

Healthy Ageing and Wellbeing

Gabriela Daniels, Programme Director Science, UAL

<https://researchers.arts.ac.uk/240-gabriela-daniels>

2021-2030 UN Decade of Healthy Ageing

In 2020, for the first time in history, people aged 60 years or over outnumbered children under 5 years. By 2050, there will be more than twice as many people above 60 as children under 5. By 2050, people aged 60 years or over will outnumber adolescents and young people aged 15–24 years.

Healthy ageing is developing and maintaining the functional ability that enables well-being in older age. Functional ability is determined by the intrinsic capacity of an individual (i.e. the combination of all the individual's physical and mental capacities), the environment in which he or she lives (understood in the broadest sense and including physical, social and policy environments) and the interactions among them.

Healthy ageing

- Decisions from policy makers related to the environment
- Commercial opportunities to support the maintenance of physical and mental capacities (healthcare, lifestyle, personalisation of products and services) and some aspects of the environment
- Research: the multidomain nature of healthy ageing requires interdisciplinary research

Policy makers

Commerce

Research

Contents



- **Defining healthy ageing**
- **Innovation for skin/hair ageing**
- **Psychological, neuroscientific and other research methodologies of relevance**
- **Self image, identity and wellbeing**
- **The role of cosmetics and cosmetic claims**

<https://cdn.who.int/media/docs/default-source/decade-of-healthy-ageing/decade-proposal-final-apr2020-en.pdf>



Defining healthy ageing



Healthy ageing concept development



doi.org/10.1016/j.eclinm.2022.101821

- Systematic review (published 2022) by an international group of researchers
- Screened 10,741 records of original research in medical and biomedical; psychology and social science research databases in English, Spanish, German, Farsi and Dutch;
- Selecting 59 papers; presenting **65 models and definitions of healthy ageing (HA)**, published in English (1960–2022) from 16 countries in Europe, Asia, and America.

Healthy ageing concepts and definitions

(1) Dimensions terms ^a	Definition/synthesis approach	Eligible dimensions or domains from the included conceptual models
Dimensions	Dimensions are based on definitions, descriptions or attributes, and outcomes of the concept.	
Subjective	Dimensions that require individuals to evaluate their own healthy ageing subjectively	Spiritual, social, cultural, and psychological dimensions that require subjective opinion or evaluation
Objective	Dimensions that require the researchers to assess healthy ageing via defined objective criteria	Cognitive, physical, demographic, economic, environmental, political, and certain social, cultural, and psychological dimensions that require objective evaluation
Cognitive	Of, relating to, or involving conscious mental activities (such as thinking, understanding, learning, and remembering)	Memory, cognitive performance, cognitive and mental capacity, wisdom, requiring a judgment such as self-reflection, self-assessment etc.
Cultural	The beliefs, customs, arts, etc., of a particular society, group, place, or time	Habits, traditions
Demographic	The statistical characteristics of human populations	Age, ethnicity, gender
Economic	Of, relating to, or based on the production, distribution, and consumption of goods and services	Financial resources/income, retirement, professional status, economically productive activities
Environmental	The circumstances, objects, or conditions by which one is surrounded	Built and natural environment, technical/support, healthcare services, transportation
Physical	Of or relating to the body	Biological body function, structure, physiology, health, diseases, physical biological well-being, (instrumental) activities of daily living
Political	Of or relating to politics or government	Policy (vision), legal (Judiciary set of laws (formal law))
Psychological/behavioural	The science or study of the mind and behaviour	Mental health, coping, personality traits (self-efficacy), attitude, life satisfaction, subjective well-being, emotions, physical activity, lifestyle
Social	Relating to or involving activities in which people spend time talking to each other or doing enjoyable things with each other	Social environment, social network, community/civic involvement/volunteering, social provisions, social support, social role/activity in family or community
Spiritual	Things of a spiritual, ecclesiastical, or religious nature	Religious, personal values, meaning of life, life goals, dealing with death

Summary of the review's key findings:

- The HA concept has transitioned from negative and medical towards positive and adaptive focus
- Multidimensionality of healthy ageing is recognised: three broad domains are recognised: **physical, psychological and social**
- Three types of HA models emerged: **health-focused, focused adaptations across the life course, a combination of both**

doi.org/10.1016/j.eclinm.2022.101821

Healthy ageing concept development

- Systematic review published in 2023 (focus on medical and psychological research)
- Multidimensionality of HA: **biological, psychological and social processes**
- Measures of HA:
 - ✓ Objective biomarkers
 - ✓ Subjective measures (questionnaires)

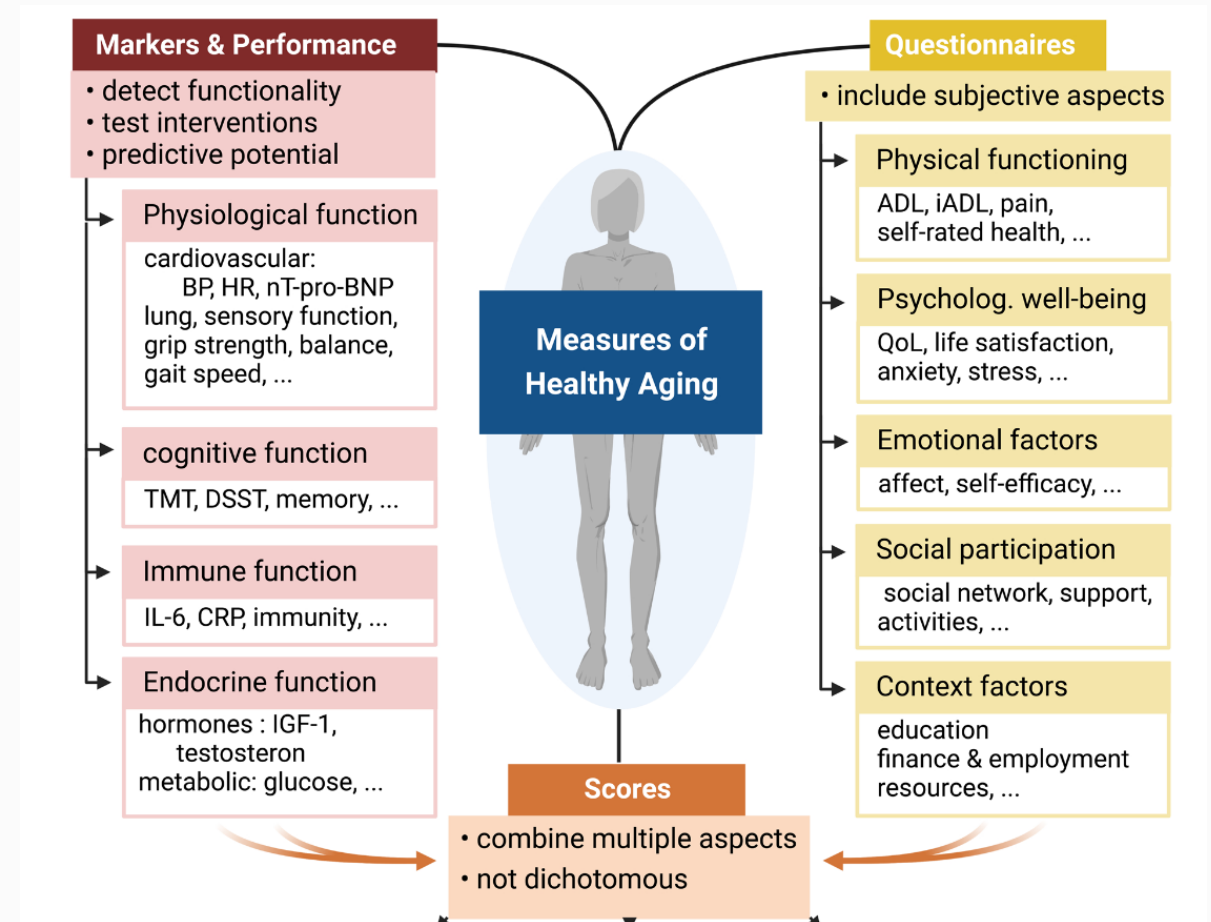


Ageing Research Reviews
Volume 88, July 2023, 101934



60 years of healthy aging: On definitions, biomarkers, scores and challenges

Luise Charlotte Behr ^{a b}, Andreas Simm ^a, Alexander Kluttig ^b,
Anne Grosskopf (Großkopf) ^{a 1}



