

A Biological Perspective on Mating Dynamics in a Sex Ratio Imbalanced Population

Science Circle
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Company that has nothing to do with this talk
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On Words

Blanket Statements



not including every exception is not an attempt to suppress or ignore it or pretend it doesn't exist

On Words

Sex and Gender

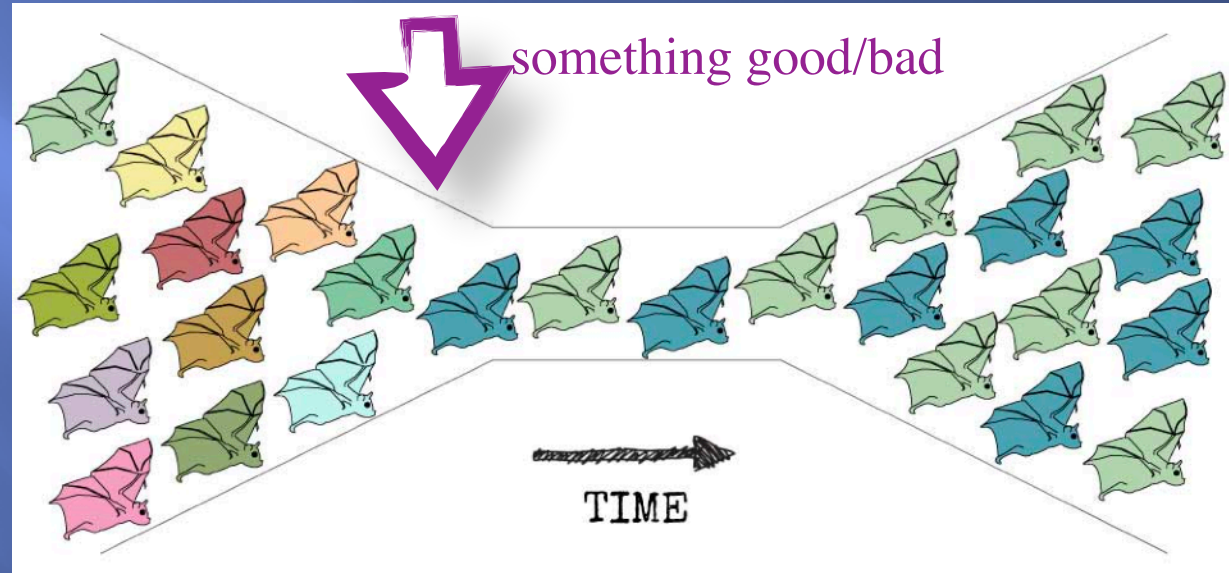
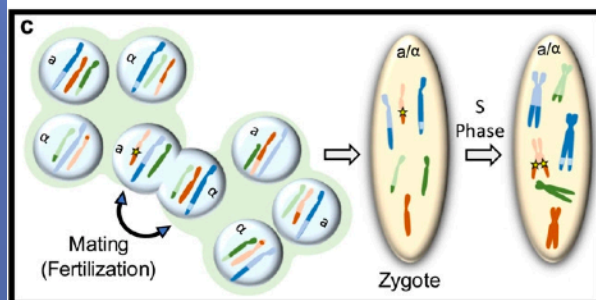
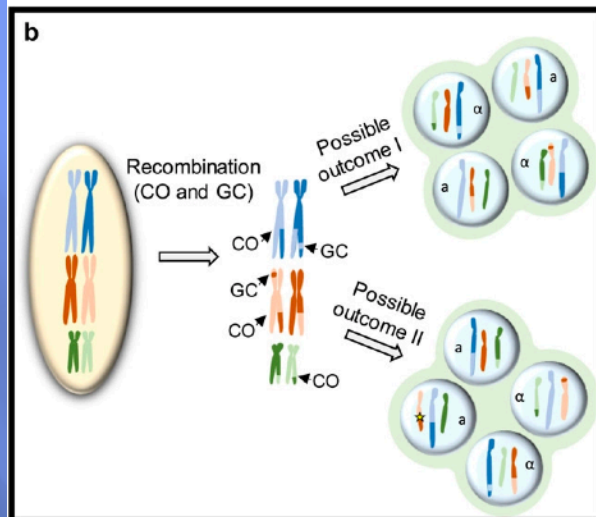
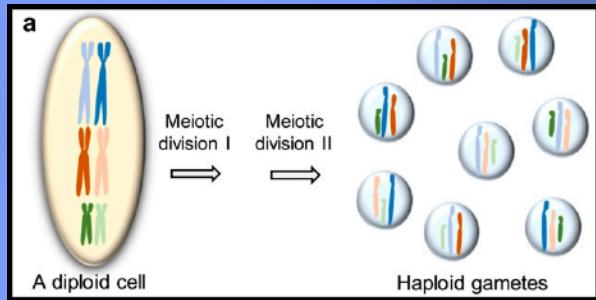


sexual reproduction cycle (and associated sexual dimorphism) is real, it is the force evolution works on that has explanatory power, the words male and female and associated behaviors (blanket) covers this factual concept

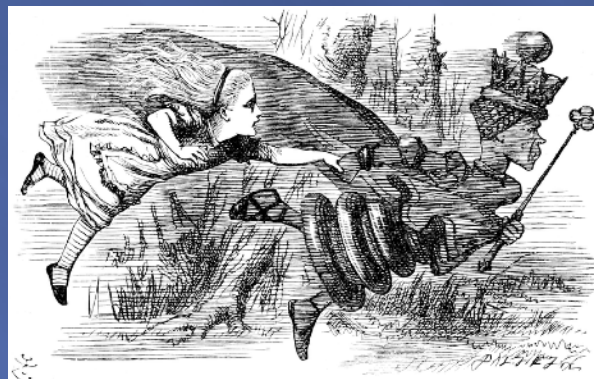
Why Sexual Reproduction?

Haploid/Diploid cycle

Genetic variation is good for survival



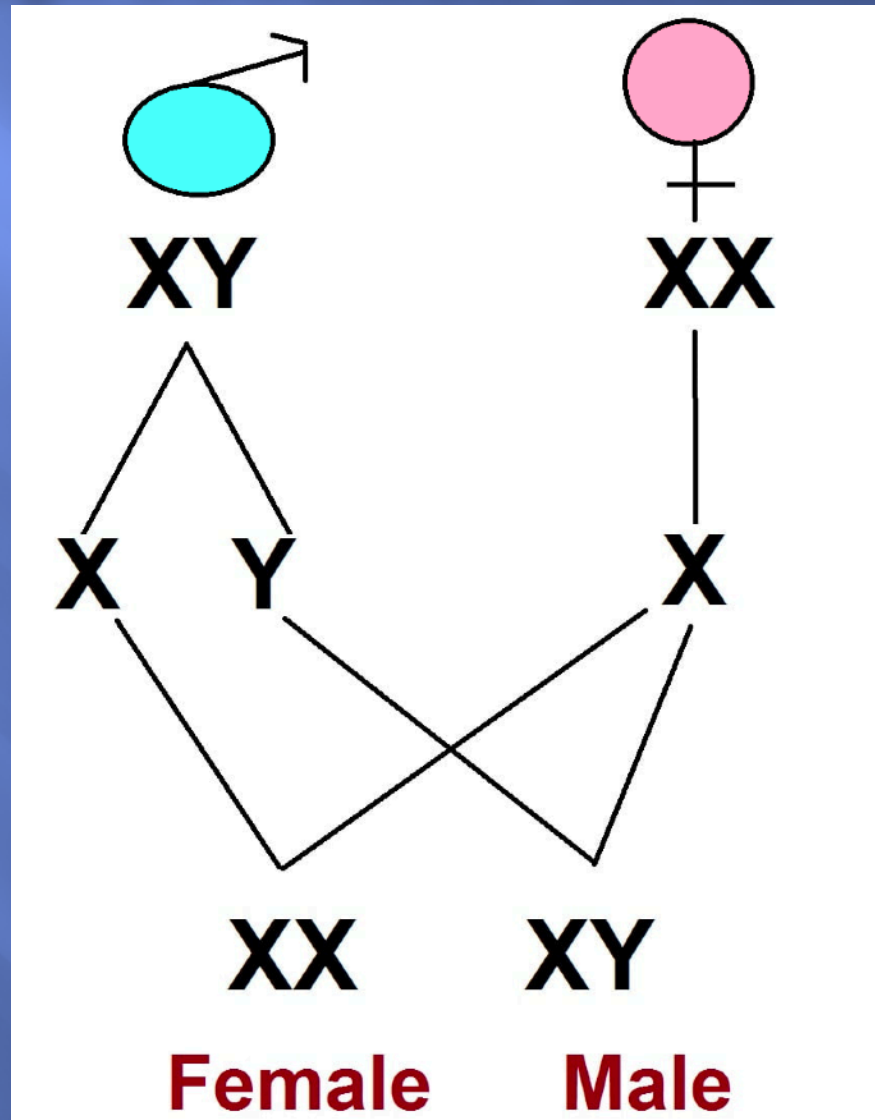
the dog-faced fruit bat



