



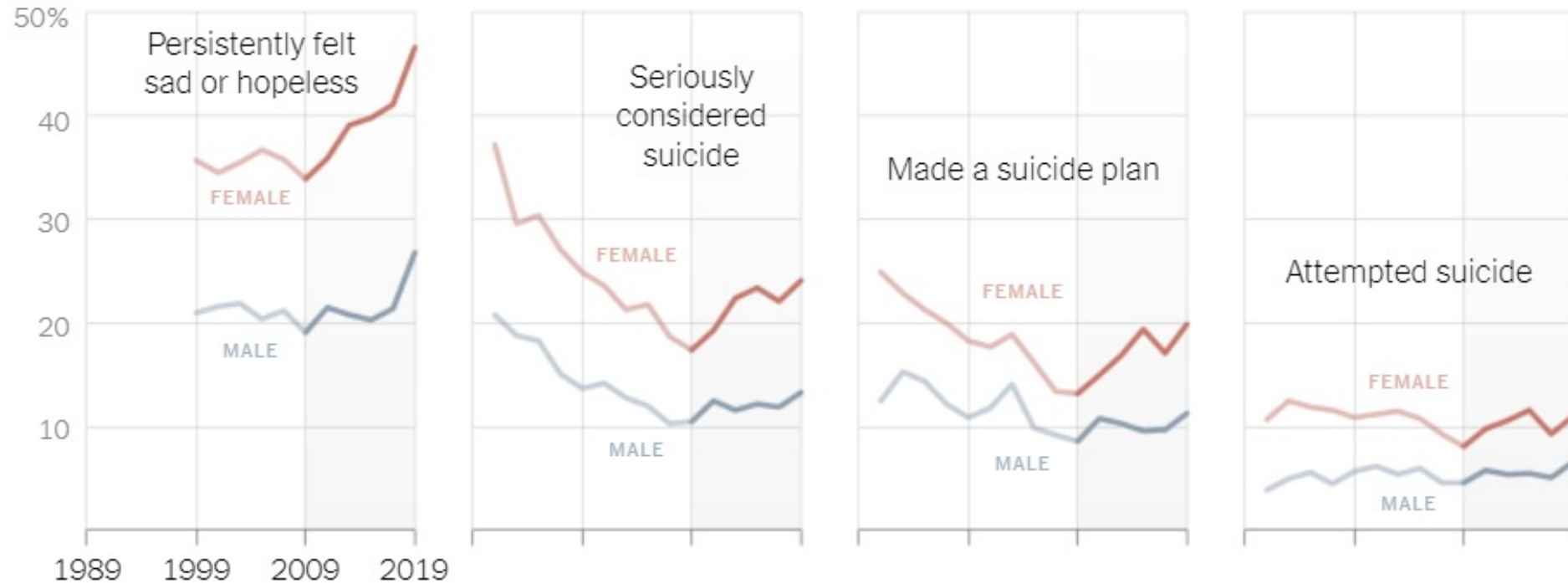
IS SOCIAL MEDIA HARMING MENTAL HEALTH?

