated motives of each participant. Even if infidelity is viewed as offering an evolutionary advantage to one member, it needs to be addressed quite sensitively when both members are present. Evolutionarily endowed inclinations are explanations, but not moral justifications. Understanding evolved drives is frequently a starting point in the effort to control or redirect them.

After an initial session to obtain background information, the couple is instructed in the principles of RE/CBT, so each partner can recognize and help correct the irrational thinking or cognitive distortions in himself or herself, as well as the partner. However, RE/CBT has features that are invoked regardless of the specific problem. Unlike the purported "depth" or "insight" therapies, RE/CBT seeks to illuminate and change the cognitions in the form of beliefs, attitudes, philosophies or personal values that underlie all mental anguish responsive to talk therapy. These irrational cognitions typically take two forms: beliefs that are inflexible or absolutistic (A) and beliefs that are demanding (D) (e.g., Ellis 1997). They can take forms like:

- "It would be completely humiliating if my lover cheated on me." (A)
- "I could not stand it, if I were lied to by my significant other." (A)
- "If I love someone, they must never do anything inconsiderate." (D)
- "My lover must absolutely be completely faithful to me." (D)
- "A significant other must treat me the way I want." (D)
- "If someone repays my fidelity with infidelity, he or she absolutely must be severely punished." (D and A)
- "I find it absolutely unbearable that someone is thinking they have made a fool of me." (A)

The evolved nature of these jealous beliefs is supported by the intensity by which they are commonly held (Ellis 1987). The degree of rage and alienation felt by the jealous companion is directly proportional to their confidence in the truth of the kinds of beliefs stated above. That is, the more strongly one holds a distorted or irrational cognition, the more intense the emotion when that belief is violated. And when a member of a couple feels provoked to jealousy it may be precipitated without a cognitive appraisal, by means of automatic circuit-logic reactions. However, the only way the individual can consciously assess feelings is verbally. Therefore, it is the initial goal of the RE/CBT process to guide clients to express these jealous emotions verbally. It is through this process that the jealous individual will begin to apprehend that the intensity of their emotion may not be in proportion to any objective threat to immediate well being—even if his partner is actually cheating. RE/CBT interventions will help the client see that even if betrayed, responding with intense negative emotions may only make the situation worse. Thus, RE/CBT helps one see that while having an unfaithful partner is clearly undesirable, it does not have to be perceived as unalterably devastating. Evolution has selected us to be jealous in delimited contexts, but the contemporary interests of the individual do not always correspond with the interest of his or her genes. Stated differently, adaptations that historically led to reproductive success may currently conflict with personal happiness (Buss 2000b).

Many jealous people will have irrational or distorted beliefs that arise due to the evolutionary threats posed by infidelity. However, the evolved desire not to be cuckolded or lose a mate's parental investment does not pose as great a danger to current reproductive success as it did for our distant ancestors. There is a mismatch between ancestral and modern environments in this respect. It is this paradox—that

jealousy was once critical to reproductive success, yet may no longer essential—that must be addressed by the therapist. It is quite reasonable for the jealous person to feel hurt, disappointed, sad or alienated. But when the jealous person's narrative makes real or imagined concerns intolerable or disruptive to everyday life, then the person's concerns can be assumed to be based on cognitions that were once supremely functional, but may no longer be so in the modern world.

These beliefs are often accompanied by cognitive biases in which the person feeling jealous focuses only on those aspects of their environments that validate their disturbing beliefs. The jealous person will tend to reject alternative hypotheses for suspicious behavior, focus exclusively on behaviors deemed deceptive, exaggerate signs of disaffection on the part of the lover, and so on. So the disturbing beliefs will lead to confirmatory perceptions that will in turn intensify the irrational or distorted cognitions. The therapist must recognize and dissect the components of this cognitive feedback loop as experienced among individual clients to determine whether jealousy is or is not pathological.

For example, in our discussion of the error management and the signal detection models of jealousy, it is evident that in all cases except for the correct detection or incorrect rejection of infidelity (ruling it out when it is occurring), the individual may appear pathological. In these cases, jealous individuals will believe that they have correctly discovered a basis for jealousy, even when it has not occurred. An example might be the discovery of a partner having a friendly email or text message exchange, leading to the conclusion that their partner is having an affair. There are four possible outcomes for the potentially jealous person:

1. Correctly detecting that the partner is cheating.
2. Correctly concluding that a faithful partner is indeed faithful.
3. Incorrectly concluding that a faithful partner is unfaithful.
4. Incorrectly believing that an unfaithful partner is faithful.

