Collation of one's feeling of health and stress

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Background

Taste disorders are adverse effects of various diseases (zinc deficiency) and medicines and are frequently reported in the field of otolaryngology and dentistry. Taste disorders are seen mainly among elderly people over the age of 65 years. However, the possible existence of a latent taste disorder has been pointed out. On the other hand, most recently, a taste disorder has been reported to occur in younger people due to the nutritional imbalance caused by an irregular dietary life, intake of food additives, and so forth. Early detection of a taste disorder and its treatment is considered to be important. Thus, based on the findings of a tool assessing one’s self consciousness of one’s own health, the Japanese version of the GHQ-30, a taste test, and a test of sense of coherence (hereinafter SOC), the author reports the correlation between self-perceived health and stress.

Objective

The author requested junior students of a certain women’s college to participate after explaining the study goal, to examine if one’s self-perceived health is correlated with stress. The author conducted the Survey on Daily Life, a nutrition survey, the Japanese GHQ-30, an SOC test, and a taste test. Finally, 27 subjects (average age: 21 years) agreed to participate in the surveys; however, the final sample comprised 25 valid participants as one subject who did not participate in the taste test and another who reported of suffering from a disease were excluded from the study.

Method

1. In “the everyday life investigation”, the participants answered questions regarding health conditions, whether they were taking oral medicine, dinner time, sleep, menstrual period, menstrual cycle, part-time job, tooth brushing, height, weight, BMI, temperature, age, sports activities, etc.

2. The "GHQ-30 for Japan" is a questionnaire developed in 1978 by D. P. Goldberg and published as a Japanese edition by Nakagawa et al and Nihon Bunka Kagakusha. This includes questions on six items: (A) tendency to common disorders, (B) physical symptoms, (C) sleep disorders, (D) social action disorders, (E) uneasiness and dysthymia, and (F) suicidal feelings or depression.
3. SOC is a major concept in salutogenesis, which was advocated by Antonovsky. Yamazaki et al. examined its English scale that was developed in 1987, tested its reliability and validity on general adults in 1997, and subsequently translated it Japanese (1999). The scale consists of 29 items, 11 of which are on comprehensibility, 10 on manageability, and 8 on the sense of meaningfulness. The responses to the items are made on a 7-point scale, and the total score corresponds to the SOC score. In other words, according to Antonovsky, an individual is likely to cope with tensions generated by various stressors by mobilizing internal resources such as physical constitution and external resources such as social support. Comprehensibility, manageability, and sense of meaningfulness may be taken into consideration in developing the ways to cope with stress.

4. The taste test was conducted using a filter paper disk which has a test paper to quantitatively and qualitatively evaluate taste (“Taste Disk,” Sanwa Kagaku Kenkyusho Co., Ltd.). Solutions with 4 basic tastes, i.e., sweetness, saltiness, sourness, and bitterness, were drop-immersed in each filter paper (diameter: 5 mm) with 5 stages of concentration gradients. The stimuli were applied, in an ascending order of concentration, on the bilateral side of the tongue tip (domain of chorda tympani) or of the soft palate (domain of greater petrosal nerve), for 2–3 seconds, and the subjects were asked to discriminate each of them. When the participants could not identify the taste or gave a wrong answer, the test was repeated with a disc of higher concentration until a right answer was provided. This test was performed approximately ≥3 hours after breakfast (between 11:00 a.m. and 12:00) in a room at 25°C right after the participants rinsed the oral cavity with water. For the scale to evaluate taste threshold, 1–5 points were assigned to the 5 concentrations, in an ascending order. In case of inability to discriminate the taste even with the maximum concentration, 6 points were awarded.

Results
The average score of the Healthy group on the “GHQ-30” was 7.375±5.86, while that of the Unhealthy group was 14.9±7.75, with a significant difference of 5% (p<0.005). Similarly, with reference to the subscale scores of both groups, significant differences were observed in 3 items: “General Disease Trend” (p<0.005), “Somatic Symptoms” (p<0.005), and “Anxiety and Dysthmia” (p<0.05). Additionally, in terms of the SOC scores, significant differences were observed in “Comprehensibility (co)” and “Manageability (ma)”, while no significant differences were observed in “Sense of meaningfulness (me)”. Furthermore, for the taste test, no significant differences were observed in the identification of “Sweetness”, “Saltiness”, and “Sourness”, while significant differences were observed in the identification of “Bitterness” (p< 0.05).
Conclusion

It is evident that one’s sense of health is predominantly comprehended physically (General Disease Trend, Physical Symptoms), and then mentally (Anxiety and Dysthmia). Further, as compared with the Unhealthy group, the Healthy group may comprehend a physical change more quickly and may take preventive measures. Additionally, even if an abnormal condition is confirmed, the Healthy group may not tend to fall into pessimism and may rather assume a future-oriented stance. Moreover, no differences were found between the groups in terms of the taste examination for “Sweetness”, “Saltiness”, and “Sourness”, while the average value for “Bitterness” was found high in the Unhealthy group as compared to that in the Healthy group. It may be presumed that, as compared to the Unhealthy group, the Healthy group may be more sensitive to “Bitterness”. Taste disorders have been found to be particularly common among young females with dietary problems. This suggests that, their lack of sensitivity to “Bitterness” may indicate their state of stress.