



"The Algorithmic
Abyss:

***DIVING INTO AI'S IMPACT ON
OUR INNER WORLDS***

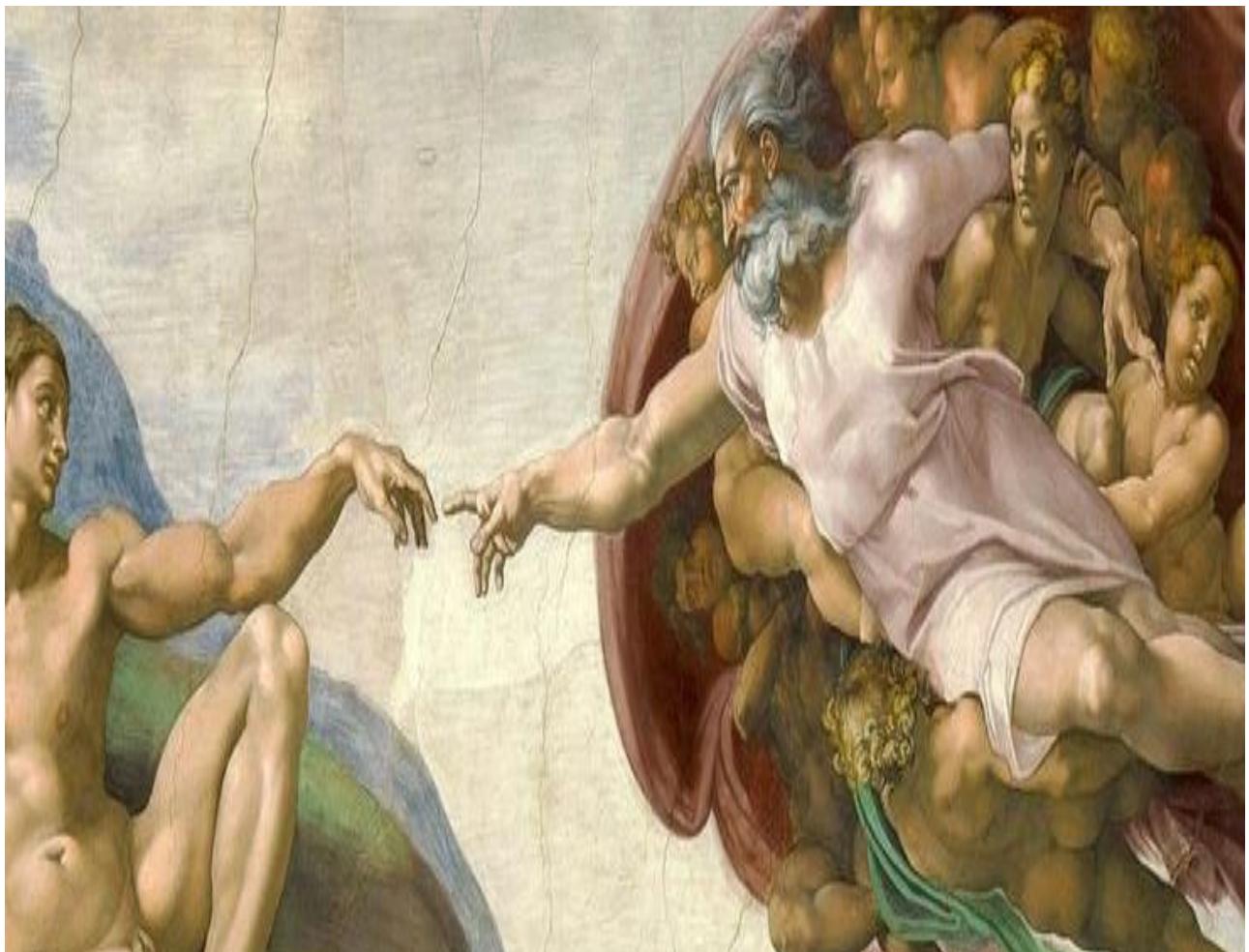


Then God said,
“LET THERE BE LIGHT”
and there was light.
Genesis 1:3

That first command wasn't a request — it was creation itself, instant, perfect, and good.

Human Intelligence: Imprinted with the “Imago Dei”

- ▶ "Human Intelligence: Imprinted with the Imago Dei"
- ▶ "Intelligence: A Divine Gift for Creation, Communion, and Discernment."
- ▶ "AI must serve the human person and the common good... avoiding misleading equivalence to true human intelligence." Antiqua et Nova (2025)
- ▶ "Technology as Servant, Not Master – Guided by the wisdom of faith and service to the good of human person."





Baby
Zuko



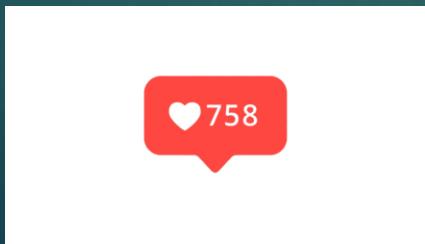
So, what do we know:

- There is substantial research evidence linking heavy social media use (often powered by AI algorithms) to addictive behaviors, behavioral conditioning, and neuroplastic changes in the brain (including rewiring of neural pathways).
- Evidence for direct personality changes is more limited and indirect, often tied to mental health outcomes like depression rather than core trait shifts.
- AI itself shows emerging risks for addiction and dependency, particularly with generative tools like chatbots, though research is newer and less extensive than for social media.

Addictive Risks and Behaviors

Social media platforms exhibit clear addictive potential, often compared to gambling due to "variable ratio reinforcement" schedules—unpredictable rewards like notifications, likes or comments trigger dopamine surges in the brain's reward system.

These dopamine surges create cravings, tolerance (needing more use for the same "high"), and even withdrawal symptoms (e.g., anxiety, irritability).



How Concerning Are Things?

Prevalence of Addiction Risks: Around 6.4% of college students are at risk of becoming addicted to TikTok, and we see similar addiction-like patterns on other social media platforms.

Worsening Mental Health: Studies that combine results from many researchers show that between about 4.5% and 7.4% of teenagers develop problematic (or addictive-like) use of social media. This heavy or unhealthy use is often connected to higher levels of anxiety, depression, symptoms of ADHD, and trouble getting enough good sleep.

Body Image Problems and Eating Issues: Social media often promotes unrealistic beauty standards through filtered images, leading to low self-esteem, negative body image, and disordered eating behaviors, especially among girls and those already struggling with mental health.

Artificial Intelligence



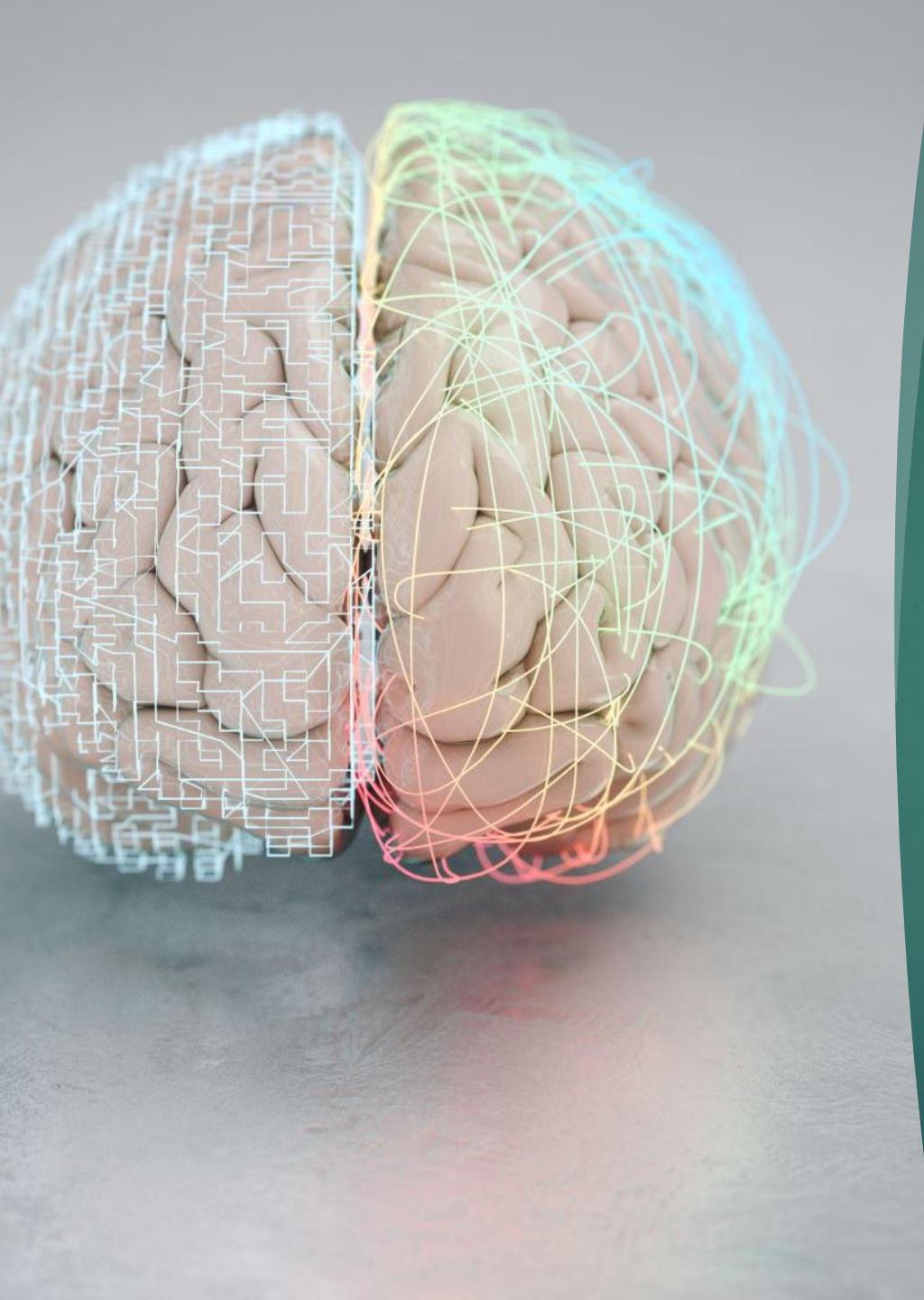
For standalone AI (e.g., chatbots like ChatGPT or companions): Emerging evidence shows dependency risks, including overuse for emotional validation, leading to anxiety when inaccessible, social withdrawal, and neglect of real-life responsibilities.



"Generative AI addiction syndrome" mirrors internet addiction, with dopamine cycles from constant interaction.



Adolescents/teens are at high risk, especially if lonely or neurodivergent, forming attachments that blur reality/fantasy and potentially enable harmful behaviors (e.g., self-harm validation).



Brain and Behavior Changes:

- ▶ **Brain and Behavior Changes:** Frequent use may alter developing brains, affecting emotional regulation, impulse control, and sensitivity to rewards or punishments, potentially worsening issues like ADHD symptoms or poor decision-making.
- ▶ **Academic and Social Struggles:** Problematic use is tied to lower well-being, reduced attention spans, poorer grades, and even higher substance use risks.

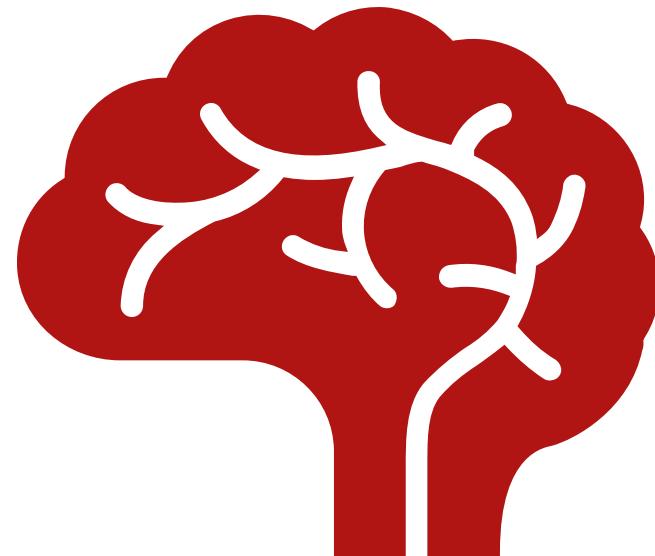
Neuropathway Rewiring (Neuroplasticity Changes)

- ▶ Social media and AI-driven content can induce neuroplasticity alterations—the brain's ability to reorganize connections—often detrimentally:
- ▶ **Structural Changes:** Heavy use reduces gray matter in the prefrontal cortex (executive function/impulse control), anterior cingulate cortex (emotional regulation), and cerebellum (attention/coordination).
- ▶ **Functional Rewiring:** Overactivation of reward circuits (dopamine D2 receptor downregulation) reduces sensitivity to natural rewards, increasing craving.