The intensely jealous person has irrationally made being cheated on so dreadful, that they are willing to perennially torment themselves and their partners with false alarms and false accusations.

The more catastrophizing an individual conceptualizes a negative outcome, the less likely the person is to rule out its possibility. Let's compare those who apprehensively dread infidelity to individuals suffering from phobias. This may be best illustrated in individuals with aerophobia. The person afraid of flying is generally well acquainted with the vanishingly small probability of the flight crashing. Despite this, the person will persist in being afraid because he or she tends to pre-emptively experience the most appalling disaster imaginable. In short, if a person obsessively imagines a terrible outcome, the miniscule probability of its occurrence does little or nothing to offset the trepidation of the improbable. This can be seen in the client whose jealousy requires treatment. Over human evolutionary history, it would indeed pose potentially catastrophic risks to a man's reproductive success if jealousy did not exist. However, these risks are far lower today with environmental changes like effective birth control and genetic testing. And even when infidelity does lead to extra-pair reproduction, the cost in reproductive success

may matter less than to his or her ability to enjoy life. As Pinker once noted, he has chosen not to reproduce at all, so his genes can go jump in a lake. We do not need to be slaves to emotions that may have been supremely function in ancestral environments, but that currently impede modern-day well-being.

This leads a key therapeutic intervention, to address the separate the goals of the individual's selfish genes and those of the individual's current well-being. Consequently, even if the jealous person is not distorting the probability of a partner being unfaithful, the risks to the individual in the moment can be distinguished from the historical risks to reproductive success. These are essential the loci of treatment for the RE/CBT therapist treating a client who has problems with jealousy.

## RE/CBT for Individuals Troubled with Jealousy

Jealousy evolved as an adaptation in males, as a defense against being genetically cuckolded or abandoned entirely. It minimized the risk of losing fitness due to parental investment wasted (from the perspective of gene replication) on a non-related offspring. Among females, jealousy evolved as a means of limiting the risk of a partner diverting his resources to another woman and children. Because jealousy is an evolved emotion, it will tend to feel logical and protective to the individual experiencing it. Consequently, the jealous man will typically react as though the therapist is attempting to get him to lower his guard. This is true in the case of other evolved fears such as the phobias associated with prepared classical conditioning (Seligman 1971.). These fears and phobias tend to arise with minimal consciously articulated cognition.

For example, people with phobic reactions to heights, insects, animals and other innately feared things, will often suffer these fears without the irrational or distorted beliefs that underlie social or self-worth fears. Thus, people with phobic fear of dogs or spiders will commonly display great fear without requiring a complicated cognitive appraisal of the danger. In contrast, an excessive fear of professional failure, loss of social status or rejection in love tend to require a cognitive appraisal because they involve more complex problem solving. Importantly, both kinds of fears will generate cognitions that are addressable through RE/CBT. Once a comfortable therapeutic relationship is established, individuals typically become more open to the possibility of having irrational or distorted cognitions; they are often motivated because this type of thinking makes people feel distressed and wretched. Indeed, addressing personal misery is a prime reason for seeking therapeutic help.

## RE/CBT for Couples Troubled with Jealousy

Since jealousy is almost always a problem between couples, couple's treatment often will be the focus. Individuals rarely seek help for jealousy for the reasons related to jealousy's evolutionary history. That is, when judging oneself, jealous

people rarely feel that jealousy is a problem. Rather, they feel that the world, and those in it, are not to be trusted. More often, jealousy becomes a problem when it interferes with a couple's union. Like other universal human qualities like aggression, anger or social pride, jealousy is normally distributed. There are those at one end of the distribution who feel little jealousy and those at the other who are consumed by it.

It is important for the clinician to be aware that wherever the individual falls on the jealousy spectrum it will feel rational to that individual. And that sudden outburst of jealousy might be resulting from changes in a partner's behavior that had been previously suppressed. Despite these overall stable individual differences, it is also true that jealousy is sometimes relationship-specific or context-specific within relationships. A man involved with a flirtatious sexually provocative woman might be jealous with her due to the frequent male sexual attention she garners, but not when shifting to a relationship with a more introverted, less flirtatious woman. A woman whose husband received a dramatic job promotion might experience a sudden surge of jealousy, but the emotion might dissipate entirely when he loses his job.