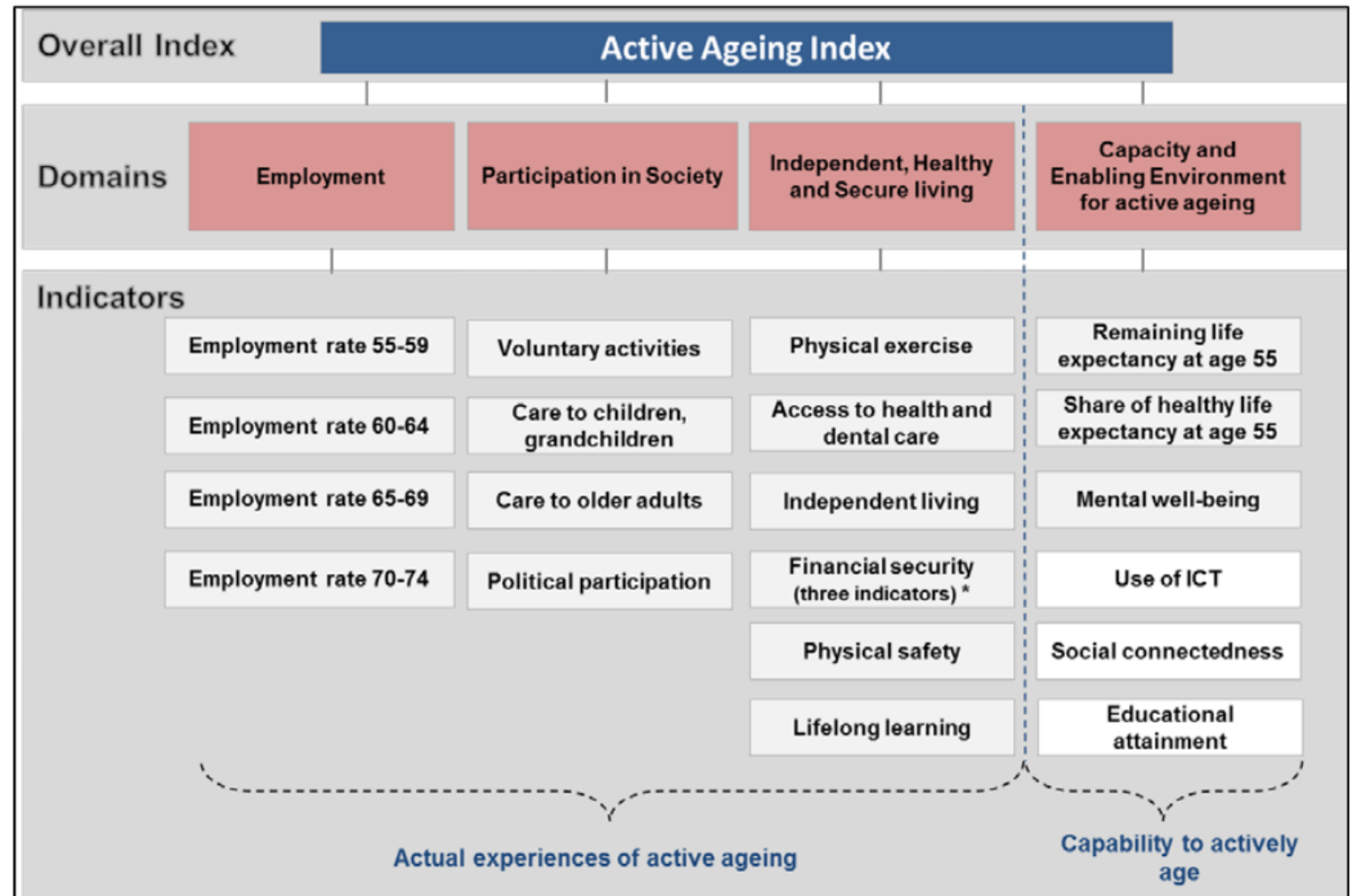
doi.org/10.1016/j.arr.2023.101934

Example of measures

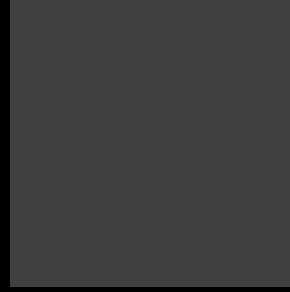
Active Ageing Index 2012 (European Centre for Social Welfare Policy Research)

http://pdc.ceu.hu/archive/00007048/01/ECSW_PR_Active-ageing-Index_2012.pdf

Figure 1.1: The domains and indicators of the aggregated Index, AAI



* Financial security aspects are captured by three different indicators: (1) Relative median income of 65+



