

# Eye Tracking Experiment: **AI edited images online**



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# Project Background

Dove's mission is to empower women with a **positive self-image and a healthy relationship** with their own bodies.

Extensive research has shown that online images promoting unrealistic body ideals have a profound negative impact on young women, contributing to body image issues, eating disorders, and depression, among other concerns.

The experiment explored how women engage with AI retouched images, specifically whether their gaze is drawn to areas corresponding to the parts of their own bodies they dislike.

By doing so, the experiment aimed to shed light on the visual cues that contribute to the perpetuation of body image issues and the ensuing psychological impact.

## Sample

### Participants

- 40 participants
  - 33 young women
  - 7 content creators/influencers
- Spread of ages 18–29
- Social media users
- Nordic backgrounds
- Willing to discuss social media and body image and be quoted anonymously

### Location

Central Stockholm venue

### Research Dates

11–15th October 2023



# Stimulus

## Social media feed with original and AI retouched images

These versions were mixed so that each participant had the opportunity to see originals, light and heavily retouched images.

Three levels of AI retouching, using of-the-shelf editing software:

<b>Level 1 (None)</b>	Original, unedited form
<b>Level 2 (Light)</b>	Moderate retouching for improved quality
<b>Level 3 (Heavy)</b>	Extensive retouching for a polished, professional appearance

## Other Considerations

Versions used by participant were **counterbalanced**. The prototype included an **assortment of images**, representing an average news feed. The prototype was designed to be scrollable for 2-4 minutes.

# Session Flow

## 1) Context and Scrolling

The researcher and experiment participant had had a brief conversation to explain our process, built rapport and understood their typical usage.

The participants used their phone to **scroll** through the prototype as if it was their own news feed.

## 2) Eye Tracking and GSR

Participants eye gaze was recorded and **measured**, along with their galvanic skin response (GSR) which monitored changes to emotional state. The moderator made notes to revisit long fixations, re-reading, skipping and shifts in GSR readings.

## 3) Retrospective Interview

Participants watched a video replay of their gaze. It was slowed down as they explained what they were **seeing, thinking** and **feeling**. The researcher also **revealed** the original and retouched images side by side to understand reactions to retouching.



# Key Metrics

<b>40</b>	Female participants in our study
<b>18-29</b>	Age group
<b>95 %</b>	Said social media has made them feel bad about themselves
<b>2.98 s</b>	Average time spent per image
<b>6.25</b>	Average number of eye fixations per image
<b>28</b>	Body areas women were self-conscious about

# Key Insights

## 1) Women were drawn to specific areas

Finding 1.1 – Women were self-conscious

Finding 1.2 – Attention had variable perception

Finding 1.3 – Variable parts of concern

## 2) Retouching had an impact

Finding 2.1 – Originals had longer dwell times

Finding 2.2 – More retouching = advertising

Finding 2.3 – Body retouching was hard to identify

Finding 2.4 – Light retouching was more damaging

## 3) Authenticity and representation

Finding 3.1 – Authenticity is important

Finding 3.2 – Feature acknowledgement

Finding 3.3 – White-Washing and Barbie Ideals

Finding 3.4 – Natural images = real people

Finding 3.5 – Concern for youth.



# Key Insights – Finding 1.1

## Women were self-conscious (sometimes subconsciously)

Most participants found it interesting to learn how they personally viewed images and the subconscious processing that occurred.

When the footage was reviewed, participants found themselves **viewing areas of insecurity**, comparing themselves to the women in the pictures.

A couple said they felt they had progressed out of younger insecurities, but their eye behaviour showed them how they still had a tendency to view trigger areas.



**“There’s me looking at the stomach ...**  
I thought I scrolled quickly but these (eye tracking) glasses catch where I look.”

**“Don’t look at the **stomach**, don’t look at the stomach”**

...was what she repeated in her head as she viewed these images. As someone who has recovered from a serious and long standing battle with anorexia, her coping mechanism was to try to consciously avoid looking at stomachs.

In moments as short as one second (or three eye fixations), it was impossible for this participant to avoid her trigger area. **Women were viewing areas of concern, even when they tried not to look.**



# Key Insights – Finding 1.2

## **Attention had variable perception**



Respondent had different reactions and mental processes, even when their gaze was similar.

Analysing and comparison to self styles included;

- Nose shape
- Nose size
- Skin tone
- Skin condition
- Facial symmetry
- The emotion of the person
- How women viewed images was highly subjective.



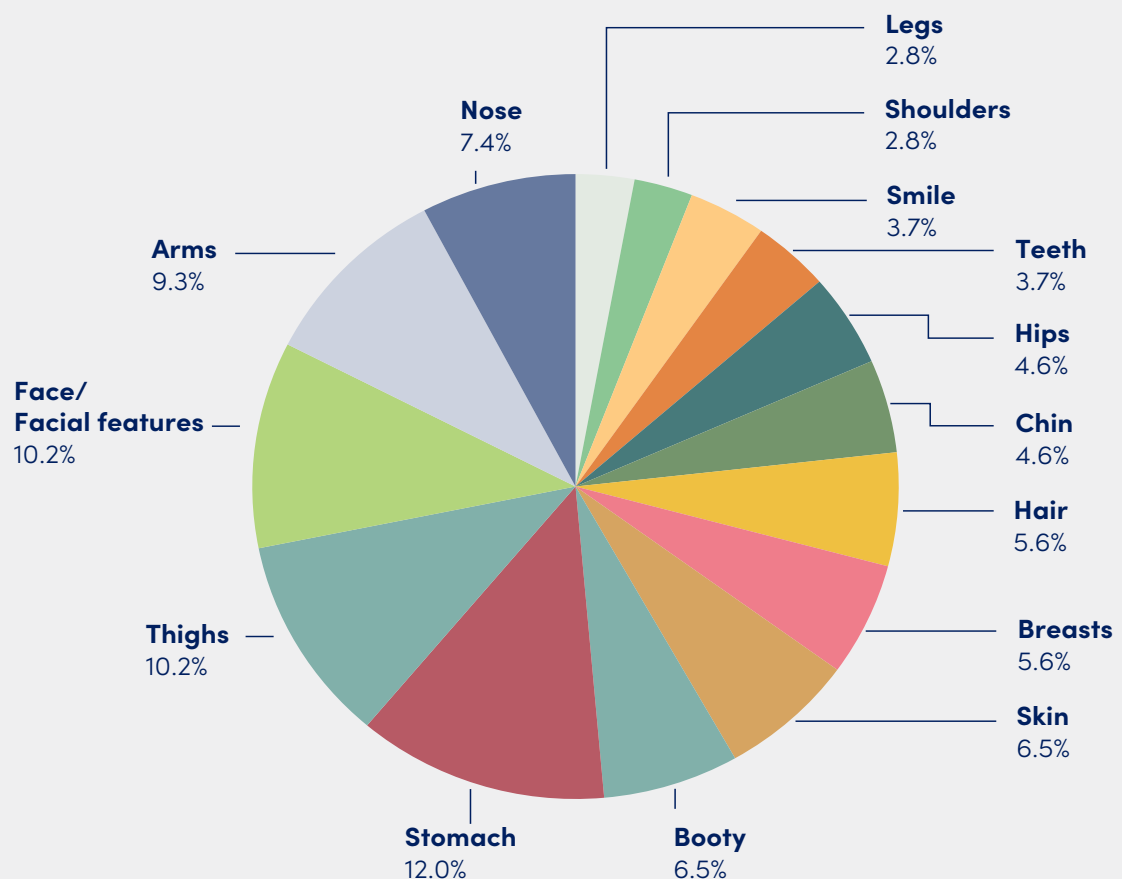
# Key Insights – Finding 1.3

## Variable parts of concern

“What are the **areas of the body** that you are self-conscious about?”

Women dwelled on a variety of unique and personal areas. **No one said ‘nothing’**

### Frequency of Mentions



Commonly mentioned areas. Plus 13 more individual features not included in this chart (omitted for anonymity purposes).





# “I want that hair”

A few of the women were drawn to the hair in some of the retouched photos. They wished they could have this hair and used these images for inspiration.

When the participants saw the before and after images, they felt **sad and deceived**.

- They realised they were comparing themselves to an unreal standard.
- Retouching hadn't crossed their mind.

**Women were comparing themselves to hair that wasn't real.**

“People feel sh\*t about **their hair**. She looked like a Victoria's Secret **supermodel**. But it's a totally different person.”

Light retouch



Original





# “I wished I had petite shoulders”

“I grew up very insecure about my shoulders, because I thought they were **very broad**. It would hurt me to know she was photoshopped in that way.”

