AI-generated faces and real faces in gym websites:

A comparative analysis in user perception

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Abstract

There is an increasing amount of AI-generated media in design, however, it still remains unclear how people experience the use of such media. The purpose of this project is to investigate whether the perception of human faces differs when it comes to real, or AI-generated (AIG) synthetic human faces in user experiences (UX). This is done by generating and embedding authentic and AIG visual imagery of human faces to a chosen user interface (UI), more specifically a gym website. The UX of both media types is then evaluated using quantitative methods. The quantitative evaluation showed no statistically significant difference in the effectiveness of AIG faces versus real faces in conveying *wellness*, *inclusivity*, and *socialization*. However, according to the findings, real faces are more effective in fostering social connections while AIG faces performed better in conveying cultural inclusivity. These findings underscore the nuanced role of generative AI in visual communication design.

Keywords: human perception, generative AI, user experience, AIG.

1. Introduction

Content such as images and videos have long been part of user interfaces (UIs) such as websites. Previous research in human-computer interaction (HCI) and human perception explores how people interact with and respond to digital UIs (Weinschenk, 2011). The rise of artificial intelligence (AI) has transformed industries, particularly content production (Wu et al., 2023). The rapid development of AI-generated (AIG) images raises questions about their impact on user experience (UX), especially when they feature human faces, which serve as a key social visual stimulus (Kanwisher & Yovel, 2006).

Despite the growing use of AIG content, a nuanced understanding of users' perceptions remains lacking. Research suggests that while AIG graphics effectively capture attention, they may lack the emotional engagement of human-made visuals (Sharma & Lal, 2024). AIG images enable personalized communication but often raise authenticity concerns (Sharma & Lal, 2024). Studies on AIG faces present mixed findings: some suggest they are perceived as more trustworthy and indistinguishable from real faces (Nightingale & Farid, 2022), while others indicate users can differentiate them, though this ability decreases as realism

improves (Miller et al., 2023a). The inconsistency in findings may arise from variations in the realism of AIG content across studies. Additionally, recognizing emotions in AIG faces is challenging, likely due to the absence of subtle psychological cues (Miller et al., 2023a). This makes it particularly interesting to explore how well AIG faces can convey specific values and emotions. Moreover, previous research has focused on examining users' perceptions of trustworthiness (Nightingale & Farid, 2022) and perceived realism of AIG faces (Miller et al., 2023a; Miller et al., 2023b) rather than the ability of AIG faces to deliver an intended message using. These gaps highlight the need for further research into whether AIG visuals can communicate emotions and messages as effectively as real human faces. We aim to compare the influence of AIG faces and real human faces on users' perceptions, specifically in the context of a UI's effectiveness in delivering an intended message.

2. Background

Human faces are a powerful tool in visual communication, known to evoke emotions and build trust. Specialized neural mechanisms, like the fusiform face area (FFA), enable humans to recognize and interpret facial features and expressions, making faces effective in marketing and branding to convey trustworthiness and influence purchase decisions (Goldstein, 2021; Almeida et al., 2024; Chen & Wyer, 2020). AIG faces represent a major advancement in content creation, offering highly realistic human images at minimal cost and effort through text-to-image

models. However, these faces often exhibit less asymmetry and structural variation (Boudníková & Kleisner, 2024) which can lead to a lack of perceived authenticity (Miller et al., 2023b). With that said, AIG images can raise authenticity concerns, and their impact on user perception depends on their level of realism (Sharma & Lal, 2024; Miller et al., 2023a). As generative AI tools continue to produce increasingly hyperrealistic content, research shows that such AIG faces can sometimes appear "more real" than human faces, being perceived as "more proportional, alive in the eyes, and familiar; and less memorable, symmetrical, attractive, and smooth-skinned" (Miller et al., 2023b, p. 1396). These advancements in producing AIG content highlight the need for further investigation into how users respond to AIG faces in digital communication.

Emotion has become an important element when designing or evaluating UX (Zhang & Hao, 2021; Berni & Borgianni, 2021), and visual communication is often utilized by brands to portray their core values related to what kind of experience they aim to evoke (Kujur & Singh, 2020). In this study, we will study users' perceptions of the UX by assessing participants' cognitive and emotional experiences with the interface. Cognitive experience involves how the user interprets and perceives the system's external appearance, while emotional experience has to do with users' emotional responses to the system (Berni & Borgianni, 2021). The sports industry offers a unique chance to study the impact of AIG versus real faces, as gym brands rely on human photos to convey values and connect with customers, which is vital for

their success. Thus, a gym website was chosen to compare user perceptions of UI effectiveness in conveying wellness, inclusivity, and socialization using real versus AIG faces.

2.1 Wellness

While fitness is strongly related to physical wellness, it is just one area in the multiple dimensions involved in the concept of wellness (Corbin & Pangrazi, 2001). Wellness is a multidimensional state of positive health, characterized by quality of life and well-being (Corbin & Pangrazi, 2001). In the context of communication about physical wellness, wellness is often associated with sports and fitness (Zimmermann et al., 2024; Beauchemin et al., 2021; López-Fernández & Jiménez, 2018). Wellness, and health benefits, are among the primary motivators for individuals engaging in physical exercise (Frontini et al., 2019; Ong & Yap, 2017), making it a relevant construct to analyze in the context of a gym website's UI.

2.2 Inclusivity

While gyms are mainly used as a place to promote health, fostering an inclusive atmosphere is crucial also for gym spaces (Richardson et al., 2016). In user-centered design, inclusive representations such as cultural backgrounds should be taken into consideration throughout the design process (Nawaz, 2023). Cultural inclusivity has also been found problematic in the field of AIG faces. Previous research points out that white faces are often judged as more realistic than non-white faces due to biases in the training data (Miller et al, 2023b). In addition to cultures, inclusivity also involves the consideration of different body sizes (Macias, 2022), age groups (Tscharn, 2019), and perceived relatability (Glyn-Davies, 2022). In fitness influencer marketing, relatability is often practiced by influencing your audience through authenticity (Reade, 2021). Unedited photos and mundane, day-to-day content can contribute positively to perceived authenticity and relatability (Reade, 2021). We will investigate the perceived inclusivity from the perspective of cultural backgrounds, age, body types, and relatability.

2.3 Socialization

Socialization is a key theme on many gym websites, often portrayed through images of groups exercising together, emphasizing mutual support and the creation of a community among gym-goers. The possibility for social contact and atmosphere has been found to play an important role in the members' motivation to exercise at the gym (Arends, 2007). Furthermore, gym spaces are described to offer opportunities for making connections with one another (Cardone (2019). In addition, a welcoming and supportive atmosphere is crucial in membership loyalty within the sports industry (Geidne & Quennerstedt, 2021). Pickett et al. (2016) suggest that utilizing a sense of community (SOC) as part of the offering of fitness services can positively contribute to the perceived value of the fitness product as well as the members' personal progress. Given its prominence across gym websites and discussions in existing literature, we identified socialization as a compelling factor for comparison in our study (Nicholls, 2021; Ong & Yap, 2017).

3

In this study, the concept of socialization highlights the communal aspect of gym experiences considering SOC, connections with others, and a supportive atmosphere.

4. Method

4.1 Research design

In this study, a between-group study design has been used to evaluate the difference in perception of AI vs. real faces (Lazar et al., 2017). The current study is deductive since we aim to answer a set of hypotheses based on the data gathered via our questionnaires (Oates, 2005). This data is later analyzed and presented through *descriptive* and *inferential statistics*.

4.2 Aims and delimitations

This study aims to evaluate whether there is a difference in perception when a gym brand utilizes AIG images as opposed to real faces in the visual content on its website focusing on three key motivators: *Wellness*, *Inclusivity*, and *Socialization*, which are identified as central to the gym-going experience (Frontini et al., 2019; Ong & Yap, 2017, p.131; Vuckovic et al., 2023, p.3-5). By using these motivators, we aim to uncover potential preferences, concerns, and patterns related to the perception of AI-generated imagery.

4.3 Research question

The research question guiding this study is:

> *How do AI-generated faces on gym websites influence users' perceptions of wellness, inclusivity, and socialization compared to real faces?*

4.4 Hypotheses

We have posed three hypotheses relating to each of the themes. The hypotheses are:

H1$_0$: *Gym websites with AI-generated faces and those with real faces do not differ in their effectiveness at promoting wellness.*
H1: *Gym websites with AI-generated faces and those with real faces differ in their effectiveness at promoting wellness.*

H2$_0$: *Gym websites with AI-generated faces and those with real faces do not differ in their effectiveness at promoting inclusivity.*
H2: *Gym websites with AI-generated faces and those with real faces differ in their effectiveness at promoting inclusivity.*

H3$_0$: *Gym websites with AI-generated faces and those with real faces do not differ in their effectiveness at promoting socialization.*
H3: *Gym websites with AI-generated faces and those with real faces differ in their effectiveness at promoting socialization.*

4.5 Participant sampling

Participants were recruited using a combination of convenience sampling and snowball sampling to ensure broader reach and diversity (Oates, 2005, p.98). This approach allowed the study to overcome some limitations of relying solely on convenience sampling. A total of 30 participants were recruited. We recruited 30 participants of which 13 were male and 17 female, the participants were divided into two groups (Group A = 6 male and 9 female, Group B = 7 male and 8 female). The participants' ages ranged from 18-34 from Finland, France, Malaysia, Sweden, Türkiye, and Ukraine.

4.6 Data collection method

This study uses a between-group design, meaning each participant answered one of two online self-administered surveys (Leeuw, 2008) featuring screenshots from a gym brand's UI. One questionnaire (QA) showed real faces, while the other (QB) used AIG faces. A between-group design was chosen over a within-group design to prevent 'learning effects' (Lazar et al., 2017) and to avoid participant fatigue, which could negatively impact responses to longer questionnaires. Surveys allowed for more participants than interviews by being quicker to complete and not requiring supervision.

The perceptual tests involved an observation task where participants rated their agreement with statements in three motivator categories: Wellness, Inclusivity, and Socialization, based on different faces in gym settings. Screenshots were used to focus attention on the faces and minimize distractions from other UI elements to ensure accurate data. The questionnaires were identical except for the screenshots. Notably, participants were instructed to evaluate screenshots without being informed of any AI usage in this study.

The questionnaire included 12 questions: 9 closed-ended Likert scale questions (1 = "Strongly disagree," 5 = "Strongly agree") and 3 open-ended questions, which asked participants to explain the reasoning behind their responses. While the study does not perform formal qualitative analysis on open-ended responses, these were used to contextualize and illustrate quantitative findings.

4.6.1 Visual content

The original images with real faces were taken from the website of the Swedish gym chain Sats (sats.se). A total of 18 images were used in this research which were further replicated into AIG versions, 6 images per category. The AIG versions of the images were created using the software Firefly (Adobe, n.d.). To create the images, a reference image was used for composition and style together with a prompt so that the model would create an image as similar to the reference (real) image as possible. This was important as we aimed to keep the AIG image as similar as possible to the original image in order to avoid the participants' perceptions being influenced by other factors than that of the face. The full questionnaire and used images can be found in Appendix 1.

4.7 Data analysis method

The authors of this study have decided to employ a combination of descriptive and inferential statistics for the analysis. The prior was chosen due to its effectiveness in presenting frequencies, and data distributions of questionnaire responses. The latter was chosen to properly assess the significance of the study's data and results (Oates, 2005, p.246).

4.7.1 Inferential analysis method

To evaluate statistical significance, the Mann-Whitney U test was used due to its suitability for non-normally distributed data (Emerson, 2023). The Shapiro-Wilk test confirmed that our data did not follow a normal distribution. Additionally, the Mann-Whitney U test is appropriate for

comparing two independent groups and analyzing ordinal data, such as responses collected on a 5-point Likert scale (Liu, 2008, p. 2279; Oates, 2005, p. 246). Therefore, this non-parametric test was deemed the most appropriate for our study.

The Mann-Whitney U test was conducted using the Python package *scipy.stats* (ver. 1.14.1) and was chosen because of its reproducibility, repeatability, and its widespread adoption in data analysis. Two-sided tests were applied since no directional hypothesis of difference was assumed. The same quantitative question from the questionnaire was tested between the real face pictures group (Group A) and the AIG face pictures group (Group B), with each group having 15 valid samples.

4.7.2 Descriptive analysis method

Descriptive analysis is used to describe the central tendency of the data. Specifically, the median was chosen as the appropriate statistical measure. This decision was based on two factors: the non-normal distribution of our population and the suitability of using medians for ordinal data (Oates, 2005, p.255). Additionally, to effectively visualize the medians and interquartile ranges (IQR) of our results, box plots were used (Blaxter et al., 2010, p.273; Liu, 2008, p. 2279). The plots were generated using Python *pandas* (ver. 2.2.2) and *matplotlib.pyplot* (ver. 3.8.0).

5. Results

This section presents the findings from the conducted analyses. The following box plots illustrate the responses gathered from the questionnaire used in this study. Some responses to Questions 3, 8, and 12, (open-ended questions) are textually presented to complement the visualized quantitative data. Based on the results for each aspect of gym impression, the corresponding hypothesis is assessed for acceptance or rejection.

5.1 Wellness

Question 1. "The content on the website conveys a healthy and active lifestyle"

As shown in Figure 1, perceived healthy and active lifestyles from the content of both two groups appear to be similar. The Mann-Whitney U test indicates no statistically significant difference between the two groups ($U = 90.5$, $p = .329$). All the participants in both two groups rated medium-high scores, indicating that both real and AIG pictures effectively convey a healthy and active lifestyle. Two examples of open-ended responses might further support this finding. PA15 from the real face group noted, "*It definitely conveys a healthy lifestyle. I like that they have a variety of examples that fit the target audience,*" and PB01 from the AIG face group mentioned, "*People seem to be in good physical shape and they also look happy*.".

Figure 1
Question 1
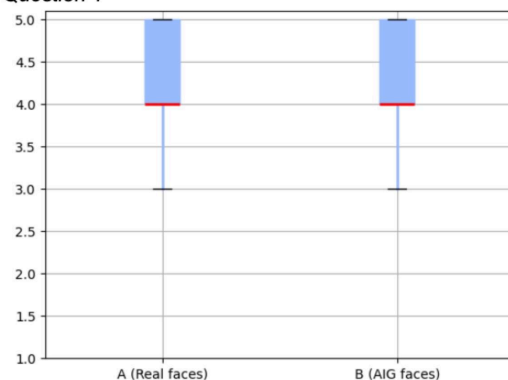
Question 2. "The content on the website inspires me to pursue a healthier lifestyle"

As illustrated in Figure 2, the real face group shows a lack of rating variability, and the AIG face group presents a slightly higher rating. Although the difference in the data distribution for the two groups is observed from box plots, the Mann-Whitney U test shows no significant difference ($U = 96$, $p = .475$). The real and AIG pictures have a similar effect on inspiring people to pursue a healthier lifestyle. Though most participants perceived the content as conveying a healthy and active lifestyle, it didn't inspire them to pursue such goals as expected. For example, PA04 responded, "*Content conveys healthy lifestyle but just like reading magazines it is others' lifestyle. I will just maintain my own lifestyle,*". Similarly, PA10 answered that "*it doesn't strongly motivate me to pursue a healthier lifestyle since I prefer more "girly" and minimalistic visual styles*", and PB02 answered that "*I often find inspiration in videos of people exercising or cooking nutritious foods. I am more likely to be motivated to act if I am given clear direction on how to do so*". Revealing that individuals have their own preferences for styles and methods for inspiration.

