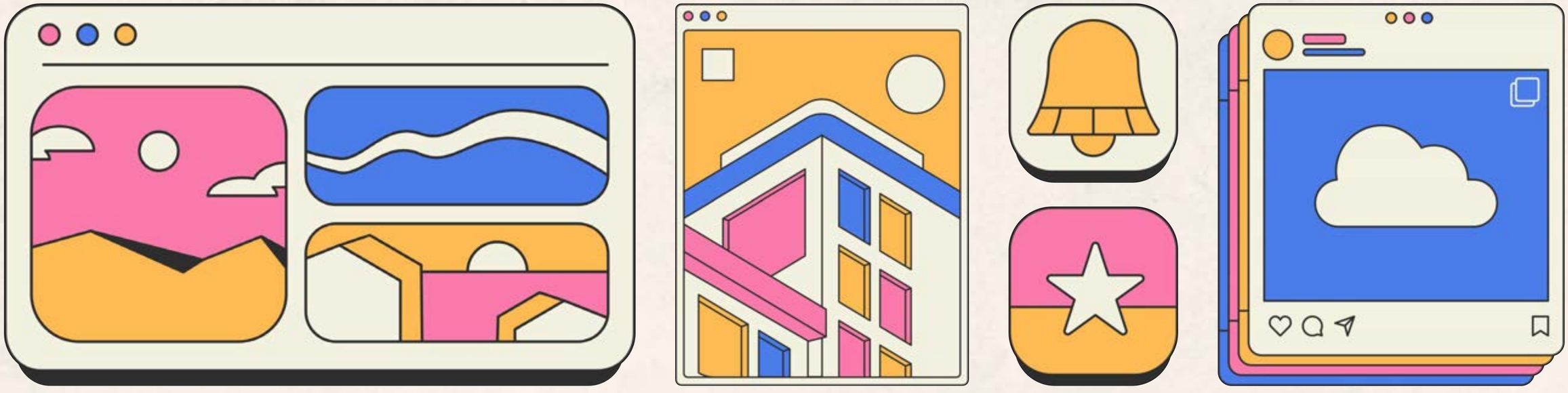
Double-Edged Scroll

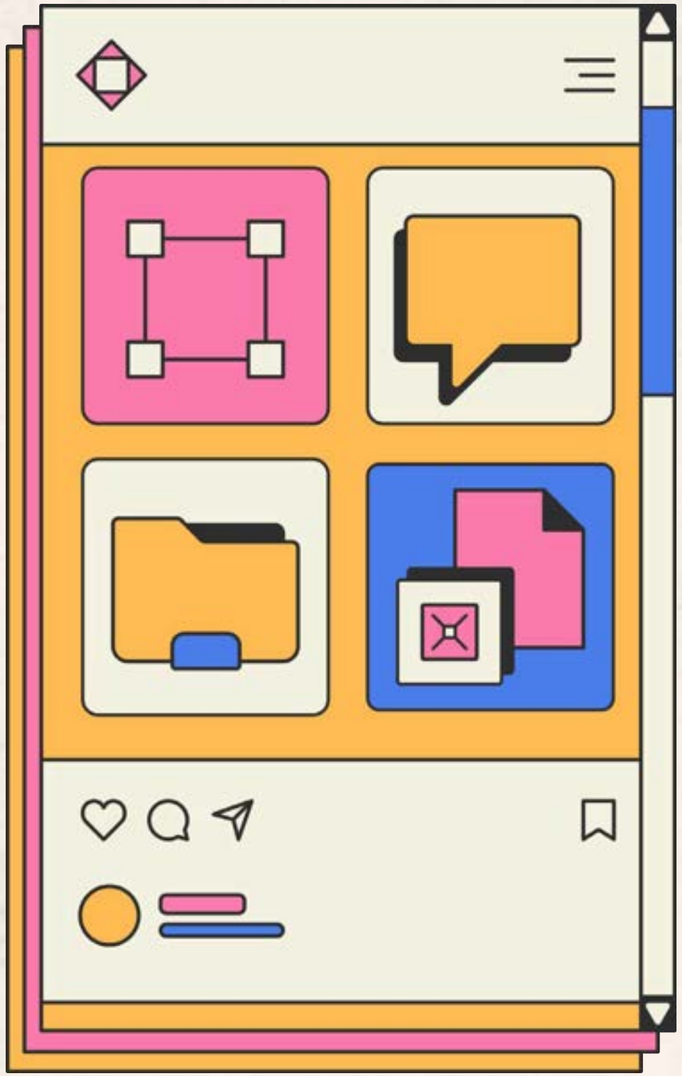
Understanding Social Media's Effect on Youth Mental Health

Dr. Libby Matile Milkovich, MD



Children's Mercy Kansas City University of Missouri-Kansas City School of Medicine

Our Digital Media World is Uniquely Personal

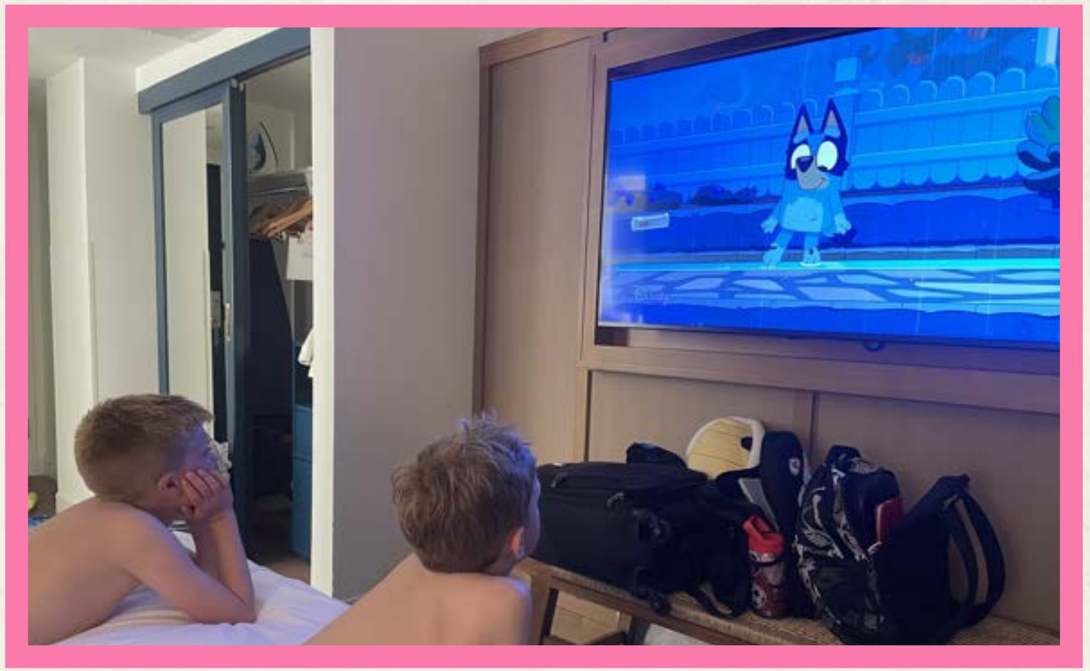


Objectives

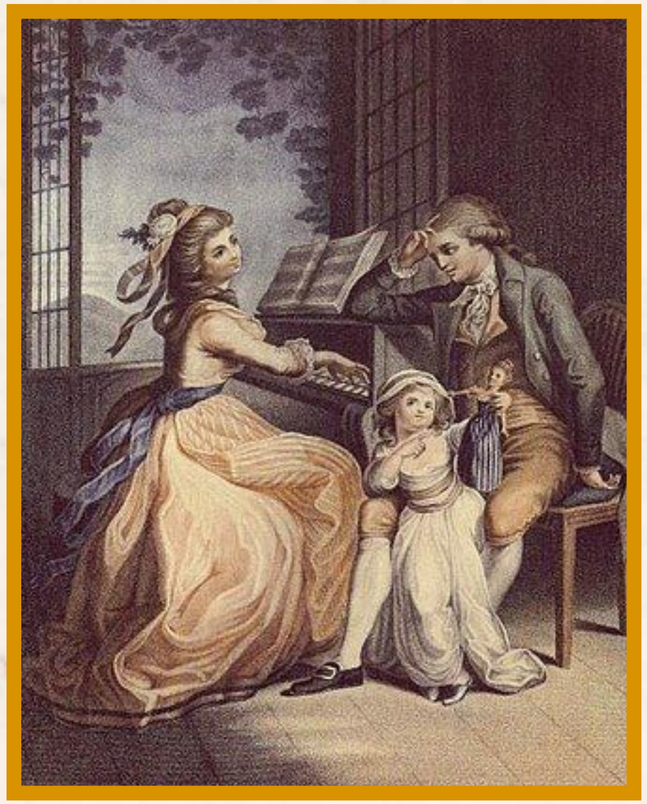
- Analyze the Multidimensional Effect of Social Media
- Identify Both Positive and Negative Outcomes
- Develop Empathetic and Strategic Approaches

The Doomscroll

The Hope Scroll



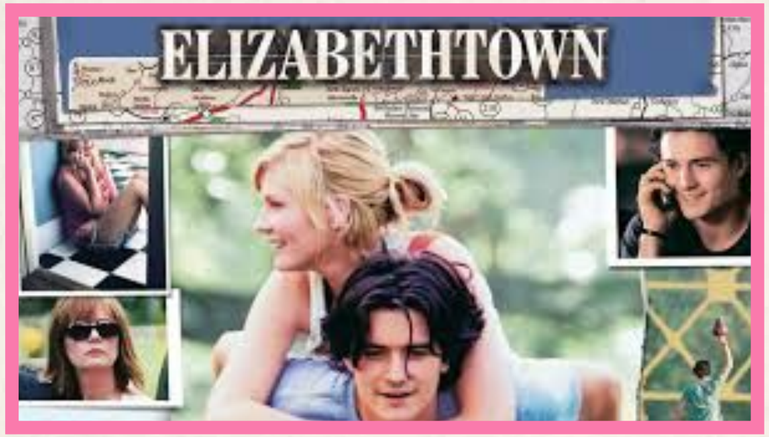
Werther Effect



VS.

Papageno Effect

Werther vs. Papageno



Till, Benedikt, et al. "Determining the effects of films with suicidal content: a laboratory experiment." The British Journal of Psychiatry 207.1 (2015): 72-78.

