Amsterdam UMC | EHEALTH LIVING & LEARNING LAB

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Cheat-Sheet
Bias-Aware Image Generation

AI image generators are powerful tools, but they often depict older adults and people living with chronic conditions (like dementia) in stigmatizing ways—showing them looking sad, angry, or scared, showing them sitting down and inactive, or limiting them to indoor settings. With thoughtful use, we can avoid reinforcing stereotypes and create more respectful images.

Checklist for Bias-Aware Image Generation

Have I considered alternatives?

For sensitive topics (such as aging and dementia), would curated image libraries (e.g., the Centre for Aging Better's collection) be more respectful and accurate than AI-generated images?

Have I chosen prompt wording carefully?

Using more positive and person-centered language (like "living with dementia") can help generate less stigmatizing and more respectful images.

Have I specified details in the prompt?

Did I clearly describe the desired emotion, posture, and setting to avoid stereotypical representations?

~~Generate a picture of an elderly woman with dementia~~

A smiling older woman living with dementia, sitting outdoors in the park with family, actively engaged in conversation

Osinga, C., Jintaganon, N., Steijger, D., De Vugt, M., & Neal, D. (2025). Biases in an artificial intelligence image-generator's depictions of healthy aging and Alzheimer's. Journal of the American Medical Informatics Association. doi: https://doi.org/10.1093/jamia/ocaf173

How does generative AI imagine people with dementia?

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Background

- AI image generators are increasingly used in research and communication.
- These systems are trained on existing media, which often reflects stereotypes.
- Concern: People with dementia may be depicted in stigmatizing ways.

Research questions

1. Do AI image generators show people with dementia with **negative emotions, passive posture, indoors, or with assistive technology** more often than other groups?
2. Can **prompt engineering (careful wording)** reduce these biases?

Methods

Prompts

- Elderly person
- Person with dementia
- Control (man, woman, person)

1.072 images

Elderly person

Person with dementia

Control

Analysis

Content analysis features
- Affect
- Posture
- Setting
- Assistive technologies

Chi-2 tests features
- Across three groups (elderly, dementia, control) for each AI model

Descriptive analysis
- Inspecting the frequency distributions of outcomes in relation to specific prompt terminology

Key results

- **Across 1,072 images, both DALL-E 3 and MidJourney showed significant affect bias.**

- **Chi-square tests confirmed over-representation of negative affect for dementia prompts.**
  DALL-E 3: $\chi^2(4, n=538)=120.98$, $p<.001$, Cramer's V=0.34 [medium]
  MidJourney: $\chi^2(2, n=534)=17.97$, $p<.001$, V=0.18 [small]

- **Dementia-related images were also significantly more likely to show passive posture.**
  ($\chi^2(2, n=538)=19.22$, $p<.001$) and indoor settings ($\chi^2(2, n=538)=38.85$, $p<.001$)

- **Positive affect depictions were rare: <2% in MidJourney vs ~23% in DALL-E 3.**

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