Innovation for skin and hair ageing



The global anti-ageing market

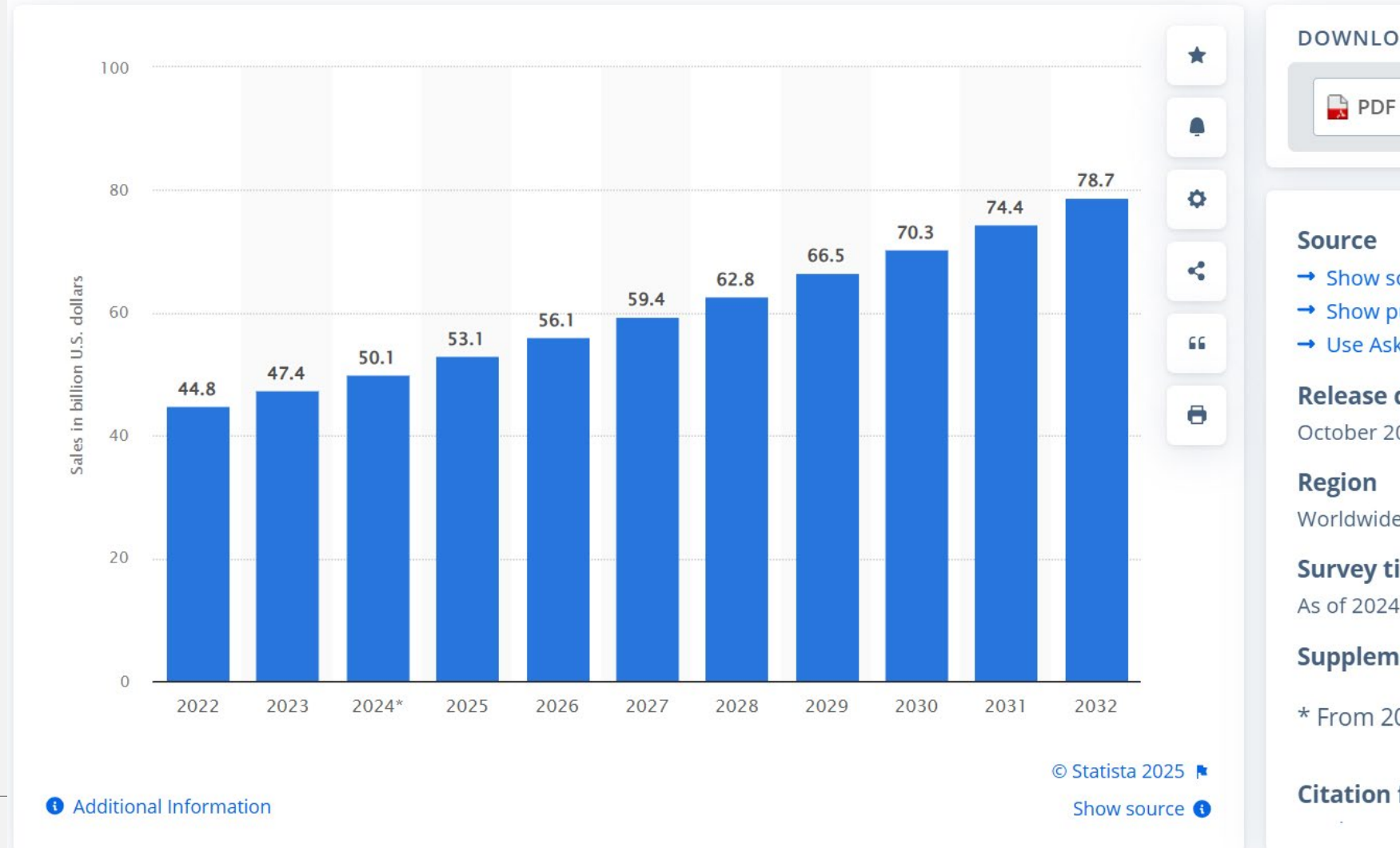
Release date: October 2024

The projected market growth reflects the demographic trend

Is the “anti-ageing” approach a fair reflection of the needs of the older consumer?

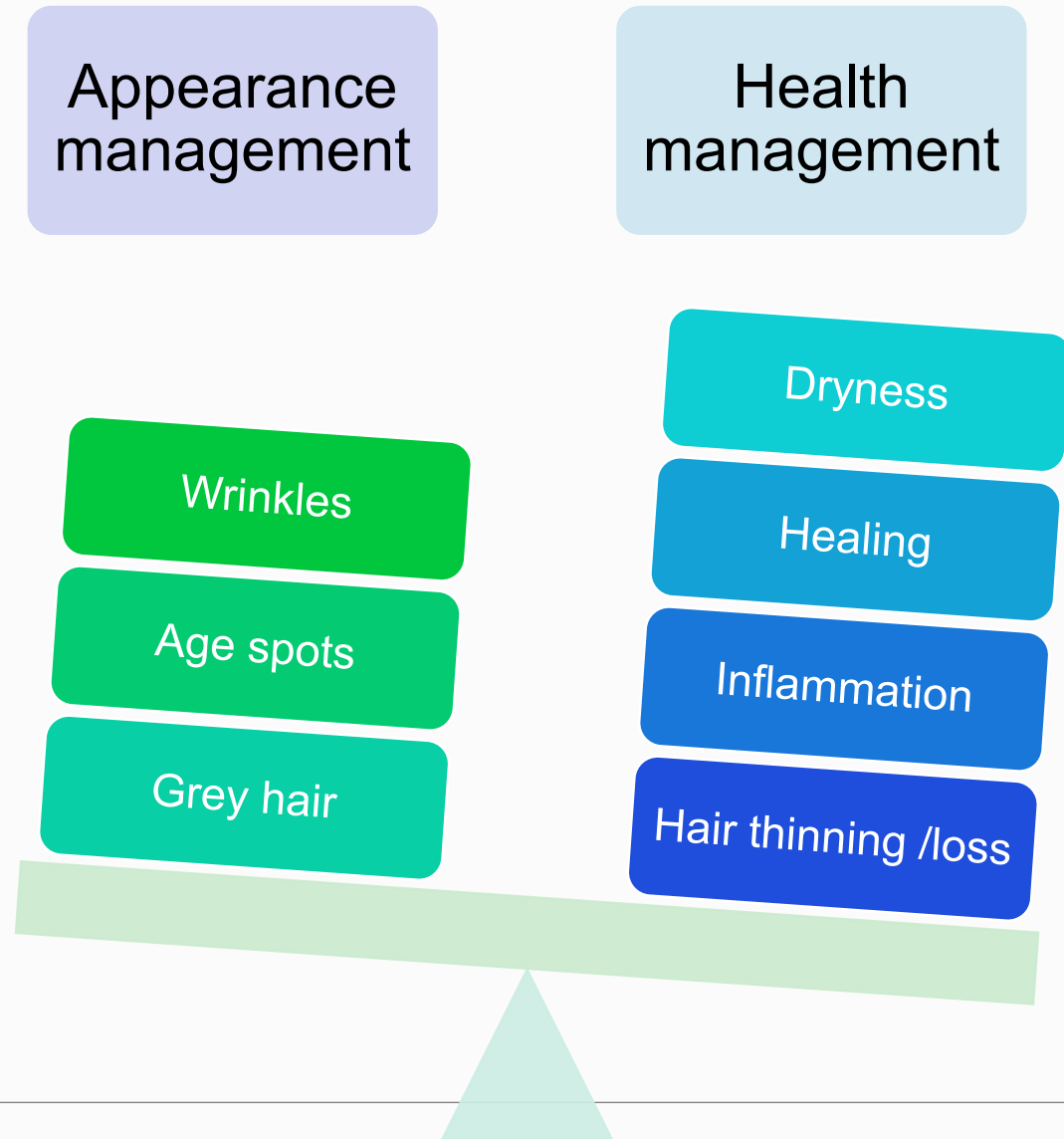
Consumer Goods & FMCG › Cosmetics & Personal Care

Size of the anti-aging products market worldwide from 2022 to 2032 (in billion U.S. dollars)