Figure 2.
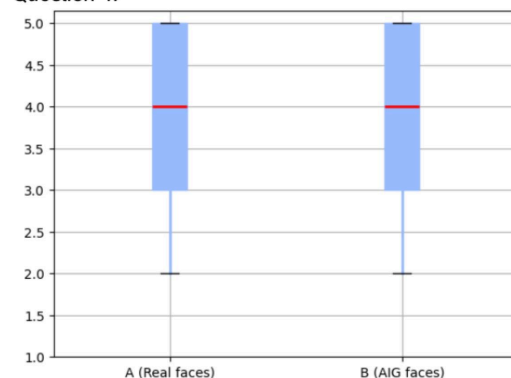Question 2
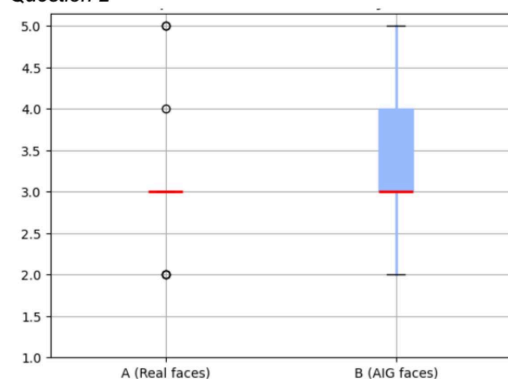
Hypothesis result of perceived wellness

Overall, as no statistically significant difference was observed in these two questions, we failed to reject $H1_0$, meaning that participants perceived similar wellness messages when viewing the real face and the AIG face pictures in this study.

5.2 Inclusivity

Question 4. "The content on the website showcases inclusivity for different age groups"

The results do not show a statistically significant difference in the participants' perception of age inclusivity between real and AI-generated faces ($U = 111.5$, $p = .98$). The box plot (Figure 3.) demonstrates that both groups have identical scores. For both groups the IQR is located between 3 and 5, suggesting that the participants seem to agree that both AI and real faces convey age inclusivity. However, the strength of their agreement was distributed across the scale on the positive side. For example, PA13 mentioned in relation to the images portraying real faces "*... although the individuals range from young to old, the majority are middle-aged or older.*", while PB01 reflected on the AIG faces as "*I agreed with every single question* [for inclusivity] *but I would've wanted it to showcase the inclusivity of different age groups more strongly.*".

Figure 3.
Question 4.

Question 5. "The content on the website showcases inclusivity for cultural backgrounds"

The results show a statistical difference in the participants' perception of cultural inclusivity between real and AIG faces ($U = 62$, $p = .032$). In addition, the differences can be perceived in the descriptive results (Figure 4.) showcased i.e. by the IQR of real faces which is located on a lower spectrum of scale compared to the AIG faces. For example, PA07 responded that "*Cultural diversity very low*" in relation to real faces. Similarly, PA12 expressed that "*...it does not provide inclusivity for different cultural backgrounds when almost 80% are just white people.*". In terms of AIG faces, fewer people criticize inclusivity considering cultural backgrounds. PB13 responded, "*I just felt like there was an effort made to include people with different ethnicities and ages.*".

**Figure 4.**
Question 5
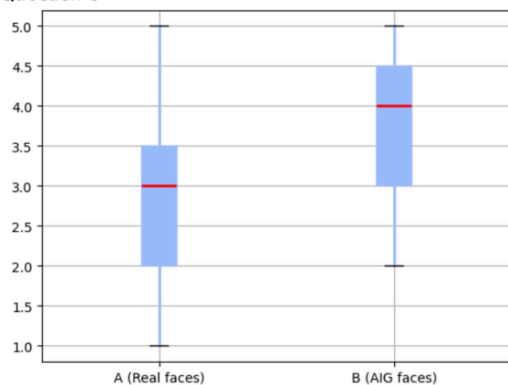
Question 6. "The content on the website showcases inclusivity for different body types."

While the results do not indicate a statistically significant difference in perceptions between real and AI-generated faces for body type inclusivity ($U = 125$, $p = .61$), they show some differences at a descriptive level (Figure 5.). The median score for real faces is at 4 while for AI-generated faces, it is lower at 3. The IQR suggests that the participants' responses were less distributed in the case of real faces expressed also by the participants in the open-ended questions. PA05 responded in relation to real faces "*The rating of the body types is a little bit of lower because the situation of user groups such as disabilities are not presented or considered in the content.*", while PA13 expressed that "*As for body types, there is a wide variety, including tall, short, heavyset, and muscular individuals.*" and PA15 "*While the relatable aspect as well as body type could be improved I feel that it's overall good.*". In terms of AIG faces, more participants reported less variety in body types. For example, PB08 expressed that "*All of them are also pretty fit.*", and PB02 "*Overall, good inclusivity! However, it seems to lack representation of people with body types that are less commonly associated with gym-goers, such as individuals who are obese or very thin.*".

