



Consumption of cosmetic products by the French population. First part: Frequency data



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ABSTRACT

The aim of this study was to assess the percentage of users, the frequency of use and the number of cosmetic products consumed at home by the French population. The evaluation was performed for adult, child and baby consumers. Pregnant women were also taken into account in this work. All in all, 141 products cosmetics including general hygiene, skin care, hair care, hair styling, make-up, fragrances, solar, shaving and depilatory products were studied. The strengths of the study were the separation of data by sex and by age groups, the consideration of *a priori* at risk subpopulations and the consideration of a large number of cosmetic products. These current consumption data could be useful for safety assessors and for safety agencies in order to protect the general population and these at risk subpopulations.

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1. Introduction

Cosmetic products are widely and regularly applied by consumers of all ages. Article 3 of the European Regulation (EC) No 1223/2009 specifies that a cosmetic product available on the market must be safe for human health when used under normal or reasonably foreseeable conditions of use and must be evaluated for its safety prior to marketing. In this case, an exposure assessment to finished cosmetic product is required (EU, 2009). Exposure can be determined by multiplying the frequency of use and the applied quantity per use. Current and relevant data on frequency and amount for each type of cosmetics are essential for a correct exposure assessment and consequently for a correct safety assessment.

Some frequency data for finished products are available in Europe. Adult frequency values were obtained by Cosmetics Europe for twelve cosmetics including showering, hair care, skin care, make-up and deodorant products (Hall et al., 2007, 2011; McNamara et al., 2007). These frequency data are currently used by the Scientific Committee on Consumer Safety (SCCS) to estimate daily exposure levels of European consumers (SCCS, 2012). However, these data do not cover all the different types of cosmetics. Potential specific at risk groups such as children or pregnant women are not taken into account. Although this study was conducted in five European countries and

that the data obtained were combined in a conservative way to protect the European consumer, national specificities and behaviours may also exist for certain products. For example, a study performed on French pregnant women has shown different exposure values (and consequently frequency and/or quantity differences) from the European data used by the SCCS. French pregnant women exposure to body lotion, body cream/milk, deodorant stick/roller and milk/cream sunscreen was higher than exposure of the general European population to the same products. The authors emphasized that differences may exist between nationalities and/or some particular subpopulations (Bavoux et al., 2011).

Some national studies are available. Biesterbos et al. assessed the frequency of use of thirty two cosmetics by the Dutch adult population. The cosmetics studied were general hygiene, shaving care, skin care, hair care, nail care, make-up and tanning products (Biesterbos et al., 2013). Manova et al. determined the frequency of use of eight leave-on care products (skin care, make-up and sunscreen) by Swiss children, adolescents and adults (Manova et al., 2013). French frequency data are very limited. Values for French babies and children were obtained for rinse-off, leave-on, cleansers or diaper dermatitis treatment products (Gomez-Berrada et al., 2013). To our knowledge, no published frequency data are available for adult French consumers except the values obtained for pregnant women (Bavoux et al., 2011).

In Europe, safety assessments are based on the safety of the ingredients found into each cosmetic product (EU, 2009). The daily co-use of cosmetics and consequently the aggregate exposure to ingredients found in these different products is not taken into account in the Regulation. For example, triclosan is an ingredient used for its antimicrobial properties in various cosmetics used on a daily basis by consumers such as toothpastes, mouthwashes, soaps, shower gels,

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deodorants, body lotion, face powders... The SCCS concluded in an opinion that the continued use of triclosan in all cosmetic products was not considered safe for the consumer because of the magnitude of aggregated exposure (SCCS, 2011). In the specific case of preservatives, the Scientific Committee on Cosmetic Products and Non-food products intended for Consumers (SCCNFP) calculated a global daily exposure value for all cosmetic products that one person may daily apply on the skin. This aggregate value equal to 17.4 g/day is used in the calculation of the margin of safety (SCCS, 2012).

Consequently, it is important for public health reasons to determine the number of products used daily by consumers and to assess the daily exposure to ingredients coming from cosmetic products. This information could be useful to establish maximum ingredient concentrations in cosmetic products.

There are few data concerning the number of cosmetics used per person and the number of cosmetics used per person and per day. Among the thirty two cosmetics investigated by Biesterbos et al. (2013) on the Dutch population, women reported that they used on average seventeen of them, and men seven. A survey conducted among more than 2300 people in the United States showed that, on average, women used twelve products per day and on the other hand, men used six products daily (EWG, 2004).

