

Personality: A vulnerability factor in rhinitis?

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Abstract

Personality traits were assessed in 63 patients with persistent allergic or non-allergic rhinitis with the Karolinska Scales of Personality, developed with the aim of measuring psychobiological vulnerability factors, and were compared with a reference group comprising a random sample of 400 sex- and age-stratified subjects. The patients' personality profile differed slightly—within one standard deviation—but significantly from the reference group on a number of factors together suggestive of a disinhibitory disposition, an inclination to express anxiety through somatic rather than psychological channels, difficulties in maintaining emotional distance to others, and a limited awareness of aggressive affect, a pattern that suggests that they expose themselves to more stimulation than they can process in terms of thought and feelings, generating sustained physiological arousal that may contribute to the development of their intolerance reactions.

Keywords: *Persistent allergic rhinitis, persistent non-allergic rhinitis, personality traits, Karolinska Scales of Personality*

Introduction

Scientific evidence concerning the role of psychological factors in the etiology and symptomatology of allergic conditions is equivocal (see review in Gauci, King, Saxarra, Tulloch, & Husband, 1993).

A limitation of many earlier studies reporting certain psychological characteristics to be associated with allergic or non-allergic intolerance reactions is that they failed clearly to distinguish either between allergic reactions that were objectively verified and those which patients simply reported suffering from or between different types of allergic disorders. In view of the large variation in allergic conditions found with respect to symptoms, severity and the tissues affected, one should clearly employ as homogenous groups of patients as possible in studies aimed at identifying the psychological and biological variables involved. Also, in examining the role of psychological factors in allergic disease, one should distinguish between those of possible etiological significance and those appearing to contribute to the production or severity of symptoms or to how patients experience and report them. Furthermore, somatic and psychological manifestations of anxiety should be differentiated, since low scores on anxiety in terms of anticipatory worrying, may well coincide with high scores on somatic anxiety in terms of various autonomic disturbances, or vice versa. Finally,

individual characteristics, in order to be viewed as possible etiological factors in the occurrence of allergies, need to be stable ones that do not tend to change with the allergic symptomatology, since otherwise a depressed mood, for example, could be interpreted as an effect of the allergic condition rather than a precursor to it.

In order to examine possible relationships between the patients' personality profiles and their diagnosis, we compared patients with a history of persistent rhinitis with a reference group, matched for age and sex. Two groups of patients were included, one with a clear clinical diagnosis of persistent allergic disease due to the dust mite (PAR) and the other, classified as having persistent non-allergic rhinitis (PNR), showing nasal symptoms which according to a standard symptom check list were very similar but without their diagnosis being established on an objective basis. The Karolinska Scales of Personality (KSP), developed with the aim of measuring psychobiological vulnerability factors, was used for assessing a number of stable personality traits of apparent relevance.

Method

Subjects

The patients comprised cases referred to the Allergy Section at the Ear, Nose and Throat Department (ENT), at the University Hospital in Lund, a university town in southern Sweden. Their allergies had been diagnosed by routine clinical skin prick testing. The diagnosis of PAR to house dust mite was based on a positive skin prick response to either *Dpt pteronyssinus* or *Dpt farinae* that yielded a weal size at least as large as the histamine standard. No positive skin prick test reaction to any other allergen was to be present. Patients with PNR were to not have demonstrated any appreciable reaction to any of the standard allergens applied in the routine skin prick test panel. No other causes for their nasal symptoms were to be apparent. Hence, they had received the diagnosis of perennial non-allergic rhinitis according to routine clinical work. Patients who had visited the clinic during the past year and had received the diagnosis J303 PAR or J300 PNR, both in terms of ISO 10, were then selected from medical computer files. Both patient groups were to have had their clinical symptoms for at least 2 years. Ninety-nine patients were invited to participate in the study. Sixty-three (63.6%) of them (31 PAR, 32 PNR) accepted, 34 women (16 PAR, 18 PNR) and 29 men [15 PAR, 14 PNR; mean age: PAR 34 ($SD = 10.00$) years, PNR 43 ($SD = 12.04$) years]. The Ethics Committee of Lund University approved the study. All the subjects gave their informed oral and written consent.