Not All Participants Responded the Same

Social Ecological Model

emphasizes that health and well-being are shaped by multiple levels of influence

System and Community

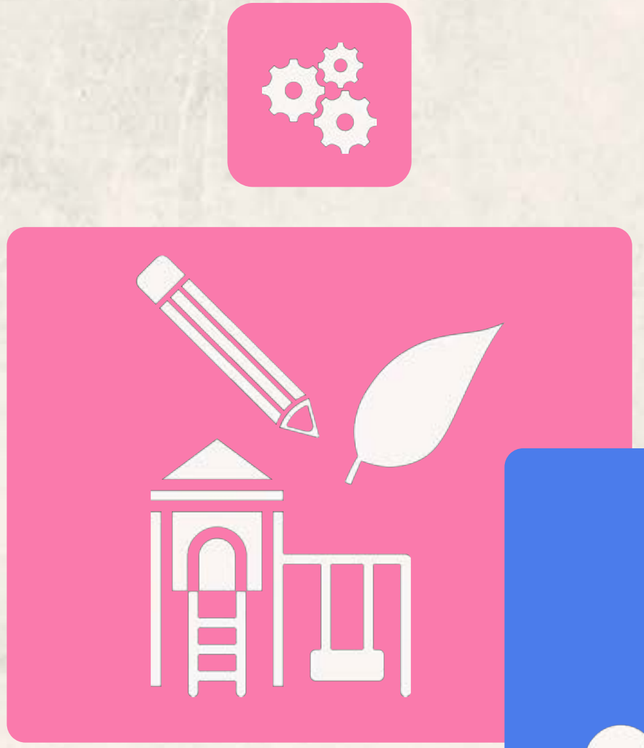
Relationship

Individual

Pediatric Mental Health Disorders

Pediatric Mental Health Disorders

Pediatric Mental Health Disorders



“We live in both, the real world and online.”

-Teen

Pediatric Mental Health Disorders

Pediatric Mental Health Disorders

Pediatric Mental Health Disorders

Rhythm

- Frequency of use
- Duration of use
- Time of day

Method

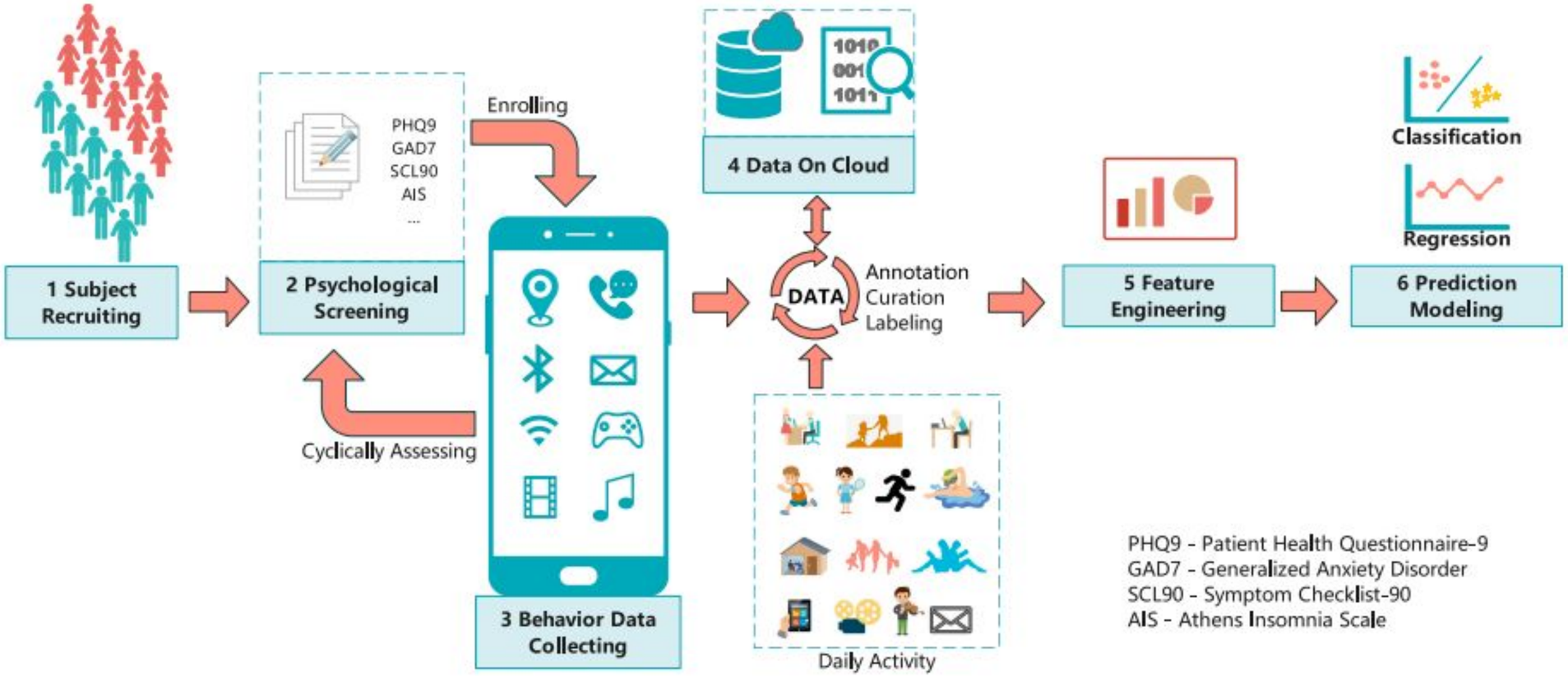
- With whom
- Type of device

Purpose

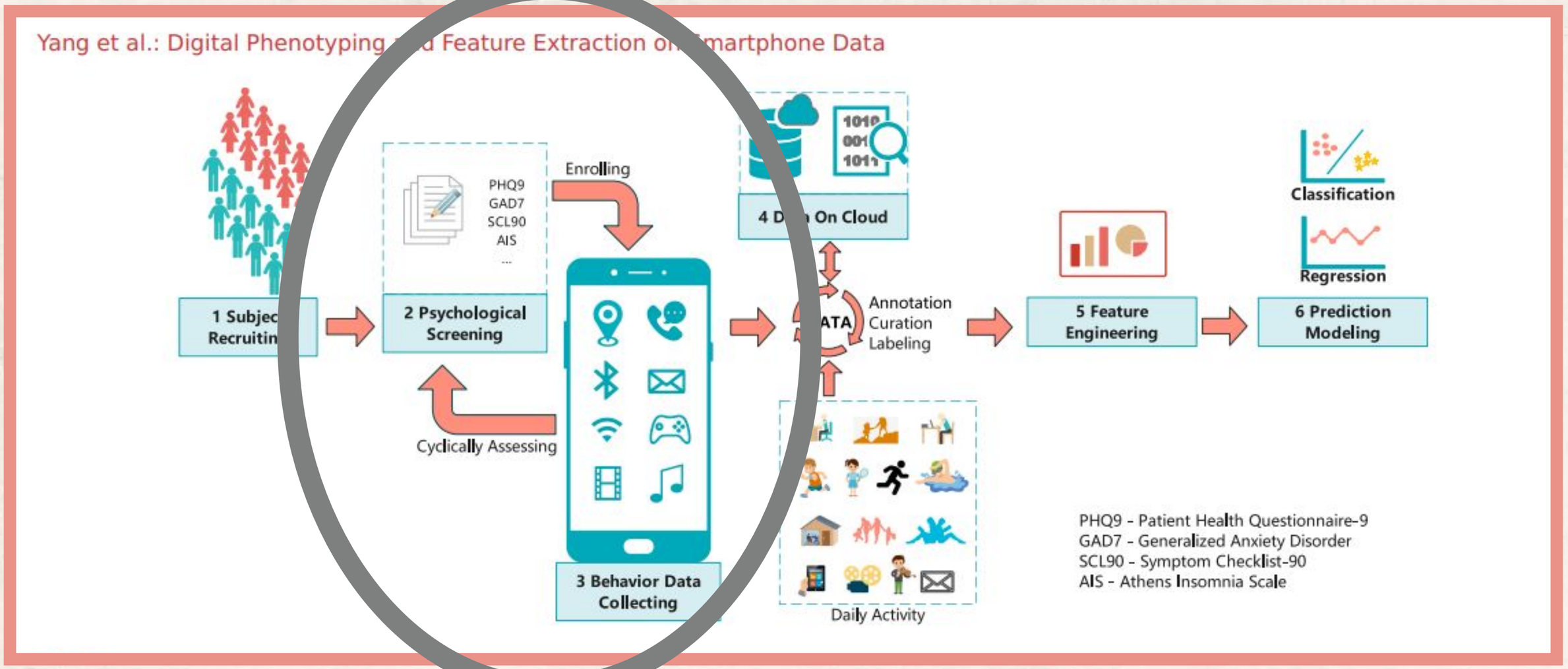
Content

Digital Phenotype of Depression

Yang et al.: Digital Phenotyping and Feature Extraction on Smartphone Data

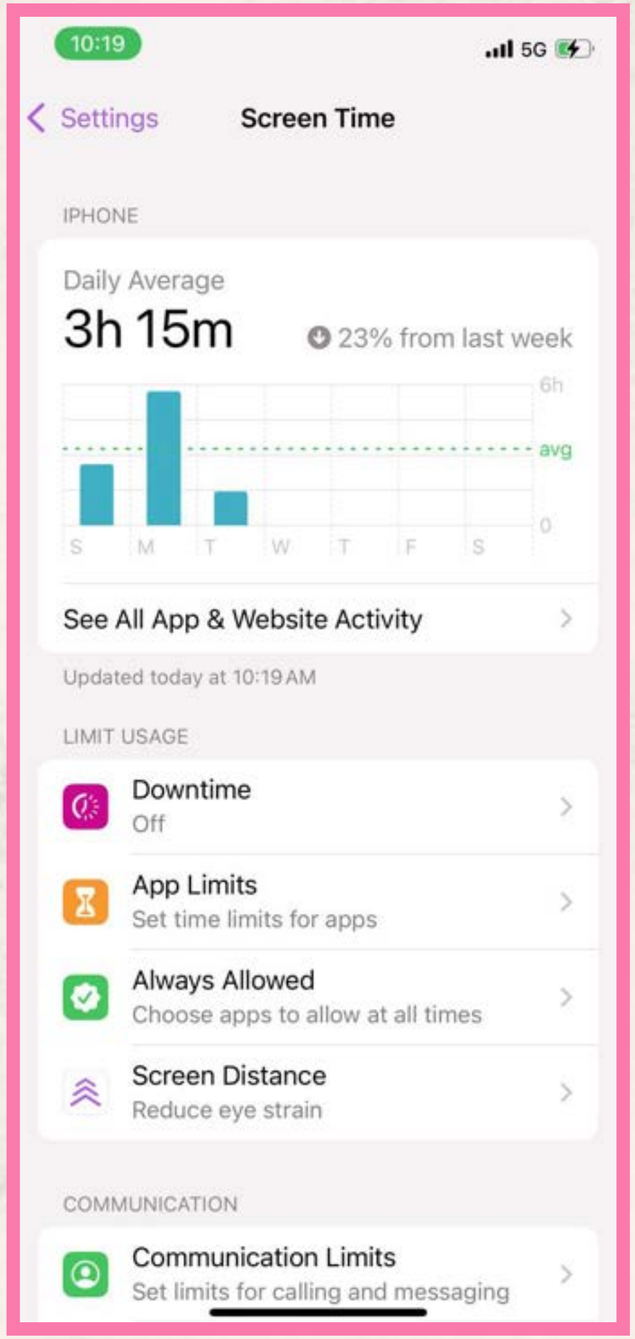


Digital Phenotype of Depression



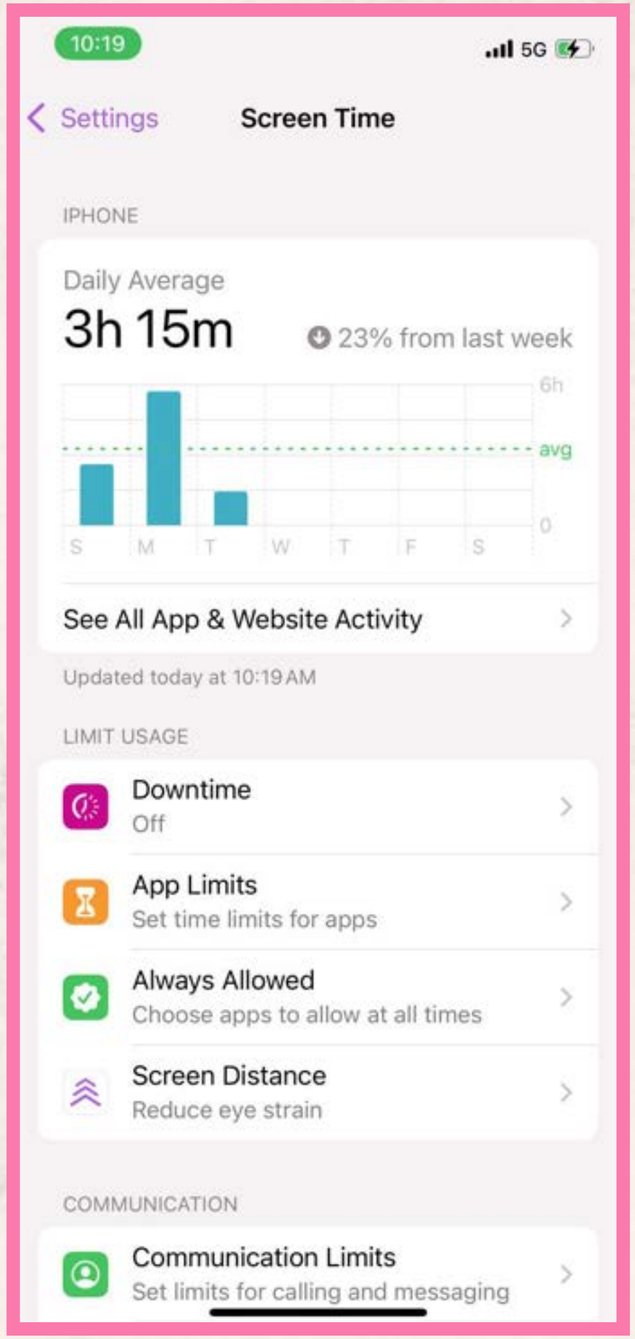
Passive Sensing

- Location-based features
  - Mobility: GPS tracking
- Dynamic Movement
  - Activity: Step count
- Rhythm-based Features
  - Circadian rhythm: Smartphone usage
- Sleep-based Features
  - Sleep state: Actigraphy
- Social Interactions
  - Social behavior: Messages



Passive Sensing

- Location-based features
  - Mobility: GPS tracking
- Dynamic Movement
  - Activity: Step count
- **Rhythm-based Features**
  - **Circadian rhythm: Smartphone usage**
- Sleep-based Features
  - Sleep quality: Actigraphy
- Social Interactions



Passive Sensing: Smartphone Use

- Time of Day
- Duration of Use
- Frequency of Use
- Accessed Apps
- Number of Notifications

Digital Phenotype of Depression

Rhythm-Based

Excessive Use

= >9 hours

Digital Phenotype of Depression

Rhythm-Based

Excessive Use

= >9 hours

Night-time Use

Digital Phenotype of Depression

Rhythm-Based

Excessive Use

= >9 hours

Night-time Use

Disruptive Use

Pediatric Mental Health Disorders

Rhythm

- Frequency of use
- Duration of use
- Time of day

Method

- With whom
- Type of device

Purpose

Content

Pediatric Mental Health Disorders

Rhythm

- Frequency of use
- Duration of use
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Method

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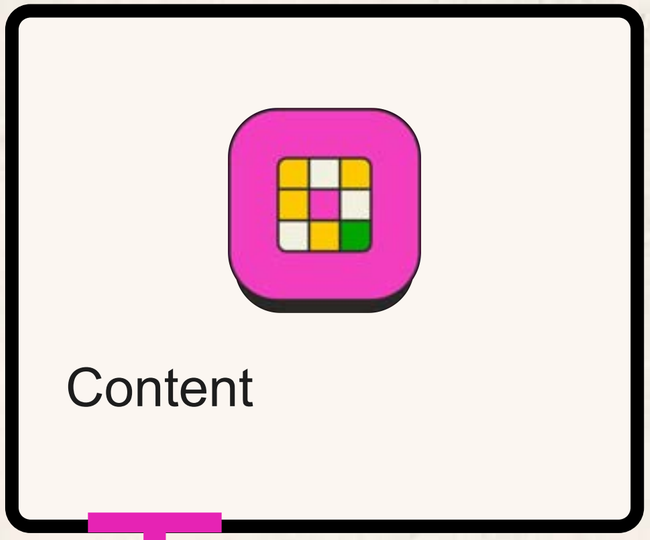
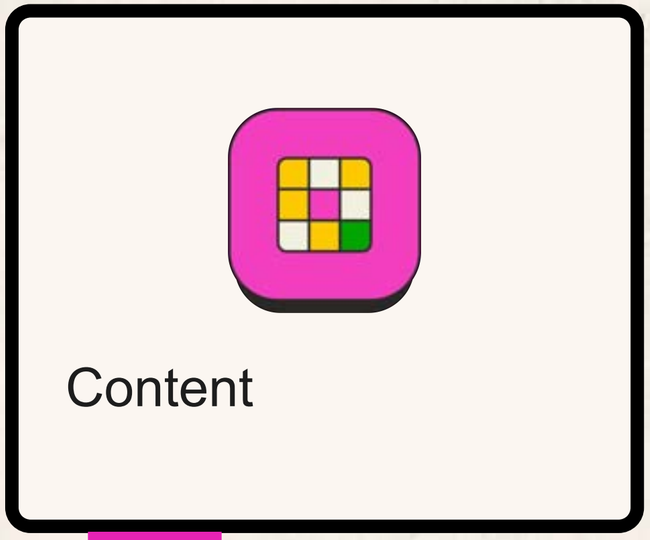
Purpose

Content

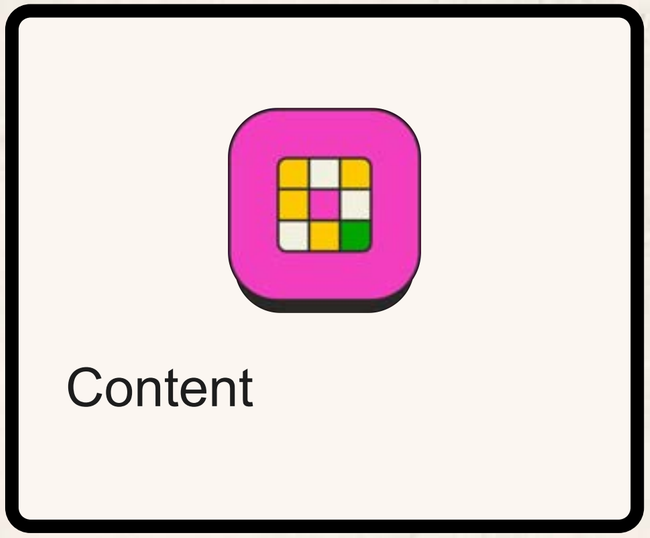
Content



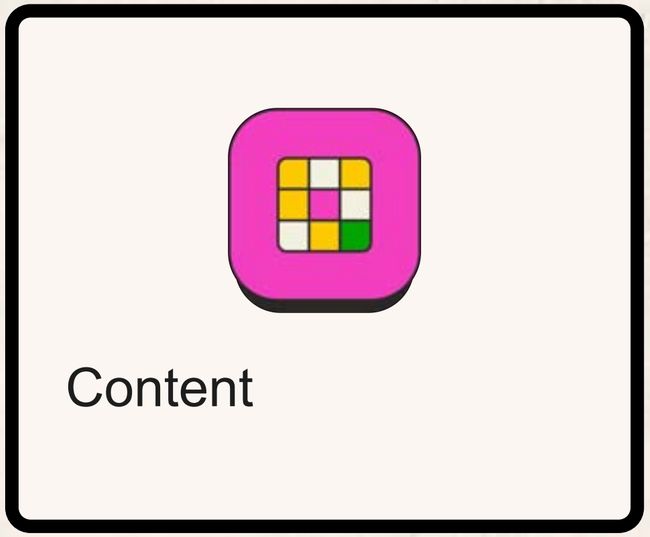
Traumatic Content



Traumatic Content
Cyberbullying



Traumatic Content
Cyberbullying
FOMO



Positive Content
Social Connection
Mental Health Awareness

Content

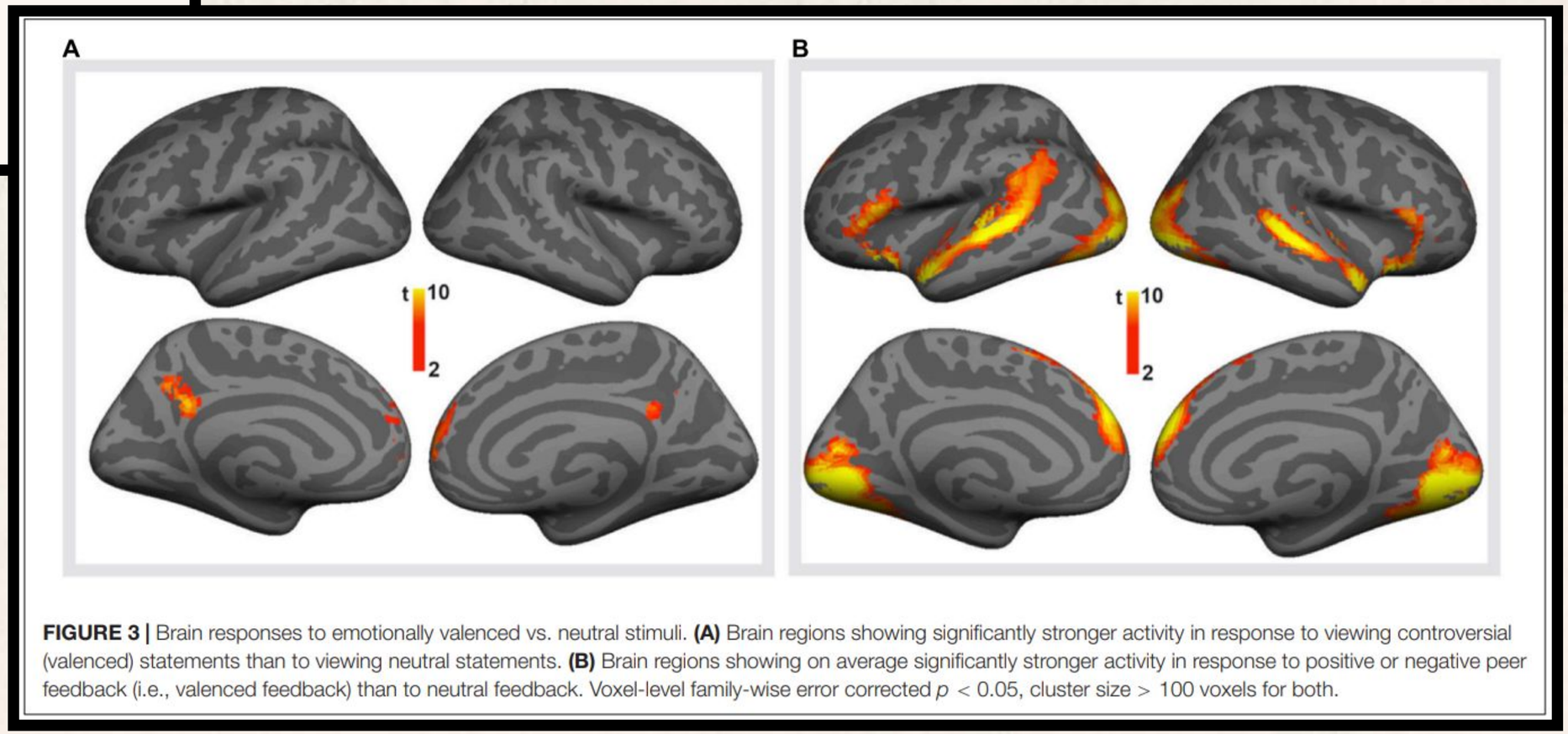
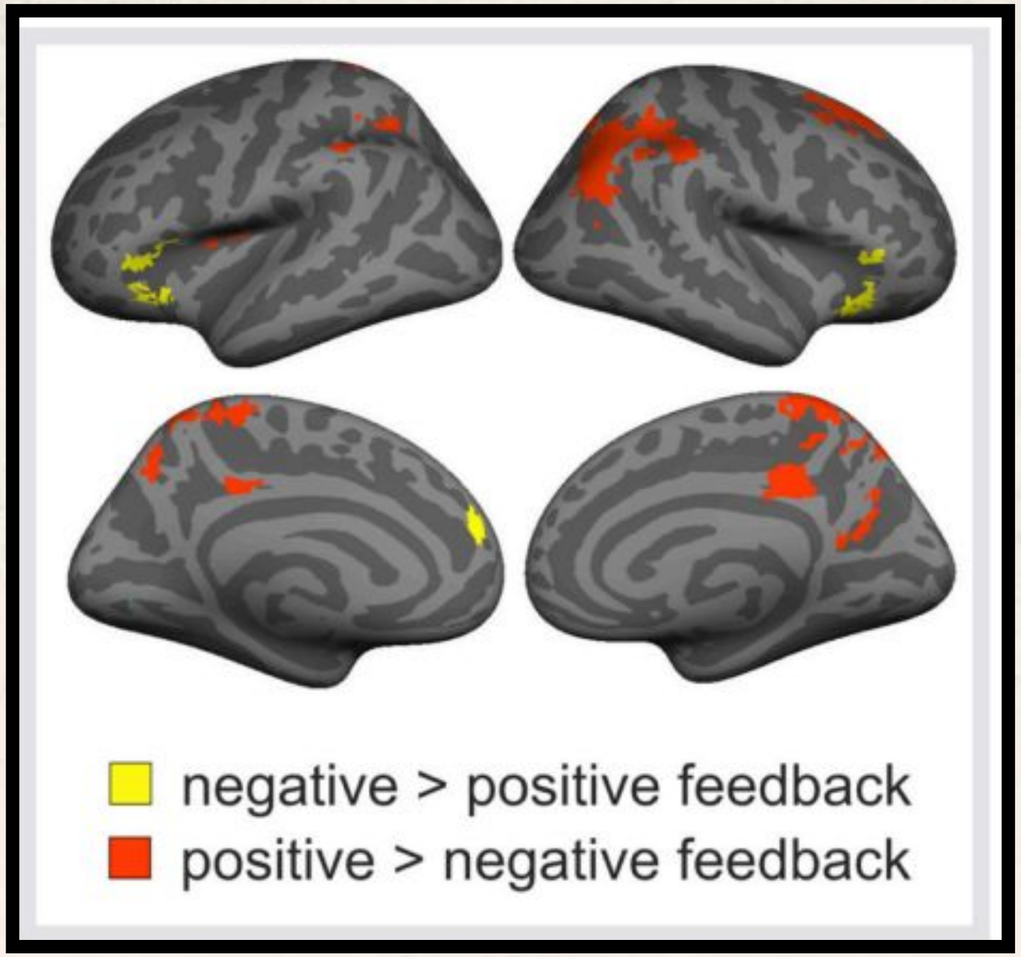


FIGURE 3 | Brain responses to emotionally valenced vs. neutral stimuli. **(A)** Brain regions showing significantly stronger activity in response to viewing controversial (valenced) statements than to viewing neutral statements. **(B)** Brain regions showing on average significantly stronger activity in response to positive or negative peer feedback (i.e., valenced feedback) than to neutral feedback. Voxel-level family-wise error corrected $p < 0.05$, cluster size > 100 voxels for both.

Wikman, Patrik, et al. "Brain Responses to peer feedback in social media are modulated by valence in late adolescence." Frontiers in behavioral neuroscience 16 (2022): 790478.

Content



Wikman, Patrik, et al. "Brain Responses to peer feedback in social media are modulated by valence in late adolescence." Frontiers in behavioral neuroscience 16 (2022): 790478.

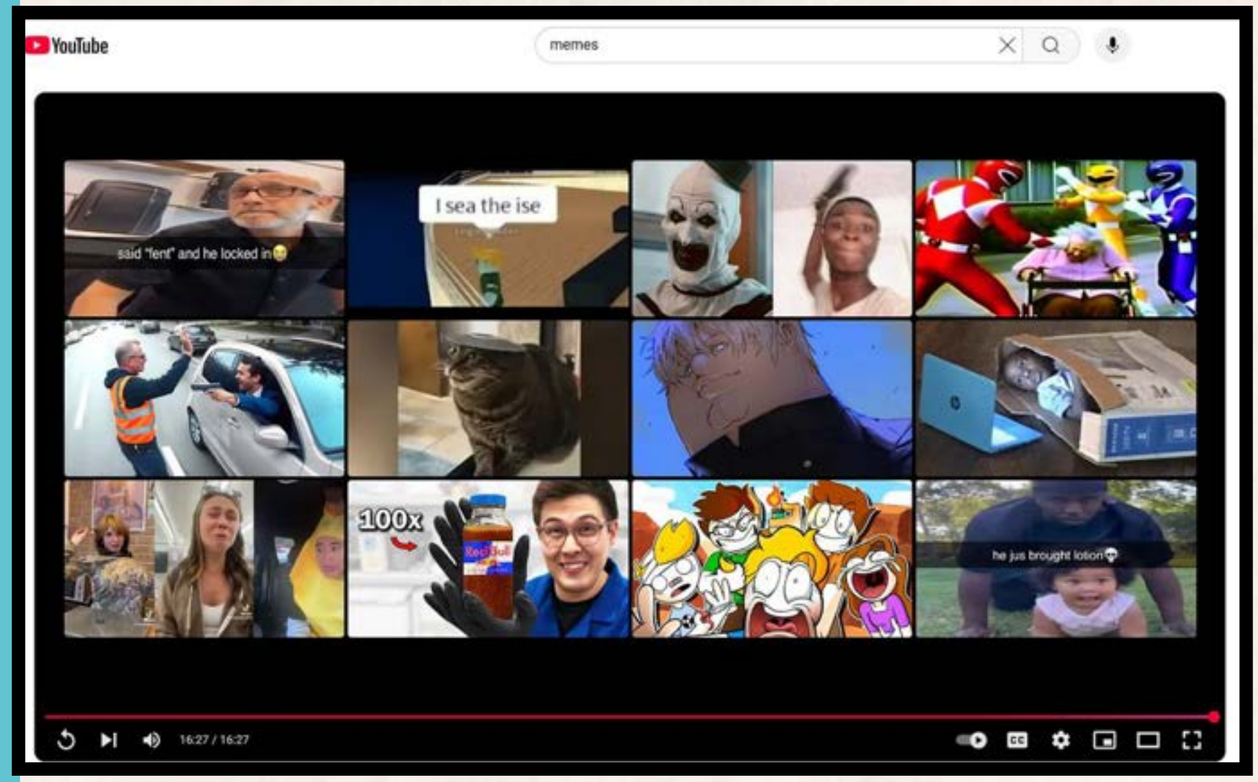
Content

Lillard, Angeline S., and Jennifer Peterson. "The immediate impact of different types of television on young children's executive function." Pediatrics 128.4 (2011): 644-649.

