Reviewer's report

Title: Stressful life events and current psychological distress are associated with self-reported hypertension but not with true hypertension: results from a cross-sectional population-based study

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Reviewer: Töres Theorell

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Comments to the authors:

In this article the authors make the point that there is a negative and unexpected association between life events/negative stress (faces) on one hand and objective hypertension (one casual assessment of blood pressure or medication) whereas there is a positive association between self reported stressors and subjectively reported hypertension. The authors speculate about the importance of these findings.

The empirical observation does have value in itself but the whole discussion and framework in this paper suffers from the fact that the previous literature has not been searched sufficiently. In fact other researchers have made similar observations long before. One example is our own epidemiological study of Swedish 28-year old men (Theorell et al J Psychosom Res. 1986;30(2):243-9.: Young men with high blood pressure report few recent life events, see also Theorell T Scand J Soc Med. 1997 Dec;25(4):271-9.). Because of this lack of attention to previous literature the authors do not seem to be aware of the fact that lack of sensitivity to the environment seems to be a consistent trait in people who develop hypertension. Denial and alexithymia have been discussed (see for instance Jorgensen and Houston Psychosom Med. 1986 Jan-Feb;48(1-2):102-17.: Family history of hypertension, personality patterns, and cardiovascular reactivity to stress.) not only in psychological terms but also in terms of low pain sensitivity about which there is a whole literature (see for instance d’Absi, France, Harju and Wittmers: Psychosom Med. 2006 Mar-Apr;68(2):292-8.: Adrenocortical and nociceptive responses to opioid blockade in hypertension-prone men and women.).

Another very important line of reasoning in the previous literature has to do with "objective" versus "subjective" reporting of stressful conditions. This line of research seems to indicate that objectively recorded stressors are more consistently associated with objectively recorded hypertension than subjectively recorded (see for instance Ragland DR, Greiner BA, Holman BL, Fisher JM Scand J Soc Med. 1997 Dec;25(4):271-9.: Hypertension and years of driving in transit vehicle operators and Greiner BA, Krause N, Ragland D, Fisher JM. Soc Sci Med. 2004 Sep;59(5):1081-94.: Occupational stressors and hypertension: a multi-method study using observer-based job analysis and self-reports in urban
It is quite plausible that individuals who are "environmentally insensitive", a trait which is associated with increased risk of developing hypertension, report fewer problems with their life in general.

The authors might of course argue that they have only included very heavy significant events and that those may not be affected by "sub reporting bias". In my understanding the results speak in favour of the interpretation that subjects with high blood pressure recordings in general report fewer events.

In our own population study of young men we also observed that high plasma adrenalin at rest (samples drawn from indwelling catheter after one hour of resting in the supine position) was associated with few self-reported life events during the past year! Which is another confirmation of the empirical observation that the authors have made.

It is important to make a distinction between men and women. Several researchers have reported that these kinds of associations are different for men and women. Only in table 5 do the authors pay attention to this. Adjustment for gender does not help if the whole pattern is different for men and women.

The comment about white coat hypertension and its opposite false awareness deserves a special discussion. "False awareness" in the definition that is used by the authors means that the subject reports hypertension when in fact the clinical examination finds no high blood pressure in the physical examination office. This may in fact conceal the fact that many people with pronounced stress in their job situation have no elevation of blood pressure in the doctor’s office but quite high pressure when at work. Schnall, Landsbergis and Belkic have published extensively about this. The graph showing increased "risk" of false awareness with many life events should therefore be interpreted with due caution. Some of the people in this group may accordingly have high blood pressure at work despite the fact that they have normal blood pressure in the examination situation! The importance of high work pressure but normal "doctor´s office" pressure is discussed in the literature (silent hypertension). However, most authors agree that high activity pressure over long periods of time could be important to the development of atherosclerosis even when the levels go down outside work.

And at the same time - as the authors rightly point out - the fact that somebody has a high pressure in the doctor’s office but nowhere else may not be of importance to atherosclerosis.

Finally when the authors are discussing this whole area they should point out that even if it is true that individuals with high blood pressure for their age report few life events it is quite conceivable that groups of people who become exposed to a major event will show raised blood pressure levels as they are followed over time.

Therefore this ms should be expanded in the literature review and the interpretation of findings. In addition more specific gender analyses should be reported somewhere - maybe in the discussion.
**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests