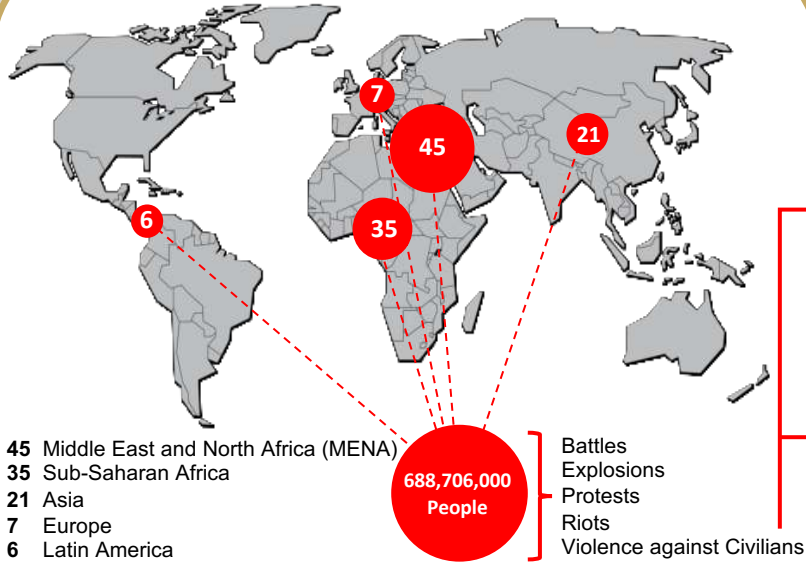


114 Zones of Conflict across the World



Affected Populations of Interest



Local civilians
Refugee family in Jordan, 2018

Physiological and psychological stress
• Safety, fear, constant movement, malnutrition, mourning, injury...



Healthcare professionals
MSF Medical Staff in Gaza, 2023

Physiological and psychological stress
• Safety, fear, constant movement, injury, lack of supplies, exhaustion...

Proof of Concept – DNA Methylation ②

Physiological Dysregulation

Hypothalamic pituitary adrenal (HPA) axis which regulates heart rate, blood pressure, metabolism, and immune function.

- *FKBP5*– Restrains overactivation of HPA axis
- *NR3C1*– Regulates glucose homeostasis

Cancer evasion, progression, angiogenesis, and metastasis

- *CDH1*– Invasion of tissue and tumor metastasis
- *P16*– Limitless replicative potential and angiogenesis
- *DAPK, ASC/TMS1, HIC1*– Evasion of apoptotic signals
- *MLH1*– DNA damage repair capacity
- *CHFR*– Cell cycle progression and tumorigenesis

Psychological Dysregulation

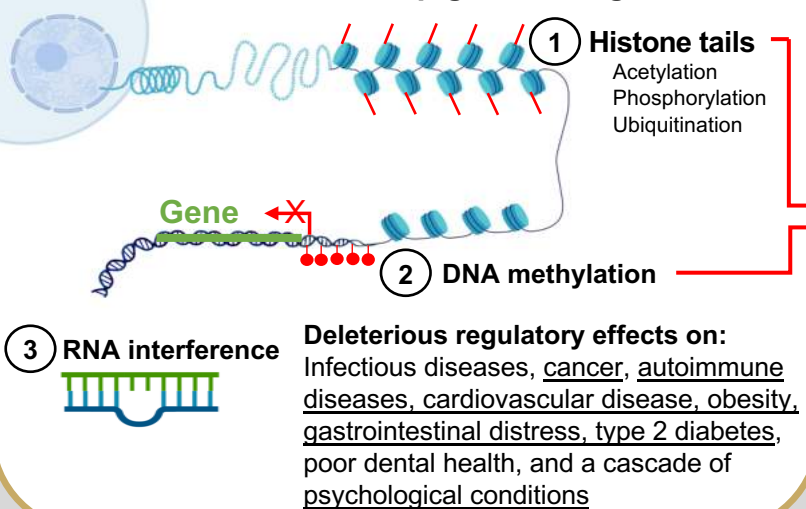
ACEs are associated with post-traumatic stress disorder (PTSD), anxiety, depression, and insomnia.

- *MOAO*– Enzymatically breaks down neurotransmitters
- *SLC6A4*– Serotonin transporter
- *BDNF*– Promotes differentiation and survival of neurons

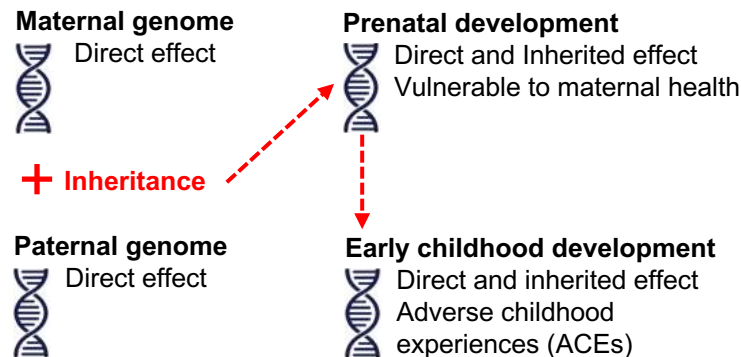
Potential Study Questions

What exactly do exposures and exposure windows look like?
Can exposure windows be quantified?
Short versus long exposure windows?
How difficult would it be to sample or observe in these settings?

Mechanisms of Epigenetic Regulation



Traumatic External Stimuli can induce Deleterious Epigenetic Modifications



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