

The New York Times

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Tara Parker-Pope on Health

MAY 10, 2010, 5:07 PM

The Science of a Happy Marriage

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Why do some men and women cheat on their partners while others resist the temptation?

To find the answer, a growing body of research is focusing on the science of commitment. Scientists are studying everything from the biological factors that seem to influence marital stability to a person's psychological response after flirting with a stranger.

Their findings suggest that while some people may be naturally more resistant to temptation, men and women can also train themselves to protect their relationships and raise their feelings of commitment.

Recent studies have raised questions about whether genetic factors may influence commitment and marital stability. Hasse Walum, a biologist at the Karolinska Institute in Sweden, studied 552 sets of twins to learn more about a gene related to the body's regulation of the brain chemical vasopressin, a bonding hormone.

Over all, men who carried a variation in the gene were less likely to be married, and those who had wed were more likely to have had serious marital problems and unhappy wives. Among men who carried two copies of the gene variant, about a third had experienced a serious relationship crisis in the past year, double the number seen in the men who did not carry the variant.

Although the trait is often called the "fidelity gene," Mr. Walum called that a misnomer: his research focused on marital stability, not faithfulness. "It's difficult to use this information to predict any future behavior in men," he told me. Now he and his colleagues are working to replicate the findings and conducting similar research in women.

While there may be genetic differences that influence commitment, other studies suggest that the brain can be trained to resist temptation.

A series of unusual studies led by John Lydon, a psychologist at McGill University in Montreal, have looked at how people in a committed relationship react in the face of temptation. In one study, highly committed married men and women were asked to rate the attractiveness of people of the opposite sex in a series of photos. Not surprisingly, they gave the highest ratings to people who would typically be viewed as attractive.

Later, they were shown similar pictures and told that the person was interested in meeting them. In that situation, participants consistently gave those pictures lower scores than they had the first time around.

When they were attracted to someone who might threaten the relationship, they seemed to instinctively tell themselves, “He’s not so great.” “The more committed you are,” Dr. Lydon said, “the less attractive you find other people who threaten your relationship.”

But some of the McGill research has shown gender differences in how we respond to a cheating threat. In a study of 300 heterosexual men and women, half the participants were primed for cheating by imagining a flirtatious conversation with someone they found attractive. The other half just imagined a routine encounter.

Afterward, the study subjects were asked to complete fill-in-the-blank puzzles like LO__AL and THR__T.

Unbeknownst to the participants, the word fragments were a psychological test to reveal subconscious feelings about commitment. (Similar word puzzles are used to study subconscious feelings about prejudice and stereotyping.)

No pattern emerged among the study participants who imagined a routine encounter. But there were differences among men and women who had entertained the flirtatious fantasy. In that group, the men were more likely to complete the puzzles with the neutral words LOCAL and THROAT. But the women who had imagined flirting were far more likely to choose LOYAL and THREAT, suggesting that the exercise had touched off subconscious concerns about commitment.

Of course, this does not necessarily predict behavior in the real world. But the pronounced difference in responses led the researchers to think women might have developed a kind of early warning system to alert them to relationship threats.

Other McGill studies confirmed differences in how men and women react to such threats. In one, attractive actors or actresses were brought in to flirt with study participants in a waiting room. Later, the participants were asked questions about their relationships, particularly how they would respond to a partner’s bad behavior, like being late and forgetting to call.

Men who had just been flirting were less forgiving of the hypothetical bad behavior, suggesting that the attractive actress had momentarily chipped away at their commitment. But women who had been flirting were more likely to be forgiving and to make excuses for the man, suggesting that their earlier flirting had triggered a protective response when discussing their relationship.

“We think the men in these studies may have had commitment, but the women had the contingency plan — the attractive alternative sets off the alarm bell,” Dr. Lydon said.

“Women implicitly code that as a threat. Men don’t.”

The question is whether a person can be trained to resist temptation. In another study, the team prompted male students who were in committed dating relationships to imagine running into an attractive woman on a weekend when their girlfriends were away. Some of the men were then asked to develop a contingency plan by filling in the sentence “When she approaches me, I will _____ to protect my relationship.”

Because the researchers could not bring in a real woman to act as a temptation, they created a virtual-reality game in which two out of four rooms included subliminal images of an attractive woman. The men who had practiced resisting temptation gravitated toward those rooms 25 percent of the time; for the others, the figure was 62 percent.

But it may not be feelings of love or loyalty that keep couples together. Instead, scientists speculate that your level of commitment may depend on how much a partner enhances your life and broadens your horizons — a concept that Arthur Aron, a psychologist and relationship researcher at Stony Brook University, calls “self-expansion.”

To measure this quality, couples are asked a series of questions: How much does your partner provide a source of exciting experiences? How much has knowing your partner made you a better person? How much do you see your partner as a way to expand your own capabilities?

The Stony Brook researchers conducted experiments using activities that stimulated self-expansion. Some couples were given mundane tasks, while others took part in a silly exercise in which they were tied together and asked to crawl on mats, pushing a foam cylinder with their heads. The study was rigged so the couples failed the time limit on the first two tries, but just barely made it on the third, resulting in much celebration.

Couples were given relationship tests before and after the experiment. Those who had taken part in the challenging activity posted greater increases in love and relationship satisfaction than those who had not experienced victory together.

Now the researchers are embarking on a series of studies to measure how self-expansion influences a relationship. They theorize that couples who explore new places and try new things will tap into feelings of self-expansion, lifting their level of commitment.

“We enter relationships because the other person becomes part of ourselves, and that expands us,” Dr. Aron said. “That’s why people who fall in love stay up all night talking and it feels really exciting. We think couples can get some of that back by doing challenging and exciting things together.”

Tara Parker-Pope’s new book is “For Better: The Science of a Good Marriage.”

A version of this article appeared in print on May 11, 2010, on page D1 of the New York edition.

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