When a couple seeks help, it is always best to conduct the first session seeing each member separately. All couples ultimately seek help because of some failure of communication, and psychotherapy at its essential core serves to facilitate communication (Abrams 2012). Indeed, if both members of a couple were able to perfectly communicate their perspectives and articulate a means to change or improve the relationship, a therapist would not be necessary. In addition to communication per se, couples also seek for barriers to communication, such as disputes over the accuracy of events and actions (Loftus 2007). Partners confabulate, spin, distort, advocate, and even lie when communicating with one another. These distortions often become deeply ingrained and are an essential topic of counseling. With the safety of confidentiality each member can more comfortably reveal concerns or actions that may have been withheld from the partner.

Among the concerns that the therapist is evaluating is the legitimacy of the jealousy. Humans have evolved means to detect cheating or deception in others. So the therapist needs to ascertain whether the jealous partner is overzealously protective or whether he/she is sensing behaviors that overlie diminishing commitment in their partner. If this is the case, the therapy needs to shift from jealousy as a primary problem to jealousy as a symptom of other problems with the relationship. However, if the relationship is being impeded by a partner whose suspicions are not based on changes to relationship or actual deceptions, the goal is to illuminate source of the distortions or exaggerations of the jealous partner.

The paradoxical aspect of problematic jealousy is that jealous partners sometimes are undermining the relationship they feel compelled to protect. A little jealousy can be beneficial, but extreme jealousy wreaks havoc on relationships. The joint session will have both partners taking time to discuss what they see as the problem in the relationship. In most cases, the jealous partner will complain about the inappropriate actions that are inciting their suspicions. And the partner under suspicion will complain of the distrust, accusations and restrictions coming from the jealous partner. It is generally, best to start with the accused partner to clarify that, despite

the averseness of living under suspicion, it is not unbearable. They need to be shown that they are free to ignore the accusations, curtail commitment, or even leave the relationship. They will tend to believe that it is grossly unfair to be falsely accused or that it is deep violation of the relationship not to be trusted. In response, they can be guided to see that their jealous partner has elevated them to an exalted status by making their potential loss an obsessive fear. In justifying the jealousy this way, the jealous partner is also being made aware of their own jealousy.

## RE/CBT for Infidelity

The anguish induced by infidelity is not assuaged with the knowledge of its high prevalence (Barash and Lipton 2001) or its evolutionarily nature. As with jealousy, the victim of infidelity can seek help individually or as part of a couple. Working with people who have suffered infidelity differs in kind from those troubled solely by jealousy. Those in a jealous relationship will be troubled by emotions that anticipate a dreaded event, while the victim of infidelity will suffer passions that ensue after the aversive event has actually occurred. Consequently, RE/CBT for these occurrences will require different strategies, and will be addressed separately below.

### RE/CBT for Couples with an Unfaithful Partner

It is not unheard of for the clinician to treat a couple in which both partners were unfaithful, but this is unusual. The modal case is a couple in which one partner has been unfaithful, so we will focus on this more typical case. It is important to note that there are differences in treating infidelity in Lesbian, Gay Male, and Heterosexual couples (e.g., Kleinplatz 2012). The cultures that these dyads arise from tend to have divergent perspectives on infidelity that will impact the response and subsequent treatment of people from the cultures. However, the RE/CBT approach can be applied, with minor modifications, to all groups.

Each member of the couple is seen separately to assess for level of anger, alienation, allegiance to the relationship, the individual's willingness to move on or change their unfaithful behaviors, and commitment to the counseling process. If the therapist determines that the relationship remains viable then the treatment process can continue. In contrast, if it is made clear that the factors that led to the infidelity are intractable or either partner makes clear that the alienation is too great for the relationship to continue then the therapist must directly address this in the next session. During this subsequent session, the therapist must explicitly enumerate the reasons why the couple's relationship is no longer viable, and make the case that it seems that the purpose of seeking counseling by one or both partners was to facilitate an exit from the relationship. If the therapist is correct, one or both partners will readily accept the judgment. Conversely, if the therapist is not correct then one or both partners will advocate for the continuation of therapy. In this case, the therapist is obliged to continue the treatment process until he or she, or the demurring couple, is proven wrong.