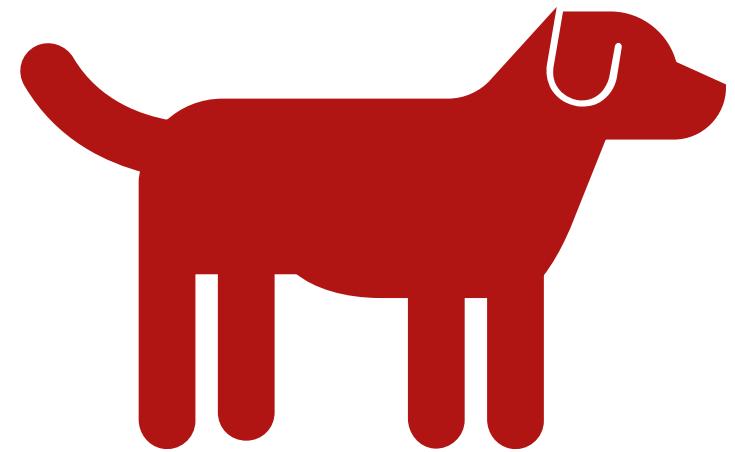
Youth Vulnerability

Developing brains prune less-used connections while building others; "impoverished" screen stimulation limits this, promoting obsessive use via reward/frustration loops (Harvard's GUD Study tracks this longitudinally). Changes are reversible (e.g., exercise boosts BDNF/GDNF for neurogenesis, restoring circuits).



Behavioral Conditioning

Social media uses operant conditioning: positive reinforcement (likes/notifications) strengthens use, while AI algorithms act as "digital nudges" for subconscious decisions, personalizing content to exploit biases (e.g., fear/anger amplification for engagement). This creates herd behavior, echo chambers, and compulsive scrolling. AI in platforms reinforces patterns via predictive analytics, bypassing awareness and optimizing for time-on-site over well-being



Personality Changes

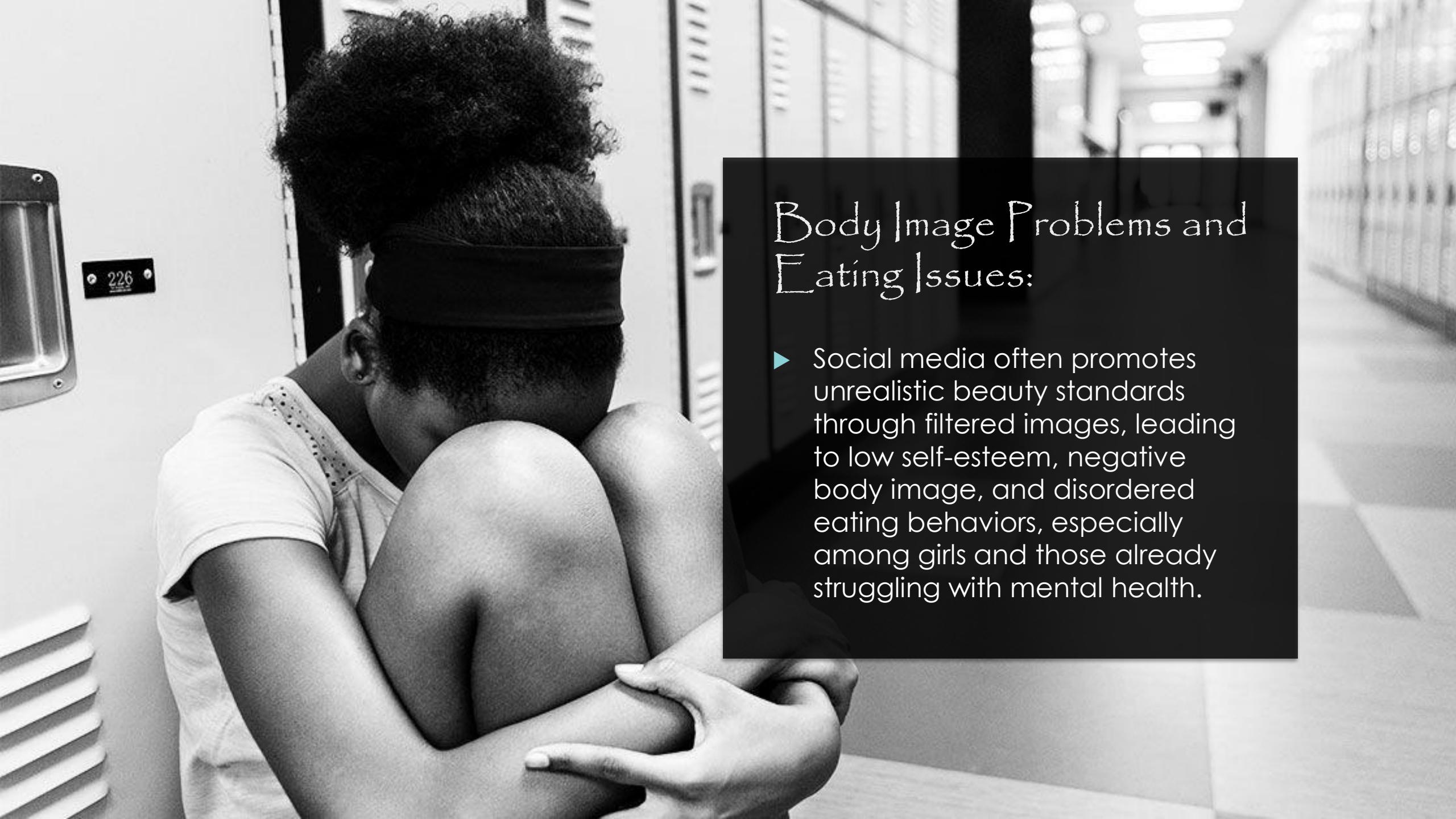
- ▶ Evidence is indirect and weak. Social media doesn't directly alter Big Five traits (e.g., no causation from use to trait shifts), but it interacts with them: high neuroticism doubles depression odds from use, while agreeableness halves them. Increased use predicts depression onset regardless of baseline personality. Behavioral changes (e.g., impulsivity, reduced empathy) stem from rewiring/addiction, not core personality.
- ▶ AI/chatbots: No direct trait changes, but risks include dependency leading to isolation, reduced real-world motivation, or amplified delusions (AI psychosis), potentially worsening traits like neuroticism indirectly.
- ▶ Overall, while social media shows robust links (mitigable via limits/exercise), AI's risks are growing with adoption—focus on ethical design and monitoring is urged. Consult professionals for personal concerns.