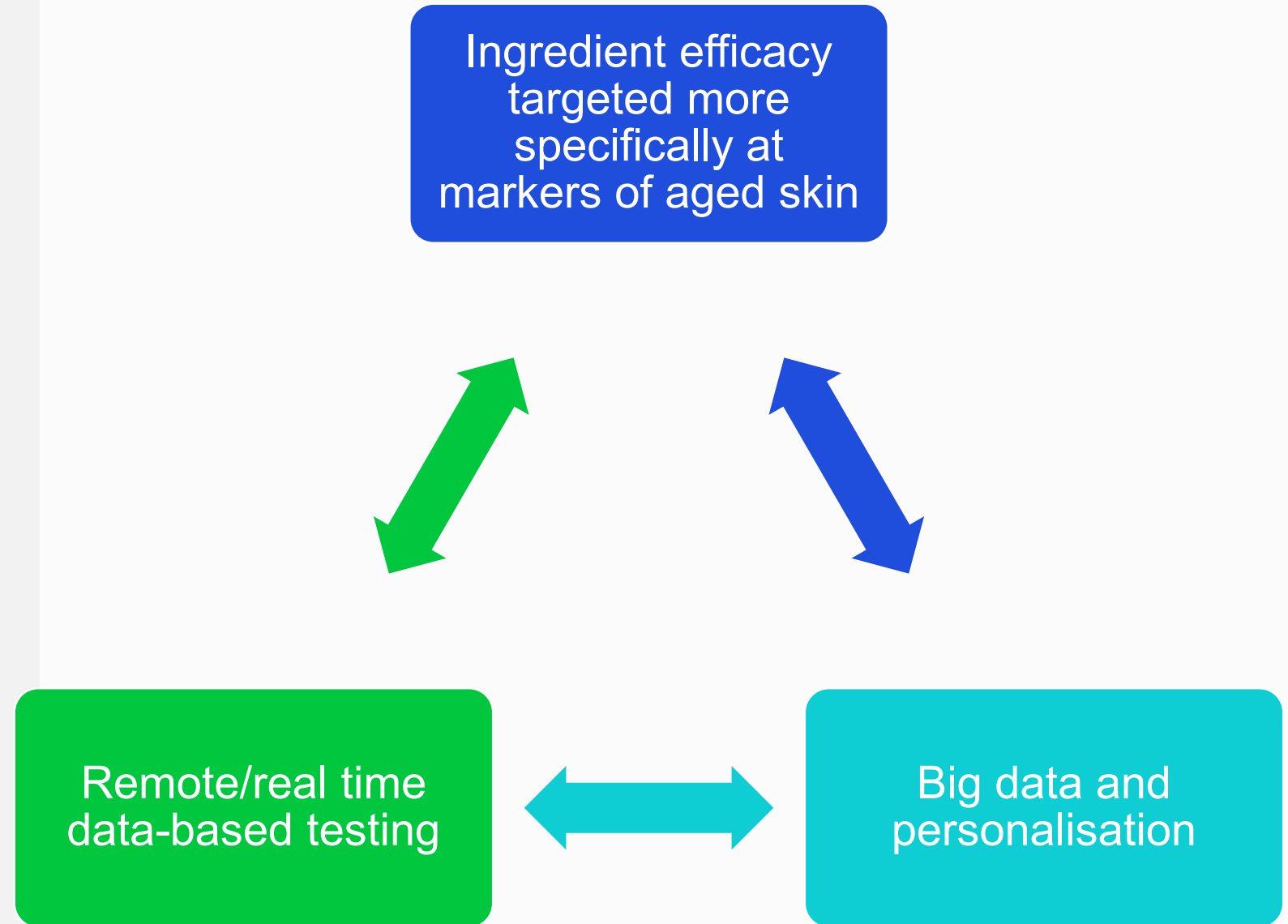


Healthy ageing

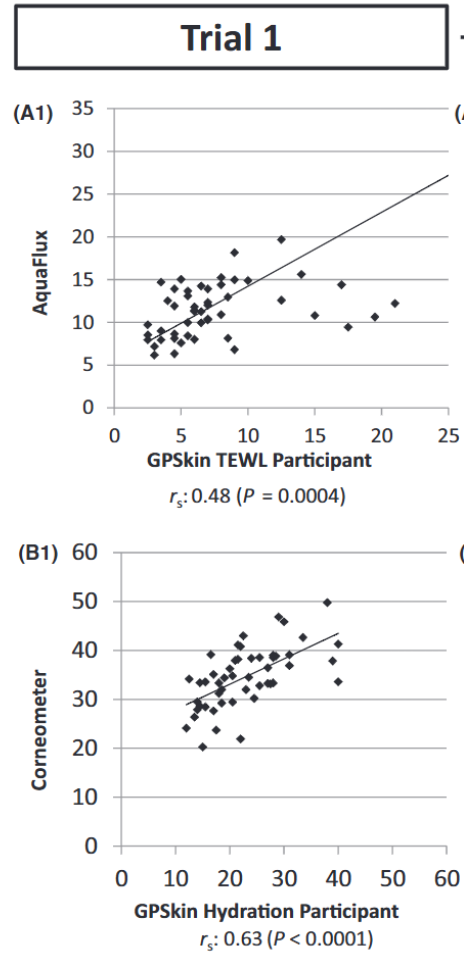
Shift the balance



Innovations



Remote data collection for ongoing personal monitoring



Grinich EE, Shah AV, Simpson EL. Validation of a novel smartphone application-enabled, patient-operated skin barrier device. *Skin Res Technol.*2019;25:612–617. <https://doi.org/10.1111/srt.12692>



FIGURE 1 The back of a Smartphone coupled with Skin Hydration Sensor Patch. The green square represents the measuring probe when in contact with skin

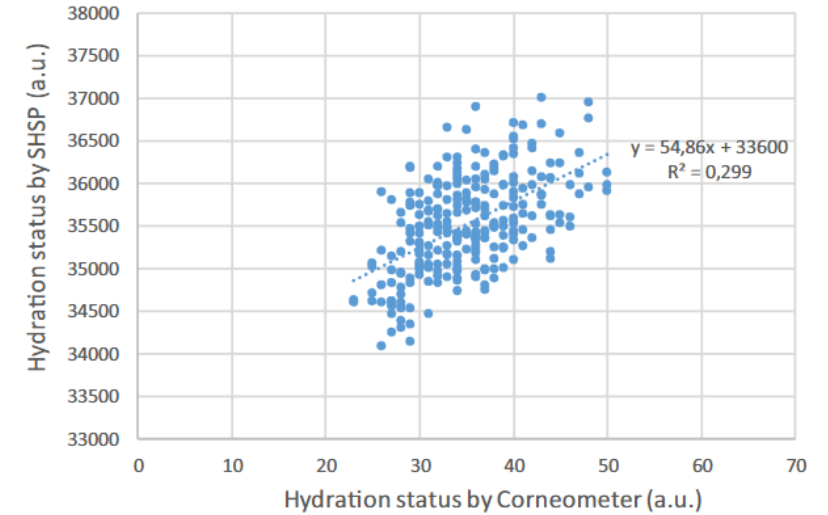
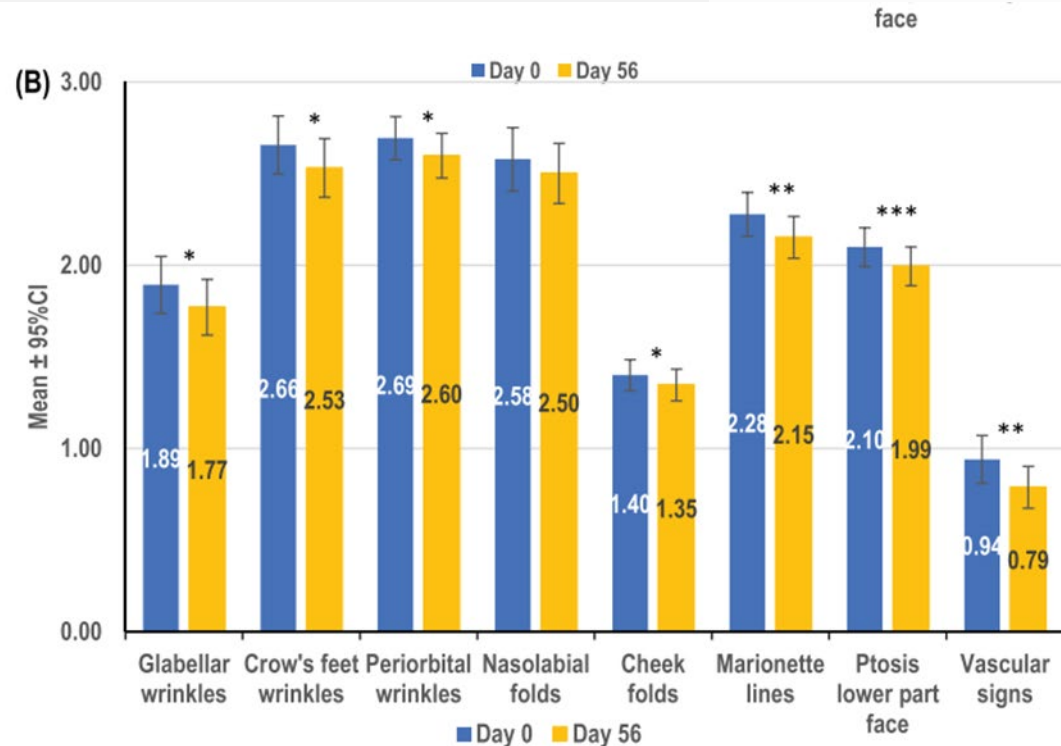