Content

YouTube Content Study

- 12 top-searched terms popular for school-aged children
- 2880 recommended video thumbnails coded



Radesky, Jenny, et al. "Algorithmic Content Recommendations on a Video-Sharing Platform Used by Children." JAMA Network Open 7.5 (2024): e2413855-e2413855.

Content

YouTube Content Study

CODES

visual loudness

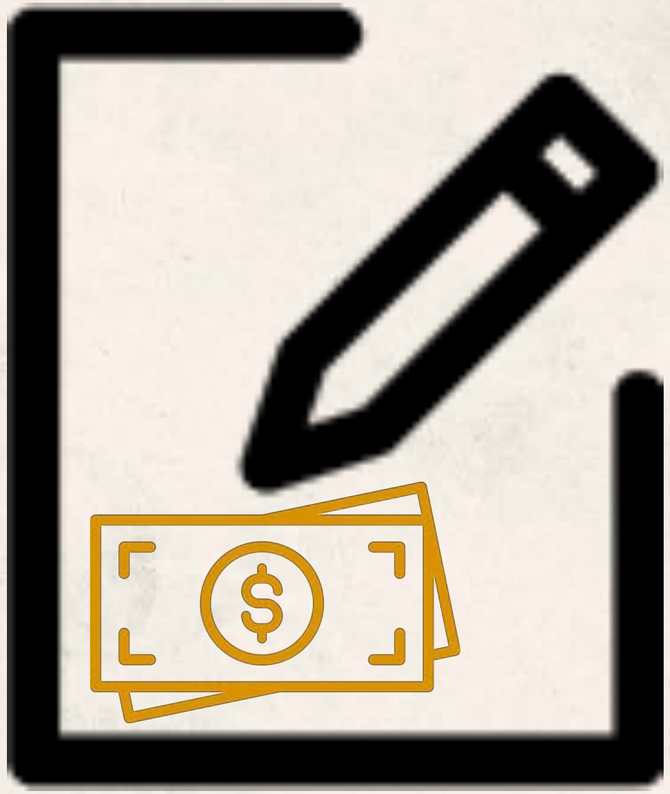
drama and intrigue

lavish excess and wish fulfillment

creepy, bizarre, and disturbing

violence, peril, and pranks

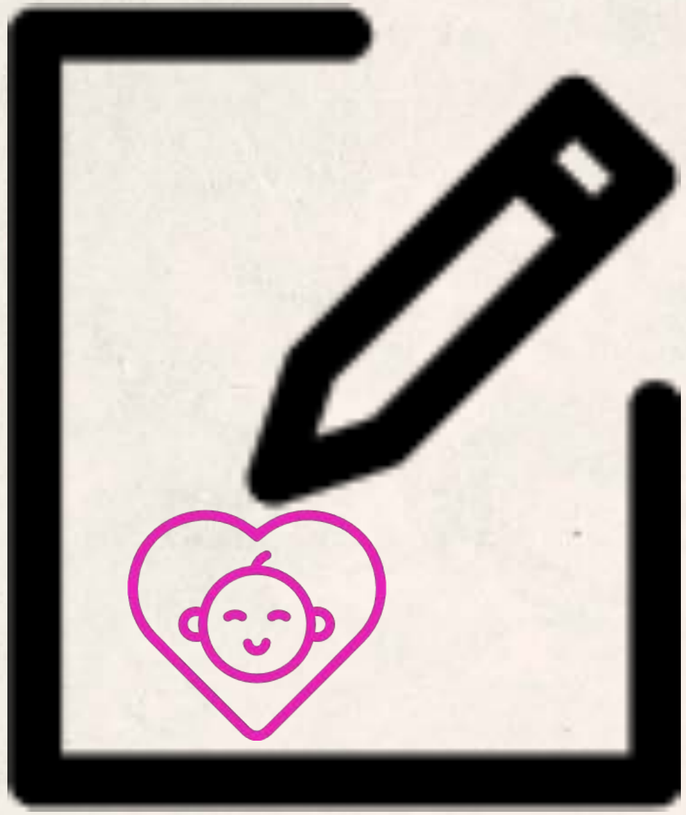
Radesky, Jenny, et al. "Algorithmic Content Recommendations on a Video-Sharing Platform Used by Children." JAMA Network Open 7.5 (2024): e2413855-e2413855.



PROFIT CENTEERED DESIGN

≠

CHILD CENTEERED DESIGN



Pediatric Mental Health Disorders

Pediatric Mental Health Disorders

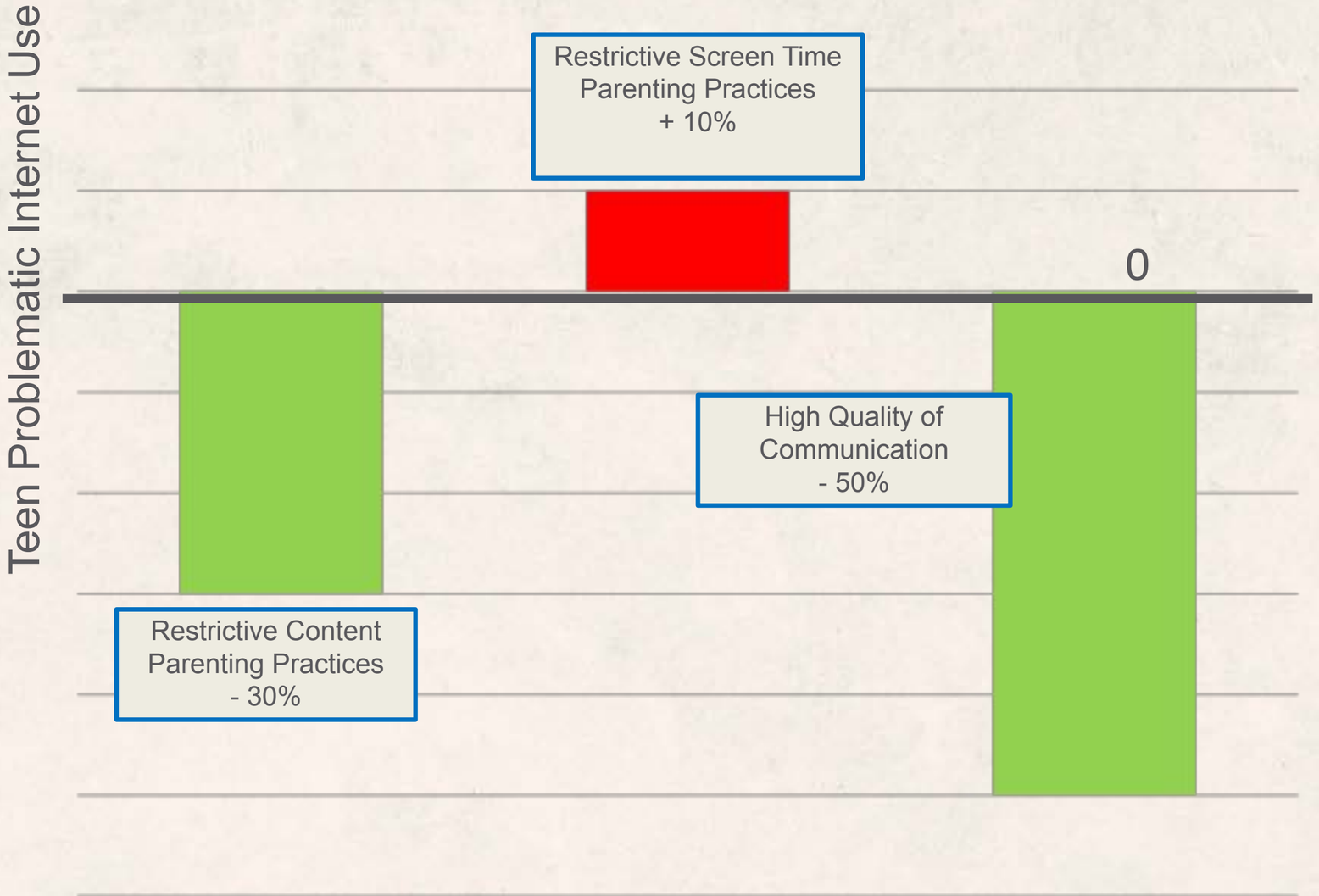
PROBLEMATIC INTERNET USE

Risky, impulsive internet use, associated with preoccupations or urges, resulting in impairment

