

Modern Problems

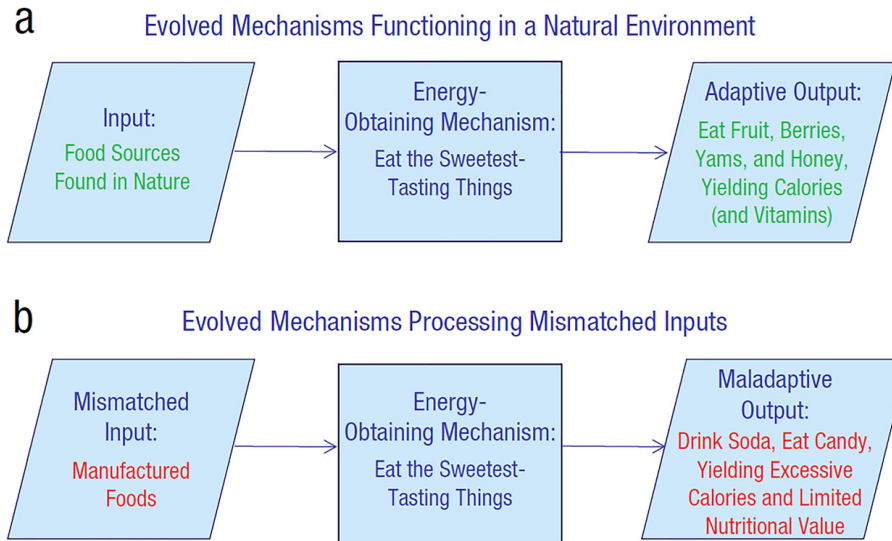
- Tiredness
- Diabetes
- Obesity
- Backache
- Stress
- Anxiety
- Depression
- Loneliness
- Addiction
- Declining fertility
- Environmental problems
- Conflict
- Misinformation
- *et cetera....*



Dave Chapelle:
“Modern problems require modern solutions”....?

Evolutionary Mismatch

- **Mismatch** occurs when an adaptation fails to produce adaptive outcomes due to problematic (e.g., evolutionarily novel) inputs



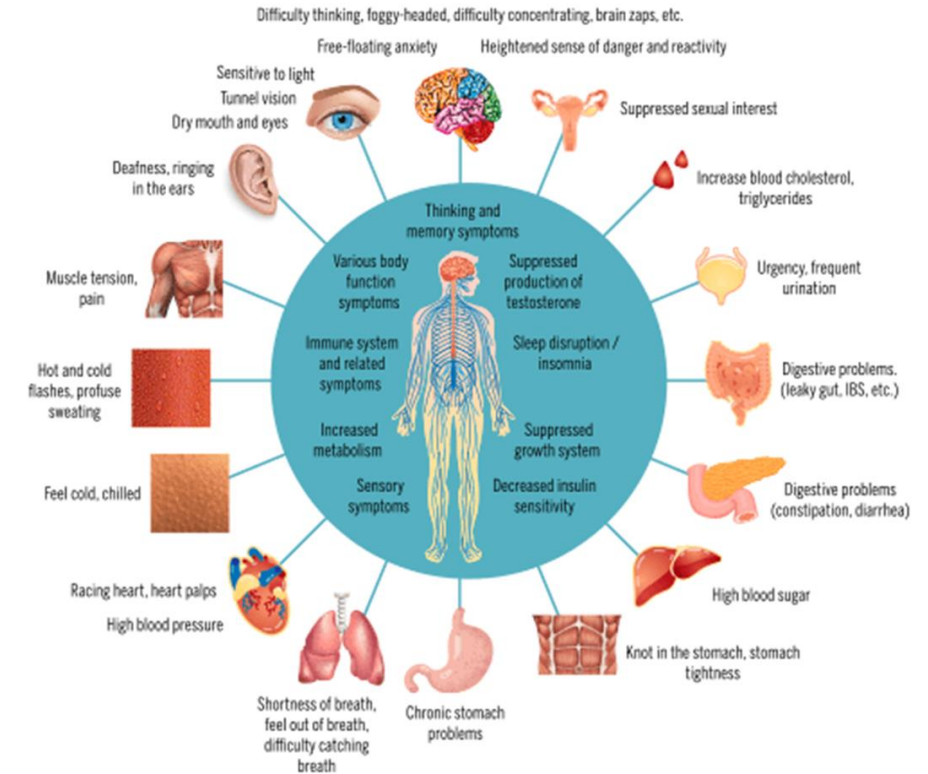
- such as
 - moths and nocturnal flies flying toward lamps
 - male giant jewel beetles mating with beer bottles
 - peppered moths and the industrial revolution
 - cuckoo birds parasitizing host birds' nests
 - the classic sweet tooth in humans



More findings on mismatch

- Hyper-inflammatory conditions such as irritable bowel disease and multiple sclerosis
 - modern medicine and hygiene practices eradicated helminthic worms that co-evolved with early humans to help regulate our immune system
- Modern technologies/settings both hyperstimulate (resulting in boredom, addiction, insomnia) and understimulate (resulting in ADD/ADHD symptoms)
- Chronic exposure to idealized images of people in mass media resulting in body image issues
- Ancestral humans lived in small, kin-based nomadic tribes comprising ~150 close-knit individuals
 - modern humans living in sprawling cities populated by hundreds of thousands of strangers can end up feeling isolated and lonelier

How Hyperstimulation Can Affect The Body



Sources of Evolutionary Mismatch in Modern Environments

| | Ancestral Environment | Modern Environment |
|---------------------------|----------------------------------|--|
| Population size | ~150 | Hundreds of thousands; crowded |
| Environmental features | Natural; e.g., foliage, savannah | Urban; e.g., concrete buildings, cemented roads |
| Societal structure | Egalitarian | High inequality |
| Lifestyle | Nomadic, natural diets | Sedentary, artificial diets |
| Economic arrangement | Primitive; barter trade | Advanced; capitalistic |
| Technological penetration | Basic; simple tools | Advanced; e.g., cars, computers, etc |
| Informational complexity | Low | High; e.g., mass media, information technology, social media |
| Social complexity | Low | High; e.g., complex hierarchies, social monitoring |

Needs that are affected:

- **Biophilic** needs
- Need for **certainty**
- Need for **stimulation**
- Need for **status**
- Need for **belonging**
- **Social monitoring** needs
- **Mating** needs
- etc...

Immediate Consequences of Mismatch

- **1. Intensification of general stress**
- Urban environment is more stressful than natural environment
 - e.g., higher levels of cortisol, elevated blood pressure
- Technological tools allowing for more precise quantification
 - e.g., transport timings, likes/followers on social media
 - hijack our need for certainty, leading to obsessions with precision
- Stimulatory mismatch leads to
 - shorter attention spans
 - boredom
 - ADHD/ADD symptoms