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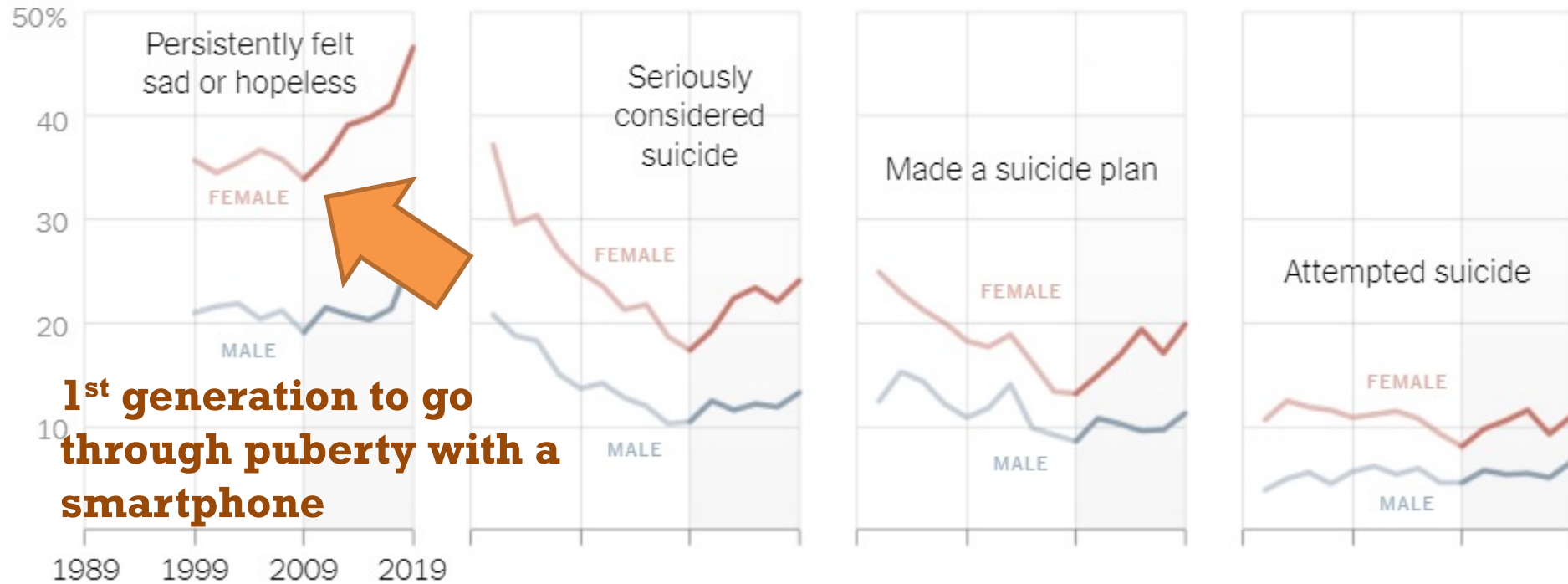
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A steep rise in mental health problems among adolescents, particularly girls



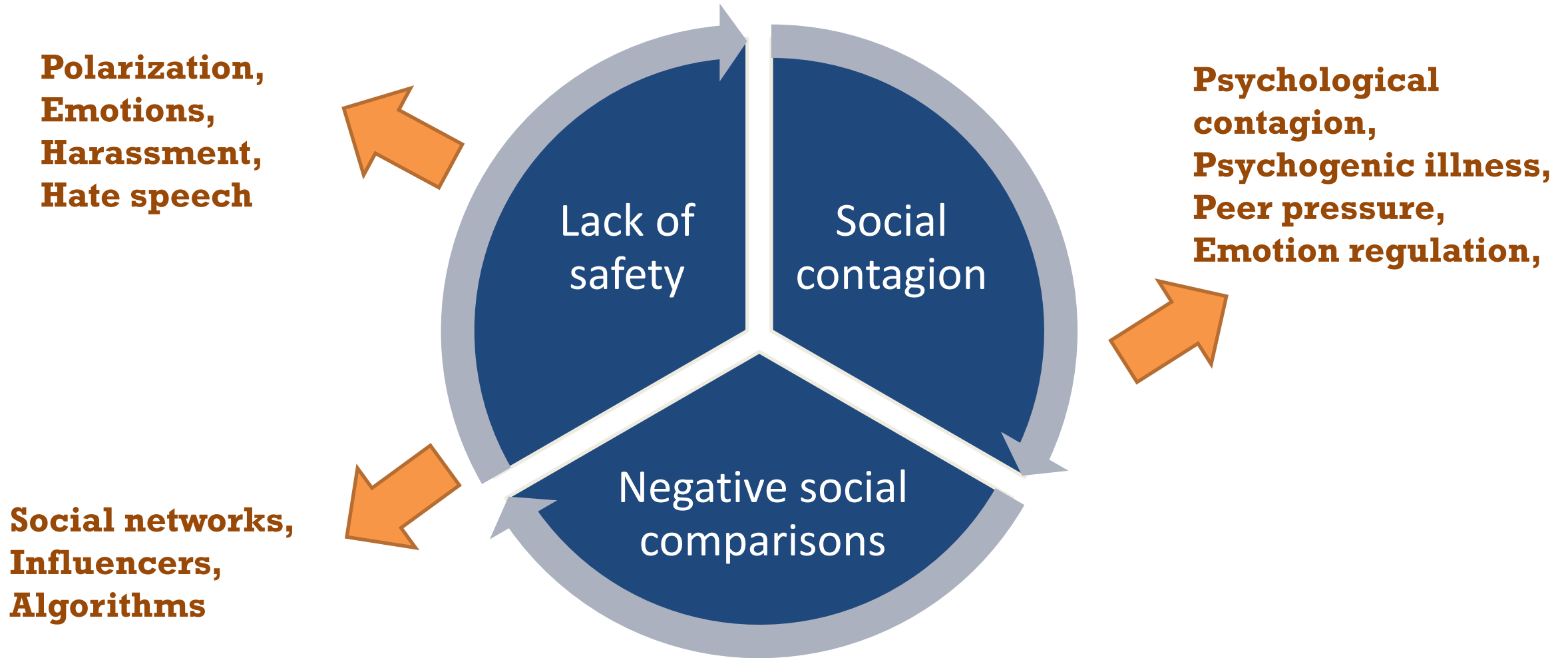
By The New York Times | Source: Centers for Disease Control and Prevention High School Youth Risk Behavior Survey