Figure 5
Question 6
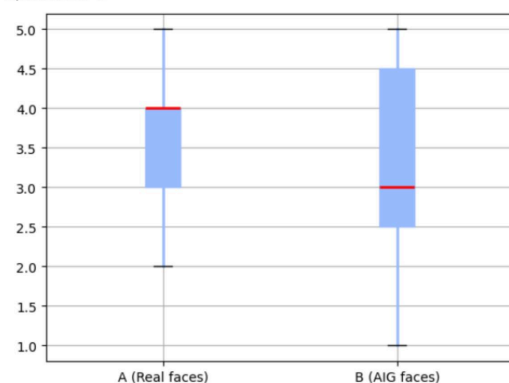
Question 7. "The content on the website portrays people that can be perceived as relatable."

The results do not show a statistically significant difference in participants' perceptions of relatability between real and AI-generated faces ($U = 125$, $p = .59$). However, the box plot (Figure 6) shows differences in the results on a descriptive level. The minimum Q1 score for real faces is at 4 while for AIG faces it is slightly lower at 3.5. The median for both groups is identical at score 4. The maximum Q3 score is identical at 5 for both groups. The IQR for real faces is narrower compared to that of AIG faces, demonstrating a more consistent agreement among participants' perception of relatability with real faces.

Figure 6
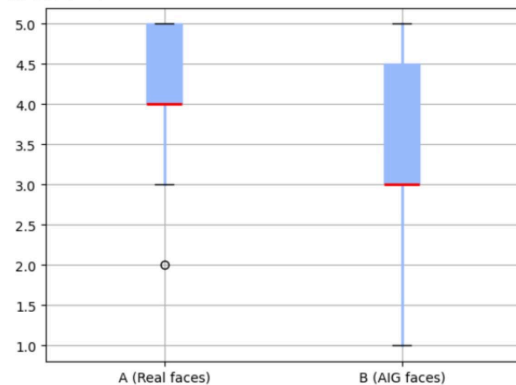Question 7
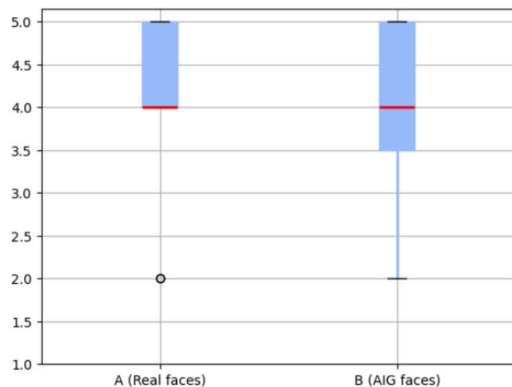
Hypothesis result of perceived inclusivity

Overall the 3 out of 4 questions assessing inclusivity were not found statistically significant, thus we failed to reject the $H2_0$. The results indicate that pictures of real faces and AIG faces show similar effects in conveying inclusivity.

5.3 Socialization

Question 9. "Based on the content of the website, I get the feeling that the gym has a sense of community among gym-goers"

Although the Mann-Whitney U test shows no significant difference between the two groups ($U = 148.5$, $p = .122$), Figure 7 illustrates that the real face group indicates a higher median and IQR in ratings than the AIG face group, implying real face pictures are perceived as conveying a stronger SOC. For instance, as PA12 answered in the open question, "*The content conveys some for[m] of community as well as supportive atmosphere when looking at the images*," indicating that real face pictures effectively deliver the messages. In contrast, when presented with the AIG face pictures, PB14 remarked "*They all look like either personal trainers with clients or models for a photoshoot*," suggesting AIG face pictures may feel less authentic and fail to evoke the same SOC.
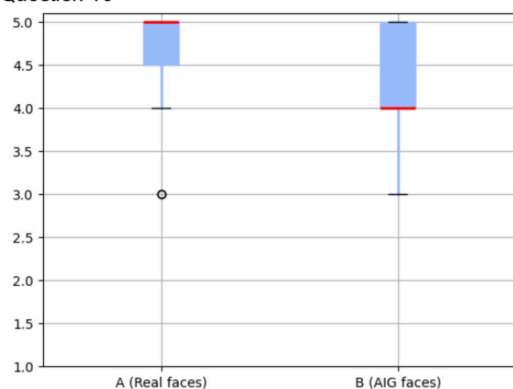
Figure 7
Question 9

Question 10. "The content on the website conveys a feeling of a supportive atmosphere"

When asked about the supportive atmosphere conveyed by the content, participants in both groups had high ratings (Figure 8). The Mann-Whitney U test also indicates no statistically

significant difference between the two groups ($U = 143$, $p = .16$). Nonetheless, the reasons behind the rating in the two groups might be different. PA06, when viewing the real face pictures, noted "*The photos are very similar to reality. Friends will help each other for the body position*," showing he perceived the pictures as representing mutual assistance among gym-goers. Conversely, PB05 described the AIG face pictures as "*like a personal trainer and his client*," indicating that she saw the pictures as portraying more of a staff-client support relationship.