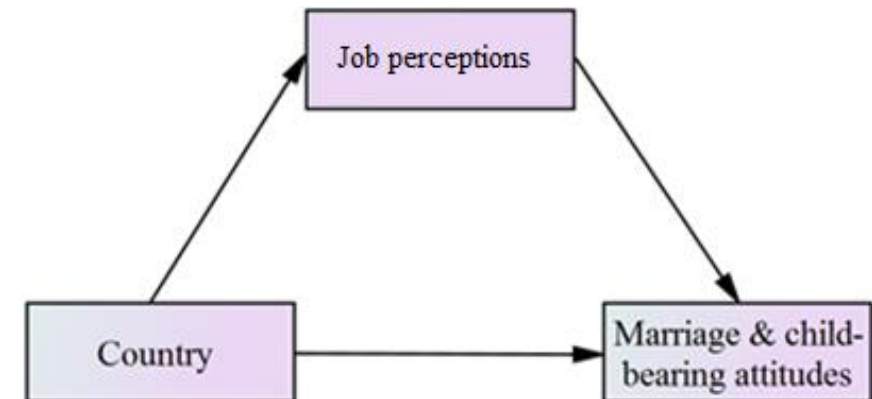
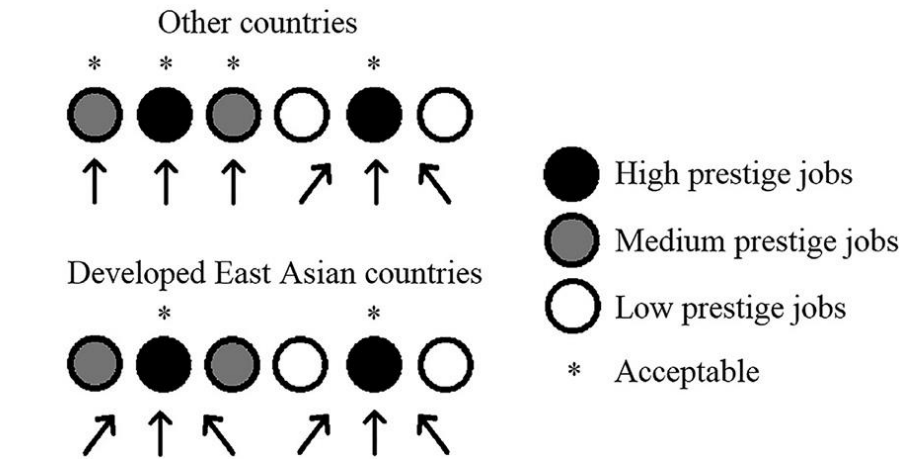
Immediate Consequences of Mismatch

- **2. Intensification of competitive stress**
- High social inequality hijacks the need for status, leading to
 - social status anxiety
 - “competition/education fever”
 - materialism
- High population density with less kin and more strangers leads to
 - greater perceived competition for scarce resources and opportunities
 - feeling like one has fewer allies despite there being more people around
- Exacerbated by mass and social media
 - intensifies social monitoring mechanisms (e.g., social comparisons)
- All interconnected: needs for status, materialism, consumerism, mass/social media, etc all feed into each other
- Overall increased selfishness and reduced prosociality and trust → societally destabilizing



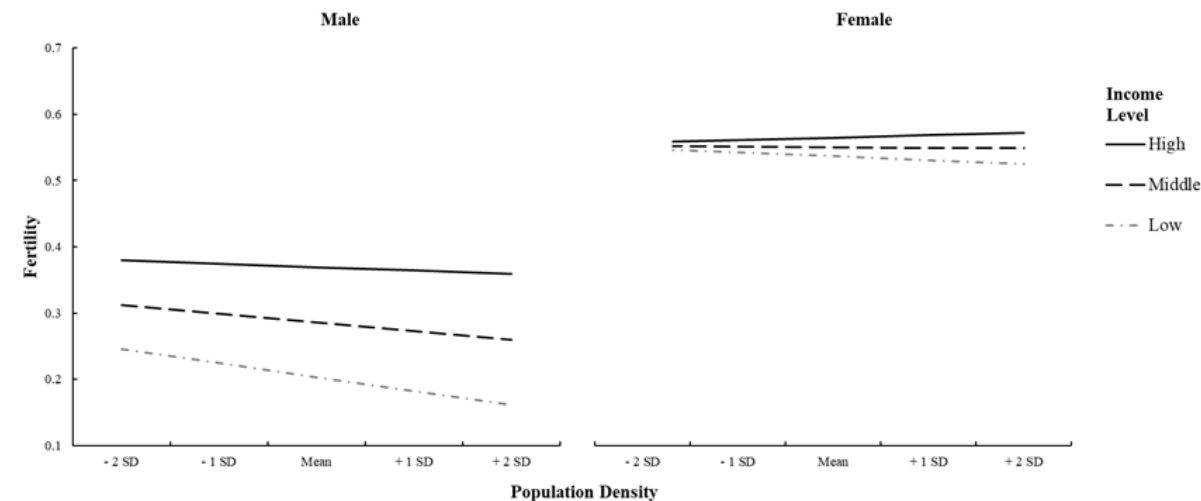
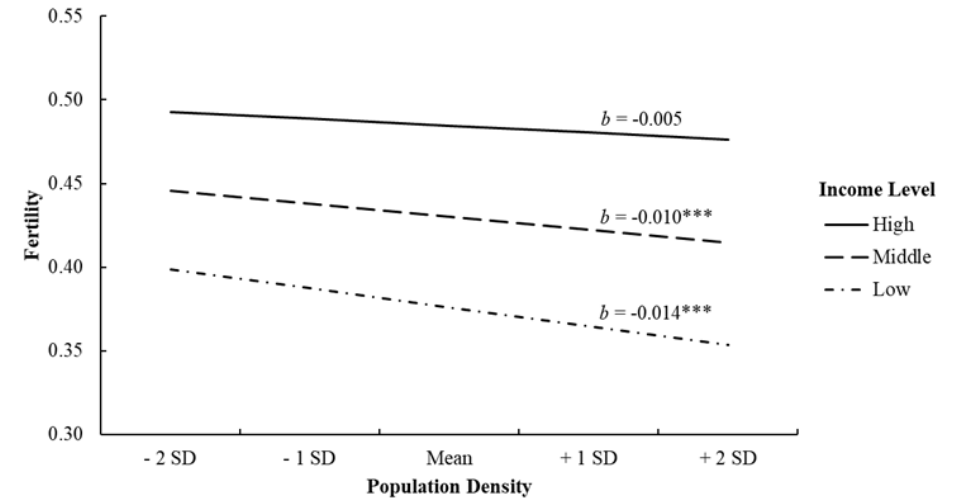
Status Competition and Mating