Given that assessing the exposure to cosmetics is an obligation for producers and that consumption data are limited in Europe and especially in France, it would appear essential to generate usage pattern data in order to protect consumers. The aim of this

publication was to assess the percentage of users, the frequency of use and the number of cosmetic products consumed at home by the French population. The evaluation was performed for adult, child and baby consumers. Pregnant women were also taken into account in this work. In order to complete this work, a publication on the amount of cosmetics applied per use is being written.

2. Materials and methods

2.1. Enquiry design

2.1.1. Web questionnaire

A web questionnaire survey was conducted in September 2013 by a national survey company. This enquiry collected current information on the usage patterns of 141 cosmetic products, including general hygiene (soap, shampoo, deodorant, shower gel, toothpaste...), skin care (moisturizer, exfoliating scrub...), hair styling (lacquer, gel, wax...), hair care (conditioner, oil, dye...) make-up (mascara, eye shadow, foundation...), fragrances (Perfume, Eau de toilette, Eau de Cologne), solar (sunscreen, tanning...), shaving (gel, foam...) and depilatory (hair removal cream, warm wax and warm strips) products. Specific bottom care products were studied for babies under 3 years (cleansing lotion, wipes, cream/balm, liniment) (see Table 1 for a full list).

The aim of the questionnaire was to determine, for all products used during the past 12 months by each volunteer, the corresponding frequency of use. Firstly, respondents were asked to check all the products they had used at least once during the past 12 months. Secondly, for each product checked, consumers were asked to indicate the corresponding frequency of use during the past 12 months. Three frequency scales were proposed according to studied cosmetics (Table 1).

Table 1
Product types investigated and corresponding frequency scale.

Product types	N	Frequency scale		
		Scale 1	Scale 2	Scale 3
Hair				
Cleanser	4	Liquid shampoo, solid shampoo, dry shampoo, baby shampoo		
Styling	5	Lacquer (aerosol), gel, foam, wax, spray (pump)		
Care	11	Conditioner	Lotion, serum, oil, mask	Dye, henna dye, hair bleach, highlights, permanent straightening, permanent wave
Visage				
Cleanser	7	Solid soap, liquid soap, soap-free gel cleanser, milk, lotion/micellar water, wipes, exfoliating scrub		
Care	13	Moisturizer cream, night cream, anti-aging cream, eye contour, serum, lip balm, talc, skin lightening product, hair bleach	Mask, clay mask, neck cream, strip	
Make-up	14	Eye shadow, eye liner, eye pencil, mascara, concealer, prime face, foam foundation, compact powder foundation, loose powder foundation, cream foundation, imperfection corrector, blush, lipstick, lip pen		
Make-up remover	6	Lotion, milk, oil, foam, wipes, remover pads		
Oral care	8	Toothpaste, whitening toothpaste, gum protection toothpaste, fluoride toothpaste, child toothpaste, multi-care toothpaste, mouthwash		Teeth whitening product
Corps				
Cleanser	10	Solid soap, shower gel, baby shower gel, 2 in 1 hair and body, milk, foam bath, wipes, intimate hygiene liquid cleanser, intimate hygiene wipes, exfoliating scrub		
Care	10	Moisturizing milk, moisturizing cream, moisturizing oil, bust cream, heavy legs cream/gel, slimming cream/gel, anti-stretch mark cream, nipple cream/oil, skin lightening product		Hair bleach
Deodorant/anti-perspirant	5	Aerosol, roll-on, stick, cream, Alun stone		
Fragrance	4	Perfume, Eau de toilette, Eau de toilette for baby, Eau de Cologne		
Massage	3		Balm, oil, cream	
Hands	5	Moisturizer cream, anti-spot cream, anti-perspirant cream, wipes, talc		
Feet	4	Moisturizer cream, anti-perspirant, exfoliating scrub, talc		
Bottom	5	Lotion, milk, wipes, cream/balm, liniment		
Sunscreen	6	Cream, aerosol, spray (pump), milk, oil, foam		
After sun	3	Cream, milk, oil		
Tanning	3	Spray (pump), milk, oil		
Shaving	5	Gel, foam, cream, soap, shower gel		
After shaving	4	Lotion, cream, oil, talc		
Depilatory	3		Depilatory cream, wax, strips	
After depilatory	3		Cream, gel, lotion	
Total	141			

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