RSAConference2020

San Francisco | February 24 – 28 | Moscone Center

HUMAN ELEMENT

SESSION ID: MASH2-F03

#Psybersecurity: Mental Health Impact of Cyberattacks

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Let's ask Dr. Google: mental health

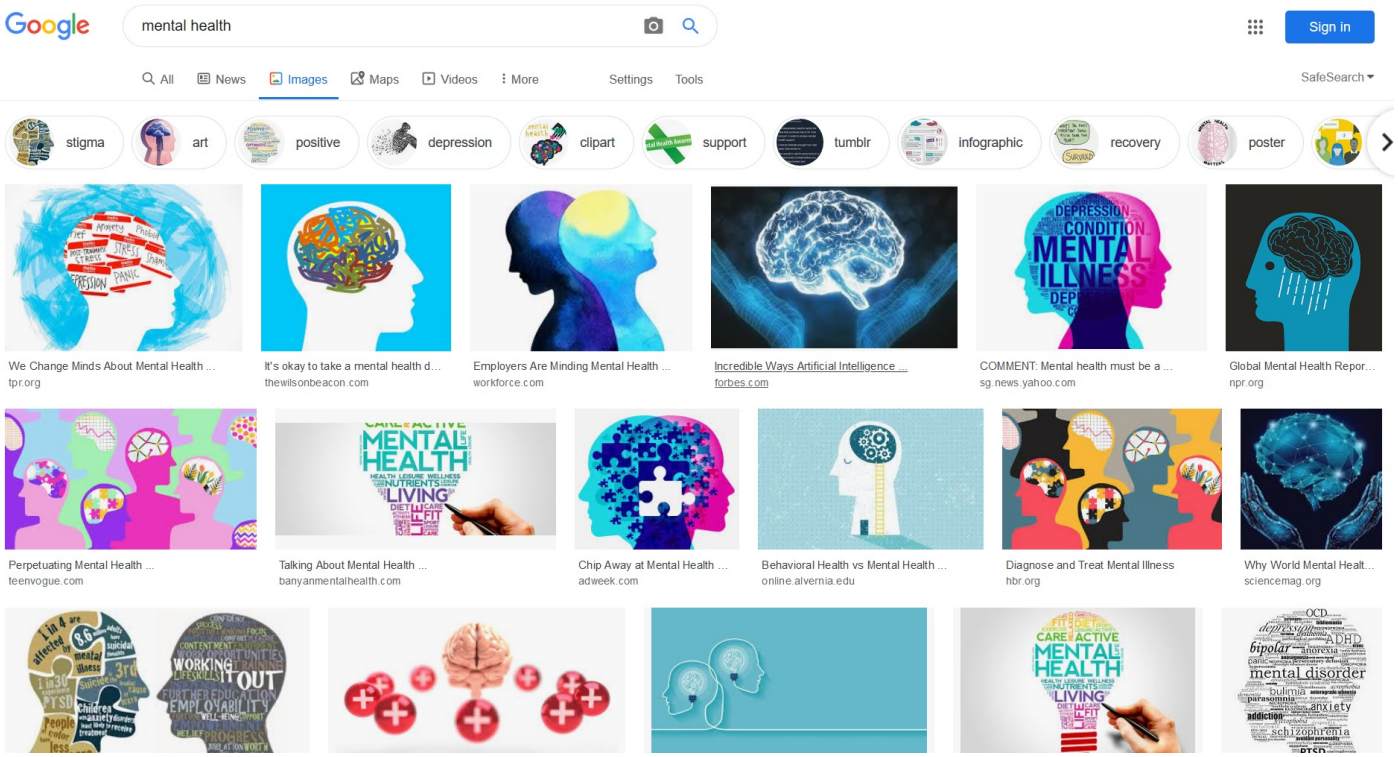
Google

mental health

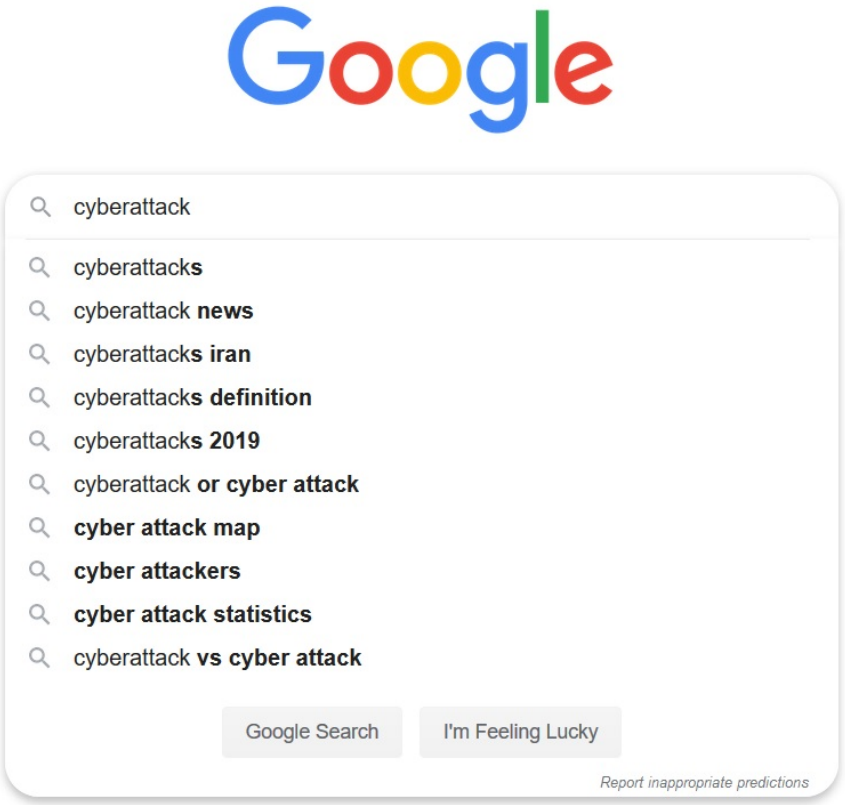
- mental health
- mental health **awareness month**
- mental health **awareness**
- mental health **quotes**
- mental health **day**
- mental health **services**
- mental health **first aid**
- mental health **sf**
- mental health **disorders**
- mental health **counselor**