Questionnaire

The KSP is a 135-item four-point self-report inventory developed for assessing different forms of psychobiological vulnerability. It comprises 15 scales, which are derived from theories of biologically based dimensions of temperament (Schalling & Avensson, 1984). Four of the scales concern anxiety proneness: *Somatic anxiety* (autonomic disturbances, vague distress and panic attacks), *Muscular tension* (tenseness and stiffness, difficulties in relaxing), *Psychic anxiety* (worrying, lack of self-confidence, sensitiveness), and *Psychastenia* (easily fatigued, and feeling uneasy when urged to speak up). Three of the scales are related to vulnerability to disinhibitory psychopathology: *Impulsiveness* (failure to plan, being impulsive), *Monotony avoidance* (need for action and change, "sensation-seeking") and *Socialization* (positive childhood experiences, good school and family adjustment). Six of the scales are related to aggressiveness and hostility: *Verbal aggression* (getting into arguments,

telling people off when angry), *Irritability* (being irritable, lacking patience), *Indirect aggression* (sulking, slamming the door when angry), and *Inhibition of aggression* (being non-assertive, and sad rather than angry), *Suspicion* (distrusting people's motives), and *Guilt* (remorsefulness). The last two scales are *Detachment* (socially withdrawn) and *Social desirability* (socially conforming, "faking good"). The KSP scales have demonstrated good internal consistency as well as stability over a 9-year period (Gustavsson, Weinryb, Göransson, Pedersen, & Åsberg, 1997). The anxiety, impulsiveness, monotony avoidance and detachment scales, in particular, have been validated in a number of studies of disinhibitory disorders, psychosomatic disease and psychopathy (von Knorring, Akmay, & Johansson, 1987).

Results

Karolinska Scales of Personality (KSP)

Comparison of the patients' scores on the KSP with those of an age- and sex-stratified reference group randomly selected from the general population ($N=400$, Figure 1a), showed that the patients scored lower on Psychic anxiety, Detachment, Irritability, Guilt and Inhibition of Aggression and higher on Monotony avoidance, and somewhat higher on Muscular tension and Impulsivity, a profile suggestive of a disinhibitory disposition (high Impulsivity and Monotony avoidance) combined with a limited ability to maintain emotional distance to others (low Detachment), a low awareness of aggressive affect and an inclination to display anxiety through somatic rather than cognitive channels (high Muscular tension, low Psychic anxiety).

Comparison of the two patient groups with the reference group (Figure 1b) showed the PAR patients to score significantly higher than the reference group on Muscular tension, close to significantly lower on Detachment and somewhat lower on Verbal aggression, whereas the PNR patients scored higher than the reference group on Monotony avoidance and lower on Psychic anxiety, Detachment and on the three Aggression scales: Irritability, Guilt and Inhibition of aggression.

Bivariate correlations between the KSP scales and the duration of illness as reported by the patients ($M=2.02$ years, $SD=10.35$, range = 1–45) varied between $-.22$ and $.11$, all beyond $p > .10$.

Discussion

The pattern of deviations in terms of higher or lower mean scores on the KSP scales that our patients showed as compared with a reference group appears to indicate psychological processes that generate excessive stimulation which is inadequately processed and can thus be expected to give rise to sustained arousal or stress. The low Detachment score suggests the patients to be less able to maintain their emotional integrity (as shown by affirming such items as "It's is easy for me to get close to people", and disclaiming such items as "I avoid people who are interested in my personal life"). Secondly, the patients tend to be "stimulus hungry" or sensation seeking (high on Monotony avoidance, as shown by their affirming such items as "I almost always have a desire for more action", "To be on the move, travelling, change and excitement—that's the kind of life I like") and impulsive ("I often throw myself into things too hastily"), personality features that generate a large input of stimulation which, in order to be handled adaptively, has to be matched by appropriate psychological processing resources. However, and thirdly, lower than average scores on