- Countries with greater social status preoccupations have less favorable attitudes toward relationships and having children
 - Materialistic attitudes associated with less positive attitudes toward relationships, marriage, and family (Li et al., 2011)
 - More materialistic women strongly value earning prospects in a partner
 - Preoccupation with prestigious jobs drives avoidance of jobs associated with low status, which in turn predicted less interest in dating/marriage and wanting less children (Yong et al., 2019)
 - Job perceptions predicted mating attitudes more for men than for women

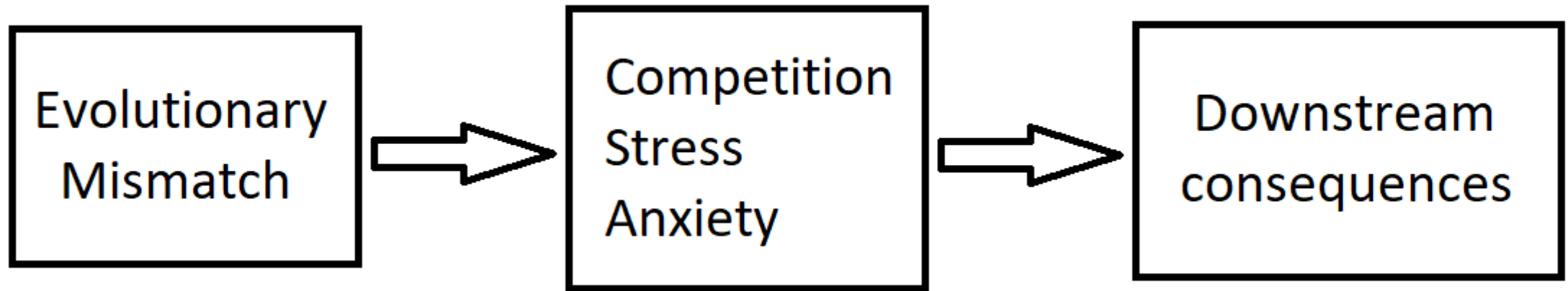


Population Density and Fertility (Yong, Lim, Jonason, & Thomas, 2024)