Figure 8
Question 10

Question 11. "The content on the website promotes opportunities for connection with others in the gym"

The perception of connection opportunities conveyed by the content differs between the two groups. As illustrated in Figure 9, the real face group exhibits a wider rating range and higher median and IQR, while the AIG face group shows limited variability and lower rating, with most participants scoring 3. The Mann-Whitney U test also suggests a statistically significant difference between the two groups ($U = 159$, $p = .04$).

The difference between the two groups may be relevant to how participants understand connection opportunities. Participants appeared to assess the connection opportunities among gym-goers. PA01 remarked, "*the connection is only between staff and customers, instead of among customers.*" Similarly, PB11 mentioned, "*it doesn't convey that the gym provides opportunities to build connections, as the coach-student relationships don't necessarily lead to personal connections.*" This shows that when pictures are interpreted as depicting staff-client interactions, participants perceive fewer connection opportunities. In addition, the results also show that AIG face pictures convey a stronger impression of staff assisting clients, even though participants weren't informed about the roles of the depicted individuals.

Figure 9
Question 11
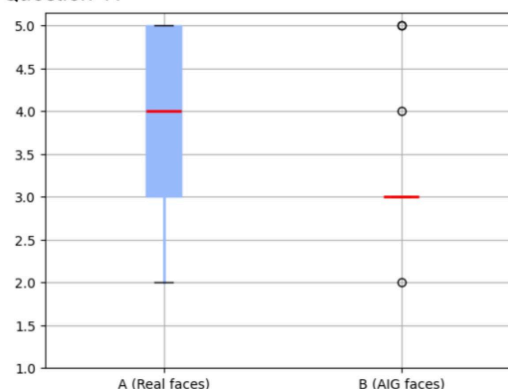
Hypothesis result of perceived socialization

According to the Mann-Whitney U test, as 1 out of 3 questions was found to have a statistically significant difference, $H3_0$ was rejected. The results indicate the participants perceived a generally similar impression of socialization when viewing real face pictures and AIG face pictures. However, the perceived sense of connection opportunity might differ between the two types of pictures.

6. Discussion

6.1 Result analysis

This study examined the impact of AI-generated and real human faces on users' perceptions of wellness, inclusivity, and socialization on a gym website. Overall, none of the alternative hypotheses in this paper were accepted, suggesting similar effectiveness in conveying a message for both real and AIG faces. These findings align with the study by Nightingale and Farids' (2022) indicating that AIG faces are indistinguishable to users. However, nuanced differences were observed on the descriptive level.

Both the statistical and descriptive results indicate that real and AIG faces are equally effective in conveying a healthy, active lifestyle. However, neither inspired behavioral change toward healthier living, echoing the findings of prior research by Zimmermann et al. (2024) that emphasizes pairing visuals with actionable, targeted messaging to drive change.

Although the overall analysis found no statistically significant difference in the effectiveness of real versus AIG faces to convey inclusivity, cultural background emerged as a significant factor. AIG images are suggested to often fail to generate culturally inclusive representations due to biased training data that predominantly features white faces (Miller et al., 2023b). However, the participants in the current study perceived AIG faces as more culturally inclusive than real faces. This outcome likely stems from AI modifications, such as altering light skin tones to darker ones.

Consequently, the bias of generating less realistic faces for darker skin tones was not observed in this study, indicating progress in AI's ability to produce more culturally inclusive content.

Descriptive results indicated inconsistent perceptions of age inclusivity for both real and AIG faces. A lack of representation of different age groups likely stemmed from image selection rather than perceived realism. Real faces were more consistently rated as moderately body-type inclusive, while AI modifications, such as enhanced definition, appeared to weaken perceptions of inclusivity. The absence of certain body types, such as disabilities, further influenced lower ratings, suggesting limitations in image selection.

The descriptive results showed higher consistency for the perceived positive relatability of real faces. Authenticity, often associated with unedited and natural images, is a critical factor in fostering relatability (Reade, 2021). These results challenge Miller et al. (2023b), who suggest AIG faces are perceived as more human-like. Participants described AIG faces as overly polished and less natural, with one noting they resembled "models for a photoshoot" (see 5.3), explaining lower relatability ratings.

Real faces were also seen as more effective in conveying socialization, with a supportive atmosphere emerging as a statistically significant difference. Open-ended responses indicated that AIG images tended to emphasize staff-client over client-client dynamics, limiting their ability to evoke the mutual connections

that gym spaces often aim to promote (Pickett et al., 2016; Cardone, 2019). This aligns with findings that AIG images may appear fabricated, undermining their effectiveness in conveying authenticity and relatability (Sharma & Lal, 2024; Miller et al., 2023b).