A steep rise in mental health problems among adolescents, particularly girls



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Why is technology so uniquely harmful to mental health? – the dark triad



Structure of social networks amplifies negative social comparisons



“On social media everyone seems like they are **far better than me**, which is **stressful** and makes me feel behind, unwanted and stupid.”

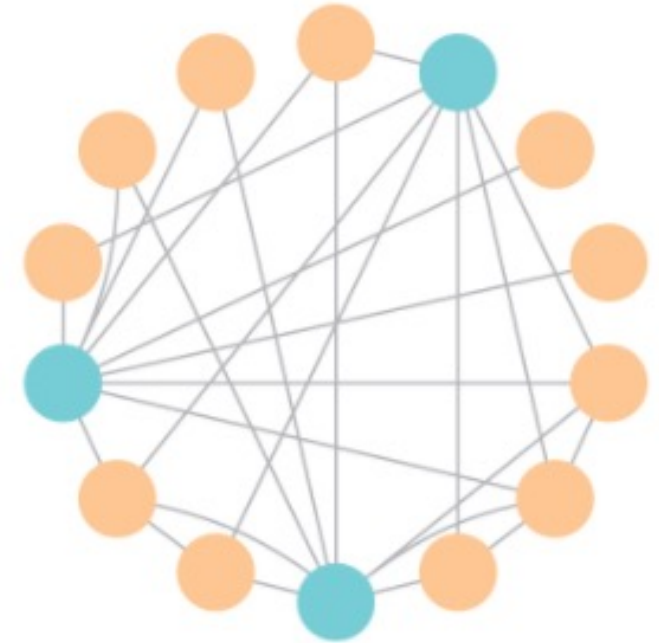
- teen girl

“I scroll through my Instagram and see models with **perfect bodies** and I feel **horrible about myself**.”

- teen girl

- **Social comparison** helps establish status within groups, helps groups coordinate, etc.
- **Friendship paradox distorts social comparisons:** A rare attribute in a social network (“perfect body”) is overrepresented within many social circles, feeding negative social comparisons.
- Influencers have an outsize and toxic effect