- High population density predicted lower fertility
 - Competition for scarce resources is higher in crowded regions
 - Greater focus on competition, less time for reproduction
- Having resources reduces the need to compete for scarce resources
- Income moderates the impact of population density on fertility
 - Poorer individuals were more affected by crowdedness
- This pattern was again stronger for men than for women



Broad Hypothesis (TBT)



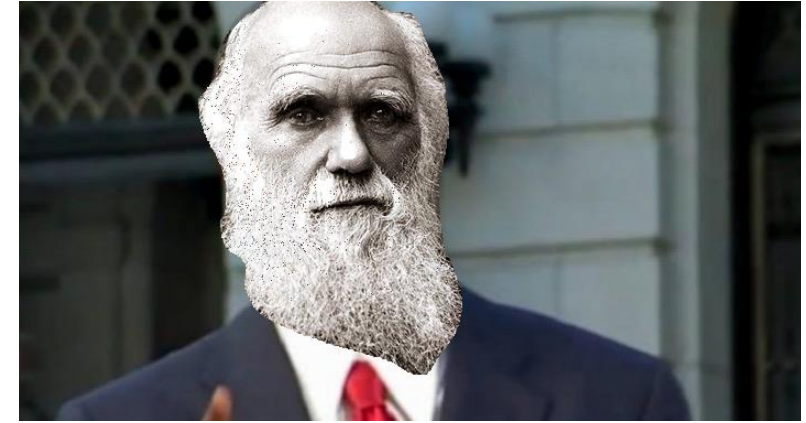
Downstream Consequences

- If you're winning, you're fine
- But if you're losing...
 - Internalizing outcomes (e.g., shame-driven, collectivism, homogeneous society)
 - Social isolation; e.g., hikikomori
 - Depression
 - Suicidality
 - Externalizing outcomes (e.g., anger-driven, individualism, heterogeneous society)
 - Cynicism, aggression, extremism; e.g., incels
 - Mass shootings



Potential Solutions?

- Re-engineer the built environment
 - Create more space
 - Increase nature elements
- Lifestyle changes
 - Reduce technological exposure (e.g., mass media, social media, smartphones)
 - Reduce consumerism
 - Encourage in-person interactions, physical activity
 - Healthier, natural diets
 - Nature immersion (e.g., forest bathing, community gardening)
 - Some trendy countermovements: minimalism, hygge, mindfulness, living off-grid, etc
- Social norm/attitudinal changes
 - Greater focus on meaningful work rather than status/prestige
 - Build communities



Modern problems may instead require evolutionary/ancestral solutions



Projects

- Published

- Yong (2024): **Human culture is changing too fast for evolution to catch up – here’s how it may affect you.** *The Conversation.*
- Yong, Lim, & Li (2024): **When social status gets in the way of reproduction in modern settings: An evolutionary mismatch perspective.** *Culture and Evolution.*
- Li, Yong, & Van Vugt (2020): **Evolutionary psychology's next challenge: Solving modern problems using a mismatch perspective.** *Evolutionary Behavioral Sciences.*
- Yong, Li, Valentine, & Smith (2017): **Female virtual intrasexual competition and its consequences: An evolutionary mismatch perspective.** In *The Oxford handbook of women and competition*, Oxford University Press.



- Under review

- Yong & Kanazawa: **Why evolutionary mismatches are ubiquitous and evolutionary matches are rare when humans use technology.** *Evolutionary Behavioral Sciences.*
- Lim, Yong, & Tan: **Artificial intelligence, fundamental motives, and evolutionary mismatch.** *Evolutionary Behavioral Sciences.*
- Caldwell-Harris, Brooke, & Yong: **It takes a village but the village has changed: How evolutionary mismatch leads to modern parenting challenges (and what we can do about it).** *Current Psychology.*

- In preparation

- Yong, Lim, Chan, & O: **The competition and stress hypothesis of evolutionary mismatch.**
- Yong & Kanazawa: **Testing objective indicators of evolutionary mismatch using the Millennium Cohort Study (UK).**
- etc

- Looking for interested collaborators across research and practice! HMU if any of this sounds interesting to you 😊😊😊