

Mental Health

Alex Mariakakis

University of Toronto

Department of Computer Science



UNIVERSITY OF
TORONTO

Mental Health ≠ Mental Illness

Mental health includes our ability to manage our emotions, cope with stress, maintain positive relationships, and function effectively in daily life

Mental illness refers to a range of conditions that affect a person's thinking, mood, behavior, and overall functioning

People can have poor mental health without having a mental illness

MENTAL HEALTH VS MENTAL ILLNESS

WHAT IS MENTAL HEALTH?

Mental Health is a state of well being in which the person realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully and is able to make a contribution to his or her community.

INDICATORS OF GOOD MENTAL HEALTH

- RESILIENCY TO STRESS
- EMPATHY
- FLEXIBILITY
- SPIRITUALITY
- OPTIMISM
- STABLE RELATIONSHIPS
- PRODUCTIVE BEHAVIOR
- RESPECT FOR SELF & OTHERS
- SELF CONFIDENCE
- SENSE OF BELONGING
- SENSE OF WELL-BEING & CONTENTMENT
- CLEAR THINKING
- ABILITY TO TAKE CARE OF SELF & OTHERS

WHAT IS MENTAL ILLNESS?

Mental Illness is defined as a health condition that affects a person's thinking, feeling, behavior or mood. Such conditions may affect someone's ability to relate to others and function each day.

INDICATORS OF MENTAL ILLNESS

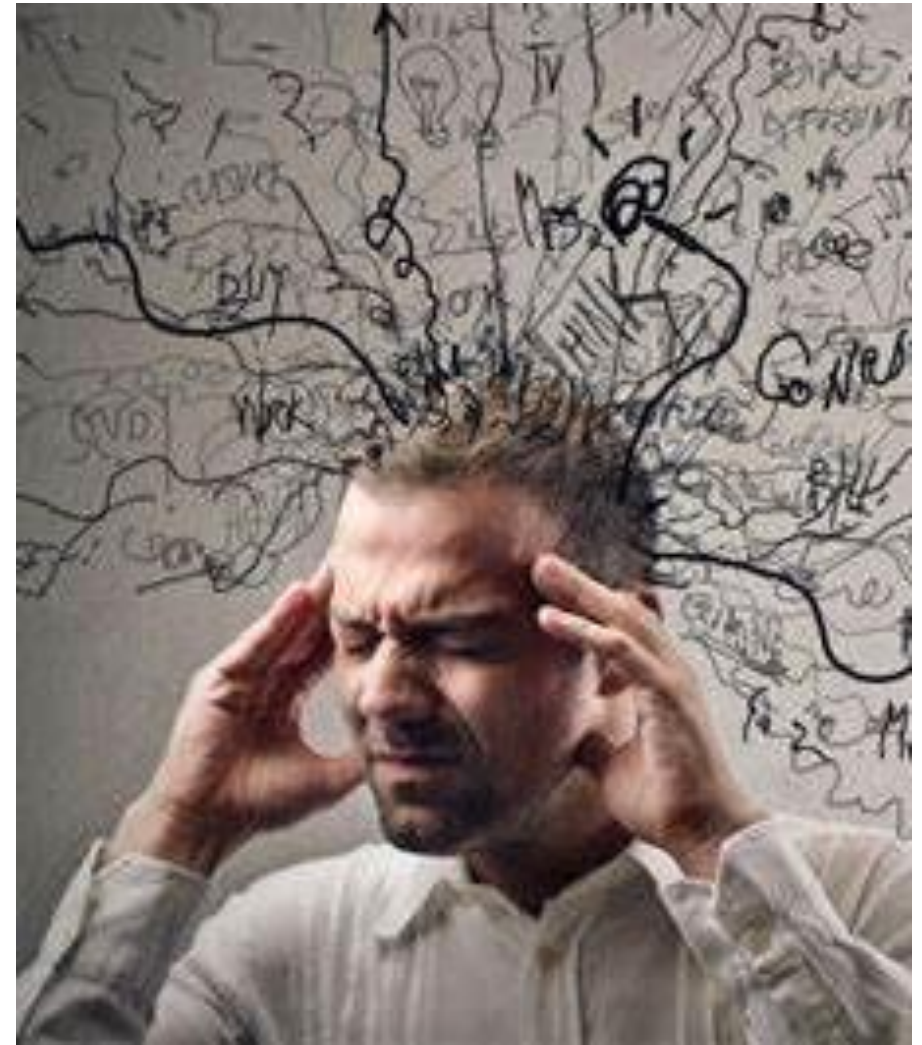
- PULLING AWAY FROM PEOPLE & USUAL ACTIVITIES
- FEELING NUMB OR LIKE NOTHING MATTERS
- FEELING HELPLESS OR HOPELESS
- EXPERIENCING SEVERE MOOD SWINGS
- THINKING OF HARMING YOURSELF OR OTHERS
- INABILITY TO PERFORM DAILY TASKS