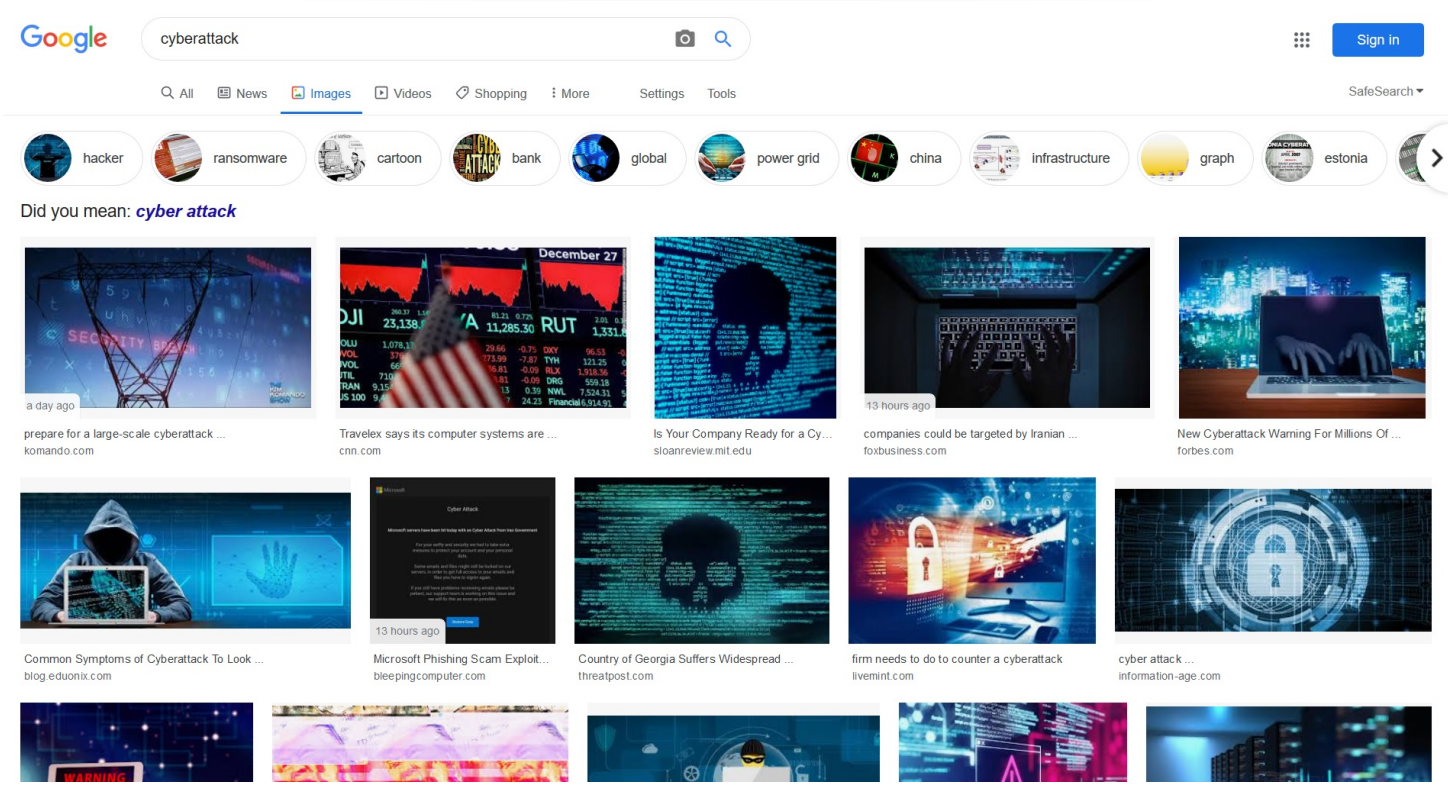
Google Search | I'm Feeling Lucky

Report inappropriate predictions



Let's ask Dr. Google: cyberattack





Cybercrime Cost:

2019 Crime Types *Continued*

By Victim Loss

Crime Type	Loss	Crime Type	Loss
BEC/EAC	$1,776,549,688	Employment	$42,618,705
Confidence Fraud/Romance	$475,014,032	Civil Matter	$20,242,867
Spoofing	$300,478,433	Harassment/Threats of Violence	$19,866,654
Investment	$222,186,195	Misrepresentation	$12,371,573
Real Estate/Rental	$221,365,911	IPR/Copyright and Counterfeit	$10,293,307
Non-Payment/Non-Delivery	$196,563,497	Ransomware	**$8,965,847
Identity Theft	$160,305,789	Denial of Service/TDoS	$7,598,198
Government Impersonation	$124,292,606	Charity	$2,214,383
Personal Data Breach	$120,102,501	Malware/Scareware/ Virus	$2,009,119
Credit Card Fraud	$111,491,163	Re-shipping	$1,772,692
Extortion	$107,498,956	Gambling	$1,458,118
Advanced Fee	$100,602,297	Health Care Related	$1,128,838
Other	$66,223,160	Crimes Against Children	$975,311
Phishing/Vishing/Smishing/Pharming	$57,836,379	Hacktivist	$129,000
Overpayment	$55,820,212	Terrorism	$49,589
Tech Support	$54,041,053		
Corporate Data Breach	$53,398,278		
Lottery/Sweepstakes/Inheritance	$48,642,332		

Descriptors*

Social Media	$78,775,408	*These descriptors relate to the medium or tool used to facilitate the crime, and are used by the IC3 for tracking purposes only. They are available only after another crime type has been selected. Please see Appendix B for more information regarding IC3 data.
Virtual Currency	$159,329,101	

** **Regarding ransomware adjusted losses, this number does not include estimates of lost business, time, wages, files, or equipment, or any third party remediation services acquired by a victim. In some cases victims do not report any loss amount to the FBI, thereby creating an artificially low overall ransomware loss rate. Lastly, the number only represents what victims report to the FBI via the IC3 and does not account for victim direct reporting to FBI field offices/agents.**

https://pdf.ic3.gov/2019_IC3Report.pdf

Cybercrime Cost:

What is the mental health cost?

https://pdf.ic3.gov/2019_IC3Report.pdf

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The Cybersecurity Mental Health Landscape

Parallels between different fields

Medical Professions and Security Professions both involve:

- High stress work environments that are constantly changing
- Information that cannot be shared
- Making decisions with incomplete or unknown information
- Keeping up with new and more complex knowledge
- Always on alert
- Pressures from limited time and resources, team dynamics

Mental Health Stress and Cybersecurity

Challenges of the Profession:

- High expectations as first responders
- Words of thanks are rare
- Feelings of guilt when things are missed
- “Badge of Honor” to take on more responsibilities
- Finding holes and filling them

https://published-prd.lanyonevents.com/published/rsaus18/sessionsFiles/9378/P2P4-T07-Cybersecurity-Impact-on-Mental-Health-Managing-Stress-Building-Resilience.pdf

Mental Health Stress and Cybersecurity

Impact on Individuals:

- Can't "turn off" / Difficult to "get away" from work
- Limited social support
- Boundaries
- Work expectations and team dynamics

https://published-prd.lanyonevents.com/published/rsaus18/sessionsFiles/9378/P2P4-T07-Cybersecurity-Impact-on-Mental-Health-Managing-Stress-Building-Resilience.pdf

CDC Study: Suicide Rates by Occupation

TABLE 2. Rates of suicide per 100,000 population, by sex, and ranked overall by Standard Occupation Classification (SOC) group — 17 states, 2012*

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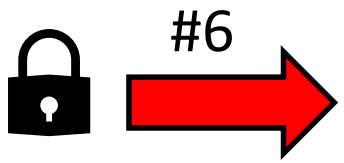
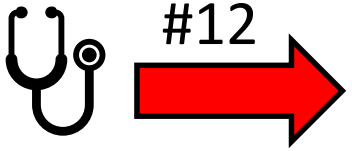
SOC code	Occupational group	Overall	Male	Female
45	Farming, fishing, and forestry	84.5	90.5	—†
47	Construction and extraction	53.3	52.5	—
49	Installation, maintenance, and repair	47.9	47.5	—
51	Production	34.5	39.5	10.8
17	Architecture and engineering	32.2	36.3	—
33	Protective service	30.5	34.1	14.1
27	Arts, design, entertainment, sports, and media	24.3	32.9	12.4
15	Computer and mathematical	23.3	32.8	12.5
53	Transportation and material moving	22.3	30.2	4.8
11	Management	20.3	27.4	8.4
23	Legal	18.8	24.2	13.9
29	Healthcare practitioners and technical	17.4	31.6	13.3
19	Life, physical, and social science	16.7	23.7	—
13	Business and financial operations	15.9	20.4	10.3
31	Health care support	14.6	32.9	11.8