One participant would always look at the shoulders of women in pictures.

When the participant saw the before and after, she thought about her younger self and how much she obsessed over her shoulders.

Knowing this image was retouched in the shoulder area was very disappointing to her. The slimming or “fixing” of her arms and shoulders made her scared for other young women who may also obsess about body shape.

**Women were comparing themselves to body shapes that weren't real.**

Light retouch



Original



Women were **consciously** and **subconsciously** drawn to areas corresponding to body parts they were **personally concerned** about.

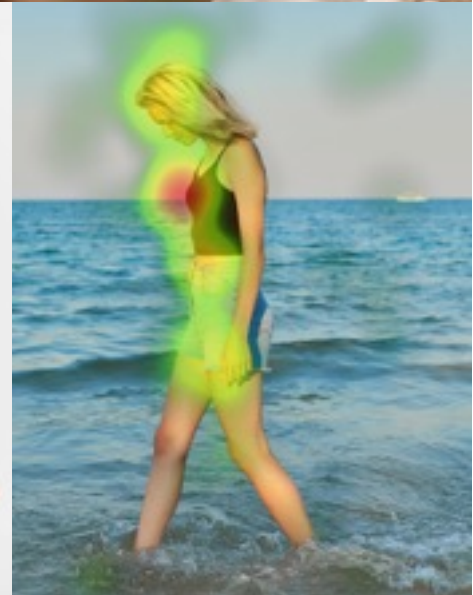


# Key Insights – Finding 2.1

## Originals had longer dwell times

Overall, **original non-edited** images got more attention, both as it relates to time spent and number of fixations.

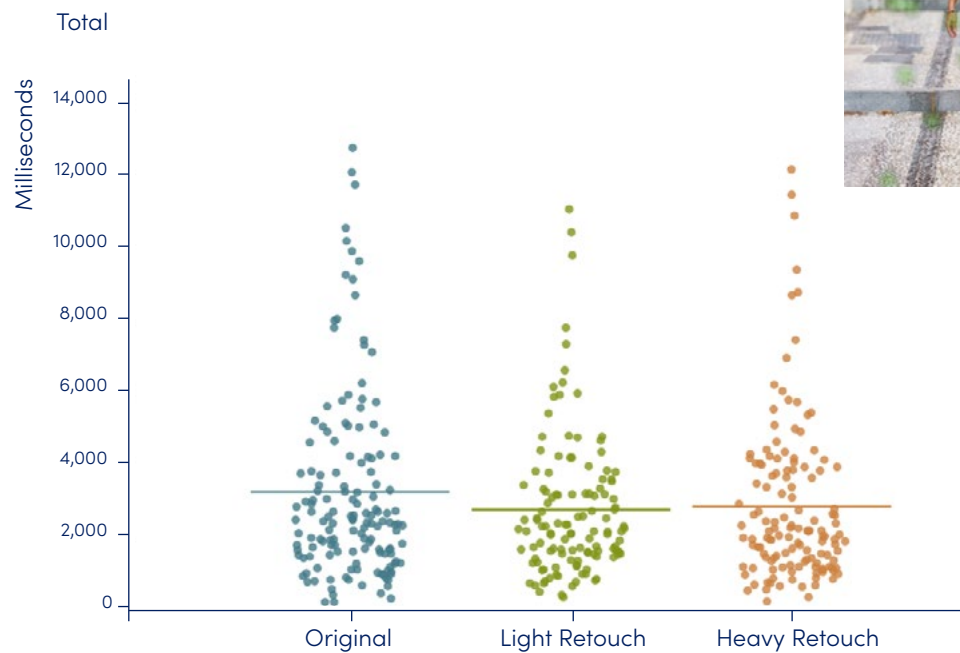
	Original	Light	Heavy
Time (s) (total duration of visit)	3.22	2.72	2.80
Number of Fixations (number of eye movements)	6.53	5.34	5.30