In the event that both partners support the continuation of the relationship, the next step is to address the negative emotions that invariably persist after the infidelity. In general, men are generally less willing to pardon sexual infidelity and women are less willing to pardon emotional infidelity (Shackelford et al. 2002). These evolved inclinations underlie cognitions similar to the following:

* "If he loves someone else, he cannot ever really love me," or "he completely lied about ever loving me."
* "If I stay with him/her, I am making a horrible mistake as I am endorsing terrible behavior."
* "If she slept with another man, I cannot ever trust her again."
* "If my partner was involved with another person, I am forever at risk of being a complete fool.
* "I cannot bear that my partner cheated with is still around to make it happen again."
* "It is terrible that I must forever be vigilant against my partner cheating again."

These distorted cognitions are not the unique pathology of the individual but, instead, are a modern evolutionary expression of millennia of development. Clients receiving RE/CBT should be made aware of the unnecessary dread that our adoptions evoke in us. The man no longer has to fear losing resources by unknowingly raising another man's offspring, since modern birth control and paternity testing technology all but rules this possibility out. Most modern women no longer have to fear desperate impoverishment for her and her offspring if her partner leaves for another woman. In most contemporary societies around the world women can function without male support; they can work and, in dire situations, their children can receive societal subsidies. These realities that belie the historical dangers of infidelity need to be discussed with the clients.

Of course, the partners in the relationship will not immediately renounce their despair or anger, but acknowledging the realities of contemporary human life versus those of their ancestors will force them to examine the basis of their distress. The therapist will help the clients to verbalize the negative emotions that they are feeling. In doing so, the individuals will begin to understand the cognitive narratives to which they may be clinging—narratives that likely made more adaptive sense in ancestral than in modern environments.

## RE/CBT for an Individual Who Suffered From a Partner's Infidelity

Recently, individuals who have discovered that their significant other has been unfaithful are likely to have done so as a result of the increased ways to uncover deception of a partner (Abrams 2016). The Internet provides both greater access to extra-pair relationships, such as through internet dating sites, and many more ways to discover them, such as through cyberstalking. In addition, the vast number of sexual connection websites and social media like Facebook, Twitter, and LinkedIn, provide many means to find connections that can ultimately become sexual. Text

messages, browser histories, social media communications, and emails all leave traces for a deceived partner to discover that their fears are realized (Mitchell 2007).

When a person discovers that a partner has been unfaithful, their distress tends to be proportional to the trust and love that has been devoted to the offender. As a result, counseling is most often sought by the individual who was deeply committed to the relationship and strongly believed that their partner was similarly committed. Victims of a partner's infidelity commonly suffer both grief and rage, sometimes alternating between the two. The goal of therapy is to elicit the basis of the client's feeling of damage to their self worth, and the feelings of loss regarding the offending partner.

Aggrieved individuals tend to lament their own past failures or current diminished worth connected with the infidelity. If the relationship is irreparable, the individual will commonly mourn it as an irretrievable loss. A client afflicted by infidelity will often be simultaneously enraged at, and desirous of, their partner—splitting (or black and white thinking) is not the exclusive domain of the borderline personality and commonly occurs in distressed individuals (van Rijsbergen et al. 2015).

Many people in extreme interpersonal distress will tend to alternate from idealization to rebuke in their attempts to fathom the behavior of their lovers. The individual sufferer of infidelity commonly feels shamed, angry, and even depressed. As with anyone suffering a great personal loss, the distress is generally in direct proportion to the both the perceived importance of the loss, and with the perceived unfairness of their infidelity. A person strongly committed to, and deeply in love with unfaithful partner will be far more distraught than one with a more casual relationship. Such strong negative emotions are often associated with cognitions that generalize the event to all aspects of the person's life, including their future and self-worth. The evolutionary aversion to infidelity plays a major role in the common tendency to catastrophize the event.