https://www.cdc.gov/mmwr/volumes/65/wr/mm6525a1.htm

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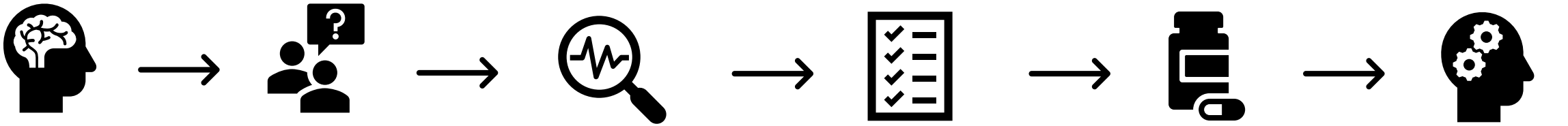
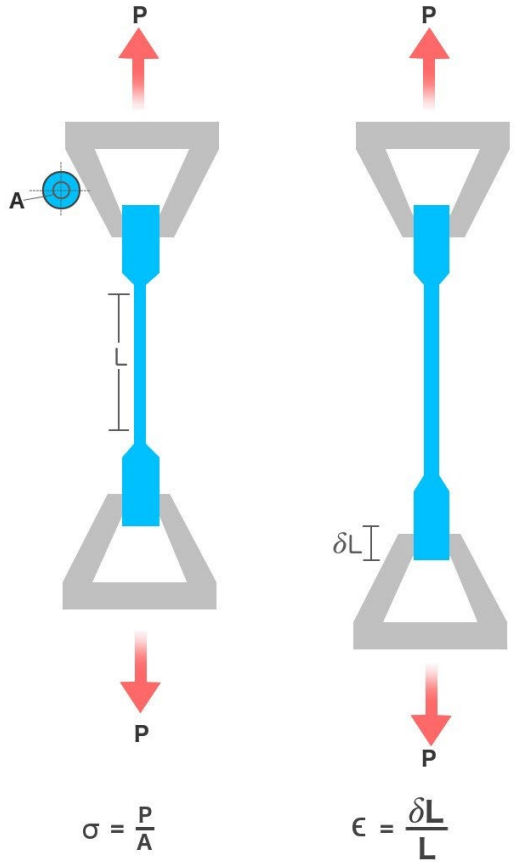
What happens to a person's mental health during a cyberattack?

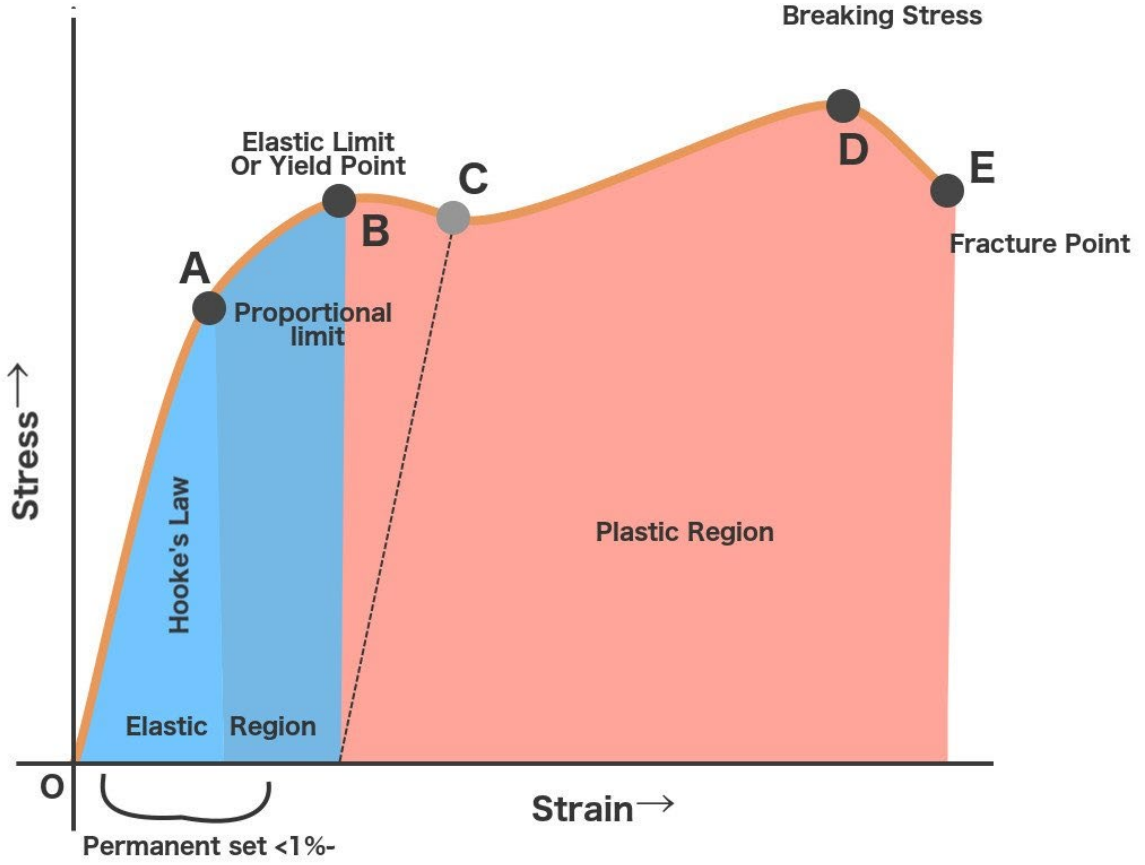
Psychiatric Care:



Problem → Interview → Diagnosis → Assessment → Treatment → Response

Stress - Strain Curve: Physics





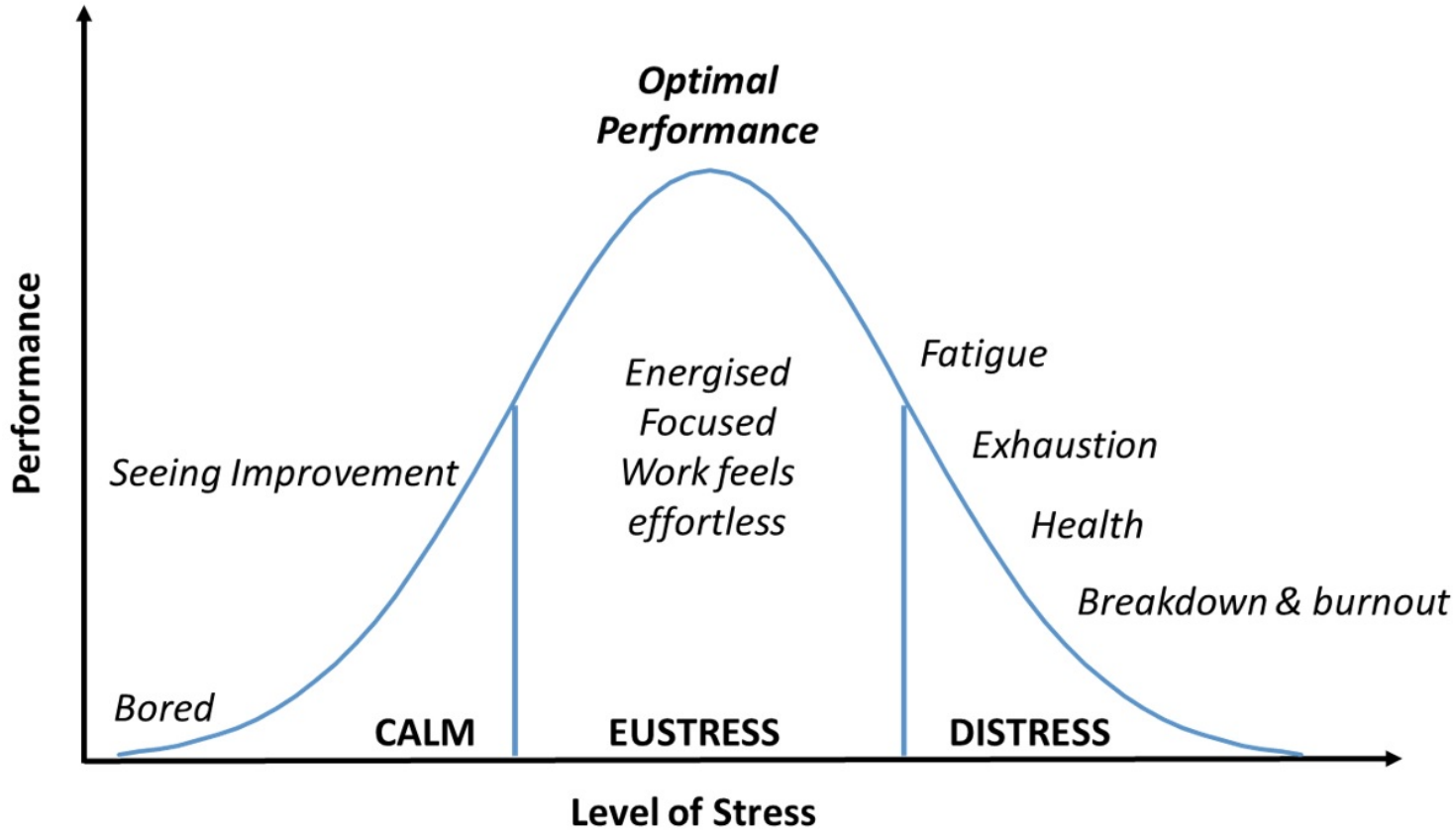
https://www.scienceabc.com/innovation/what-is-the-stress-strain-curve.html

Stress - Strain Curve: What about for humans?

Mental Stress is

- Difficult to measure
- Different meanings for different people
- “Invisible”
- Stigmatized

Yerkes - Dodson Curve



https://www.psychiatry.org/File%20Library/Psychiatrists/Practice/Well-being-and-Burnout/APA-Well-being-Ambassador-Toolkit-Challenges-and-Opportunities.pptx

Burnout:

- Emotional Depletion
- Detachment & Cynicism
- Low Personal Achievement
- Depersonalization

https://www.psychiatry.org/File%20Library/Psychiatrists/Practice/Well-being-and-Burnout/APA-Well-being-Ambassador-Toolkit-Challenges-and-Opportunities.pptx

Depression (DSM5 criteria):

5 or more of the following for 2 or more weeks:

- Feeling depressed in mood for most of the day
- Not feeling like doing things for fun or interest
- Notable weight loss or gain
- Problems sleeping or sleeping too much almost every day
- Movements have agitation or slowing
- Feeling fatigued or loss of energy
- Feeling worthless or too much guilt
- Problems concentrating
- Recurring thoughts of death or suicidal thoughts with or without a plan

Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5), American Psychiatric Association 2013.
https://www.psychiatry.org/File%20Library/Psychiatrists/Practice/Well-being-and-Burnout/APA-Well-being-Ambassador-Toolkit-Challenges-and-Opportunities.pptx

PTSD-like symptoms:

- Hypervigilance
- Avoidance
- Nightmares
- Flashbacks

Paranoia:

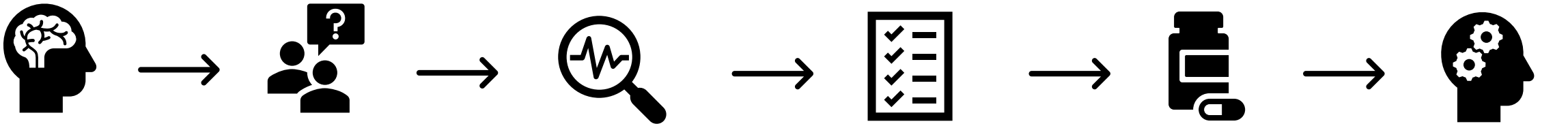
- Reality
- Perceptions
- Interpretations
- Thoughts, emotions, and behaviors
- Protective factor or destructive factor?

Examples of other issues:

- Anxiety
- Phobias
- Obsessions and compulsions
- Mood symptoms
- Mania and hypomania
- Psychosis
- Delusions
- Personality traits
- Substance use

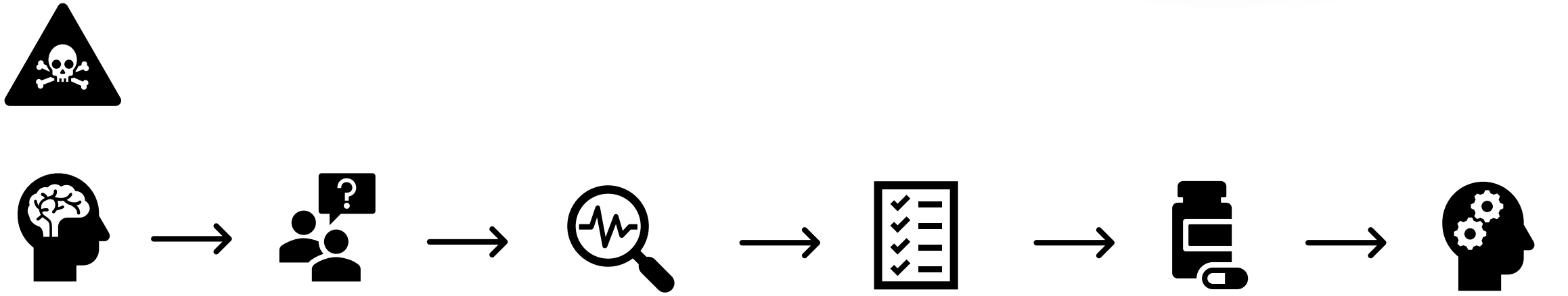
Can the psychiatric security of a person be compromised?

Psychiatric Care:



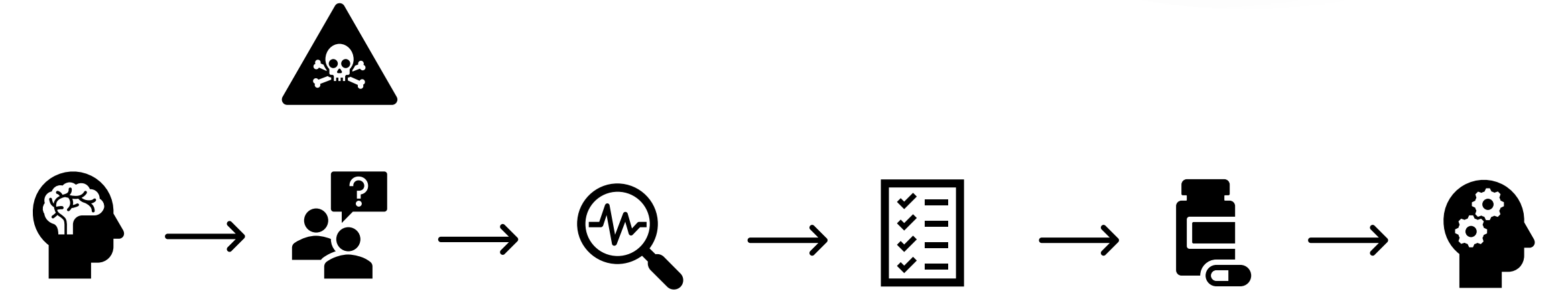
Problem → Interview → Diagnosis → Assessment → Treatment → Response