FIGURE 4 Correlation between Corneometer® and SHSP values

Flament F, Galliano A, Abric A, et al. Skin moisture assessment using Hydration Sensor Patches coupled with smartphones via Near Field Communication(NFC). A pilot study with the first generation of patches that allow self-recordings of skin hydration. *Skin Res Technol.*2021;27:959–965. <https://doi.org/10.1111/srt.13049>

Skin research for peri and post-menopausal skin



- Two age groups n=202 (50+/-3.9 and 59+/-3.8)
- Treated with a cosmetic preparation designed for peri and post-menopausal skin (addressing skin elasticity, cortisol's impact on collagen synthesis, anti-oxidant activity)
- 56 days (morning and evening application)
- AI grading of visible age manifestation
- Remote sensor: skin barrier (TEWL)
- 28-item Menopausal Skin Quality Of Life (MSkinQOL) survey

NEUTRAL

Taking care of my skin is a hassle	Never/Rarely	63%	78%	< 0.10	51%	65%	< 0.05
	Often/Always	8%	6%		16%	6%	

Flament F, Jiang R, Delaunay C, et al.
 Evaluation of adapted dermo cosmetic regimens for
 perimenopausal and menopausal women using an artificial
 intelligence-based algorithm and quality of life questionnaires:
 An open observational study. *Skin Res Technol.*
 2023;29:e13349. <https://doi.org/10.1111/srt.13349>

Formulation solutions

Study design

Aged group (58-95) vs Younger group (28-38)

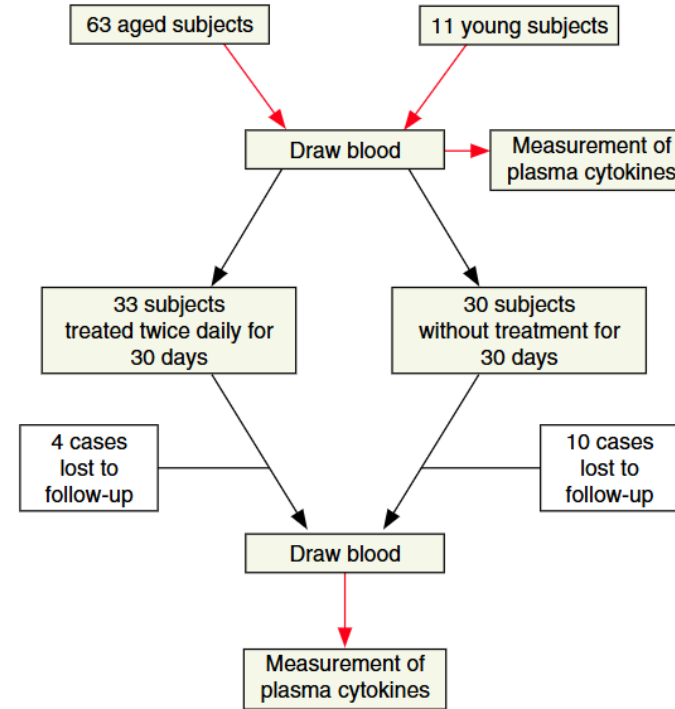
Daily application of specific lipid-containing emulsion (30days)

Data points: plasma cytokines, skin hydration, pH and TEWL

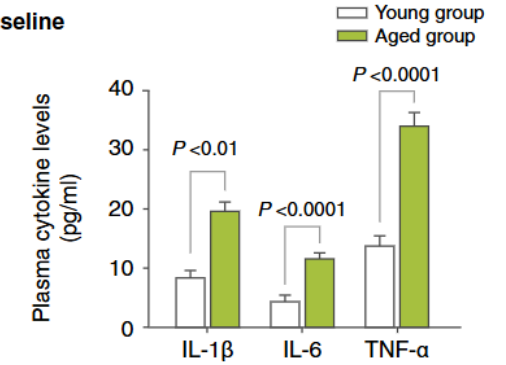
Results

Reduced inflammatory cytokines in aged treated group

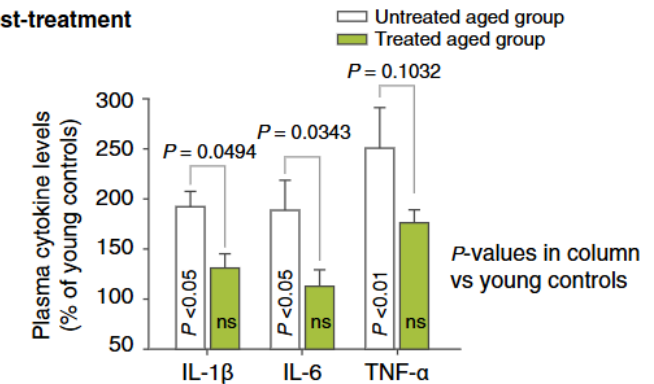
Improved hydration, reduced pH and TEWL



(a) Baseline



(b) Post-treatment



Ye, L., Mauro, T.M., Dang, E., Wang, G., Hu, L.Z., Yu, C., Jeong, S., Feingold, K., Elias, P.M., Lv, C.Z. and Man, M.Q. (2019), Topical applications of an emollient reduce circulating pro-inflammatory cytokine levels in chronically aged humans: a pilot clinical study. J Eur Acad Dermatol Venereol, 33: 2197-2201. <https://doi.org/10.1111/jdv.15540>



