CHILE, A LONG COUNTRY WITH DIVERSE EXPOSOME AND ITS IMPACT ON SKIN AGING

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INTRODUCTION / OBJECTIVE

The term **EXPOSOME** describes the totality of exposures to which an individual is exposed to from conception to death.

Chile, a long country located in South America, with almost 4,300 kms. length, has a varied latitude and climates.

The objective of this research was to measure the influence of the **Exposome** on the facial skin aging of women in different cities of Chile.

Disclosure of Interest:
Vanessa Calderón is a full time employee of L'Oreal Chile. Robinson Guerrero, author has no relationships to disclose. Cecilia Orlandi, author has no relationships to disclose. Silvia Soto, author has no relationships to disclose. Jorge Testart, author has no relationships to disclose. Emiliza Zegpi, author has no relationships to disclose. Jorge Szot, author has no relationships to disclose

SUPPORT PROVIDED BY VICHY LABORATOIRES CHILE.

MATERIAL AND METHODS

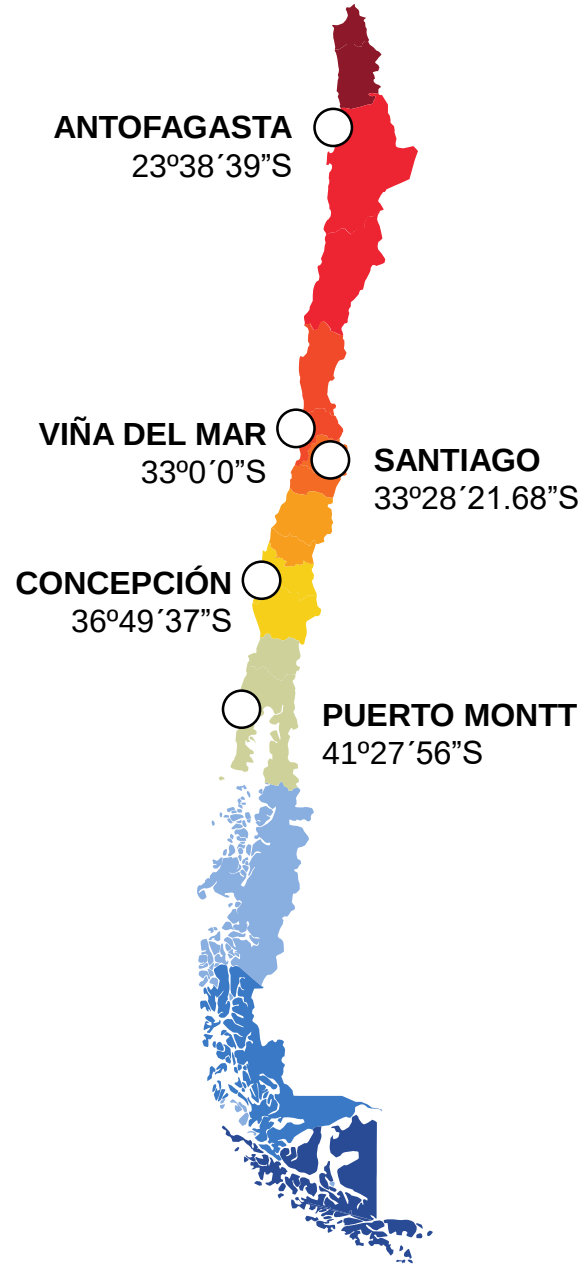
This descriptive study recruited in a random way 1910 women, between 20 and 64 years, who have been living in five different cities of Chile for at least 5 years. The cities included in this study are reflected in the map with their different latitudes.

This study had 2 phases:
Phase 1: A **self-administered questionnaire** included sociodemographic characteristics, health aspects and presence of exposome risk factors (e.g. stress, sun exposure, smoke, alcohol, use of sunscreen).