Psychiatric Engineering:



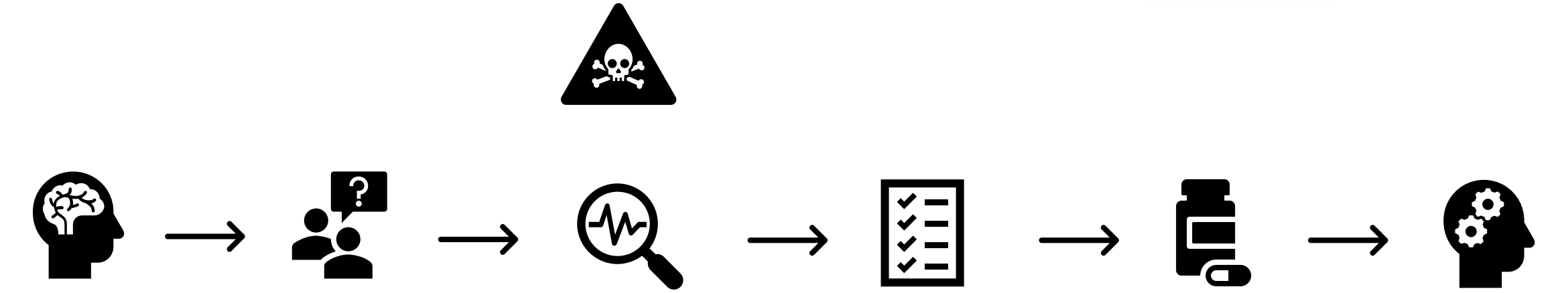
Patient's mental health condition is exploited, affecting the signs and symptoms.

Psychiatric Engineering:



Patient communicates the altered signs and symptoms to the psychiatrist.

Psychiatric Engineering:

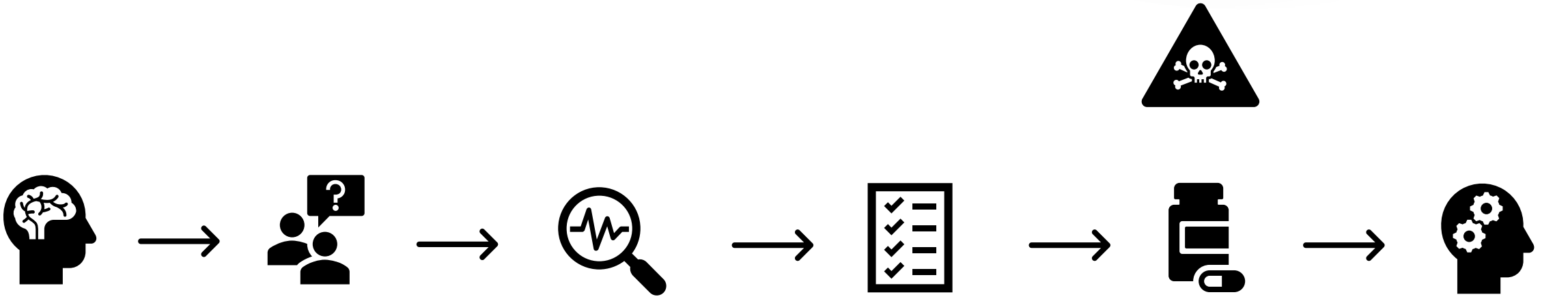


Patient receives an engineered psychiatric diagnosis.

Psychiatric Engineering:

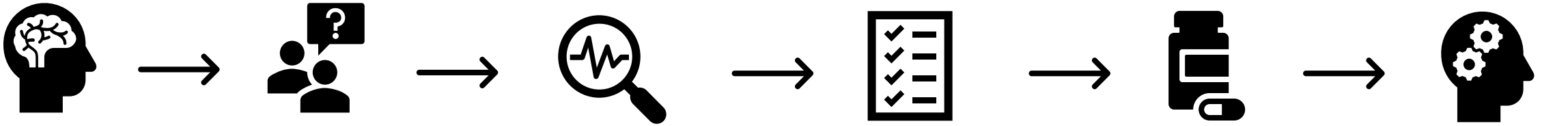
Assessment of the patient follows the altered pathway.

Psychiatric Engineering:



Resulting in an altered treatment.

Psychiatric Engineering:



Problem → Interview → Diagnosis → Assessment → Treatment → Response

Patient's psychiatric response is compromised.

Mental Health Attack Surface:

In addition to the technological exploits of a cyberattack, there can also be psychiatric exploits leading to a new category of attack surface: mental health.