The therapist needs to make every effort to acknowledge the client's anguish, but must then help them view it as circumscribed loss. One way to do so is help the client see the loss of a fidelity as a loss akin to any other loss–one that is sad, but not completely destructive. That client can be directed to take an economic view of the event, such that infidelity can be likened to stealing from a relationship. Trust, sexual resources, and intimacy were purloined from the deceived partner. If it is likened to any other pilfering in another kind of trusted relationship—such a commercial partner stealing from a business, it will be easier to discern the cognitive distortions that are arising from evolutionary inclinations. The intensity and range of negative emotions with sexual infidelity are far greater than if they were deceived by even the most trusted business partner.

The client is then guided to explore negative emotions that are painful or dysfunctional with the goal of finding the values, demands, or beliefs that have underlie them. The individual who was a victim of the infidelity may express that it feels wrong or risky to trust a partner who has strayed. This aspect needs to be openly discussed by both parties with the goal of explaining to both parties that the infidelity, although wrong, was not a maximally bad action. Rather, it is our psychological adaptations cause us to feel that it is catastrophic. This will become

apparent with probing or Socratic inquiries about the viewpoints that underlie their most painful emotions. For example, in the case of the client who experiences anxiety about infidelity, exploratory questions will help clients clarify that the anxiety overlies judgments about their situation.

Inquiries such as the following will open up lines of discussion that will allow the RE/CBT therapist find and challenge to client's beliefs that are exacerbating or prolonging his/her misery.

* "It seems that it will be impossible for you to every trust anyone again"
* "Do you think that if this relationship ends, you will be alone forever?"
* "If a person is deceived by someone he loves it means he can never be completely loved."
* "If your partner cheated it must mean that you were an inadequate human being."
* "Apparently, you will never be able to function in life, without getting retribution for being deceived."
* "Your lover's dedication to you is the only basis for determining you value as a human being."

In most cases, even the most distraught clients will not overly affirm the beliefs and attitudes that underlie their heartache. They will be both distraught and angry; and in more emotional states will tend to vacillate between wanting retribution and wanting their lover back. In the discussions that such inquiries will provoke the client can be shown that their lover did something bad, but is not an atrocious human being. Their overt or tacit belief that "my partner absolutely should have been faithful," can be guided to "I would have deeply preferred by my partner's fidelity." Similarly, the belief that "I cannot stand that this happened to me," can be shifted to "I am deeply hurt and disappointed by this disloyalty, but I am fully equipped to move on in life."

The RE/CBT therapist can also use imagery techniques to have the client see themselves in a better situation, and in a time when they are not distraught. Their anxiety and anger can be attenuated with relaxation techniques that guide them to focus on the current moment. This is particularly import to clients who are ruminative about their lover's behavior. They believe that they have been irrevocably damaged by the infidelity and will act on the delusory belief that recapitulation will somehow change the past. The client will also be helped by performing assignments in which they keep a log in which they challenge in writing any thoughts they have that support that their being betrayed by a loved one represents an irretrievable loss.

## Summary of Evolutionary RE/CBT for Jealousy or Infidelity

The inclusion of an evolutionary perspective adds clarity and focus to cognitive behavioral interventions for both jealousy or infidelity. The evolutionary view removes much of the pathologizing and moralizing associated with both as seen in many clinical publications that treat jealousy as a pathology (e.g., Mullen 1996;

Stockdale et al. 2015). When seen as evolutionary inclinations that are most adaptive for a different epoch or setting, the therapist can change the focus from treating an aberrant behavior to helping the client see it's self-defeating nature. Telling concerned lovers that they should abandon their neurotic jealousy is as effective as telling someone that fearing a war zone is foolish. The jealous person feels their jealousy is protective and judicious, and they will not relinquish it easily. Excessively jealous clients so fear the loss of the relationship that they will destroy it with hyper-vigilance. It is this self-defeating aspect of jealousy that RE/CBT most effectively targets.

The therapist faces conceptually similar problems in dissuading infidelity. The unfaithful client trades short-term sexual pleasures for the benefits of an enduring relationship, although sometimes infidelity functions as a mate-switching tactic (Buss et al. in press). And in risking the enduring relationship, there is attendant emotional harm that regularly ensues. Rather than moralize or invoke cultural mores, the RE/CBT therapist educates the client to the evolutionary logic of evolved emotions and desires and their possible irrationality in the modern environment. It is irrational because the overall costs of maintaining a disingenuous relationship is greater than the costs of the two alternatives: leave the relationship and seek novel partners or stay in the relationship that offers benefits greater than sexual variety.

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