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Emotional reactivity and the overreport of somatic symptoms: Somatic sensitivity or negative reporting style?

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Abstract

Objective: The purpose of this study is to examine the role of emotional reactivity (ER) in symptom reporting and conceptualize somatizing processes as a signal detection task. Emotional reactivity has been theorized to influence symptom reporting through somatic sensitivity as well as via a negative reporting style. We assess the degree to which these two competing theories about the role of ER are accurate within the signal detection framework. **Methods:** We used a multimethod approach that included using both static and prospective self-reports as well as a signal detection task. **Results:** Results suggest that ER exerts its influence on somatization tendencies via a negatively biased reporting style and is not mediated by somatic sensitivity as suggested by the somatosensory amplification and the symptom perception hypothesis. **Conclusion:** Emotional reactivity has yet to be associated with objective measures of somatic sensitivity. Until such an association is found, it is likely that ER influences symptom reports via negatively biased reporting.
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Keywords: Emotional reactivity; Signal detection; Somatic symptom reporting; Somatosensory amplification; Symptom perception; Somatization

Introduction

Theorists and researchers have consistently focused on emotionally reactive aspects of personality such as neuroticism (N [1]) and negative emotionality (NEM [2]) as predisposing factors in somatic symptom reporting (e.g., Refs. [3–6]). Indeed, emotional reactivity (ER) correlates with both retrospective [7–9] and daily symptom reports [5,6,8,9]. The strong relationship between ER and symptom reporting has also been found in experimental studies [10–12].

Explaining the relationship between ER and symptom reports

The symptom perception hypothesis [6] and somatosensory amplification [13–15] both suggest that emotionally reactive individuals are highly self-attentive and sensitive to bodily sensations. This sensitivity leads emotionally reactive individuals to overreport symptoms. However, although ER is associated with hypervigilance in bodily scanning and self-focused attention [6,11,12,16,17], most studies demonstrate no link between ER and somatic sensitivity [18–20].

Other theorists have suggested that emotionally reactive individuals have a negative self and other view and, therefore, have a negative reporting bias [3–5,9]. Supporting this contention is the finding that although ER is associated with symptom reports, it is not related to objective health status [5,21–23], health behaviors [6], or mortality [4,24], and may actually be health protective [6,25,26].

Emotional reactivity and negative reporting style

The evidence of an association between ER and negative reporting has accrued along three lines. First, it appears that ER negatively biases the encoding [8,27] and recall of experience [8,28,29]. Specifically, people who describe themselves as high in ER remember experiencing more

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physical symptoms [6,8] and negative mood [28] than they actually experienced (i.e., recall that based ratings are higher than daily ratings). Therefore, it appears that ER is associated with a tendency to magnify past negative experiences. Second, ER is associated with the *self-report* of negative emotions and life events (e.g., Refs. [5,30–32], high levels of distress [32,33], and daily hassles [5,34]). However, it appears that, relative to low emotionally reactive individuals, the potent negative experiences of high emotionally reactive individuals are better accounted for by their high self-reported negative reactivity to events, rather than the actual experiencing of more stressful events (as measured by checklists) over time [35]. Finally, research has demonstrated a negative correlation between ER and impression management [33,36–38], suggesting that high emotionally reactive individuals are not concerned about the impression they make on others, even when they believe others perceive them negatively [39].

Symptom reporting as a signal detection task

We propose that signal detection theory may provide an important heuristic from which to examine the role of ER in the symptom reporting process. Signal detection theory provides a mathematical analysis of an observer's sensitivity and reporting bias [40–42]. Sensitivity (A′) has been defined as an observer's ability to correctly detect the presence or absence of a stimulus. Sensitivity varies as a function of a stimulus' probability of occurrence, intensity, and imminence [42]. The symptom perception hypothesis and somatosensory amplification suggest that emotionally reactive individuals are somatically sensitive and should perform accurately on signal detection tasks.

Response bias (B′) is the extent to which the observer favors one response over another, independent of the base rate of the stimulus [41]. Response bias is influenced by the observer's beliefs about the base rates of the stimuli and the rater's goals when making judgments about a stimulus [40], particularly the perceived severity and consequences of a miss or false alarm [43]. It is our contention that emotionally reactive individuals are biased reporters.

Inaccuracy in signal detection tasks (i.e., misses and false alarms) is associated with costs [43,44]. If one is interested in reducing the costs of misses, he or she can substantially lower his or her decision criterion, thereby, causing most cues to exceed threshold (i.e., increase false alarms). Individuals with somatizing tendencies may consider the cost of missing the presence of a symptom (signal) particularly harmful. Therefore, emotionally reactive individuals may have a tendency to overreport the presence of somatic occurrences (signals), even when they do not objectively exist (i.e., "risky" reporting bias). Indeed, ER has been associated with a risky reporting [45–49]. Furthermore, ER is associated with a tendency to apprehensively and vigilantly scan the environment for signs of threat [50,51] and interpret ambiguous cues as threatening [33,52,53].

Hypotheses and predictions

We tested the hypotheses that (1) ER would be directly related to somatic symptom reports, but not to self-reported health behaviors [6], (2) ER would be negatively correlated with A′ (i.e., insensitivity) and B′ (i.e., risky response bias), but would remain a positive predictor of symptom reports after controlling for somatic sensitivity (A′) and response bias (B′), and (3) the direct path between ER and symptom reporting would be best described as a negatively biased reporting style.

Method

Participants

A total of 131 participants (male, $N=33$; female, $N=98$) began the study. Sixty-seven participants (22 males, 45 females) dropped out of the study of their own accord (51%), leaving 64 (11 males, 53 females) participants completing the study.[1] The mean age was 19.7 years (range=17–25). The sample was largely European American. Participants leaving the study did not differ from those completing the study on any of the initial measures (Wilk's $\lambda=1.14$), $P<.40$. The dropout rate in this study was higher than those reported in three studies examining symptom reporting in university students [6,8,9]. In two of those studies, class grade was contingent on study completion [8,9], whereas participation in this study was voluntary. Watson and Pennebaker [6] required participants to complete approximately one half the number of days required in this study.

Measures

Screening

The screening measure used in the initial screening battery was the Somatization Screening Index (SSI [54]). The SSI is an 11-item scale asking respondents to indicate incidence of 11 common physical symptoms. The measure correctly identified 97.6% of community respondents who later received a clinical diagnosis of somatization disorder [54]. The measure demonstrated high internal consistency in the present study (Cronbach's $\alpha=.96$).

Retrospective symptom reports

The battery of retrospective symptom reports included the Somatization Subscale of the Symptom Checklist 90 (SCL-90 [55]) and the Illness Worry Scale (IWS [56]). In the present study, the SCL-90 subscale demonstrated

[1] The heartbeat detection data used in this study have been used in two previous publications [18,92], however the hypotheses under investigation were different than those in this paper.

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