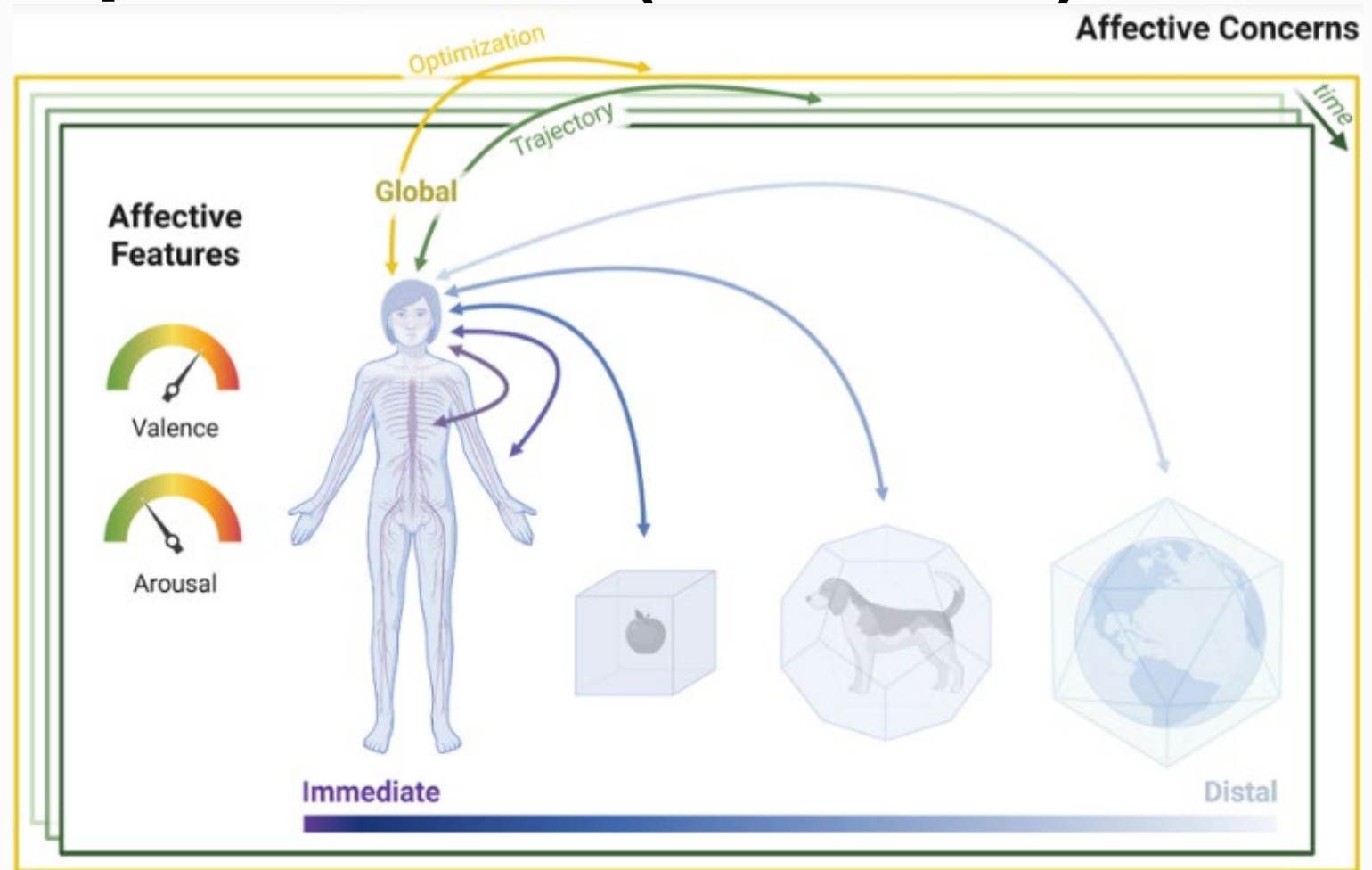
Psychological, neuroscientific and other research methodologies of relevance

The human affective phenomena (emotions)

Review paper published in Neuroscience and Behavioural Reviews sums this very well:

Human affective phenomena:

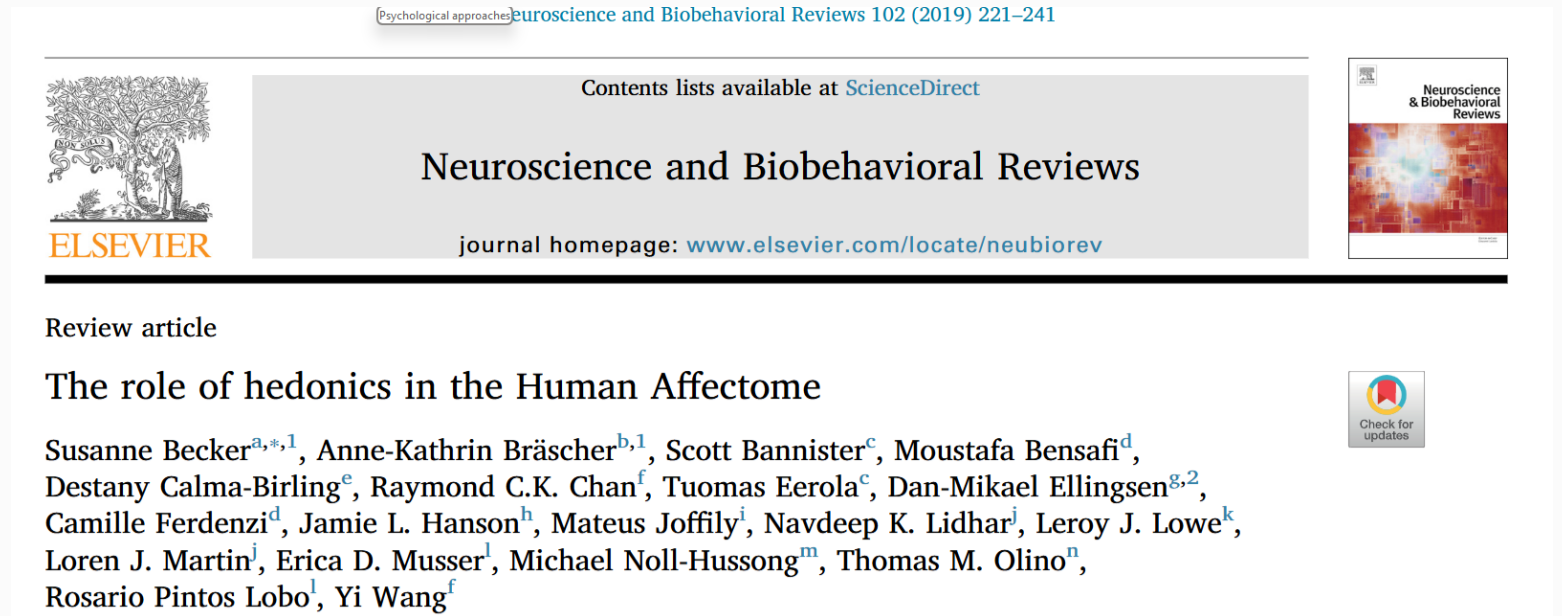
- Valence dimension: positive vs negative
- Arousal dimension: strength of affection
- Blue line is the time dimension: immediate vs long term
- High relevance to cosmetics: immediate aesthetic effect is expected, the 3–4-month effect is a part of the long-term adaptive behaviour



Psychological approaches

Hedonics (pleasure and displeasure)

<https://doi.org/10.1016/j.neubiorev.2019.05.003>



A narrative review of primary studies identified

- ❑ Emerging research relating **positive hedonics and self reported wellbeing**
- ❑ **Neuro aesthetics** emerging as a biological process of aesthetic experiences

Brain activity: Event Related Potential (ERP/EEG)

PLOS ONE

RESEARCH ARTICLE

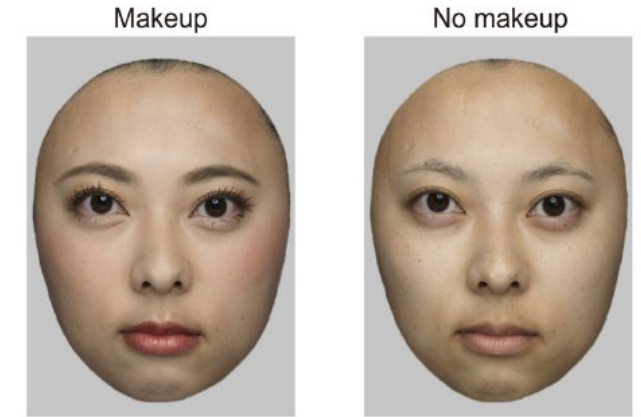
Cosmetic makeup enhances facial attractiveness and affective neural responses

