

## Key Points

1. In general marriage is the most important relationship people have; married people tend to have less morbidity and mortality
2. However, unhappy marriages can be a source of tremendous stress and contribute to negative health outcomes
3. Stress - like that from a hostile relationship - has been shown to increase blood pressure and negatively affect the immune system
4. Study looked at wound healing among couples
5. Compared healing of high-hostility couples to low-hostility couples
6. Also compared healing after a supportive marital interaction to healing after a marital conflict interaction
7. Found people healed more slowly after the conflict interaction than after the support interaction
8. Also found that high-hostility couples healed at 60% of the rate of low-hostility couples
9. Analyzing the wound sites showed that the hostile interactions affected the body's production of critical cytokines

## Definitions

**cytokine** - a protein created as part of an immune system response; acts as a messenger between cells

**morbidity** - an unhealthy consequence or complication

**mortality** - death rate; death as a result of disease or treatment

**cerebellar tonsils** - portion of the cerebellum located at the bottom, so named because of their shape

**cerebellum** - part of the brain located at the bottom of the skull,

## Marital Stress Can Affect Surgical Recovery

**February 20, 2006** -- For many people, marriage is the single most important relationship in their life. So perhaps it's not surprising that the benefits of a healthy marriage can extend beyond emotional satisfaction to concrete physical benefits as well. When confronting health issues such as cancer, heart disease, and surgery, married people have consistently lower levels of morbidity and mortality.

There is a flip-side, however. While a strong marriage imparts health benefits, a troubled, or unhappy, marriage can have a strong negative impact. Unhappy marriages and marital discord have been found to translate into a 10-25 times increase in the risk for depressive symptoms and major depression respectively.

The effects range to the physical as well. One study of women with coronary heart disease found that marital stress worsened the prognosis by nearly three times for additional coronary problems. Another study of patients with congestive heart failure found that marital quality was as strong a predictor of their four year survival as the severity of their disease was.

Laboratory studies have provided clues as to the mechanisms linking marital strife and physical problems. Research has shown that marital conflict can lead to a rise in blood pressure, have a negative effect on the immune system, and increase the production of stress related hormones for a sustained period of time.

Based on the previous research in this area, a multi-disciplinary team, led by Dr. Kiecolt-Glaser at Ohio State University, decided to examine the effects of hostile marital interactions on wound healing. Specifically, they wanted to look at the impact of both short-term marital conflict and chronic marital conflict by recruiting couples to spend two separate 24-hour periods in their laboratory.

They found 42 couples willing to participate, ranging in age from 22-77 years old. The couples were fairly well educated with 40% having graduated from college and 26% with postgraduate education. On average, they had been married for 12.5 years. To provide better experimental controls, the researchers recruited only healthy couples who did not smoke and did not drink excessive amounts of caffeine and alcohol.

At the start of each visit - which were separated by about 2 months - a suction device was used to create a blister wound on each person's forearm. The wound was then monitored daily using a widely accepted protocol to assess healing. In addition, at several time during the visit, fluid was removed from the blister in order to measure the levels of various cytokines, products of the immune system which are important to early healing.

The first visit was structured such that the partners participated in a social support interaction. Each spouse was asked to talk about something they wanted to change about themselves, while their partners were instructed to be involved in the discussion as they saw fit. When one spouse was finished, the couple was instructed to reverse roles. At the end of the session, they were asked to tell the story of their relationship for 30 minutes.

In contrast, the second visit was designed to focus on marital conflicts. During this session, an interviewer first spoke with the couples for 10-20 minutes to identify areas of conflict in their marriage. The couples were then asked to discuss, and try to resolve, 1-2 of these areas which the interviewer thought would produce the MOST conflict, such as money, communications, extended family, etc.

During both sessions, the researchers used a coding method called the Rapid Marital Interaction Coding System (RMICS) to identify and record both positive and negative (or hostile) interactions between the couples. Negative actions included such things as contempt, disgust, belligerence, verbal and non-verbal threatening, distress maintaining actions, criticism, hostile tone, and eye rolling. Positive interactions were things such as acceptance, relationship enhancing attributions, self-disclosure, humor, and constructive problem solving.

While the actions of each individual partner were coded, the scores for each couple were combined. Couples who scored above the group average at both sessions were considered to be high-hostility couples. The rest of the couples were considered to be low-hostility.

Using this method, 28% of the couples were categorized as high-hostility. Interestingly, there was no significant difference between the high and low hostility groups in regards to age, education, or even length of marriage. Not surprisingly, however, the high-hostility couples reported significantly lower marital satisfaction than the low-hostility group. There were also differences between the sexes when it came to hostile behaviors. While the men in high-hostility couples displayed only a small difference in behavior from the men in low-hostility couples, there was a much larger gap in the behavior of the women in the two groups.

near the opening to the spinal area; important for muscle control, movement, and balance

**cerebrospinal fluid (CSF)** - clear liquid in the brain and spinal cord, acts as a shock absorber

**Chiari malformation I** - condition where the cerebellar tonsils are displaced out of the skull area into the spinal area, causing compression of brain tissue and disruption of CSF flow

**decompression surgery** - general term used for any of several surgical techniques employed to create more space around a Chiari malformation and to relieve compression

**MRI** - magnetic resonance imaging; large device which uses strong magnetic fields to produce images of soft tissue inside the human body

**syringomyelia (SM)** - neurological condition where a fluid filled cyst forms in the spinal cord

**syrinx** - fluid filled cyst in the spinal cord

#### Source

Kiecolt-Glaser JK, Loving TJ, Stowell JR, Malarkey WB, Lemeshow S, Dickinson SL, Glaser R.  
Hostile marital interactions, proinflammatory cytokine production, and wound healing. Arch Gen Psychiatry. 2005 Dec;62(12):1377-84.

When it came to wound healing, the researchers found, and reported in the December, 2005 issue of the Archives of General Psychiatry, that both the short-term impact of the structured sessions and the long-term impact of hostility in a marriage had a significant effect on the wound healing (see Figure 1). Specifically, on average, couples took a full day longer to heal after the marital conflict discussion as opposed to the structured support session. In addition to this effect, couples that were categorized as high hostility took a day longer to heal - at both sessions - than the low hostility couples. In fact, the high hostility couples healed at only 60% of the rate of their counterparts.

**Figure 1**  
**Average Wound Healing Time In Days**

Group	Social Support Visit	Marital Conflict Visit
High-hostility	6	7
Low-hostility	5	6

**Notes:** *There was a one day effect on healing from both the type of visit (support vs conflict) and the type of marriage (high hostile vs low hostile)*

The microscope revealed similar findings. Both the types of session and the high/low hostility had a significant impact on the production of cytokines at the wound site, which likely delayed healing.

The research is clear; marriage can have a powerful effect on not only people's mental and emotional health, but their physical health as well. Recovering from Chiari surgery and dealing with its physical aftermath can challenge the strongest among us, and this study suggests that having a strong partner can make all the difference in the world.

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