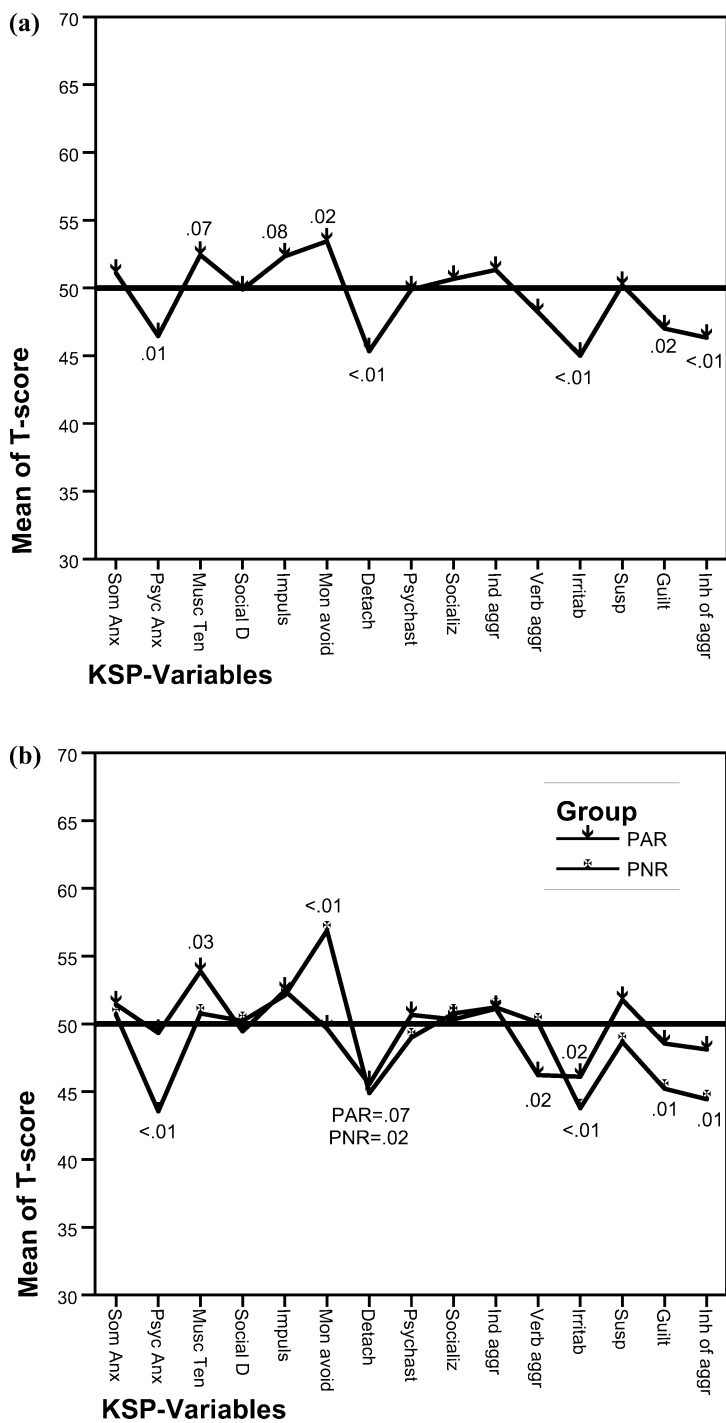


Figure 1. Personality traits as assessed by means (T -scores: $M = 50$, $SD = 10$) of the Karolinska Scales of Personality for 63 patients with persistent allergic (PAR, $n = 31$) and non-allergic rhinitis (PNR, $n = 32$) as compared with an age- and sex-stratified reference group ($N = 400$). p -values based on two-tailed, one-sample (a) t -tests and t -tests for independent samples (b) are indicated.