6.2 Methodology critique

While the study provided valuable insights, several limitations must be acknowledged. First, the small sample size of 30 participants limits generalizability, and broader, more diverse samples could improve reliability. Second, the pictures used may not have fully aligned with the targeted dimensions, potentially skewing results. A pre-study to ensure better alignment could address this. Third, while Adobe Firefly generated high-quality visuals, the lack of variation in applied AI tools may affect generalizability. Fourth, static website screenshots, rather than interactive components, may have influenced perceptions, and a dynamic prototype could provide a more realistic simulation. Finally, the lack of in-depth qualitative analysis limited insights into user thoughts, highlighting the need for deeper qualitative methods.

6.2.1 Future research

Future studies could explore behavioral metrics like conversion rates or gaze patterns to better understand how AIG and real images affect user behavior. Investigating AIG faces created entirely from scratch, without real-photo references, could clarify their unique impact on perceptions. Comparative analyses of AI tools like DALL-E, Midjourney, and Adobe Firefly could reveal how algorithmic differences shape impressions of relatability. Additionally, future research could test scenarios where participants are informed about the origins of visuals, measuring the balance between transparency and user satisfaction. Such studies would provide critical insights into the ethical and practical considerations of using AIG imagery in diverse contexts, from web interfaces to SMM.

7. Conclusion

In conclusion, AI-generated (AIG) faces demonstrate the potential to achieve comparable perceptions to real faces across various dimensions. Nonetheless, the study indicated that real faces are more effective in promoting social connections, whereas AIG faces demonstrate a stronger capacity for conveying cultural inclusivity. The results highlight that the ability of AI-generated imagery to convey emotional nuances and keep a human touch remains an area for improvement. These findings underscore the importance of thoughtful content selection and acknowledging the subjective nature of user perceptions when designing interfaces with AI-generated visuals.

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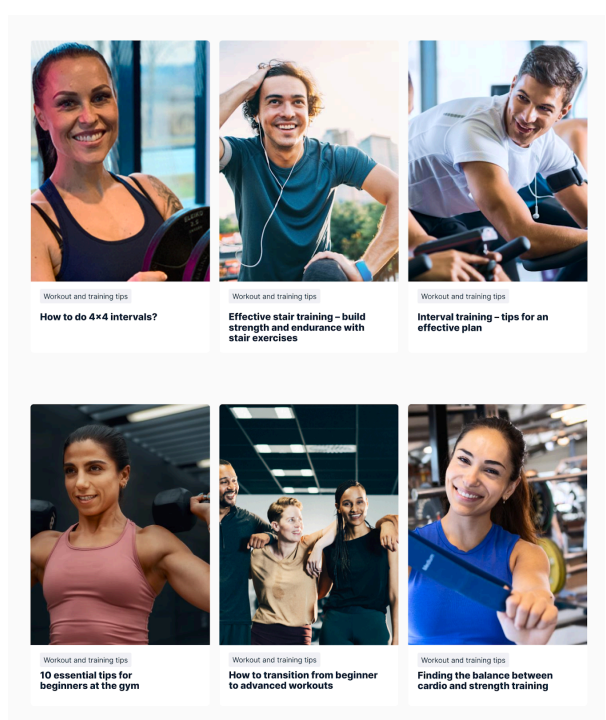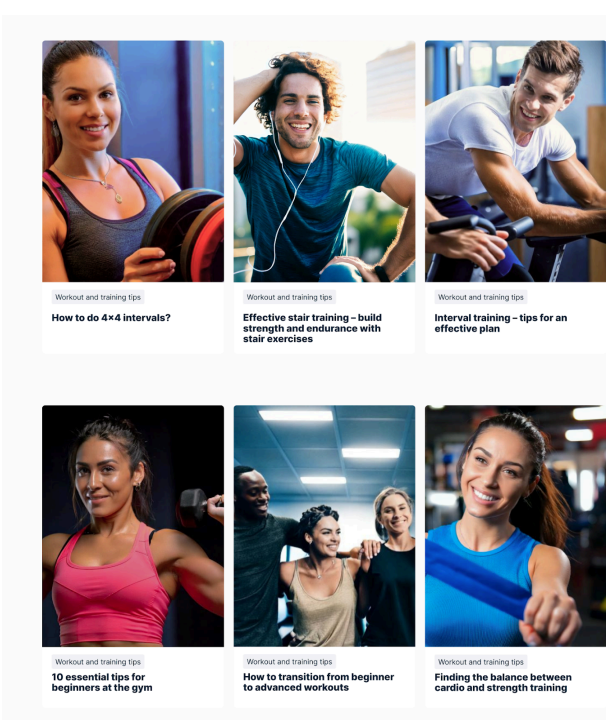
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9. Appendix

Appendix 1.
Two sets of questionnaires have the same questions, with the only difference being the use of images: real face pictures or AI-generated face pictures. The dimensions and their corresponding questions, along with the images used in each dimension for both sets of questionnaires, are shown in the table below.