Blue is rare, yet all yellow nodes have majority of blue friends

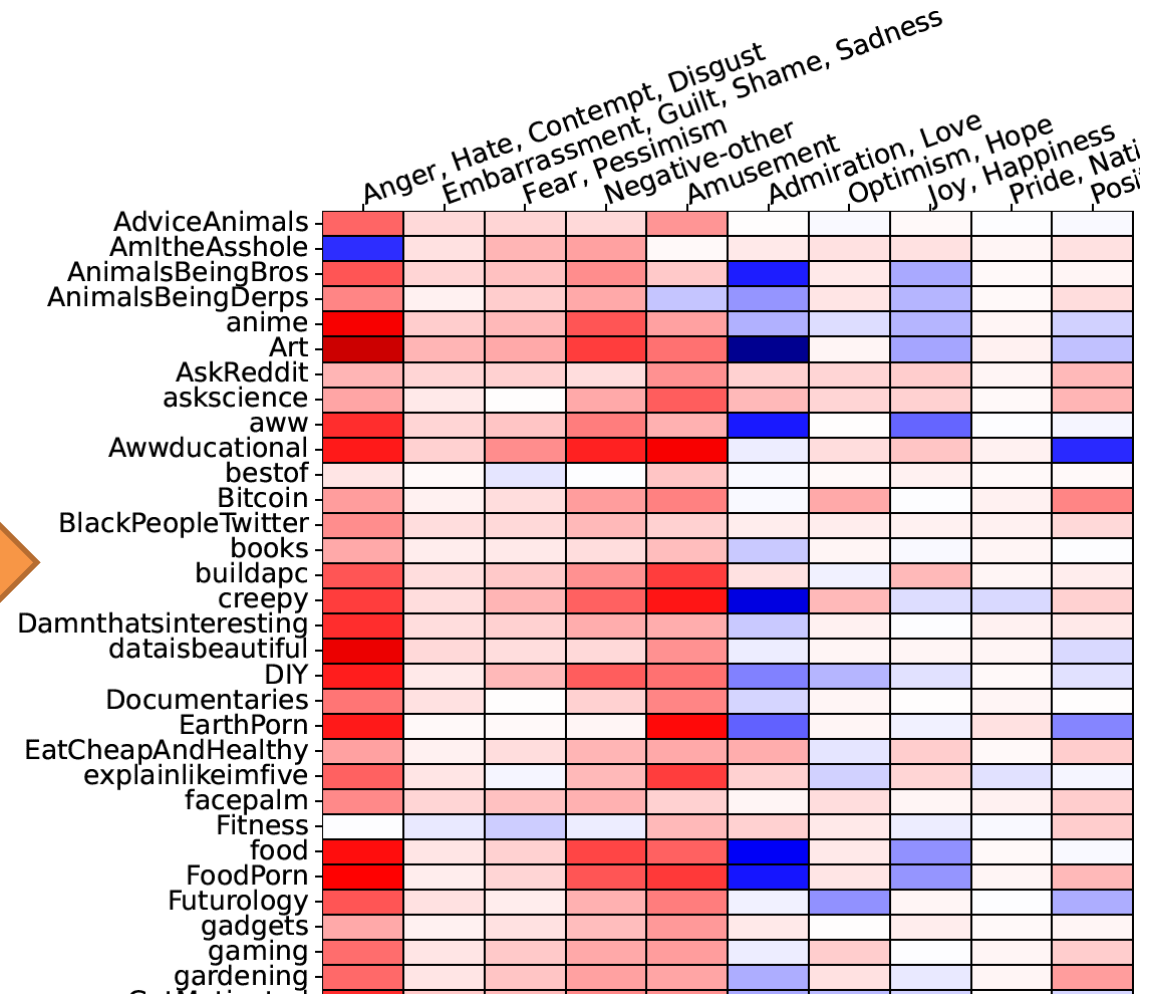
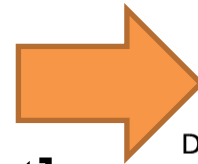


[Lerman, Wu & Yan (2016) The “Majority Illusion” in Social Networks, in *Plos One*.]