Tomohiro Arai^{1*}, Hiroshi Nittono²

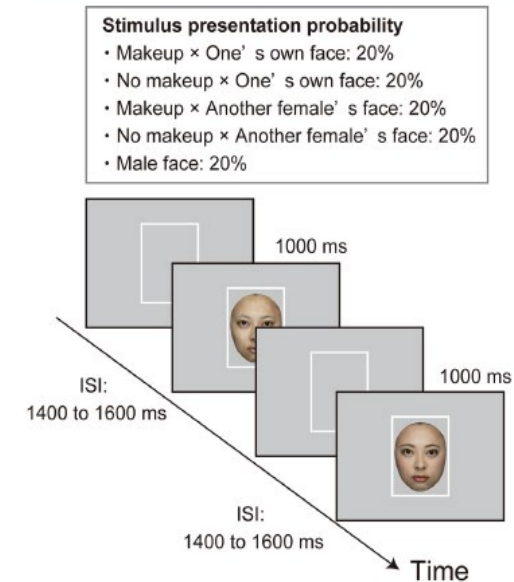
¹ Shiseido Co., Ltd. MIRAI Technology Institute, Kanagawa, Japan, ² Graduate School of Human Sciences, Osaka University, Suita, Japan

- ❑ Electroencephalogram: measures the electrical activity of the brain during controlled stimuli
- ❑ **Frequency band** data is extracted e.g alpha beta and gamma
- ❑ Assessment included one's own images (viewing own face with and without makeup) and other people's face images
- ❑ In this study, the responses indicating that makeup added visually rewarding value to human faces

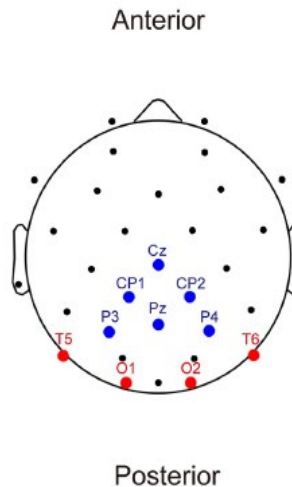
(A)



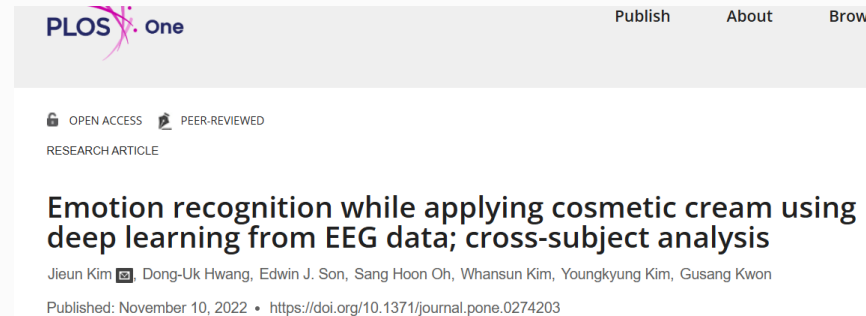
(B)



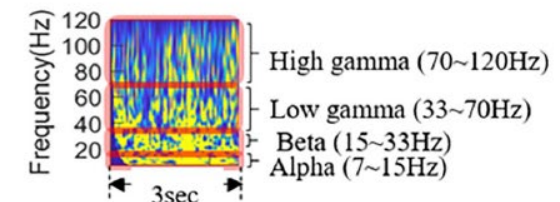
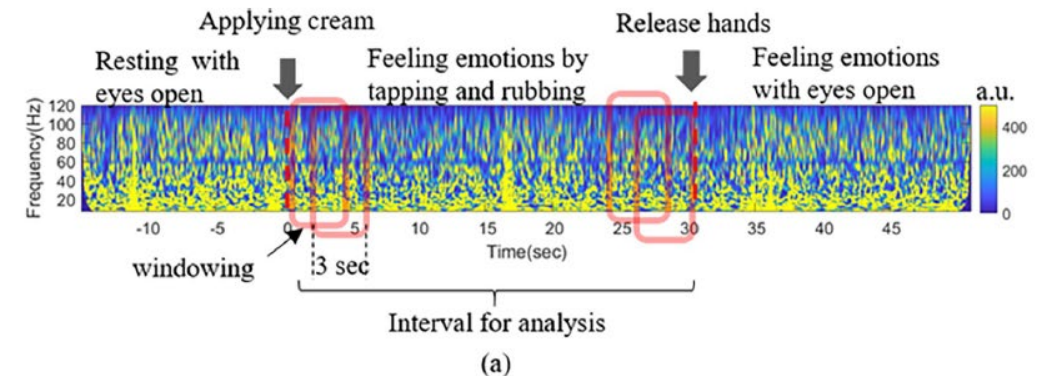
(C)



Event Related Potential (ERP/EEG)



- ❑ Tactile stimuli (creams, fabrics) have been studied too
- ❑ Brain activities varied between materials with different tactile experience
- ❑ Due to the large data, AI methods are now used to process more effectively the data



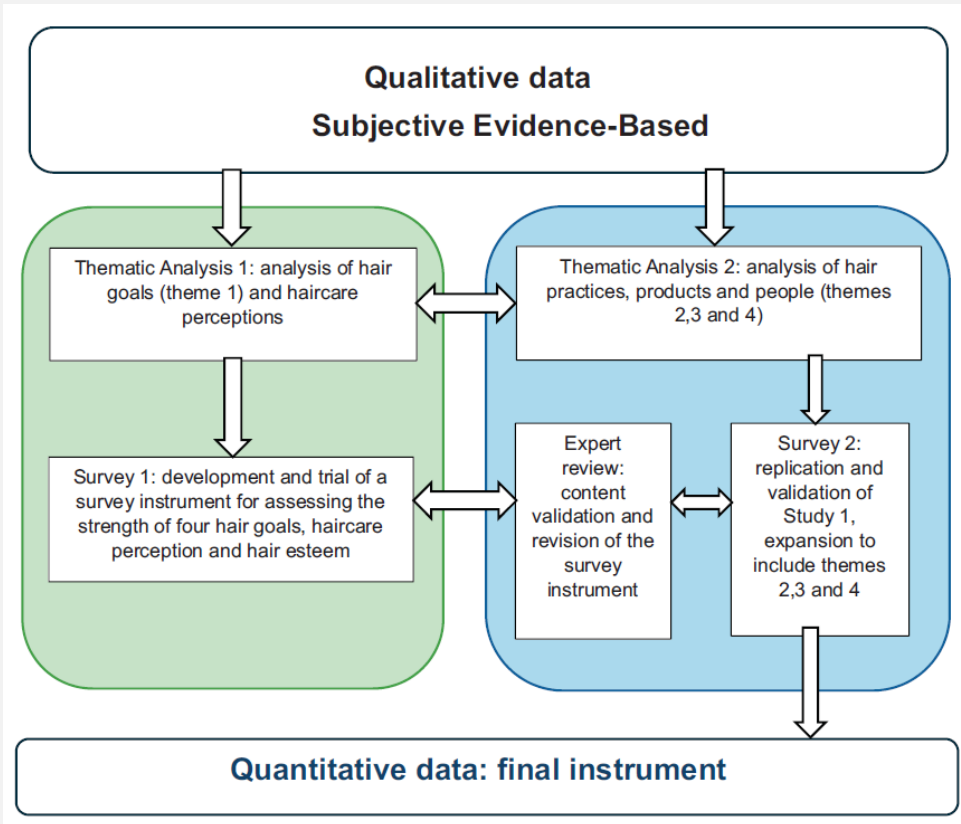
Other research methodologies of interest

- Mixed methods: sequential explanatory design
- Quantitative stage including Quality of Life (QoL) survey (n=46)
- Qualitative stage based semi structured interviews (n=10)



Hair aging	Hair and identity	Hair and subjective well-being
<ul style="list-style-type: none">• Hair greying and personal responses• Other hair aging symptoms• Time, effort and practicality when managing the above• The role of hair dressers	<ul style="list-style-type: none">• Hair and Black women's personal identity• Influence of others and fashion• Representation of Black women's hair as well as aging hair• Politics and hair: Black women's hair as a form of resistance	<ul style="list-style-type: none">• Healthy hair and the choice of cosmetics• Feelings and emotions related to haircare• Hair damage in a more general context• Chemical processing and well-being related to European hair standard's hegemony

Other research methodologies of interest



- Mixed methods: sequential exploratory design
- Qualitative study: Subjective Evidence-Based Ethnography (n=14)
- Quantitative stage: survey including hair esteem survey (n=506)

Daniels G, Heitmayer M. Towards a taxonomy for assessing and classifying the needs of curly hair: A mixed method, ethnographic and quantitative data study. *Int J Cosmet Sci.* 2024; 46: 746–760.
<https://doi.org/10.1111/ics.12952>

Hair study cont.

