

Probing Question: Do women have a higher pain threshold than men?

November 13 2008, by Alexa Stevenson

It's a familiar sitcom scene: A woman in labor shows Herculean strength while her "birth coach" husband faints dead away.

Many believe that the pain of childbirth would turn the steeliest man into a quivering pile of jelly, and everyone has heard the stories of peasant women stoically giving birth in the fields only to return to work the same day.

Are women built for pain?

"This is an interesting question because people have strong beliefs about gender and pain," said Jennifer Graham, professor of biobehavioral health at Penn State.

As Graham explained, a person's pain threshold is defined as the minimum amount of pain that evokes a report of pain. Pain tolerance means the time that a continuous pain stimulus is tolerated. "Some feel that men have higher pain thresholds and tolerance levels than women because they believe that men are tougher overall," she said. "Other people think that women have a higher threshold and tolerance, the reasoning being either that women have evolved to be able to cope with childbirth pain, or that they have dealt with so much naturally occurring pain in their lives that they can handle anything a laboratory technician might dish out."

Despite these entrenched stereotypes, research into pain response has

produced variable results, noted Graham. In animals, pain studies have had every possible outcome: males have higher tolerance, females do, and there is no gender difference at all.

"Human studies more reliably show that men have higher pain thresholds than women, and some show that men have a higher pain tolerance as well," Graham added. Another way of thinking about these results, she points out, is that women show more sensitivity to pain.

There are several explanations for the variability. A woman's response to pain is affected by hormones, Graham explained, specifically where a woman is in her menstrual cycle when the painful stimulus is introduced. But there is no agreement about how, exactly, the menstrual cycle affects pain response. "Some studies report that women show more sensitivity during the premenstrual phase, while others report greater sensitivity at ovulation, and still others, following menses," noted Graham. "A few studies have shown no difference based on the menstrual cycle."

The socialization of gender further muddies the waters. How do society's expectations influence the way experimental subjects report pain?

"This question is really key," admitted Graham. "Boys typically learn that they are expected to be tough and not complain about pain. One study, conducted by researchers at the State University of New York at Stony Brook, found that men reported less pain in the presence of a female experimenter than they did in the presence of a male."

But the most confounding problem may be the complex nature of pain itself.

"Pain is inherently subjective," said Graham. "We typically rely on self-report to know if someone is experiencing it." And it's tough to determine how much of pain is sensory and how much is influenced by

psychological factors, she added. "The limbic system of the brain, which is related to emotion, is typically active in response to physical pain for both men and women. In fact, looking at functional MRI, it can be difficult to distinguish psychological pain—such as that caused by social exclusion—from pain that is purely physical."

Sociocultural and psychological influences seem to have a greater impact than any inherent biological factor, believes Graham. Pain lights up our nerves and our brains in ways that are more alike than different.

"Overall, I think it's important to know that men and women respond similarly to pain at a biological level."

How much it hurts may depend upon who's asking.

Source: By Alexa Stevenson, Research Penn State

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