Phase 2: Instrumental measurements were carried out by trained personnel, using **VISIA®.** This instrument measured number of wrinkles, dark spots, UV spots (melanin below the surface) of the skin and TRUSKIN AGE® (algorithm calculates skin age based on the patient's overall skin condition).

The **specific analysis** was carried out on women of phototype III (Latin, predominant in Chilean women), with 1,268 subjects.

Data were analyzed using SPSS software, version 11.0. The statistical analysis consisted in the comparison of the mean for independent samples and ANOVA calculation to compare 3 or more means. Statistical significance was set at a value less than or equal to 0.01.



RESULTS

Table 1. Average number of wrinkles, Spots, UV Spots and TruSkin age in the different cities of the country.

CITIES	N	WRINKLES	SPOTS	UV SPOTS	TruSkin Age®	MEAN AGE
ANTOFAGASTA	380	82,34	196,93	394,18	40,6	39,98
VIÑ A DEL MAR	384	84,8	180,35	418,48	41,05	40,09
SANTIAGO	383	87,83	174,99	419,07	40,7	39,69
CONCEPCION	381	75,89	180,13	432,52	40,2	40,46
PUERTO MONTT	382	74,05	182,14	411,96	39,2	40,6
TOTAL	1910	80,97	182,82	415,34	40,38	40,14

Table 2. Level of stress, UV index and pollution index of the different cities, 2018.

CITIES	Stress (1-5) *	UV INDEX 2018	PM 10/PM2,5 (WHO)
ANTOFAGASTA	2,19	11	55/14,5
VIÑ A DEL MAR	2,16	8	43/18,7
SANTIAGO	1,98	8	69/31,7
CONCEPCION	2,22	7	49/24
PUERTO MONTT	2,37	7	47/29
TOTAL	2,2	8,2	53/25,5

*** 1- very stressed / 5 - not at all**

- More wrinkles were observed in Santiago versus the rest of the cities.
- More spots were found in Antofagasta, which is expected as it is the city with the highest UV index.
- Santiago has the highest level of stress and pollution among the studied cities.

SPECIFIC ANALYSIS

WRINKLES

- In Santiago, capital of Chile, the average number of wrinkles was greater than in other studied cities (90.6± 34.3, p= 0.010).
- In Puerto Montt, the southernmost city, the average number of wrinkles was lower compared to other cities, 78.2 ± 26.7 vs 85.1 ±30.4, p=0.030.
- In women using sunscreen the average number of wrinkles was 84.1 ± 29.8. In those who did not use it, the average was 78.8 ± 29.3 (p=0.254).

SPOTS

- As expected, the average number of dark spots in women between 20-24 years was 155 vs 203 over 45 years (p=0.637). Regarding UV spots, the average was 303 and 471 respectively (p=0.530).
- No statistical differences were found between the cities
- In women using sunscreen SPF 50 the average number of spots was 197,9 ± 47,4 vs the women that do not declare using sunscreen 189,1 ± 50.2, (p=0.062)
- Regarding tobacco and spots, it was found statistically significant differences between women smoking more than 20 cigarettes per day (209.9 ± 37,9) vs women that do not declare smoking (193,7 ± 50,8, p=0.042)

CONCLUSIONS

This is the first study measuring the impact of exposome on the skin of a large population in different latitudes of the same country. As expected, the presence of wrinkles and pigmentation increases with age.

In Santiago, Chile's most populated city (40% of total population), high levels of stress and environmental pollution could influence the number of wrinkles unlike what happens in Puerto Montt, located at south of the country, under lower conditions of stress and pollution

Regarding spots, it is striking that no differences were found between the cities, despite the differences of UV index, pollution and stress. The lack of concordance between the use of sunscreen, wrinkles and spots is striking, as a greater number of wrinkles and spots was found in women using sunscreens, a situation that allows us to raise doubts about the proper use of these.

The success of this work consisted in highlighting the concept of EXPOSOME for the first time in the dermatological community of Chile. This information will be of great importance for people to understand its role in skin health and for dermatologists in evaluating, educating patients and treating skin conditions properly.