

The Ability to taste PTC among Swedish Men and Women (Nulliparae and others)

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Boyd & Boyd (1937) found a difference between males and females in the ability to taste phenyl-thio-carbamide (PTC). According to some of the values from these authors Tab. 1 has been worked out. Usually the females show a somewhat lower percentage of "non-tasters".

Sample

The present investigation consists of two different kinds of material:

A. Students in medical genetics at Karolinska Institutet during the years 1955-1964 (1,059 males and 437 females).

B. "Patients" examined in paternity cases during the years 1954-1964 (946 adult males and 614 adult females).

As a whole, the sample (2,005 males and 1,051 females) may be representative of a Swedish population.

Technique of the taste analysis

With a pipette a drop of common water is placed on the tongue of the examined person. At the question if any taste is felt the person usually answers "no" or "feels like water". Secondly a drop of a saturated solution of phenyl-thio-carbamide in common water is placed in the same way. Generally it is possible to read in the expression of the face if the person is a "taster". If not, one has to ask if there is any difference in taste between the first and the second drop. On the answer "yes" and, for instance, "the last drop was bitter" the person is registered as a "taster", and if he does not feel any difference as a "non-taster".

The author who has personally examined the whole "patient" material (B), 1,560 persons, has found only 1 man and 1 woman who were uncertain about the taste of the PTC-solution. These persons have been excluded from the investigation.

Tab. 1. Percentage of "non-tasters" in different places according to Boyd & Boyd (1937)

Place	♂		♀		Difference P(D)±E(D)
	n	P±E(D)	n	P±E(D)	
Wales	125	55.3±4.5	112	25.7±4.2	29.6±6.1 ^{xxx}
Zagorsk	197	42.2±3.5	289	32.8±2.8	9.4±4.5
Tiflis (all)	216	27.7±3.1	239	19.2±2.6	8.5±4.0
(West Georgians)	110	24.5±4.1	108	19.4±3.8	5.1±5.6
Assiut (all)	229	25.7±2.9	251	21.9±2.6	3.8±3.9
(Copts)	182	26.9±3.3	199	23.6±3.0	3.3±4.5
Cairo (all)	310	22.7±2.4	259	21.3±2.5	1.4±3.5
(Mohammedans)	251	21.4±2.6	208	20.7±2.8	0.7±3.8

Results

The percentage of "non-tasters" in the whole material was 18.4 ± 0.9 men and 12.8 ± 1.0 women (cfr. Tab. 2). The difference between men and women is $5.6 \pm 1.4\%$.

In the "student" material (A) the frequency of "non-tasters" among men is $18.5 \pm 1.2\%$ and in the "patient" material (B) $18.2 \pm 1.3\%$. The corresponding figures by women are among the students (A) $19.5 \pm 1.9\%$ and among the patients (B) only $8.1 \pm 1.1\%$ with a difference between A and B of $11.4 \pm 2.2\%$.

Tab. 2. Percentage of "non-tasters" among Swedish men and women (nulliparae and with at least one child born)

Material	♂			♀			Difference $\frac{\text{♂}}{\text{♀}}\%$
	N	n	%	N	n	%	
A. Students (Females = Nulliparae)	1059	196	18.5±1.2	437	85	19.5±1.9	-1.0±2.2
B. Patients (Females = at least one child born)	946	172	18.2±1.3	614	50	8.1±1.1	10.1±1.7
Total A + B	2005	368	18.4±0.9	1051	135	12.8±1.0	5.6±1.4 ^{xxx}

Difference between A—females (nulliparae) and B—females (at least one child born): P(D)±E(D) $11.4 \pm 2.2^{\text{xxx}}$

Discussion

Both men and women are younger in material A (students) than in material B (patients) as shown in Tab. 3. The difference is:

$$\begin{aligned} \text{for men: } & 33.3 - 21.7 = 11.6 \pm 0.33 \text{ years,} \\ \text{for women: } & 28.9 - 21.2 = 7.7 \pm 0.34 \text{ years.} \end{aligned}$$

Tab. 3. Mean age in years

Material	♂ Tasters		♂ Non-tasters		♂ Total		♀ Tasters		♀ Non-tasters		♀ Total	
	n	age	n	age	N	age	n	age	n	age	N	age
A. Students	863	21,6±0,29	196	22,2±0,25	1059	21,7±0,14	352	21,2±0,17	85	21,0±0,27	437	21,2±0,14
B. Patients	774	33,0±0,32	172	34,5±0,78	946	33,3±0,30	564	29,0±0,32	50	28,0±0,97	614	28,9±0,31

Tab. 4. Women in material B (patients) divided into four groups in relation to number of births

Group	Mean age		Tasters		Non-tasters	
	n	%	n	%	n	%
I-para	26,3±0,43		250	19	7,1±1,57	
II-parae	27,9±0,47		151	10	6,2±1,90	
III-parae	31,7±0,66		99	12	10,8±2,95	
IV-parae and more	36,3±0,98		64	8	12,3±3,84	

If only the age should be conclusive for the percentage of "non-tasters" (respectively "tasters") one has to expect a difference in the mean age in these two groups. According to Tab. 3 such a difference cannot be established.

On the other hand the women in the A-material (students) are nulliparae, while in the B-material (patients) they have borne at least one child.

In Tab. 4 the women in the B-material are divided into four groups, namely those who have borne 1, 2, 3, and 4 children or more. The difference between the 1-parae and the 4-parae or more is $12.3 - 7.1 = 5.2 \pm 4.2\%$ and between the 1 and the 2-parae against the 3-parae or more is $11.4 - 6.7 = 4.7 \pm 2.6\%$.

Summary

Among 2,005 Swedish men the percentage of "non-tasters" for PTC is 18.4 ± 0.9 and by 1,051 women 12.8 ± 1.0 . The difference is $5.6 \pm 1.4\%$. The difference of "non-tasters" between women who are nulliparae (437) and others (614) is $19.5 - 8.1 = 11.4 \pm 2.2\%$.

Reference

BOYD W. C. and BOYD L. G.: Sexual and racial variations in ability to taste PTC. *Annals of Eugenics*, 8, 46. (1937-38).

RIASSUNTO

In un campione svedese di 2005 uomini il tasso di non gustatori della PTC è risultato di $18,4 \pm 0,9$; in 1051 donne, di $12,8 \pm 1,0$, con una differenza di $5,6 \pm 1,4\%$. La differenza fra non gestatrici nullipare (437) ed altre (614) è risultata di $19,5 - 8,1 = 11,4 \pm 2,2\%$.

RÉSUMÉ

Chez 2005 hommes suédois la fréquence de non-goûteurs pour la PTC est de $18,4 \pm 0,9$ et chez 1051 femmes de $12,8 \pm 1,0$ avec une différence de $5,6 \pm 1,4\%$. La différence entre non-goûteuses nullipares (437) et autres (614) est de $19,5 - 8,1 = 11,4 \pm 2,2\%$.

ZUSAMMENFASSUNG

Von 2005 männlichen Schweden waren $18,4 \pm 0,9\%$ für PTC geschmacksunempfindlich. Für 1051 Schwedinnen (437 Nulliparae und 614 andere) betrug dieser Prozentsatz $12,8 \pm 1,0$, d. h. es bestand ein Unterschied von $5,6 \pm 1,4\%$. Bei den geschmacksunempfindlichen Frauen betrug der Unterschied zwischen den Nulliparae und den anderen $19,5 - 8,1 = 11,4 \pm 2,2\%$.