

Neglecting the subjective relevance of stress on health: a protective strategy for your heart?

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This editorial refers to ‘Increased risk of coronary heart disease among individuals reporting adverse impact of stress on their health: the Whitehall II prospective cohort study’[†], by H. Nabi *et al.*, on page 2697

The recent study of Nabi *et al.* introduced a new variable into the set of risk factors that contribute to the development of coronary heart disease (CHD).¹ The authors assessed the perception of the impact one’s stress has on health. Therefore, this study goes beyond established risk factors for CHD with established

behavioural² and psychological risk factors such as depression.³ On the other hand, resources such as social support might be beneficial in terms of the onset of CHD^{2,4} (see the ‘Basic model’ in Figure 1).

Initial health status is associated with CHD incidence and prognosis. Therefore, an adjustment for health status in longitudinal studies is necessary, and has been included in the study of Nabi *et al.* (‘Medical model’ in Figure 1). Furthermore, an impact of stress on CHD incidence was confirmed in epidemiological research and also in basic research according to aetiological models (‘Stress model’ in Figure 1).

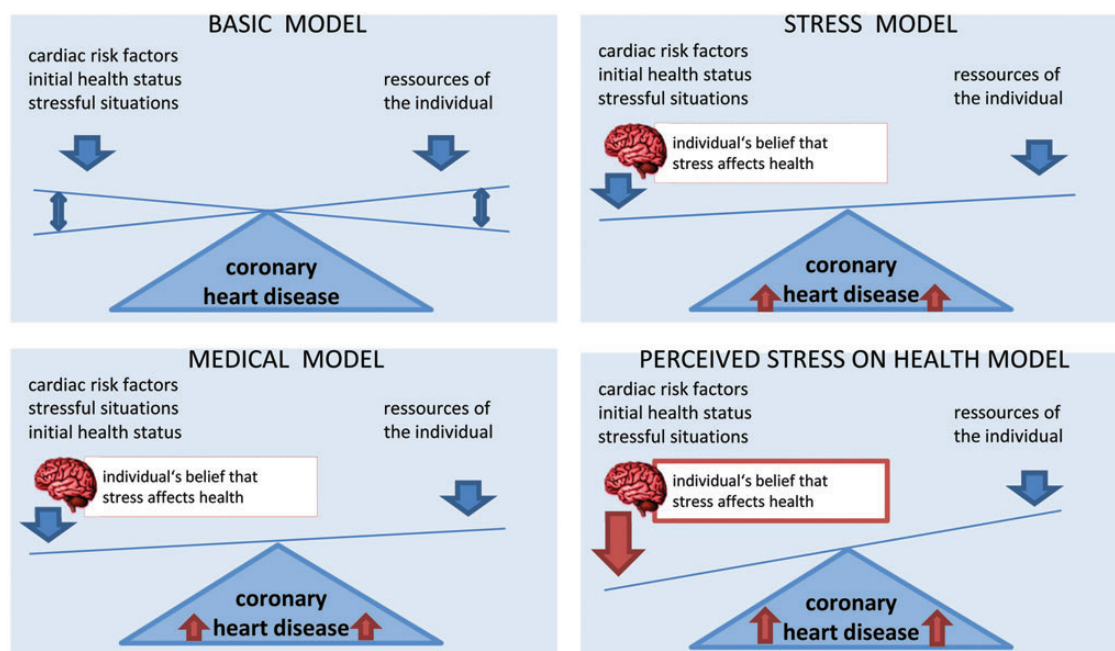


Figure 1 Aetiological models of risk factors and resources of coronary heart disease.

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The medical model and the stress model did not assess the belief of the individual that stress affects health. In the model of Nabi *et al.* now presented, the perceived stress and the perceived health status were combined in a single variable. The perception that subjective health is affected by stress has an additional impact on CHD incidence ('Perceived stress on health model' in Figure 1).

The combination of experienced stress and a negative health status in a single measure might lead to problems with the underlying cognition. Asking if study participants perceived 'an impact of stress on their health' might lead to several problems: let us assume that a person has perfect health, then it can be expected that the answer 'not at all' will be given when asked about the perceived impact of stress on health. Let us also assume that a person experiences some health limitations, then the probability for an answer such as 'moderately' to 'extremely' increases. However, that would only be the case if the person does experience any level of stress. In other words, if a person either does not experience stress or does not experience limitations in his or her health status, an answer on the lower end of the scale will be most probable. Only if both aspects are present within a person would an answer on the upper end of the scale be most likely. Most often, health concerns are attributed not only to a single entity. Limitations in health might be also attributed to a lack of financial resources, problems in healthcare, or adverse living conditions. Therefore, it would be worth investigating in a qualitative study the individuals' understanding of the question and the individuals' cognitions used when answering this question. Maybe the reader can ask herself/himself to what extent she/he feel that the experienced stress or pressure in life has affected her/his health.

The study of Nabi *et al.* parallels recently discussed problems of interaction effects in the Type D personality. Type D refers to the two dimensions (i) negative affect and (ii) social inhibition: if both facets are present, the person is classified as Type D personality. The Type D construct has been criticized for an overestimation of effects of early studies⁵ and an overestimation due to artificial combination of dimensional measures into one single construct.⁶ The use of interaction terms of separate dimensions in statistical models instead of arbitrary cut-offs for the selection of high risk patients was recommended. In line with this discussion, one might

argue that a combination of (i) experienced stress and (ii) health status in one measure might also overestimate the impact on CHD incidence since only those persons at the upper end of the scale have a bad prognosis. Perhaps a separate model of single measures for experienced stress and health status with an additional interaction term of both variables would be of help to disentangle the construct.

Coming back to the title of this Editorial: what can clinicians learn from this study? The authors recommend paying more clinical attention to those complaining that stress affects their health (~8%). However, what would be the target of an intervention if you had identified such a person? One strategy might be to reduce perceived stress. But, what about the cognition on the impact of stress on health? Should we target this cognition as well? Is neglecting the effect of stress on health really an appropriate coping strategy? The strength of the study of Nabi *et al.* clearly is the sophisticated epidemiological approach, but the application of results in clinical routine in order to increase patients' health is disputable. Let us hope that this does not lead to neglecting the impact of stress.

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