Red Queen hypothesis

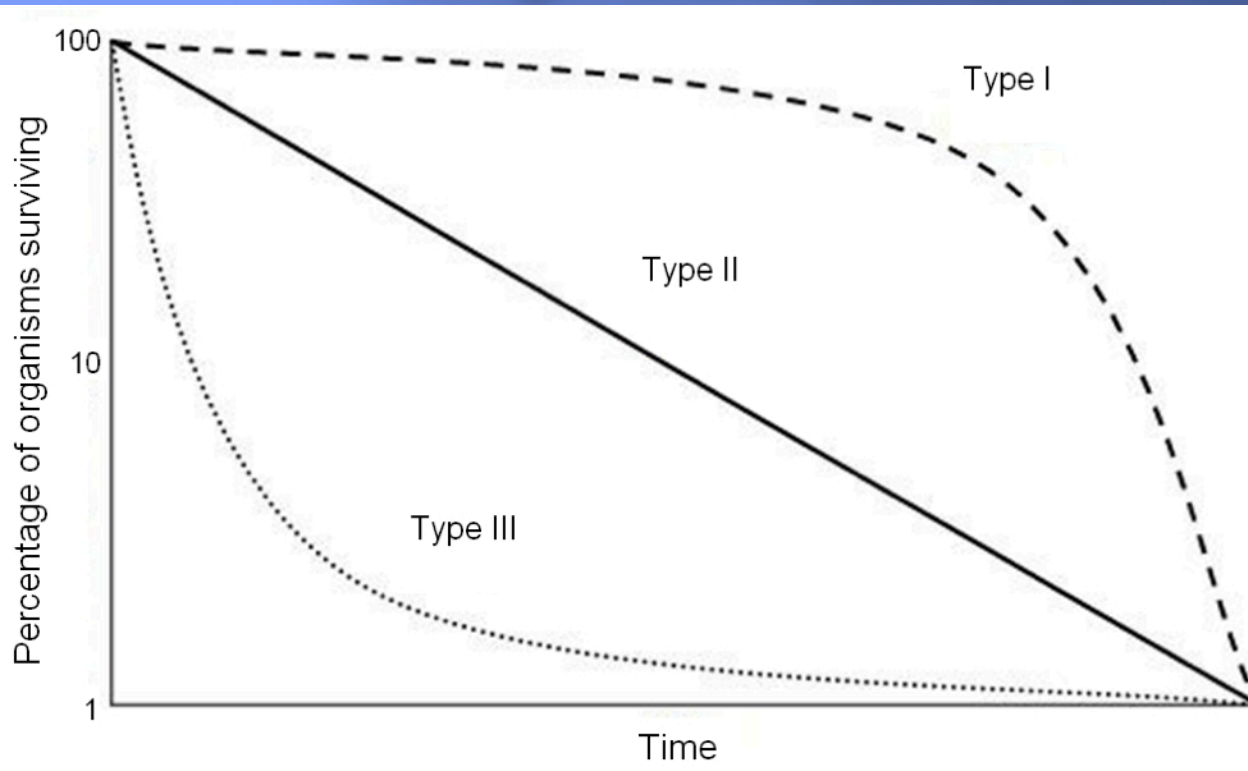
"Now, here, you see, it takes all the running you can do, to keep in the same place." -Lewis Carroll

Sexual Reproduction Results in 50/50



the natural ratio between males and females at birth is slightly biased towards the male sex, being estimated to be about 1.05 or 1.06 or within a narrow range from 1.03 to 1.06 males/per female born.

Reproductive Strategies



Type I: humans, elephants

Type II: smaller mammals, reptiles, birds

Type III: insects, fish

mix: Trees (more developed for animals)

Characteristic	r	K
Number of offspring	high	low
Parental care	low	high
Reproductive Maturity	early	late
Size of offspring	small	large
Independence at birth	early	late
Ability to learn	low	high
Lifespan	short	long
Early mortality	high	low

Sexual Dimorphism and Selection

Physical



Behavioral

Sexual Dimorphism and Selection

Newsweek Insect Sex: Watch Headless Praying Mantis Continue To Mate After Being Decapitated by Female

BY DANA DOVEY ON 11/17/17 AT 10:14 AM EST



“male mantises who are eaten after sex are actually more likely to have their sex result in viable young. This is because females who eat their partners produce far more eggs than those who aren't lucky enough to have a post-coital snack.”

male combat



“bros before does?”

Animal Societies

animal social behavior

Encyclopaedia Britannica



Sociobiology: The New Synthesis

E.O. Wilson (1975)

- (1) group size
- (2) distributions of different age and sex classes
- (3) cohesiveness
- (4) amount and pattern of connectedness
- (5) permeability - intersociety
- (6) compartmentalization -subgroups operate as discrete units
- (7) differentiation of roles
- (8) integration of behaviors within groups
- (9) communication and information flow
- (10) fraction of time devoted to social behavior as opposed to individual maintenance

Role Distinctions



Queen

lays eggs

Drones

mate with Queen

Worker Bee

removing waste

disinfecting

feed the larvae

secreting wax

guard duties

foraging for nectar and
pollen

fanning the hive

removing dead

carrying water

Neurophysiology

Hormone influence on behavior

prairie vole
pair bond



vasopressin
receptor

lab mouse

limited pair bonding

oxytocin

+vasopressin

no vasopressin

affiliation behavior

no change

another related point of information: Garcia, Justin R., et al. "Associations between dopamine D4 receptor gene variation with both infidelity and sexual promiscuity." PLoS One 5.11 (2010): e14162.

Human Sexual Development

lessons from primates (Type I reminder, value K)

gorillas

chimpanzees

bonobos



harem/Alpha male



male dominance
shifting/fluid subgroups



female led groups
something like

Woodstock

Environmental influence?

tribe competition for food

food abundant

Early Homo Dimorphism

Hunters

Warriors

bigger

stronger

geometry?

short minimum
reproduction time
(expendable)



Hearth

Home

social IQ

reproduction

manual dexterity

2 years minimum
dedicated to next
generation



On Evolution of Society

Social Unit Evolution



Military Power

Institutional Stability

Economic/Market

Fecundity

Human Sexual Evolution (epochs)

Quadrupeds

Neurophysiology
dimorphism

Primate

social - small group
dimorphism-specific

Early Civilization

population dynamics
higher level cultural
food production
socioeconomic - status

Modern Civilization

more later

Early Human Civilization

Higher population density

Agriculture = food abundance/consistency

Higher disease spread (STDs)

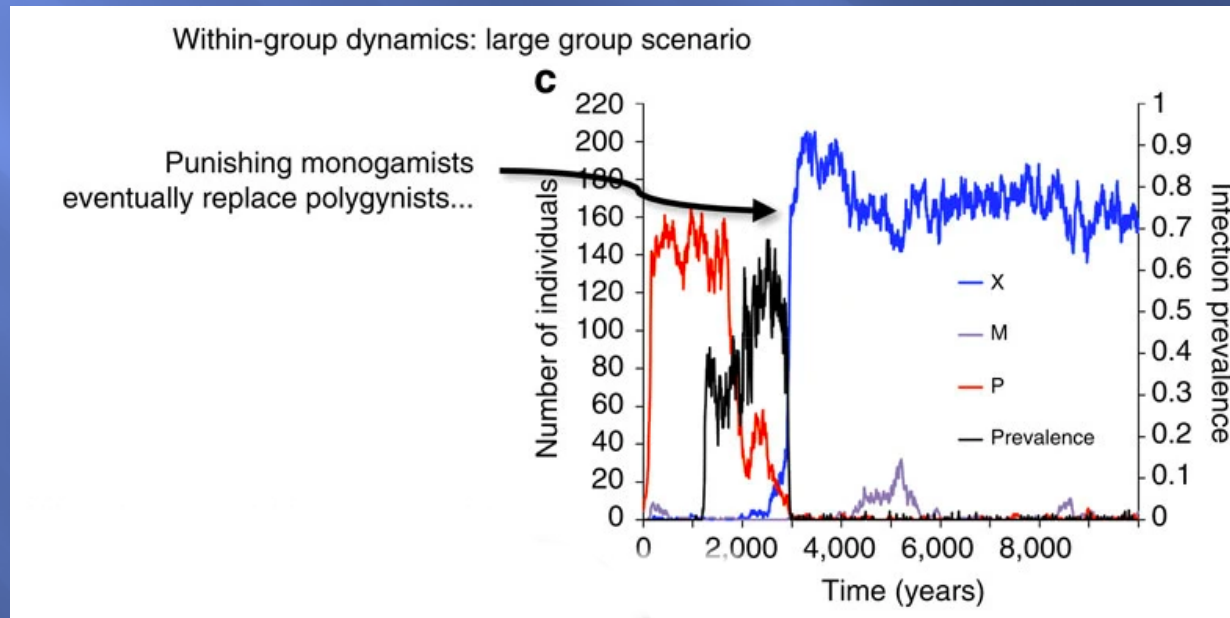
Early Human Civilization

Higher population density (mate availability)

Agriculture = food abundance/consistency

Higher disease spread (STDs)

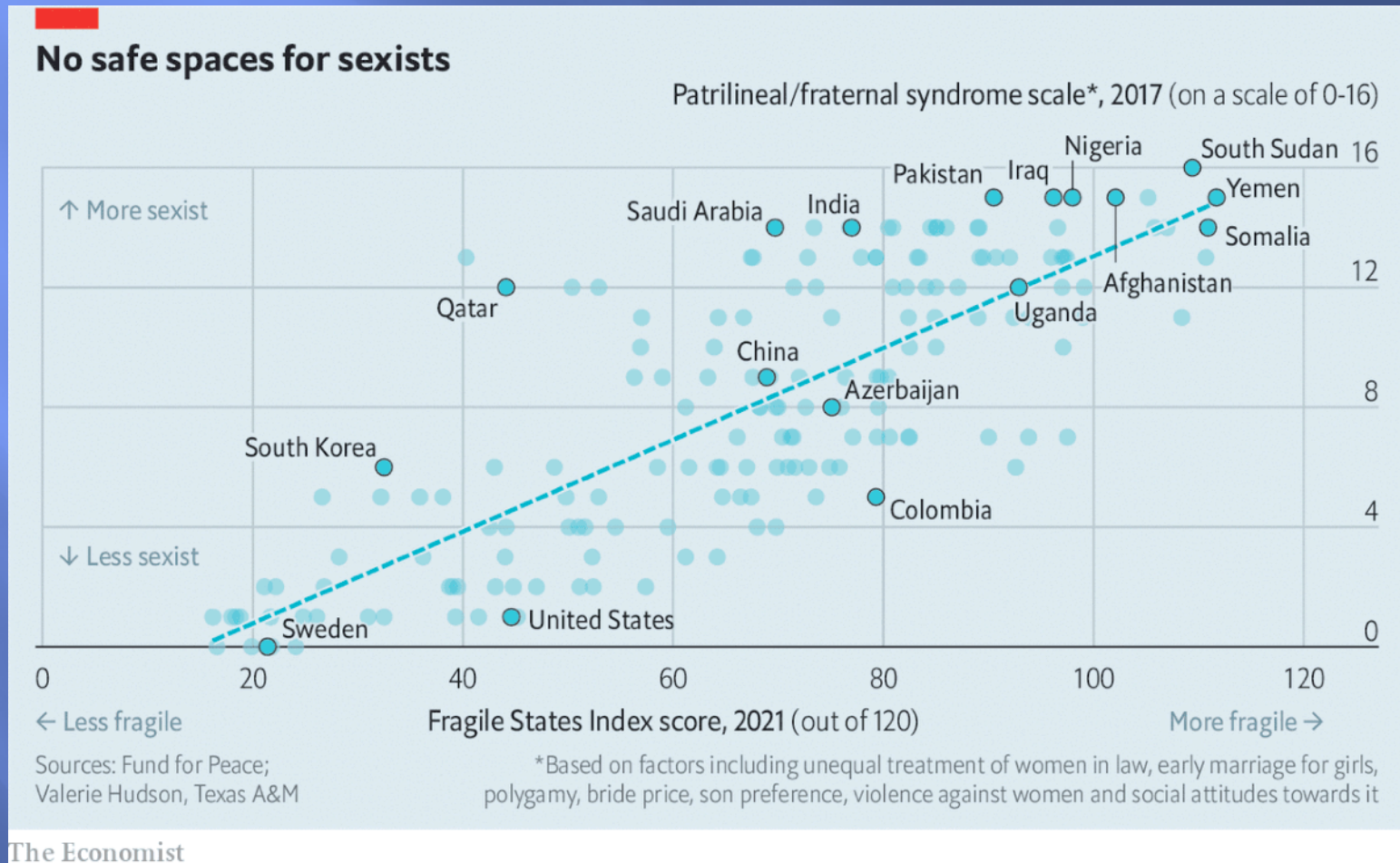
Bauch, C., McElreath, R. Disease dynamics and costly punishment can foster socially imposed monogamy. Nat Commun 7, 11219 (2016).



Early/Modern Human Civilization

Monogamy supports stability

“Societies that treat women badly are poorer and less stable” The Economist Sep 11th 2021 edition



“The First Political Order: How Sex Shapes Governance and National Security Worldwide”
Ms Hudson, Ms Bowen and Ms Nielsen

Traditional Eastern Civilizations-China

sancong - women were subordinate to first their fathers, then their husbands, and finally, in the case of being left a widow, their sons in a system known as the “three followings”

female (ying) inferior to male (yang): hard over soft, forceful over submissive, etc

a woman could not earn money and one day would leave the family and join her husband's

Women were expected to excel in four areas: fidelity, cautious speech, industriousness, and graceful manners

In Chinese law, a man could divorce his wife for divorce failure to bear a son, evidence of being unfaithful, lack of filial piety to the husband's parents, theft, suffering a virulent or infectious disease, jealousy, and talking too much.

Women had no such right except if the husband particularly mistreated his wife's family.

upper-class women had only a very limited freedom of movement.

women of lower status, such as farmer's wives, were expected to work in the fields

concubines were common for those that could afford it

Traditional Eastern Civilizations-Japan

In feudal Japan, women were generally seen less important than men.

no freedom of choosing whom they marry (lower class were not necessarily expected to marry)

geisha women in feudal Japan role were to entertain guests during meals and other occasions

lower class women in feudal Japan were to serve their husbands, before serving their fathers before marriage. Their jobs included serving wealthier families, looking after their children, looking after animals and crops, cooking for the families, cleaning and carrying out other household tasks. Wives of tradesmen were there to help their family businesses and the roles for these women greatly varied.

unlike men, no freedom to re-marry once they were widowed and could not request to be divorced. Because of this, feudal Japanese women often committed suicide to escape from marriage when they were not happy or were mistreated by their husbands.

Traditional Eastern Civilizations-India

The Early Vedic (1500 BC–1000 BC), Later Vedic Period (1000 BC–600 BC)

Women were dignified with a respectable status, honored as well as empowered in the affairs of the home and family.

Special attention to the female's priority and satisfaction during sex observed (The Kāmasūtra)

Even more generally enhanced in Later Period including status outside the home, unconditional economic freedom

The Jainism and Buddhism Period (600 BC–200 BC)

persistent gender equity was observed, occupied esteemed positions in religion but, prohibited from political participation

The Age of Dharmaśāstras, Mānismṛiti (200 BC–647 AD)

considered women to be impure as well as second class citizens, women's right to education was fully withdrawn

self-sacrifice and the observation of social rituals for the welfare of the male members of their family was considered to be a woman's duty.

Traditional Eastern Civilizations-India

Brahmanism (647 AD—)

dignity and fame of women's status was entirely reduced to one of virtual subservience

Women are expected to be submissive to the men in their lives, and to be the perfect wife and mother