Psychic anxiety and high scores on Muscular tension, constituting part of the patients' KSP pattern, indicates a disposition to experience and express stress or stimulus overload somatically, such as in terms of muscular tenseness, rather than by psychological means, that is in terms of thought and ideation. A fourth feature of the patients' KSP profile, their lower than average scores on several aggression and hostility scales, can be interpreted as indicating low degree of awareness of aggressive affect, a tendency that should make them inclined to process stimulus overload through somatic rather than psychological channels.

The PNR and PAR patients reported similar symptoms on the allergy clinic's questionnaire and also tended to experience a similarly wide variety of triggering irritants (Rydén, Andersson, & Andersson, 2004), which is notable in view of the PAR patients having been carefully selected to show immunologically mediated responses to house-dust mites only. The PNR patients belong to a more heterogeneous group since non-allergic rhinitis has been shown to comprise a variety of conditions differing in their etiologies (Andersson, Greiff, Svensson, & Persson, 2002). The PNR patients' intolerance to a variety of different irritants suggests conditioning processes to be involved, governed by the patients' anticipation that these irritants are able to trigger their symptoms (van den Berg, Winters, Devriese, & Van Diens, 2002). Similar processes may lead to a successively larger number of irritants than house dust-mites triggering the PAR patients' symptoms as well.

The KSP scales were developed to capture various forms of psychobiological vulnerabilities that can be expected to be normally distributed in the population, rather than to yield discrete measures of pathology. Thus, the fact that the deviations in mean KSP scores shown by our patients as compared with the reference group were not in excess of one *SD* indicates psychobiological dysfunction within a non-clinical range. Nevertheless, significant deviations in mean KSP scores above or below reference values, have been shown to indicate various forms of psychobiological vulnerability (Bergdahl, Anneroth, & Perris, 1995; Ekselius, Bengtsson, & von Knorring, 1998; Schalling & Avensson, 1984; von Knorring et al., 1987). Furthermore, since there were no significant correlations between any of the KSP scales and the duration of illness, it is reasonable to assume that the KSP profile characterizing our patients reflects a psychobiological disposition that preceded their disease state and may thus have been involved in its development and maintenance, rather than being secondary to the disease.

There are several physiological pathways through which stimulus overload, or stress, can contribute to allergic or allergy-like reactions (review in Stein & Miller, 1993). Evidence that persistent deviations from normal physiological functioning are involved in rhinitis has been reported by Jaradeh et al. (2000) and Loehrl et al. (2002), who have shown an autonomic nervous system dysfunction to characterize patients with PNR, suggesting that hyperactivity of the parasympathetic nervous system or an imbalance between it and the sympathetic nervous system is involved in the generation of allergic symptoms. Such an imbalance, indicating a sustained stress response, may impair the regulation of IgE synthesis through the production of excessive amounts of cortisol (Gauci et al., 1993) and can be expected to be associated with the individual's stable psychobiological characteristics (Jaradeh et al., 2000; Loehrl et al., 2002). It has been suggested that such characteristics would consist of a "sensitive mind", a "sensitive body", or both (Wilhelmsen, 2002), and thus a somatic or psychological constitution that makes one easily fall victim to sustained overload or stress. We propose that a personality profile that is asymmetrical, as it were, in the sense that it generates more stimulation than can adequately be processed would qualify as a "sensitive mind", one example being the constellation of personality features that characterize our patients.

Since our subjects were not randomly selected among patients with persistent rhinitis, their characteristic personality features may influence treatment seeking. This appears less

likely, however, since the primary characteristic of treatment seekers is psychic anxiety (Costa & McCrae, 1987), a feature on which our patients scored significantly lower than the reference group. Yet another possibility is that personality features correlate with rhinitis because of common genetic determinants (Kendler, Neale, Kessler, Heath, & Eaves, 1993). Clearly, a population-based, longitudinally followed, psychologically assessed and genetically informative sample would be needed to effectively evaluate the influence personality may have on the development of rhinitis.

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