Negative Effects on Children and Teens (Supported by Research)

Higher Rates of Anxiety and Depression

- ▶ Kids and teens who spend more than 3 hours a day on social media face double the risk of mental health issues like anxiety and depression, often due to constant comparisons, cyberbullying, and exposure to negative content.





Body Image Problems and Eating Issues:

- ▶ Social media often promotes unrealistic beauty standards through filtered images, leading to low self-esteem, negative body image, and disordered eating behaviors, especially among girls and those already struggling with mental health.



Sleep Disturbances

HEAVY USE IS LINKED TO LESS SLEEP, LATER BEDTIMES, AND POOR SLEEP QUALITY, WHICH CAN HARM OVERALL HEALTH, SCHOOL PERFORMANCE, AND MOOD.



Cyberbullying and Loneliness

ONLINE HARASSMENT IS COMMON, RAISING RISKS OF DEPRESSION, ANXIETY, AND FEELINGS OF ISOLATION; EVEN WITHOUT DIRECT BULLYING, SUPERFICIAL INTERACTIONS CAN REPLACE REAL FRIENDSHIPS, LEADING TO LONELINESS.

Negative Effects on Adults (Supported by Research)



Increased Anxiety and Depression

REGULAR SOCIAL MEDIA USE, ESPECIALLY EXCESSIVE OR PASSIVE SCROLLING, IS LINKED TO HIGHER LEVELS OF ANXIETY, DEPRESSION, AND PSYCHOLOGICAL DISTRESS, OFTEN FROM COMPARISONS, LACK OF VALIDATION, OR NEGATIVE INTERACTIONS.



Loneliness and FOMO (Fear of Missing Out)

DESPITE CONNECTIVITY, HEAVY USE
CAN FUEL FEELINGS OF ISOLATION,
INADEQUACY, AND CONSTANT
WORRY ABOUT MISSING EVENTS,
LEADING TO CONTINUAL CHECKING
AND EMOTIONAL STRAIN.



Sleep and Memory Issues

OVERUSE IS ASSOCIATED WITH DISRUPTED SLEEP PATTERNS, WHICH CAN CAUSE FATIGUE, HEADACHES, AND EVEN MEMORY PROBLEMS, IMPACTING DAILY LIFE AND WORK.