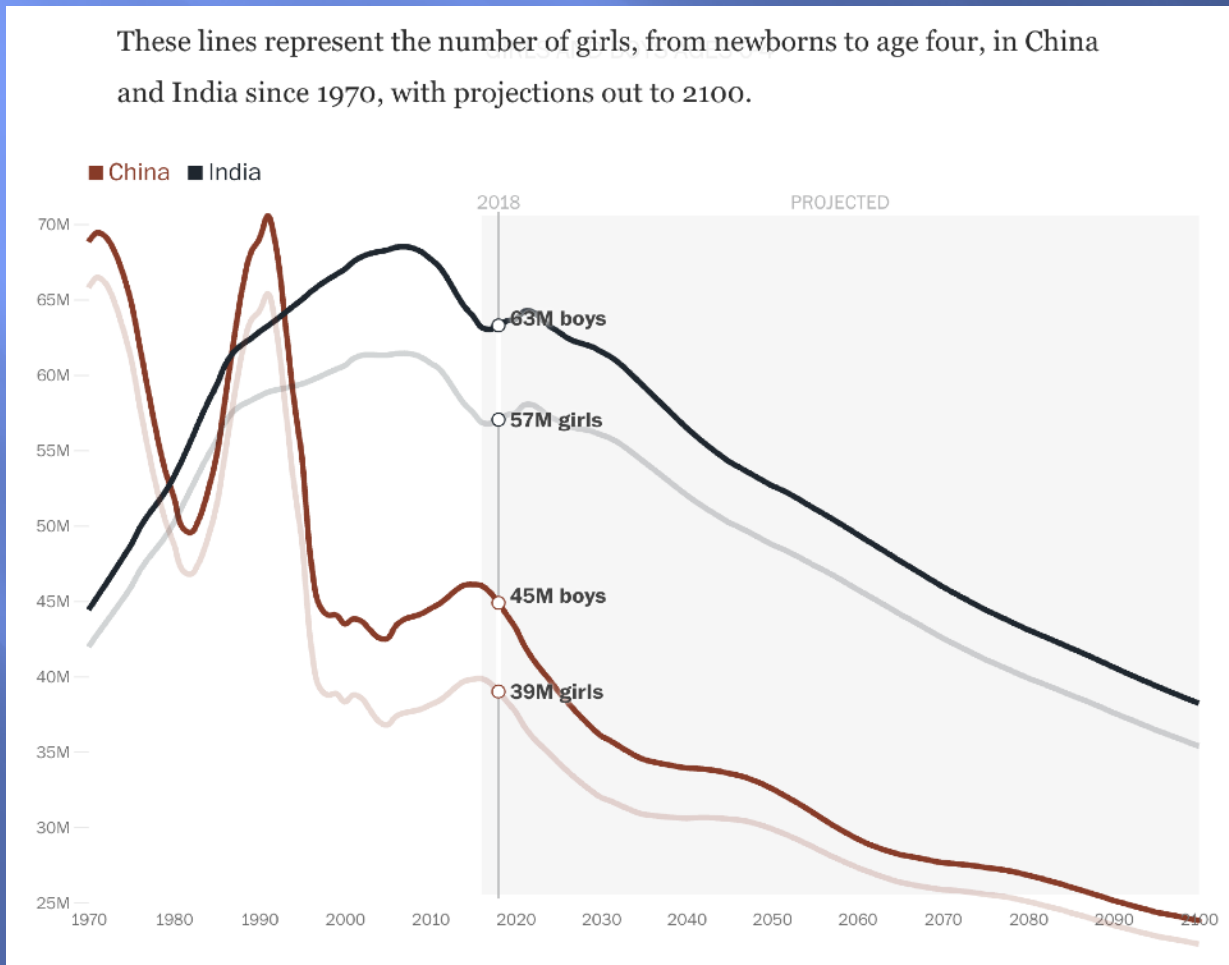
Women are revealed in the sacred scriptures as presenting a duality of being benevolent and malevolent exposing her with great contrasting powers. “In times of prosperity she indeed is Laksmi, [goddess of wealth] who bestows prosperity in the homes of men; and in times of misfortune, she herself becomes the goddess of misfortune, and brings about ruin”

The Gender Crisis—India and China

China and India have imbalance of males

female babies are not kept

sex-selective technology in the last 30 years (banned but still in widespread)



Out of China's population of 1.4 billion, there are nearly 34 million more males than females

exacerbated by One Child Policy (1980-2015)