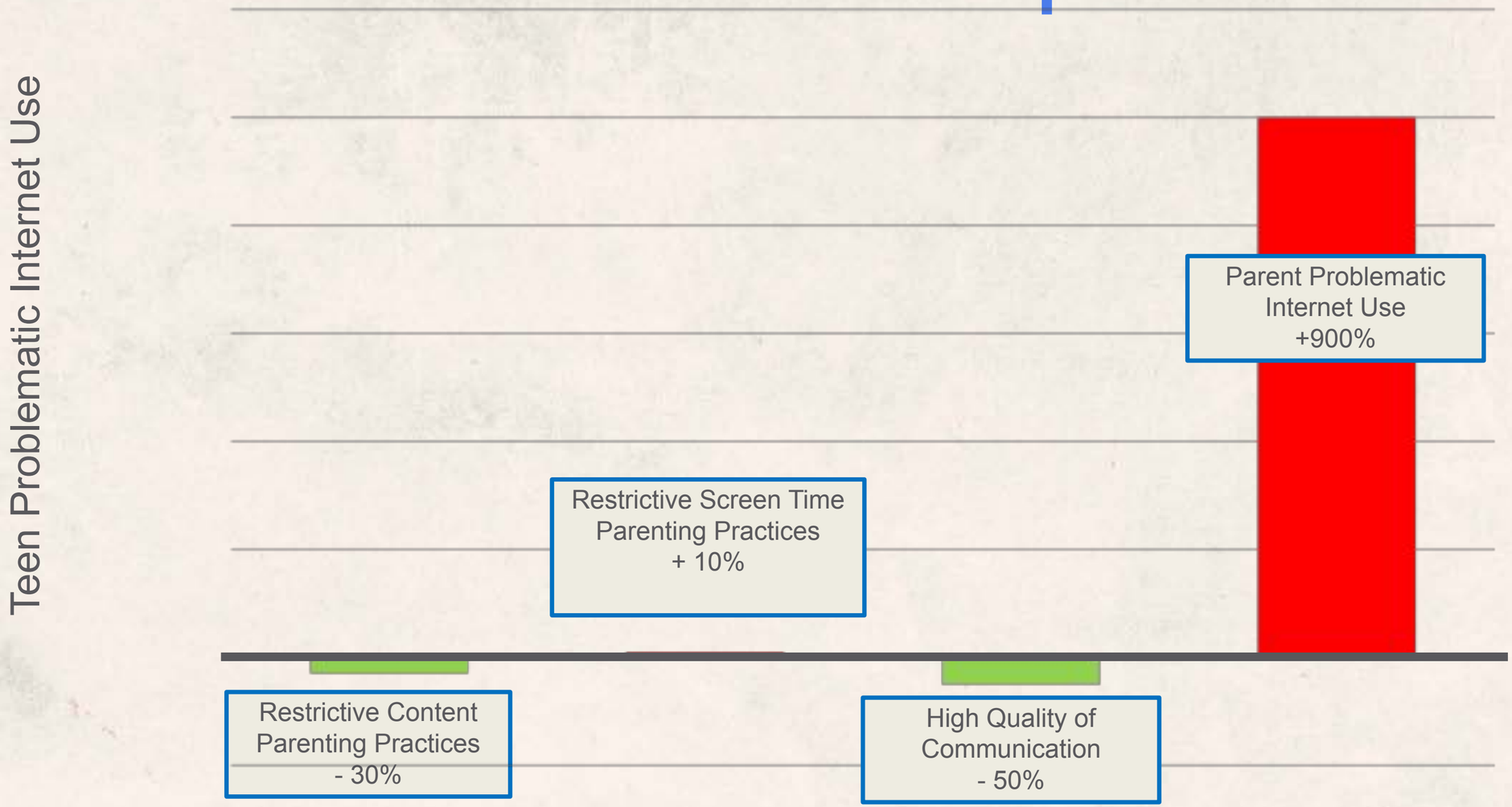
PROBLEMATIC INTERNET USE IS LIKE GETTING CAUGHT IN DISNEYLAND THAT NEVER CLOSES

Pediatric Mental Health Disorders

Relationship

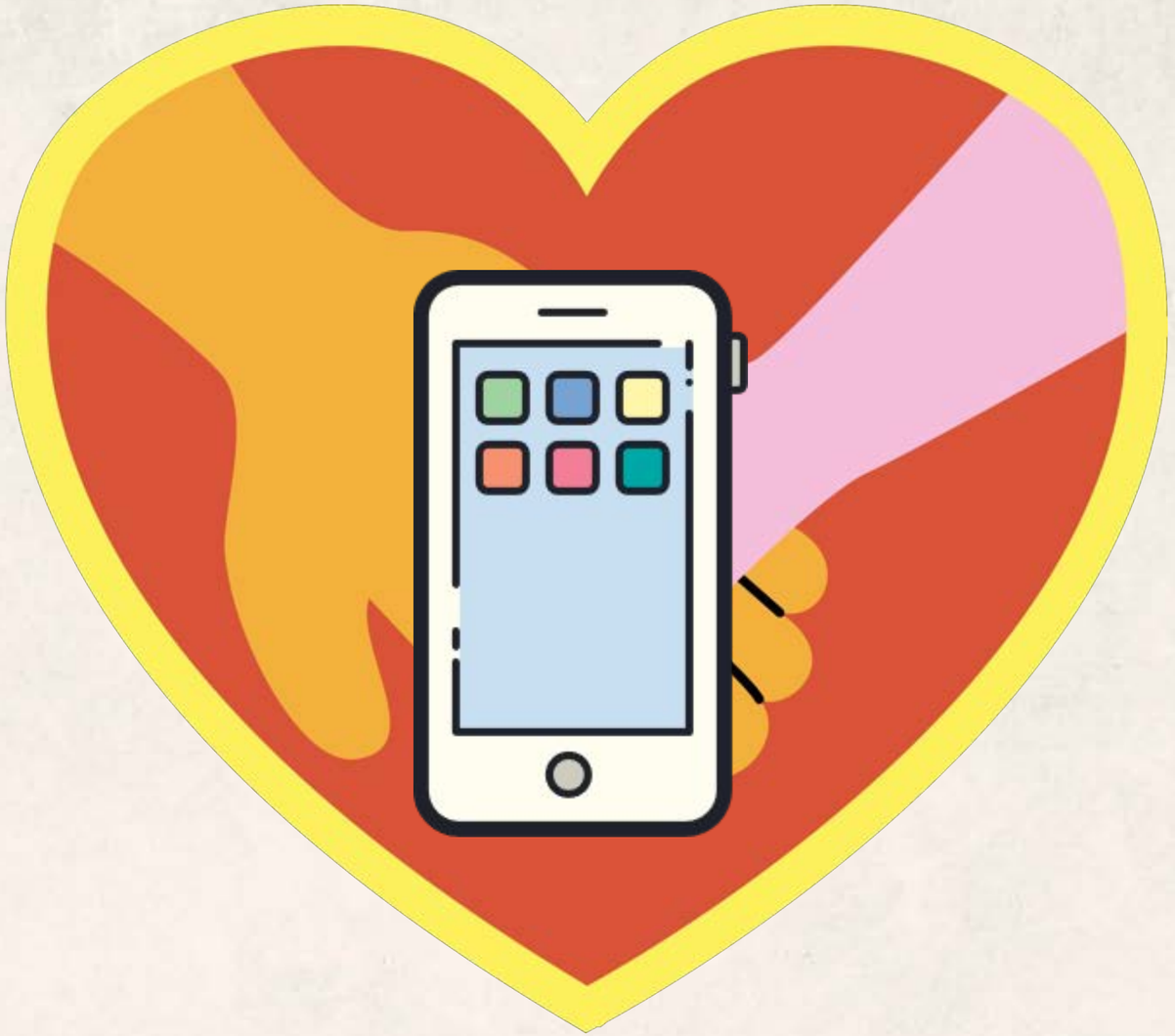


Relationship



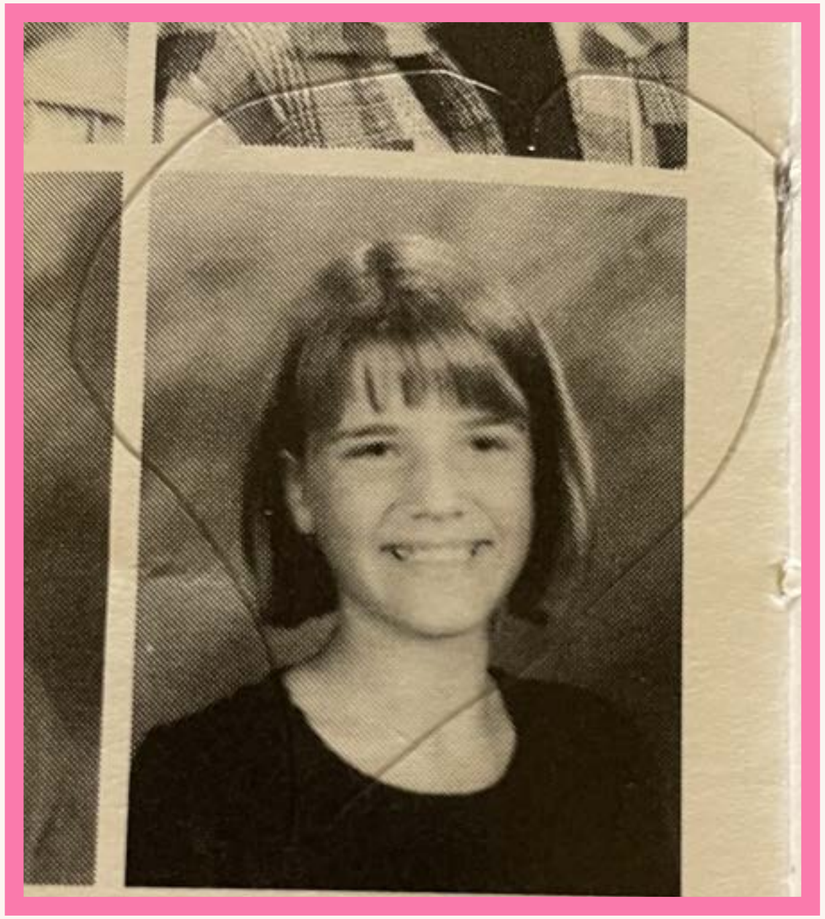
Parent Relationship

TECHNOFERENCE



Pediatric Mental Health Disorders

System and Community

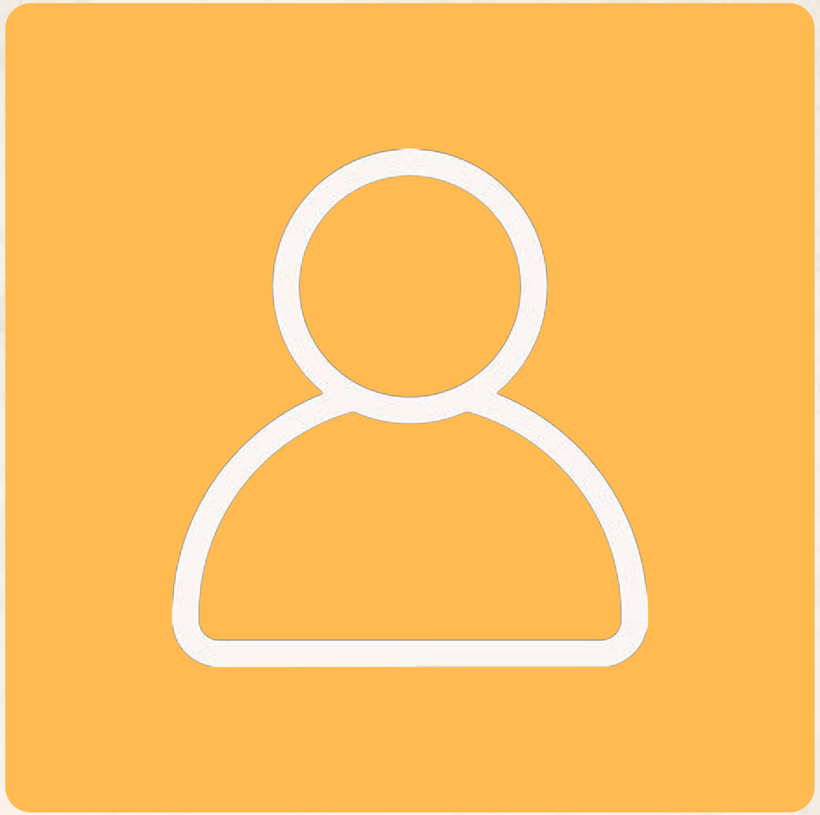


Pediatric Mental Health Disorders

“Sometimes I'll get notifications that wake me up at like 2:00, 12:00, really early in the morning. And it's an update from a classroom, and it's just notifications from classes. I'm like, ‘I'm trying to get to sleep. This isn't helping.’”

