

Gender and the stress response

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In searching the literature one occasionally comes across studies that raise many challenges. The topic of gender related response to stress is one such issue. Is the fight-or-flight response the only stress response? Who would say that 'submissiveness' is good for the health of a woman? Are the biological and behavioural natures of men and women competitive or complementary?

The role of anger and hostility has long been recognised in the aetiology and progression of coronary heart disease (CHD), but less studied have been the opposite personality trait of submissiveness. This trait is often defined as 'a tendency to stay in the background, to follow while others lead and dominate'.

One study examining the relationship of submissiveness and CHD was published in the *Lancet* in 1997.¹ The researchers followed nearly 1600 men and women from the age of 55 to 74 years for five years and monitored the subjects for cardiovascular events such as heart attacks and the development of angina. The usual risk factors such as smoking, cholesterol and hypertension were measured in order to see if submissiveness was an independent predictor.

Interestingly, and perhaps it accords with our intuitive beliefs, submissiveness was found to be associated with significantly fewer heart attacks. Yes, we may think there is a lot less stress in staying back from the fray. However, when other risk factors were controlled, submissiveness

remained protective only for women and not for men. The relative risk for women was 0.59, that is, a 41% reduction in the risk of having a heart attack.

One study does not make a case, and it has to be taken in context with other studies such as those that assessed the risk of stroke. One such study concluded that high risk women showed significantly reduced odds of carotid lesions with high social support.² Are women's cardiovascular systems more sensitive to social disconnection than men? Another study suggested that the incidence of stroke was strongly related to levels of anger, especially for men, but only for 'outwardly expressed' anger not for 'controlled anger'. Controlled anger is when someone feels still in control of their response rather than being controlled by it. Reason and choice still have a chance to operate. Men who expressed more anger had double the chance of having a stroke, whereas the risk grew to 6.9 times as great for men with a previous history of CHD.³

What do we make of all this? Are there relevant and innate biological and psychological differences between men and women or are we socially conditioned? What are the implications for our social and occupational roles? How much of our behaviour and biology do we have a choice over? Can we socially engineer our natures? A very interesting review article seemed to provide a new perspective to these questions.⁴ The article states

that much of the research over the years, especially in relation to the stress response, has tended to focus on men. Hence the fight-or-flight response, which is largely a male response, has become the predominant paradigm. But, the article states there is good evidence to suggest that women and men do not respond to stressful situations in entirely the same way.

'We suggest that the female stress response of tending to offspring and affiliating with a social group is facilitated by the process of 'befriending', which is the creation of networks of associations that provide resources and protection for the female and her offspring under conditions of stress'.

Both males and females have the necessary neuroendocrine and sympathetic nervous system mechanisms for activation of the fight-or-flight response if required, that is, we get that surge of adrenaline if we need it. But it appears that men are especially built for this response and the presence of testosterone is one of the main reasons why men are far more apt to this activation response in a time of challenge.⁵ Testosterone also appears to have a role in the development of 'rough and tumble play' and sport for boys which is a part of normal development. However, excessive testosterone levels are implicated in excessive physical aggression and crime.

It would be false to suggest there is never a time that some aggression might



Figure 1. Botticelli: Pallas and the Centaur

not be adaptive or required such as in situations of imminent threat or war. There may be times when there is no other choice but to 'disguise fair nature with hard favoured rage' as Shakespeare put it, but it would always be a concern if such visceral responses were not under the gentle control and moderating influence of reason or wisdom. Without wisdom or reason the response moves from an adaptive emotional and physical strength needed to deal with a clearly perceived threat to an indiscriminate and brutal expression of force.

Female aggression, on the other hand, seems more likely to express itself 'in the form of gossip, rumour spreading and enlisting the cooperation of a third party in undermining an acquaintance'.⁴⁶ To an extent one might say that women are more cerebral than visceral in their aggression.

The force often associated with maleness may not be the highest sense of what it means to be a man. Possibly Sandro Botticelli expressed this in his painting, Pallas and the Centaur (Figure 1). Pallas is the goddess of wisdom and as in most mythologies is represented in female form. The Centaur has two main aspects

to his nature being appetite and fighting spirit. It could be that Botticelli wanted to depict the recurrent renaissance theme that the lower nature of the human being needs to come under the gentle, serene and reasonable guidance of wisdom or higher nature.

In terms of the more general response to stress, Taylor et al⁴ suggested that as the female of most species is involved in tending the young, they have the biological or behavioural disposition to tend and befriend. In both human and animal studies these effects are largely mediated through the female hormones oxytocin and oestrogen⁷ which are particularly active during breastfeeding as well as in social interaction and caring physical contact. They seem to have a calming effect as well as being an 'antidote' for the fight-or-flight response.⁸

Oxytocin levels can be influenced by many things as one would expect. For example, they can be increased by a relaxation massage or close relationships and reduced by sad emotions or social isolation.

The clinical applications may be diverse and just as beneficial for the one receiving the nurturing as for the one giving it. For example, it is well known that emotional stress and isolation negatively impact on childhood asthma⁹ but interestingly massage by a parent and social support have been found to reduce stress and improve asthma.¹⁰ Massage and maternal handling also improves the survival of preterm infants.¹¹

Such is the biological basis to the nurturing role which has been traditionally associated with the female. This tendency to tend and befriend is also valued in many occupations, from occupations that are traditionally associated with femaleness such as nursing, to the now valued affiliative and conciliatory qualities that many women bring to business and public life. Of course, none of this suggests that men do not or cannot tend and befriend, it just appears that each gender is more specifically adapted to one or other

response in a time of stress.

The above research and discussion raises many issues. Often one finds a great deal of unhelpful debate about the roles of men and women as if they were designed to compete with each other or that one is a superior response to another. That men and women are equal does not necessarily mean they are the same. Probably maladaptive or rigid expressions of maleness and femaleness do compete and conflict with each other, but it would be entirely unreasonable and unintelligent of nature to design the two genders of the species to compete or conflict in this way. It is far more likely that the adaptive expressions of maleness and femaleness are entirely complementary so that all the needs of the reproductive unit and community may be met.

Therefore, if we return to our original considerations, where does this put us in relation to submissiveness, women and CHD? Why is social isolation more dangerous for women and excess anger more dangerous for men? It may have something to do with the natural dispositions that each expresses in dealing with stress. The submissiveness trait, which can easily be misinterpreted as unhealthy subjection, may actually be measuring something healthy more often seen in women in terms of an ability to cooperate in a stressful time rather than fight. For women the need to tend and befriend can be frustrating and for men, the fight-or-flight response can be overactive and indiscriminate. Each of us, it seems, needs to learn to balance and master our own nature.

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