Low Self-Esteem and Body Image Concerns

COMPARING ONESELF TO OTHERS' CURATED LIVES OR APPEARANCES CAN LOWER SELF-WORTH, ESPECIALLY FOR THOSE POSTING OFTEN OR SEEKING LIKES FOR VALIDATION.



Worsened Mental Health from Frequent Posting

PEOPLE WHO POST DAILY OR OFTEN
ARE MORE LIKELY TO REPORT POORER
MENTAL HEALTH A YEAR LATER,
COMPARED TO PASSIVE USERS OR
INFREQUENT POSTERS.

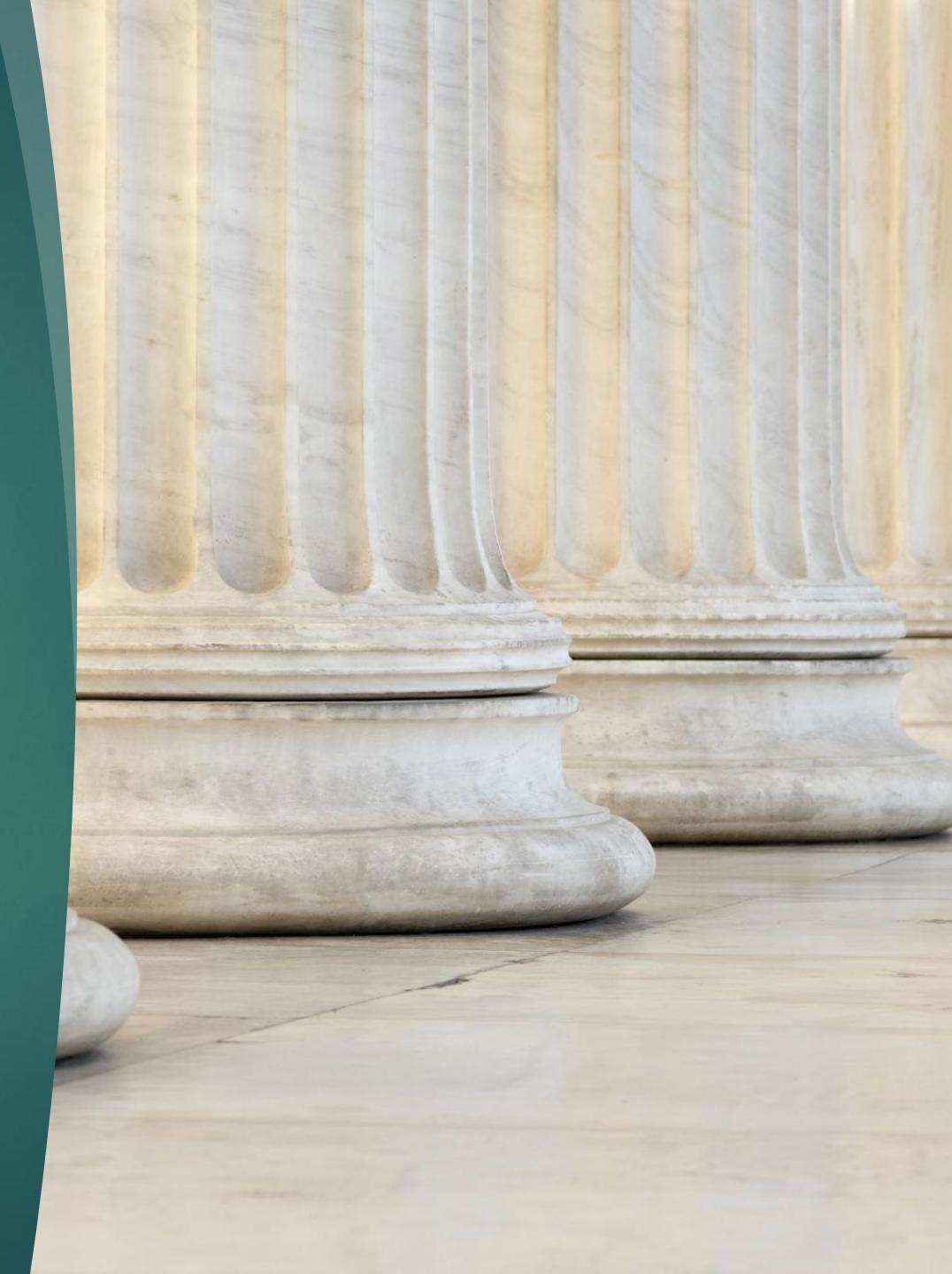


The Great Disorientation

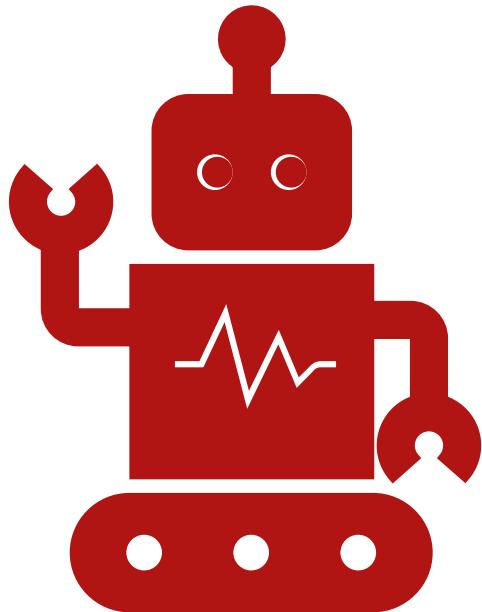
Where we must be vigilant

1. Preserving Human Dignity and Agency

The Vatican document *Antiqua et Nova* (2025) emphasizes that AI is a product of human intelligence, not an equivalent to it. Misrepresenting AI as a "person" or allowing it to make life-and-death decisions (e.g., in warfare or healthcare) violates human dignity. Pope Francis has repeatedly warned that no machine should ever choose to take a human life, as "human dignity itself depends" on proper human control. Over-reliance on AI risks reducing people to data points or functional outputs, eroding our unique moral responsibility and freedom as children of God.



Avoiding Idolatry and Anthropomorphization



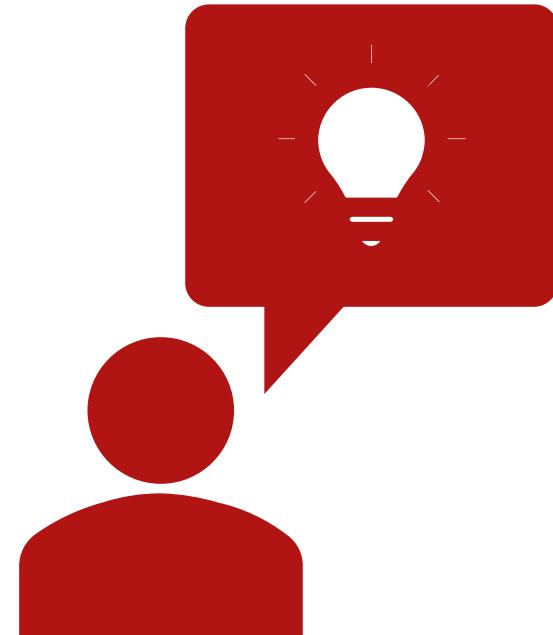
- ▶ Treating AI (or social media algorithms) as an all-knowing "oracle" or companion can lead to a form of idolatry—substituting a human artifact for God. The Church cautions against blurring lines by anthropomorphizing AI, especially for children, as it confuses genuine relationality (rooted in the *imago Dei*) with simulated interactions, potentially stunting spiritual and emotional growth.

Combating Isolation and Addiction

- ▶ Social media and AI-driven platforms often foster superficial connections, dopamine-fueled addiction, and harmful isolation, displacing face-to-face relationships and prayerful silence. Catholic voices highlight how excessive use deforms the soul, promotes envy/comparison, and distracts from our vocation to love God and neighbor authentically. This "yoke of slavery" (as some describe digital addiction) hinders contemplation of God and service to others.

Safeguarding the Common Good and Vulnerability

- ▶ AI can exacerbate inequalities, biases, job displacement, and manipulation if profit-driven. The Church calls for ethical guidelines ensuring technology serves the integral development of all persons, especially the vulnerable, aligning with Catholic social teaching on solidarity and subsidiarity.



Implications for Our Identity as Children of God

Our core identity as children of God—beloved, redeemed in Christ, and called to eternal communion—is not defined by productivity, likes, algorithmic validation, or technological enhancement.



IMAGO DEI