Mental Health

There are technically various forms of stress:

- Physiological vs. psychological
- Eustress (good) vs. distress (bad)
- Acute (short-term) vs. chronic (long-term)

Can be influenced by our social, economic, geopolitical, and environmental circumstances



Mental Illness

In any given year, 1 in 5 people in Canada will personally experience a mental health problem or illness

Suicide is the second leading cause of death among youth and young adults between 15-34 years.

Disorder	Share of global population with disorder (2017) [difference across countries]	Number of people with the disorder (2017)	Share of males:females with disorder (2017)
Any mental health disorder	10.7%	792 million	9.3% males 11.9% females
<u>Depression</u>	3.4% [2-6%]	264 million	2.7% males 4.1% females
<u>Anxiety disorders</u>	3.8% [2.5-7%]	284 million	2.8% males 4.7% females
<u>Bipolar disorder</u>	0.6% [0.3-1.2%]	46 million	0.55% males 0.65% females
<u>Eating disorders (clinical anorexia & bulimia)</u>	0.2% [0.1-1%]	16 million	0.13% males 0.29% females
<u>Schizophrenia</u>	0.3% [0.2-0.4%]	20 million	0.26% males 0.25% females
<u>Any mental or substance use disorder</u>	13% [11-18%]	970 million	12.6% males 13.3% females
<u>Alcohol use disorder</u>	1.4% [0.5-5%]	107 million	2% males 0.8% females
<u>Drug use disorder (excluding alcohol)</u>	0.9% [0.4-3.5%]	71 million	1.3% males 0.6% females