## Total duration of Visit



## Number of fixations





# Key Insights – Finding 2.2

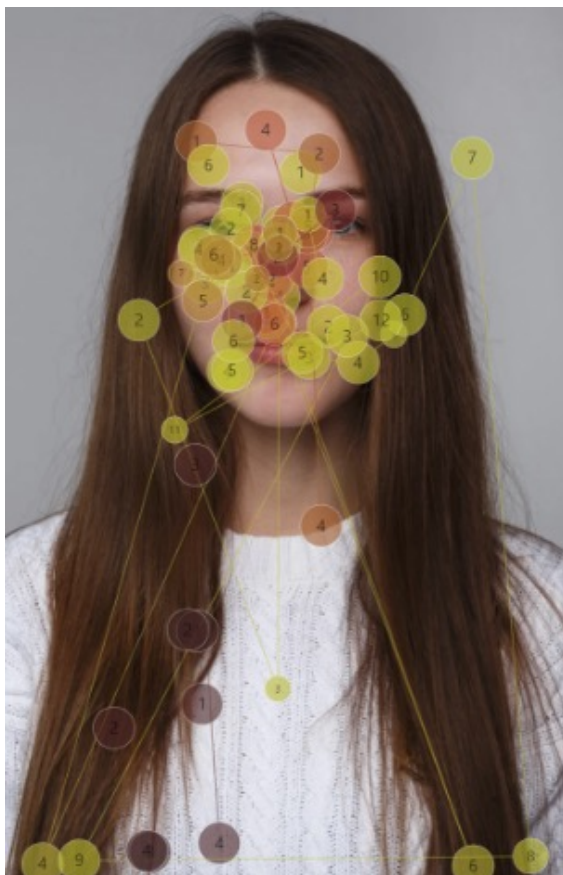
## More retouching = advertising

“I don't really follow models, I **avoid that sort of stuff** because I know that it doesn't give me anything positive.”

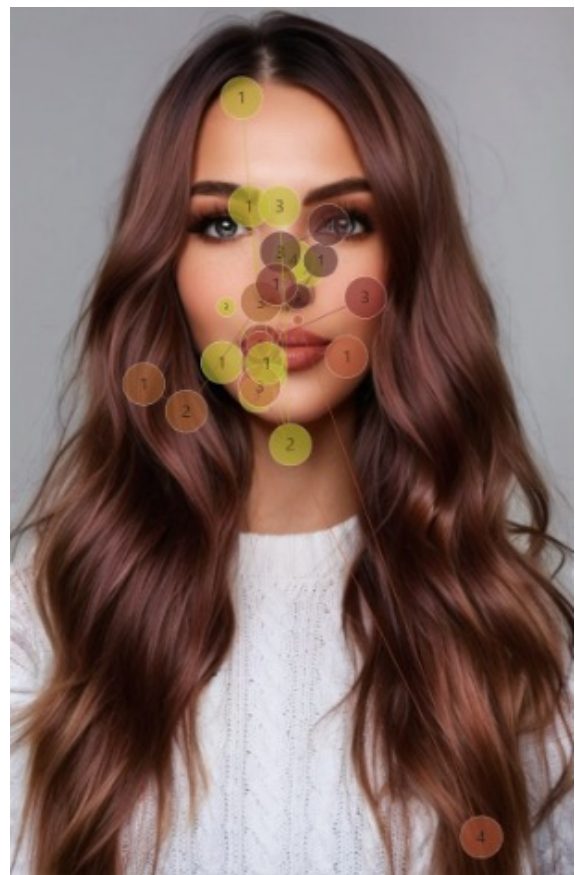
Numerous instances were observed where heavy retouching served as a subconscious indicator that the post was an advertisement, leading to it being quickly skipped.

As social media does a better job of blending advertising and content, **spotting retouching has become a subconscious “hack” to avoiding ads.**

3.25s



2.35s



“Yeah, the hair is **too shiny**. Yeah, it looks like a commercial for mascara or something.”



## Key Insights – Finding 2.3

# Body retouching was hard to identify

- None of the participants recognized that the body images had been retouched.
- Many of the participants were inspired by these images, thinking they were genuine.
- The participants were surprised to find out these were not original images and were disappointed they were using them for inspiration.

Light retouch



Original







## Key Insights – Finding 2.4

# Light retouching was more damaging

- Light retouching wasn't recognised by any of the participants. The participants perceived these pictures as genuine.
- Only the heavily retouched face images were identified as retouched.
- When photos were perceived as genuine, participants often compared themselves to the images, leading to feelings of inadequacy.
- The lack of their ability to spot retouching concerned many of the participants.

These images had light retouching



Retouching impacts viewing times and personal perceptions of images, especially when it's **not easy to identify**.