Impacts on

- Health
- Information
- Infrastructure
- Security

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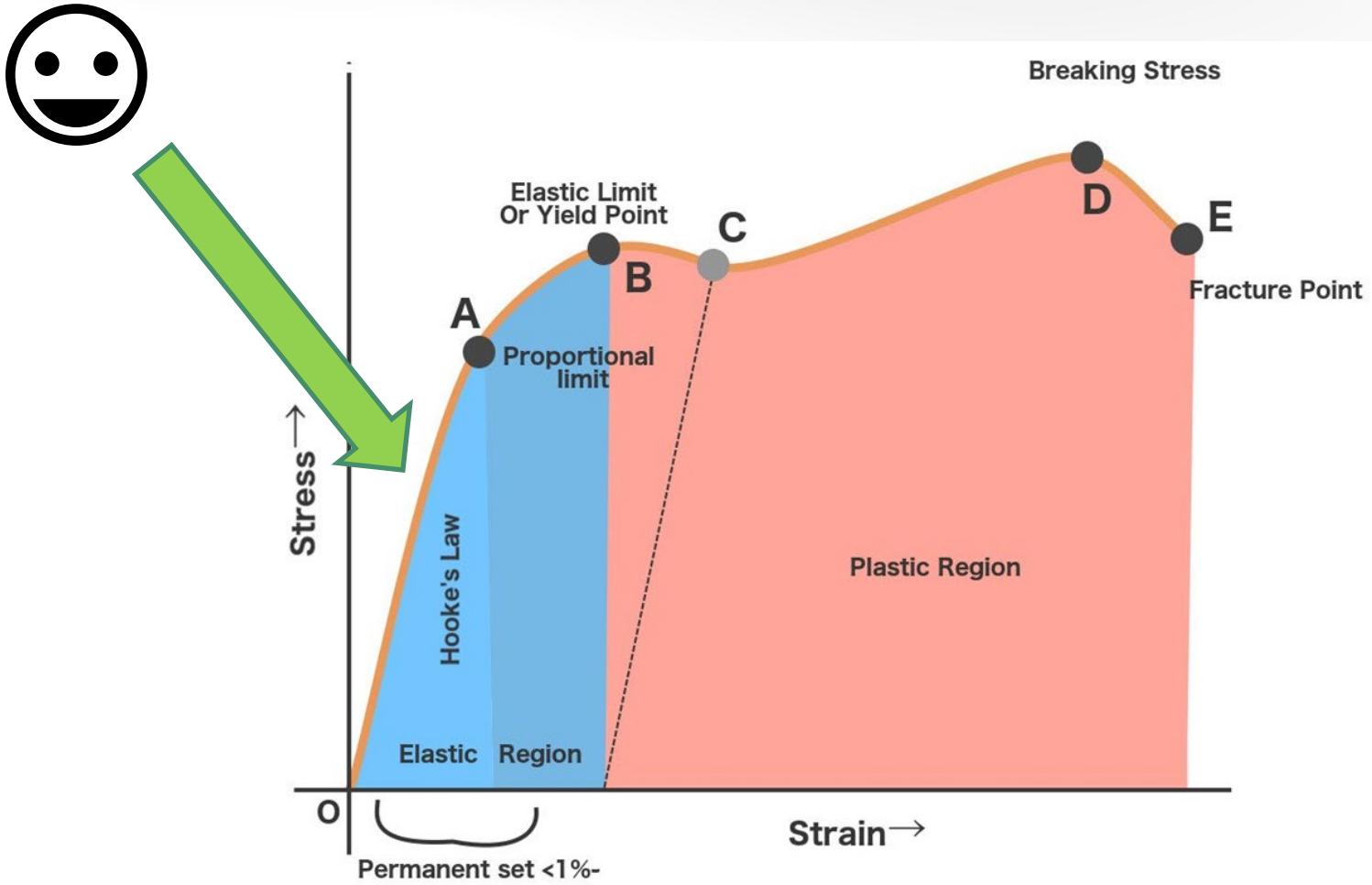
Building a more resilient human security network

Resilience:



https://www.scienceabc.com/innovation/what-is-the-stress-strain-curve.html

Education, Awareness, Constant Communication:

Knowledge:

- Know and recognize features of mental health conditions.
- Have constant awareness about one's own mental health status.
- Understand the dynamics between mental health and cybersecurity, with implications to both health and security.

Action:

- Continue dialogue about mental health within trusted networks.
- Have a support system built-in, including physicians and other mental health professionals when help is needed.
- Have a plan in place for an emergency mental health cybersecurity response.

Apply to Action

After this session:

- Take 5 minutes to reflect on your RSA Conference 2020 experience, thinking of mental health.

Next week:

- Make a mental health inventory for yourself, and identify strengths, vulnerabilities, and unknowns. Do the same for your organization at the level of an operating unit.
- Meet and have a conversation with 3 people at your workplace about mental health and cybersecurity.

In 3 months:

- Find a mentor who shares a similar mindset and with whom you can share thoughts about mental health.
- Organize and launch an initial event at your workplace about mental health and cybersecurity.

Physical, Cyber, and all Security: Starts with #Psybersecurity

Resources:

- American Psychiatric Association
  https://www.psychiatry.org/patients-families
- National Institute of Mental Health
  https://www.nimh.nih.gov/health/find-help/index.shtml
- World Health Organization
  https://www.who.int/mental_health/en/

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