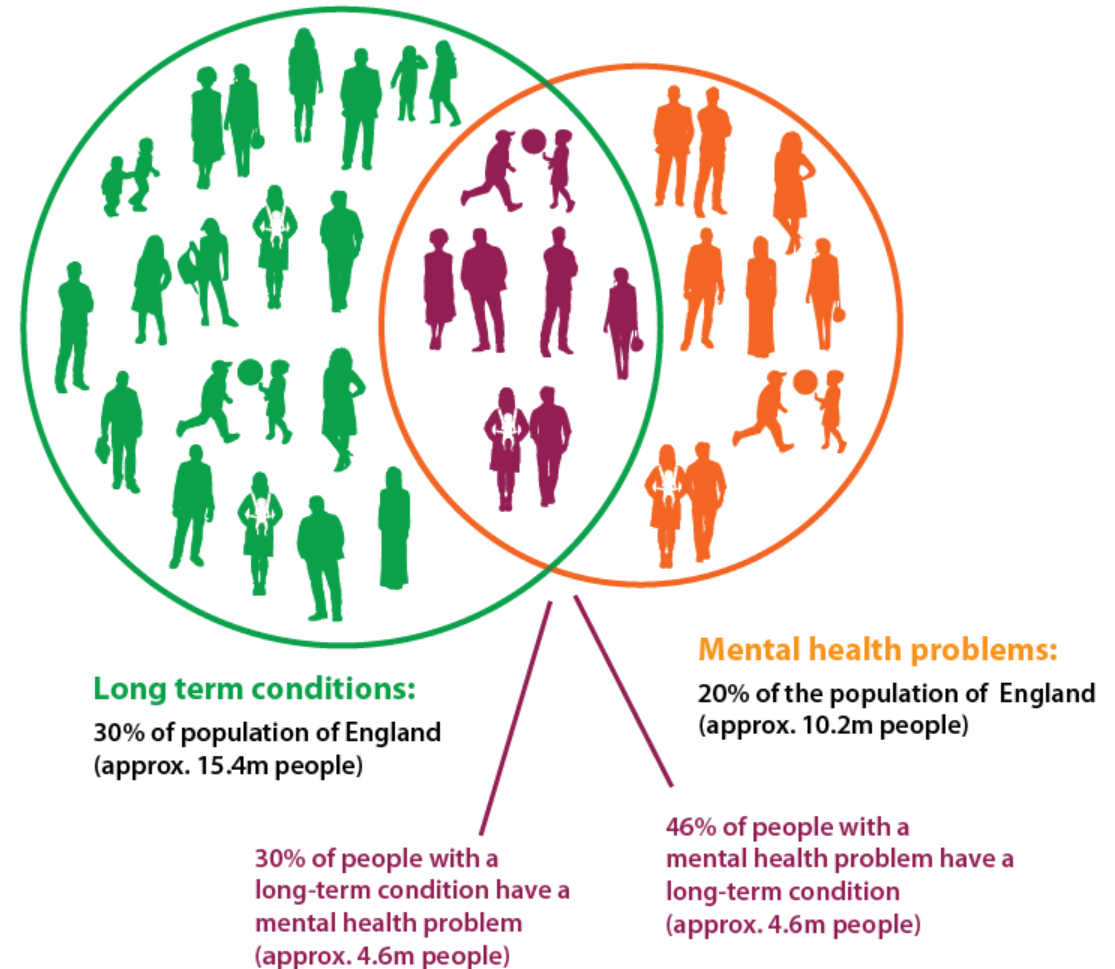
Physical Health ⇌ Mental Health

Physical Health → Mental Health

- Chronic pain and disability can lead to depression, anxiety, and stress
- Exercise has been shown to improve mental health

Mental Health → Physical Health

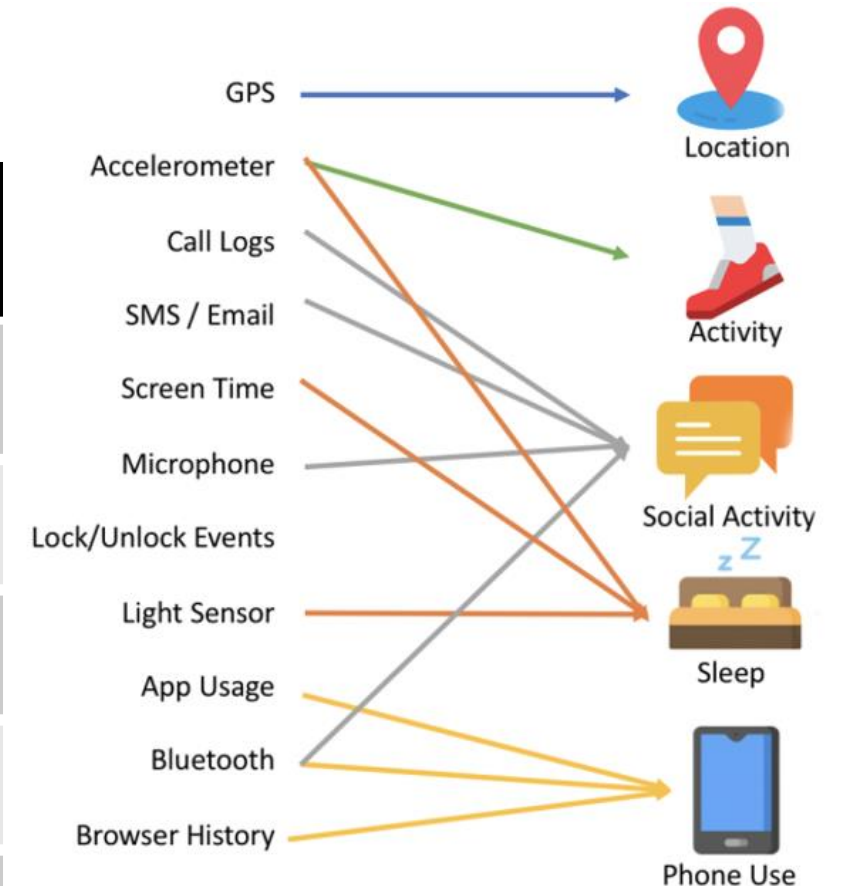
- Anxiety and depression can lead to headaches, fatigue, and difficulty sleeping
- Chronic stress can weaken the immune system



Where Does Mobile Health Come In?

Smartphones and wearable sensors can track behavioral and contextual features associated with mental health

Signal	Expected Trend Among Those With Depression
Location	Stay at home more often
Activity	Less active
Social Activity	Fewer social interactions
Sleep	More irregular, lower quality
Phone Use	More usage (implying more withdrawn)



Resources

Fast Facts about Mental Health and Mental Illness
([Canadian Mental Health Association '21](#))

Digital Phenotyping for Mental Health of College Students: a
Clinical Review
([Melcher et al. '16](#))