# Key Insights – Finding 3.1

## Authenticity is important

“The bodies you see on Instagram are **not the bodies you see in the sauna.**”

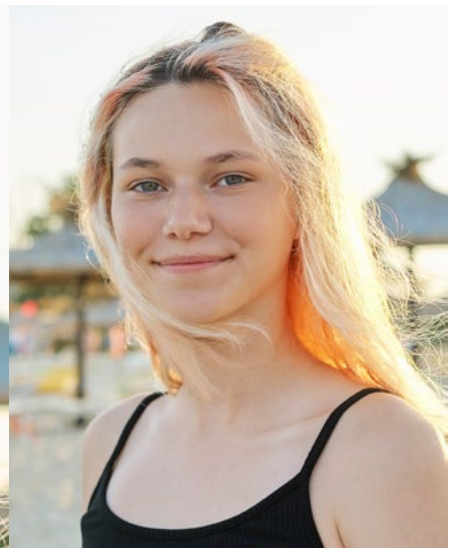
“People get the **wrong idea** about things.”

- All respondents felt that the below (slightly retouched) image was genuine.
- After reviewing the original image, they felt this image wasn't her true self in the real world. Some shared stories of people they've unfollowed after being “betrayed” or “deceived”.

Light retouch



Original







# Key Insights – Finding 3.2

## Feature acknowledgement

- Many participants commented on the blemished skin in this photo. It was felt by some to be 'brave' to post this image.
- The retouched photo no longer had attention on the blemishes.
- Upon reflection, participants felt that representation of skin blemishes, scars or other unique features are important for people to see **so they know they're not alone.**



"I've had issues with acne. Airbrushing reminded me that I don't have that skin. I now follow people who show **their real skin** and real makeup to make me **feel better and normal.**"



# “I wouldn’t go to school”

“I had a lot of acne issues. It got to the point where I wouldn't go to school, I **felt ugly**. I would try to do my makeup to cover it up. It would **take me hours**. If I still felt ugly, I would stay home. **It had a huge impact on my life.**”