Aesthetic goals	Haptic goals	Practical goals	Emotive goals
<ul style="list-style-type: none">• sleek hair• less frizz• curl definition	<ul style="list-style-type: none">• smooth hair• soft hair• less tangled hair	<ul style="list-style-type: none">• quick results• easiness• longevity of style	<ul style="list-style-type: none">• healthy hair• natural hair• gaining recognition

- Hair esteem (instrument adapted for hair from the Rosenberg Self-Esteem (RSE) scale (correlated with https://www.apa.org/obesity-guideline/rosenberg-self-esteem.pdf_)
- Hair length, emotive goals strength, negatively correlated with haptic goals and perceptions of haircare as a chore

Daniels G, Heitmayer M. Towards a taxonomy for assessing and classifying the needs of curly hair: A mixed method, ethnographic and quantitative data study. *Int J Cosmet Sci.* 2024; 46: 746–760. <https://doi.org/10.1111/ics.12952>



Self-image, identity and wellbeing



Wellbeing

- Wellbeing is subjective
- Measuring wellbeing via instruments is validated/adapted to context
- Cosmetics-induced wellbeing is difficult to isolate (and measure precisely)

Emotional Well-Being: What It Is and Why It Matters

Crystal L. Park¹ · Laura D. Kubzansky² · Sandra M. Chafouleas¹ · Richard J. Davidson³ · Dacher Keltner⁴ · Parisa Parsafar⁵ · Yeates Conwell⁶ · Michelle Y. Martin⁷ · Janel Hanmer⁸ · Kuan Hong Wang⁶

Definition:

EWB is a **multi-dimensional composite** that encompasses how positive an individual feels generally and about life overall. It includes both **experiential features** (emotional quality of momentary and everyday experiences) and **reflective features** (judgments about life satisfaction, sense of meaning, and ability to pursue goals that can include and extend beyond the self). These features occur in the context of culture, life circumstances, resources, and life course.

Subjective wellbeing measures

The WHO-5 Wellbeing Index

**Validated translations
into various
languages**

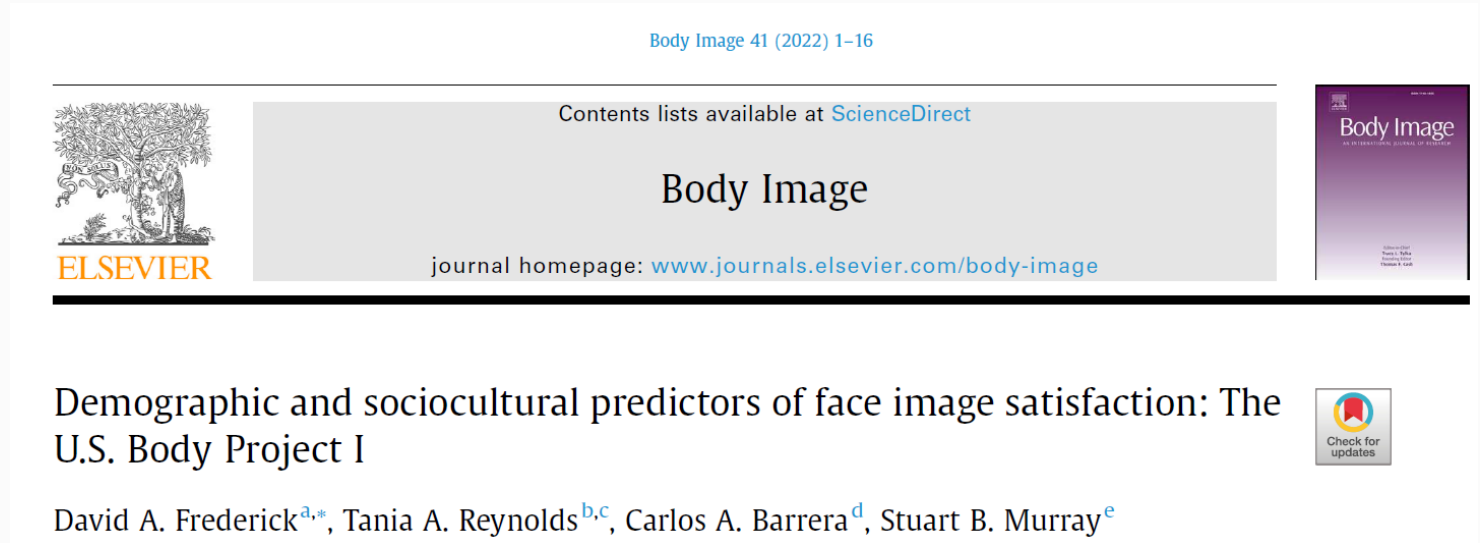


**World Health
Organization**

https://cdn.who.int/media/docs/default-source/mental-health/who-5_english-original4da539d6ed4b49389e3afe47cda2326a.pdf?sfvrsn=ed43f352_11&download=true

		All of the time	Most of the time	More than half of the time	Less than half of the time	Some of the time	At no time
1	I have felt cheerful and in good spirits	5	4	3	2	1	0
2	I have felt calm and relaxed	5	4	3	2	1	0
3	I have felt active and vigorous	5	4	3	2	1	0
4	I woke up feeling fresh and rested	5	4	3	2	1	0
5	My daily life has been filled with things that interest me	5	4	3	2	1	0

Body image and satisfaction



- ❑ Part of a large epidemiological study in the USA focused on body satisfaction
- ❑ 11,620 adults in the USA were surveyed for their satisfaction with the appearance of their eyes, nose, facial shape, and face overall
- ❑ Racial groups, age, gender, sexual orientation and BMI index were correlated with facial image satisfaction

American Body Project (cont.)

- Racial differences in face image satisfactions are the largest and most significant

Asian participants < White participants < Black participants

Results

- Age was only **weakly positively associated** with face image
- BMI differences: participants with higher BMI reported lower facial satisfaction



The role of cosmetics



Biological ageing

- Disease prevention
- Supporting adaptations to ageing skin symptoms (hormonal and immune system changes)
- Improving aesthetics
- Personalisation

Psychological ageing

- Appearance management
- Promote positive body/face image
- Product sensorial qualities for positive affect
- Routines and rituals for subjective wellbeing

Social ageing

- Evolve social norms from “anti” towards “healthy” ageing
- Acknowledge and celebrate diversity in ageing
- Beauty is a social and cultural construct

Claim of relevance to healthy ageing and wellbeing

Supporting healthy skin functions

Addressing skin sensitivity and dryness

Supports healthy skin and related wellbeing

Agreed that their hair/skin esteem has improved

Thank you

g.n.daniels@fashion.arts.ac.uk

arts.ac.uk