Original images with real faces	AIG faces
Wellness	
Question 1. The content on the website conveys a healthy and active lifestyle. (Likert scale 5-point question) **Question 2.** The content on the website inspires me to pursue a healthier lifestyle. (Likert scale 5-point question) **Question 3.** Describe your reasoning for the ratings regarding wellness with a few words. (Open-ended question)	
Inclusivity	
Question 4. The content on the website showcases inclusivity for different age groups. (Likert scale 5-point question) **Question 5.** The content on the website showcases inclusivity for different cultural backgrounds. (Likert scale 5-point question) **Question 6.** The content on the website showcases inclusivity for different body types. (Likert scale 5-point question) **Question 7.** The content on the website portrays people that can be perceived as relatable. (Likert scale 5-point question) **Question 8.** Describe your reasoning for the ratings regarding inclusivity with a few words. (Open-ended question)	
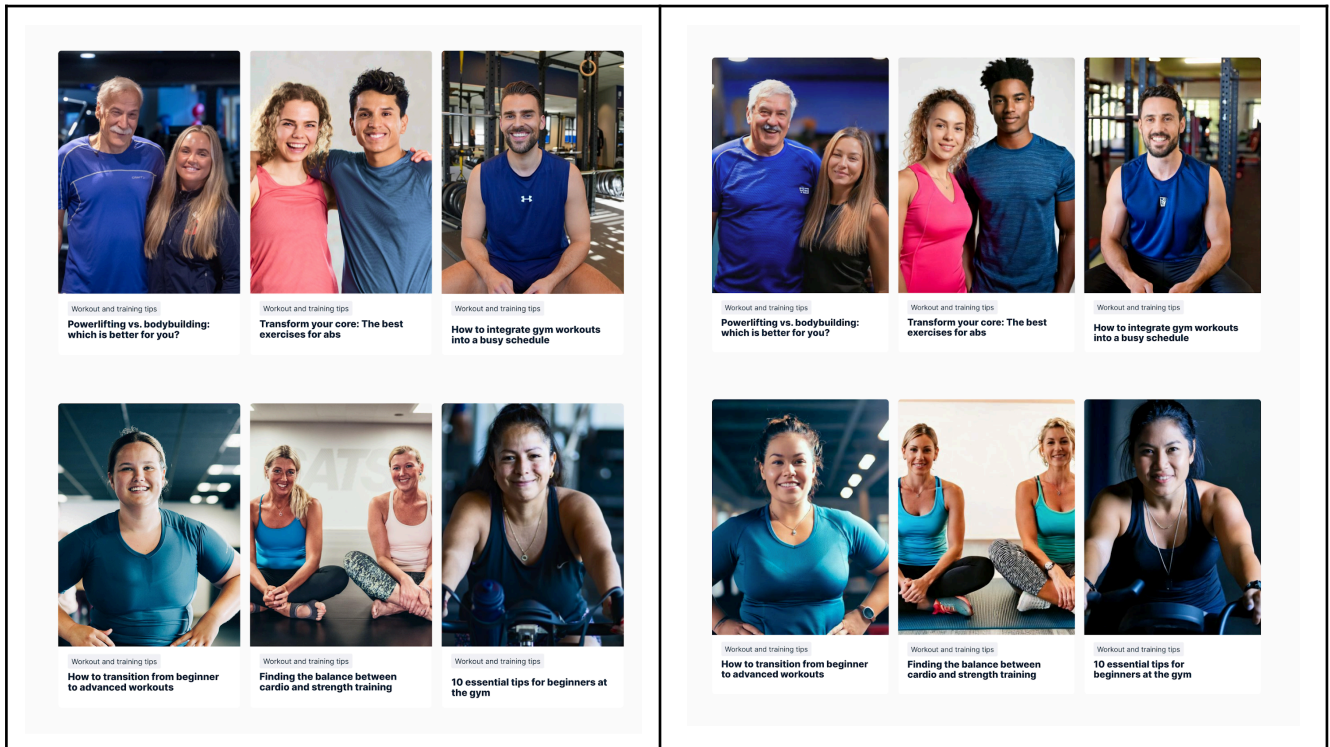
Socialization

Question 9. Based on the content of the website, I get the feeling that the gym has a sense of community among gym-goers. (Likert scale 5-point question)

Question 10. The content on the website conveys a feeling of a supportive atmosphere. (Likert scale 5-point question)

Question 11. The content on the website promotes opportunities for connection with others in the gym. (Likert scale 5-point question)

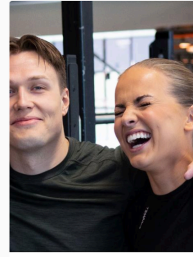**Question 12.** Describe your reasoning for the ratings regarding socialization with a few sentences. (Open-ended question)

Workout and training tips
Why group fitness classes are worth trying

Workout and training tips
Marathon training for beginners: Where to start

Our members
Success stories: Inspiring transformations from our members

Workout and training tips
5 reasons to work out in the morning

Workout and training tips
What is HIIT training?

Our members
Interval training – tips for an effective plan

Workout and training tips
Why group fitness classes are worth trying

Workout and training tips
Marathon training for beginners: Where to start

Our members
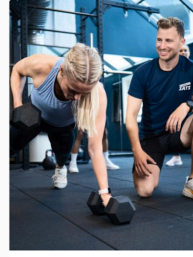**Success stories: Inspiring transformations from our members**

Workout and training tips
5 reasons to work out in the morning

Workout and training tips
What is HIIT training?

Our members
Interval training – tips for an effective plan

18