Original Image



Heavy retouch



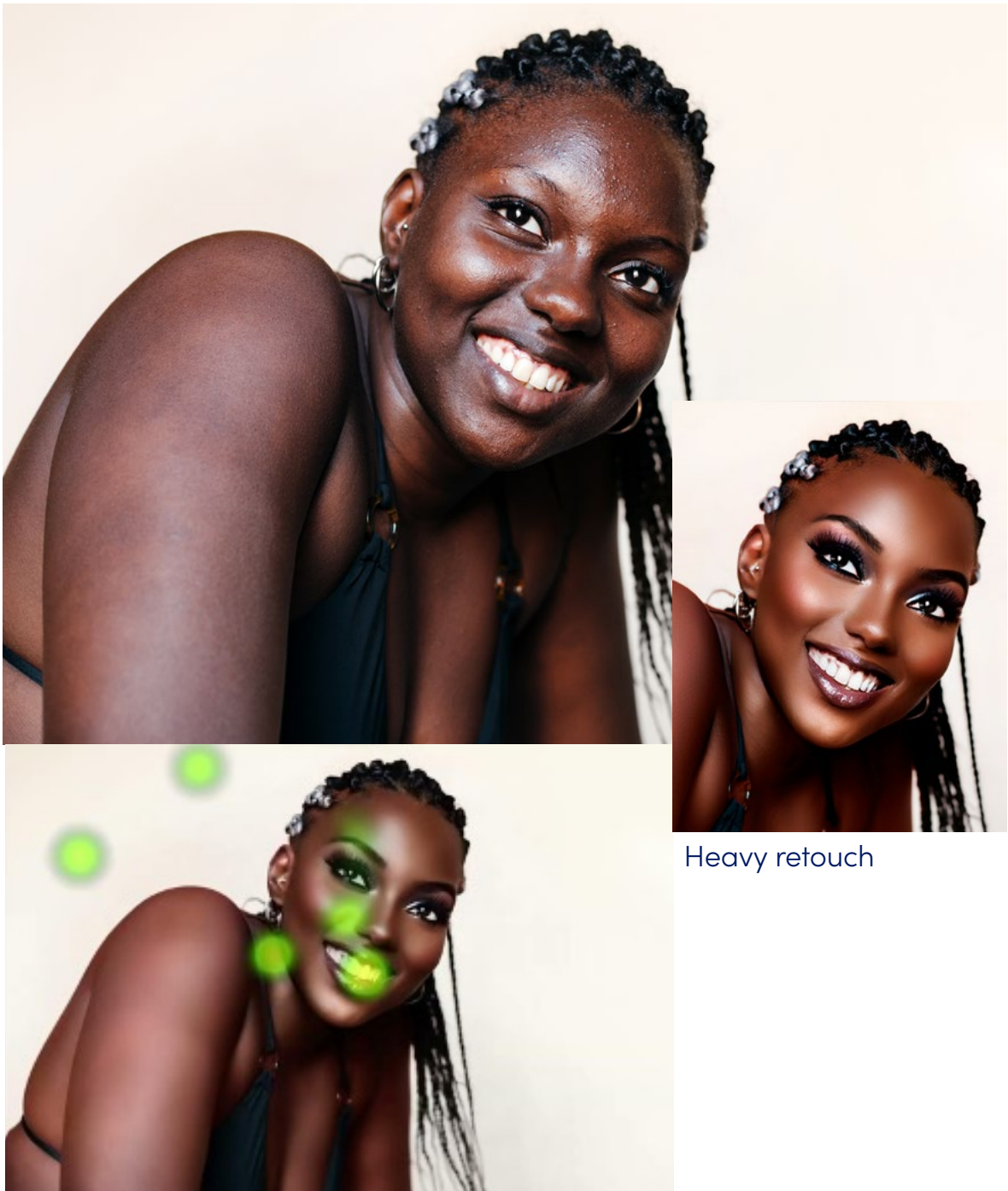


# Key Insights – Finding 3.3

## White-Washing and Barbie Ideals

- The colour change and nose alteration in the heavily retouched version was alarming to some, especially respondents of colour.
- The settings used to make this photo are the default settings of a popular retouching app.
- These respondents had a negative emotional reaction, likening this to white-washing and “Barbie” ideals.

Original



Heavy retouch

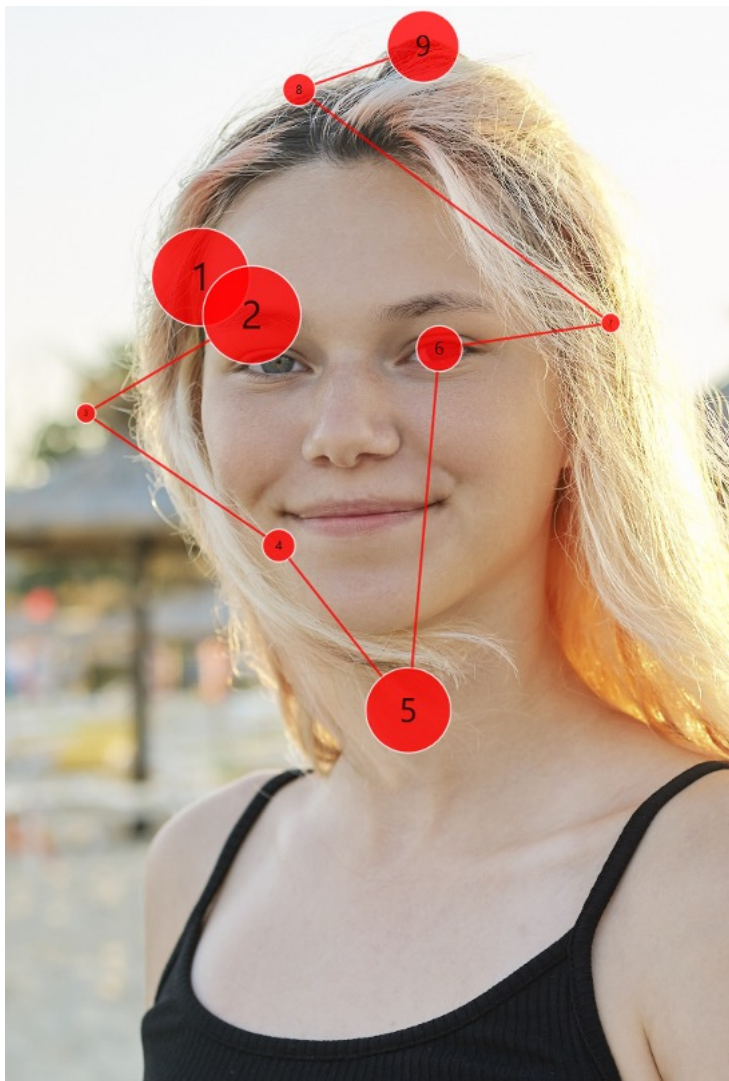




# Key Insights – Finding 3.4

## Natural images = real people

- It was observed that, on average, natural images got more attention. This is because women felt there was more depth to the image and corresponding post.
- Unique looks and stories were felt to be more interesting and worth stopping.
- **Women appreciated transparency and authenticity on social media.**
- Openness about image editing can help build trust and mitigate unrealistic beauty standards.