Practical Steps

Individual



Individual

Provide Education on Healthy Digital Habits
- Excessive
- Disruptive
- Night-time

Recognize Problematic Internet Use
- PRIUSS-3
- PMUM-SF

Monitor for Mental Health Disorders
- Anxiety
- Depression
- ADHD

Treatment for PIU
- Cognitive Behavioral Therapy

Relationship

Recommendations

BE PRESENT

BE FAMILIAR WITH TECH

PRESCRIBE FAMILY FUN

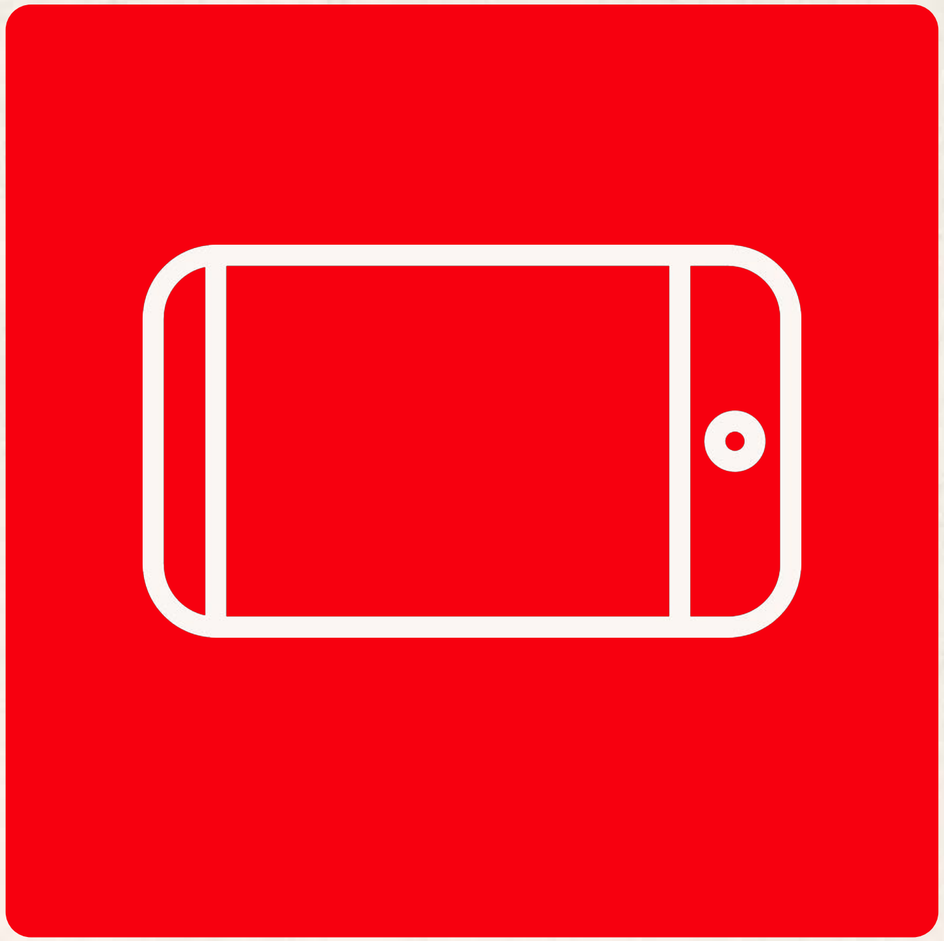
Resources

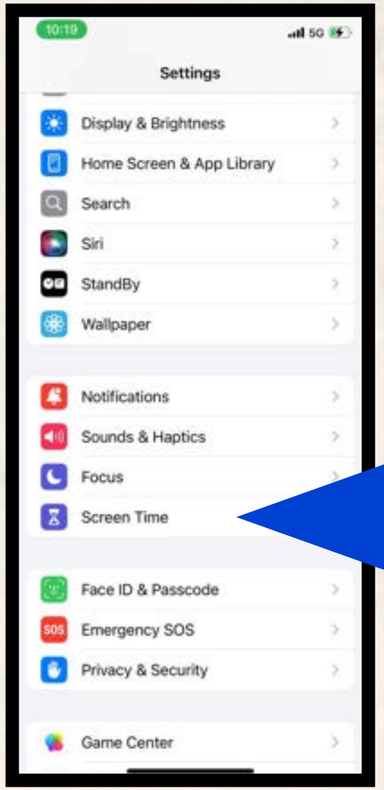
AAP CENTER OF EXCELLENCE ON SOCIAL MEDIA AND YOUTH MENTAL HEALTH

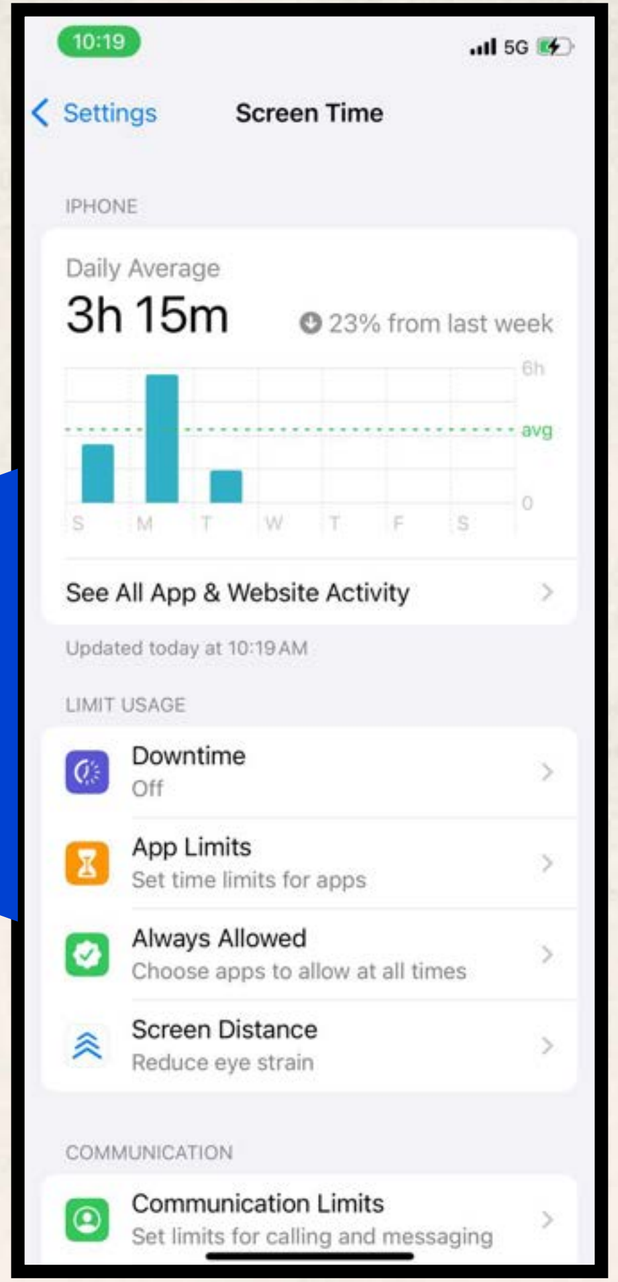
SCREEN SANITY

COMMON SENSE MEDIA

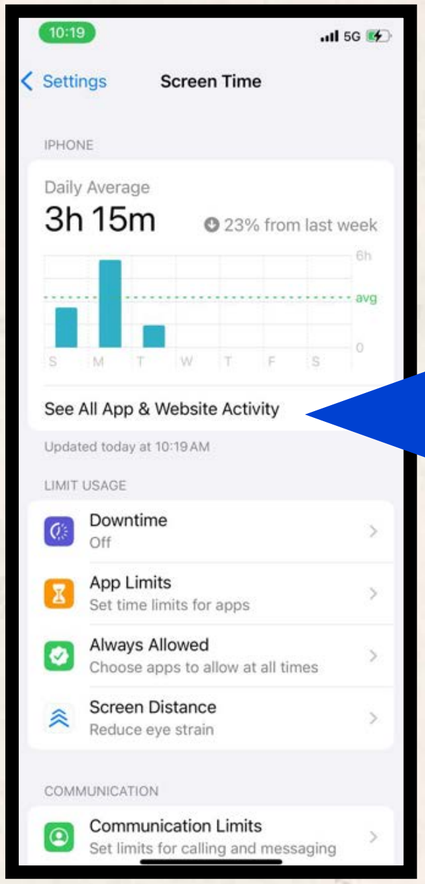
Digital Media

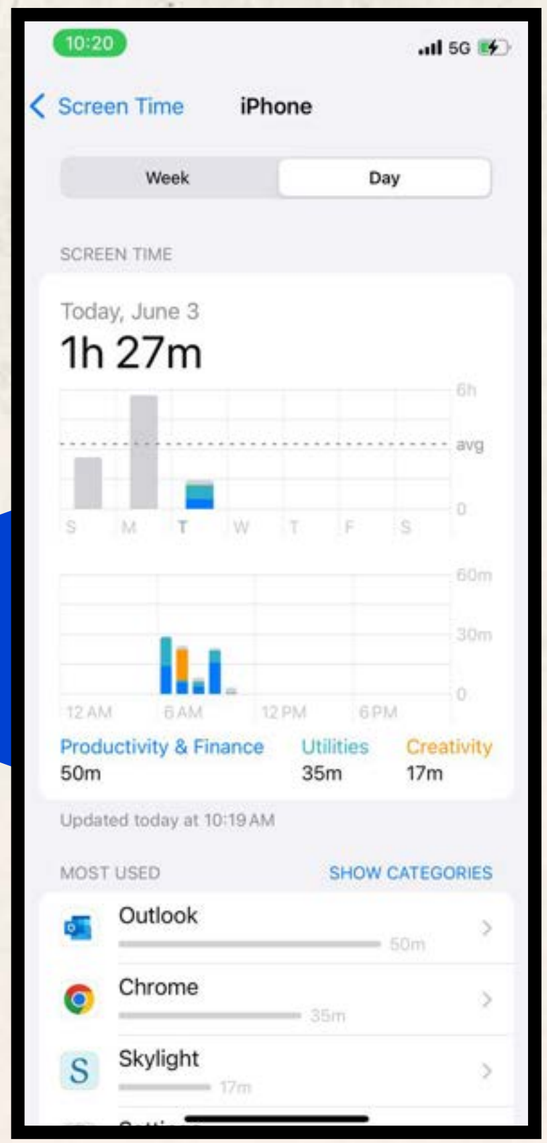


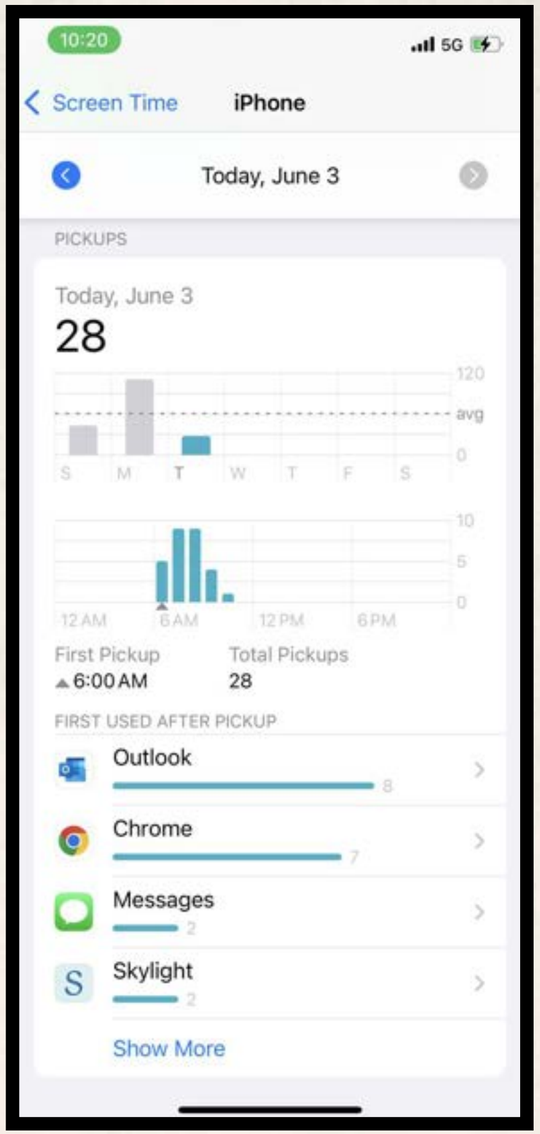


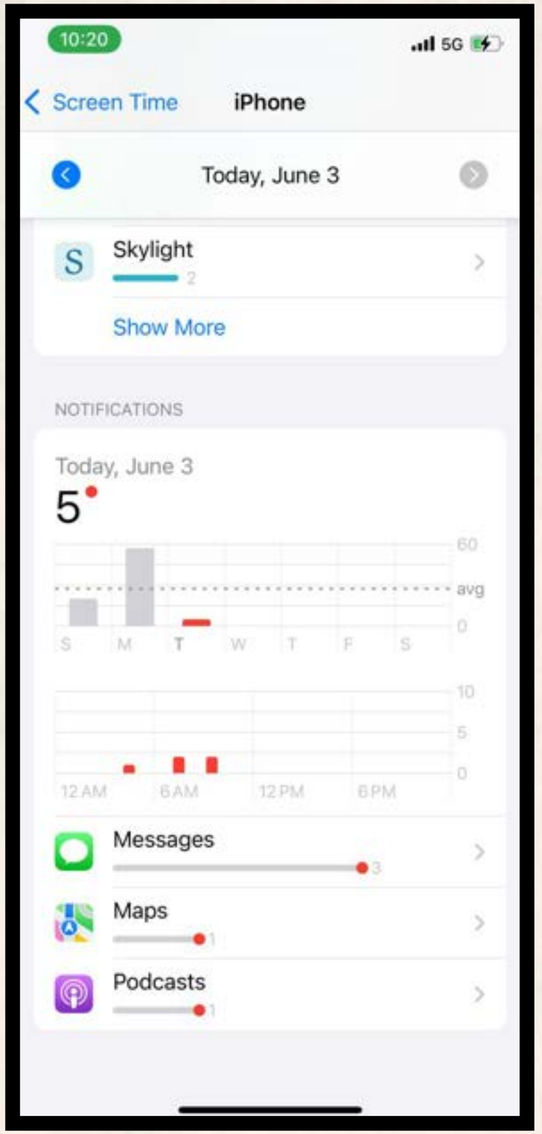


Passive Sensing

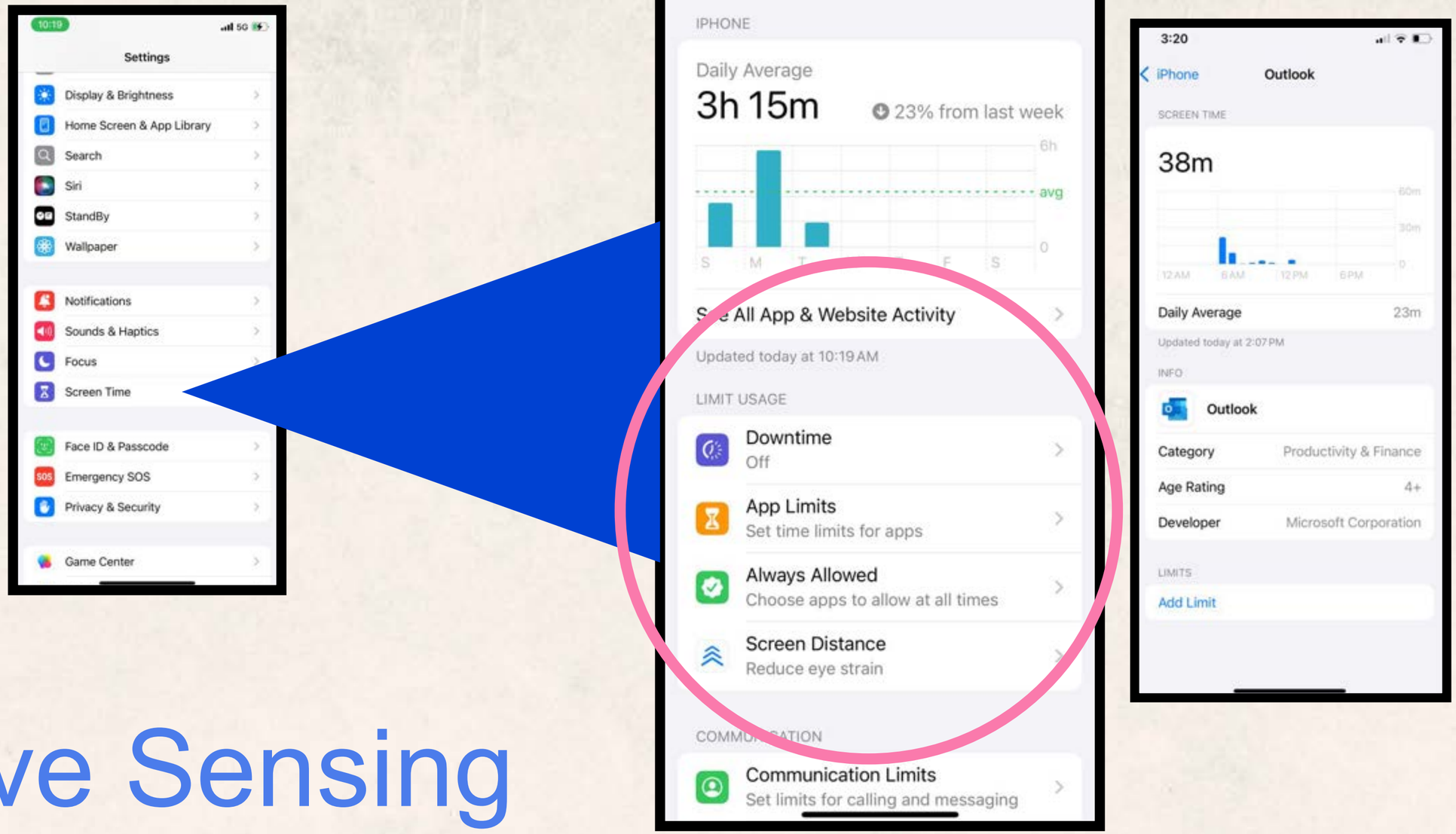








Passive Sensing



Passive Sensing

Digital Media

“DUMB” DEVICE

MONITORING SOFTWARE

ROUTER LEVEL

Summary

- Problematic internet use is a known risk factor for experiencing harm from social media
- There are multiple perspectives to consider when supporting youth social media use. Think social ecological model!
- Relationships are the most critical protective factor in promoting healthy social media use

Thank you!

CMKC Research Mentors

- Jordan Carlson, PhD
- Kim Randell, MD
- Dana Bakula, PhD
- Ayanda Chakawa, PhD
- Kate Kyler, MD
- Rose Gelineau-Morel, MD

Community Partners

- Screen Sanity
- American Academy of Pediatrics
- School districts

Children's Mercy Kansas City Developmental and Behavioral Health Team and Patients

- Keyna Chertoff
- Mark Connelly, PhD
- Elizabeth Hastings, MD
- Meredith Scafe, PhD
- Teddy Brisimitzakis, MD

American Academy of Pediatrics
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