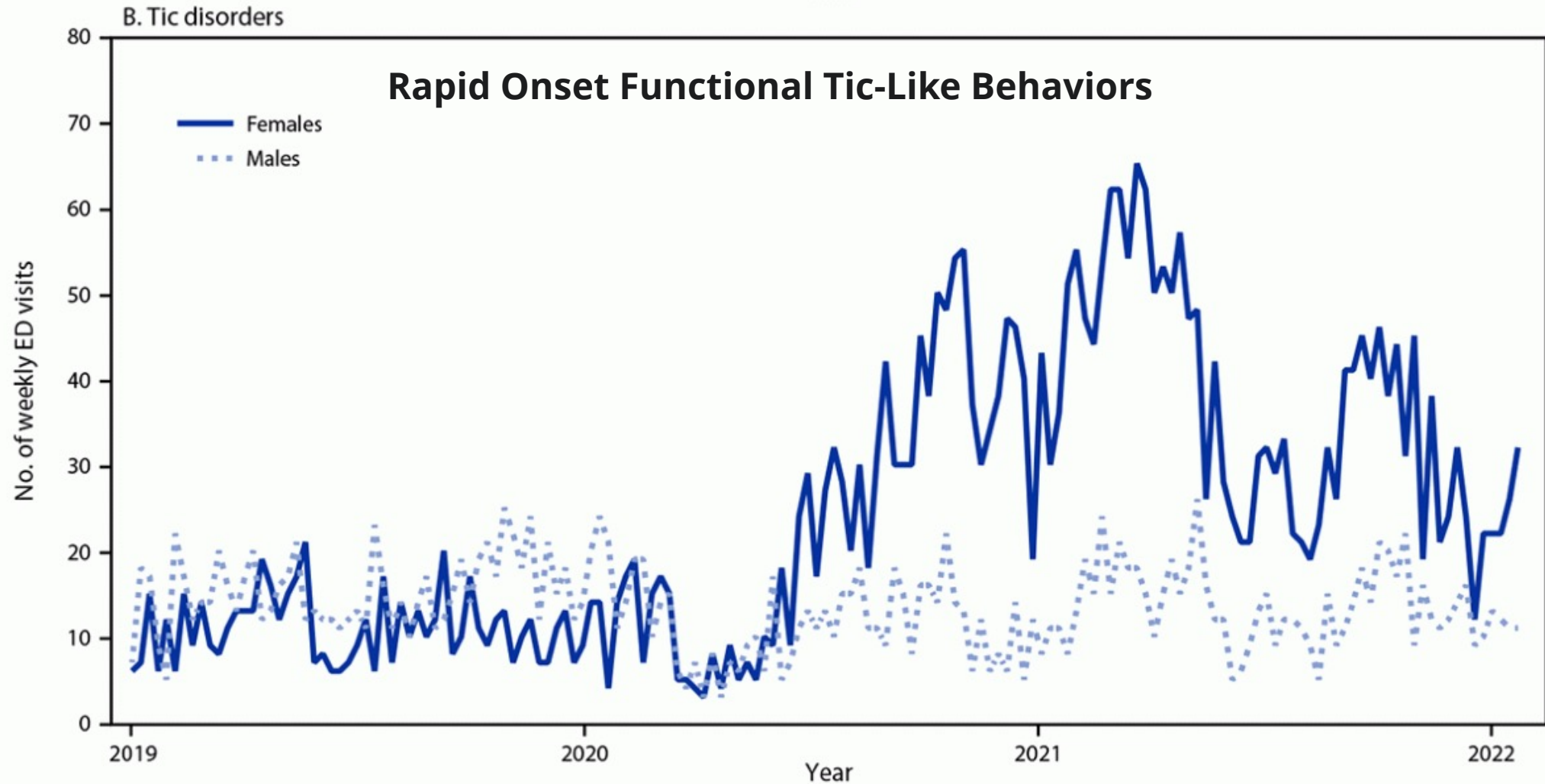


Lack of safety: Polarization harms emotions

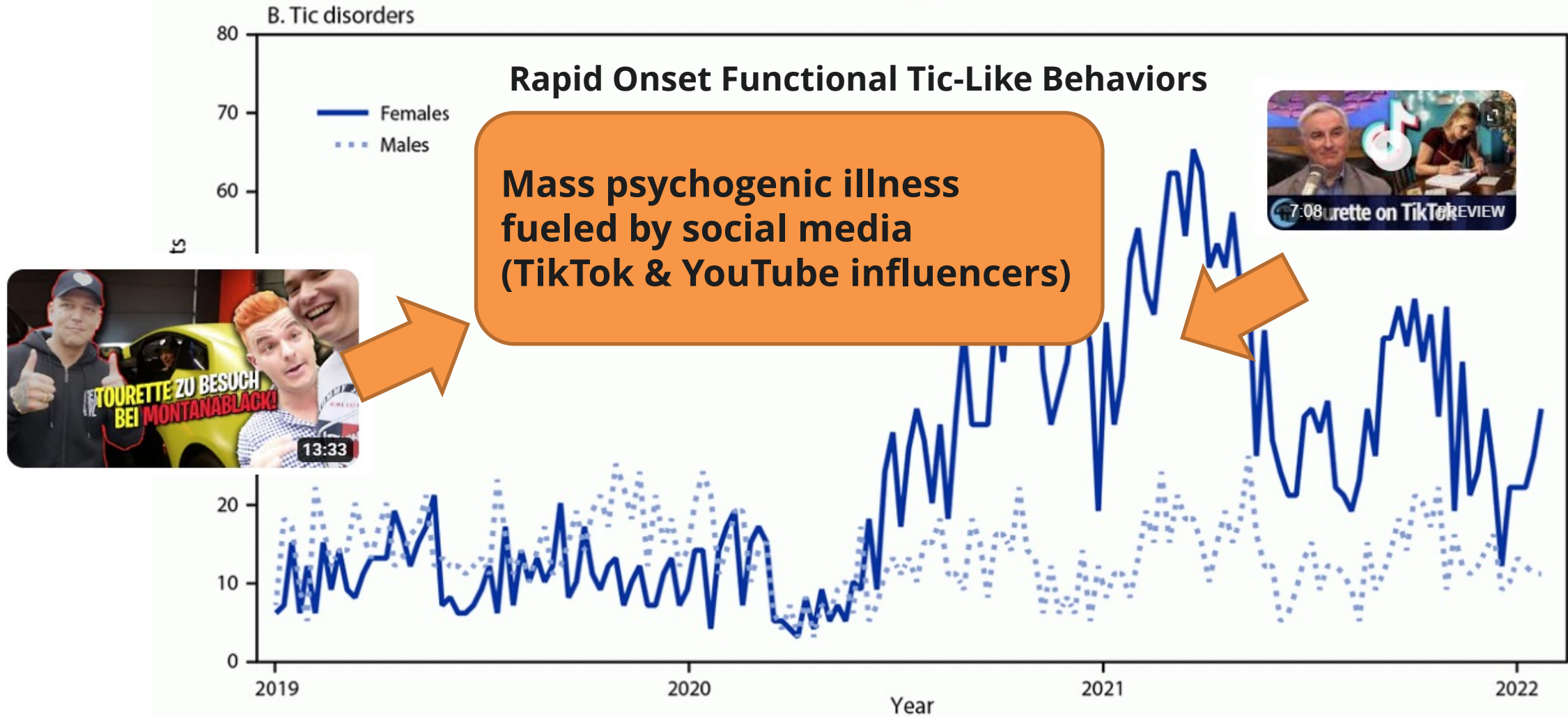
- Online interactions are often negative
- Polarization feeds negative emotions and reduces positive emotions
- Our study of over 90 Reddit communities shows that controversial comments shift the emotional tone of discussions
 - Increase negative emotions
 - Decrease positive emotions



Psychological contagion: Stressors spread online on a massive scale



Psychological contagion: Stressors spread online on a massive scale



Technology for human flourishing



- *Develop AI tools to analyze social, language & biobehavioral data to understand human emotions, facilitate emotion regulation, promote wellbeing and resilience.*
- *Develop AI tools to strengthen online communities by facilitating healthy discourse, reducing toxicity and negative emotions, and promoting positive social interactions*
- *Develop AI tools to analyze social media data in real-time and at scale to monitor the integrity of global information eco-systems, polarization in online conversations, detect misinformation and malicious manipulation*