“There's **so much personality** in this unedited photo that counteracts the focus on appearance.”

“She has a **story to tell.**”

“It's not like, ‘I need to look good, I need to do my makeup or fix my hair’. It's more of **a calm feeling** like ‘I'm here and I'm holiday. **I'm real.**”



**"That's refreshing.** I paused and liked that people are actually posting this. It's praised to be thin or super toned or whatever but when someone posts this, it's like **Oh, wait a minute ...** Someone did **something different!**"

Original





# Key Insights – Finding 3.5

## Concern for youth

Real images promote **high quality engagement, inclusion** and **perception of authenticity**.

Many participants reflected on their younger years and felt that heavily edited images had a greater impact on them at that time.

They also emphasized the **potential harm** retouching can have on the future generation of young women.

### Heavy retouch



“I feel very lucky that **I did not have social media** when I was younger. If I would have seen the very edited version and I wouldn't have any concept of retouching, it wouldn't have felt nice.”

“I could see pictures and **not notice they've been retouched**. It's problematic that it could be like this, and that it could **influence people**.”

“I can only imagine **the impact on younger, more impressionable girls** who might be more vulnerable, especially for my younger sister who's just 15.”

“My cousin (18) has always been quite insecure and she has a bit of acne and I feel that it's been a really big thing. Then she sees these photos on social media with **smooth skin, no pores and perfect makeup**.”





# Appendix

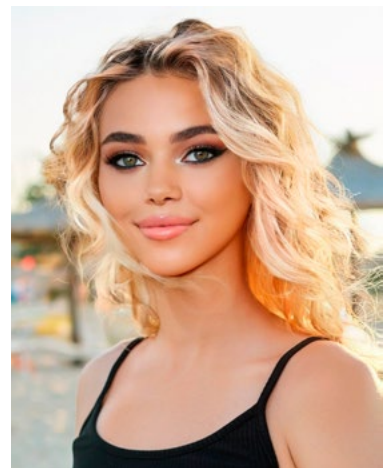
Original



Light



Heavy





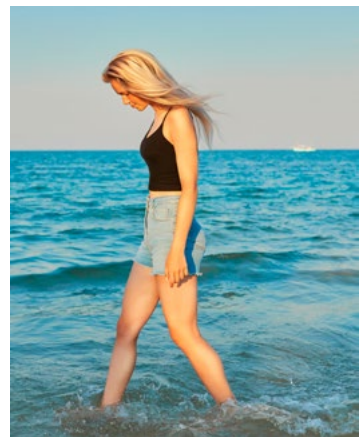
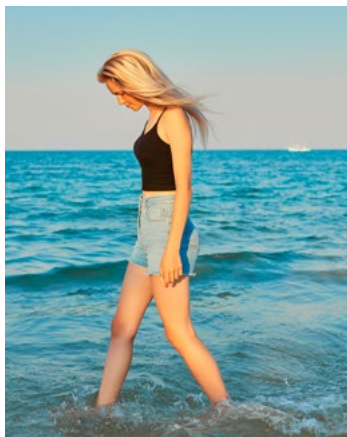
Original



Light



Heavy







## Galvanic Skin Response

While the Galvanic Skin Response (GSR) device was useful in our observations, it is excluded from the detailed analysis.

The speed of static media consumption combined with the latency of GSR (1-5 seconds), reduced our confidence of identifying and mapping the peaks to specific images of eye movements.

The experiment used eye tracking to better understand what people see, think and feel.

Eye tracking allows us to view and record someone else's perspective. We see exactly what they see.

With a trained retrospective interviewer, we can revisit and articulate feelings and observations in unprecedented detail.

Quantitative analysis allows us to visualise data and precisely measure attention.

## Experiment and report by

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