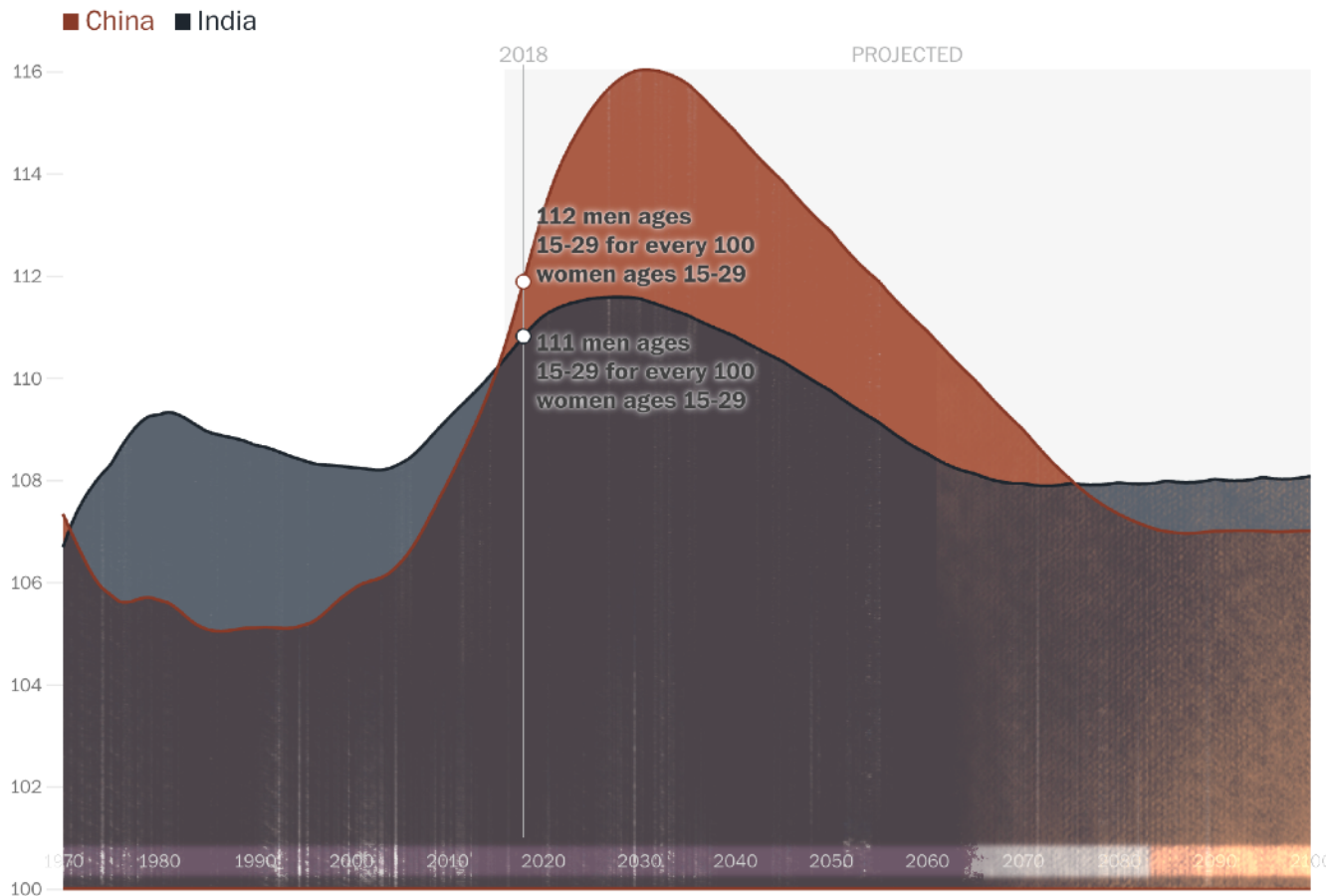
India has an excess of 37 million males

The Gender Crisis—India and China

China and India have imbalance of males

Younger mating population focus — 15-29 yo

NUMBER OF MEN FOR EVERY 100 WOMEN AGES 15-29



Among men, loneliness and depression are widespread

Housing prices and savings rates

Human trafficking

surge in sexual crime in India and concerns about a rise in other crimes in both countries.

Harassment of schoolgirls in India has in some towns

Human Trafficking

Teenage Brides Trafficked to China Reveal Ordeal: ‘Ma, I’ve Been Sold’

By Hannah Beech Aug. 17, 2019

<https://www.nytimes.com/2019/08/17/world/asia/china-bride-trafficking.html>

The story of two teenage girls kidnapped from Myanmar with promise of jobs

A study by the Johns Hopkins Bloomberg School of Public Health and the Kachin Women’s Association Thailand estimated that about 21,000 women and girls from northern Myanmar were forced into marriage in just one province in China from 2013 to 2017.

In truth, it is poorer Chinese men who tend [missing the statistics] to buy trafficked women as wives. Nyo was sold for \$26,000, said Myo Zaw Win, a police officer in Shan who tracked her case.

Both men were arrested and charged for crimes

Both girls returned home, one with a newborn son

Human Trafficking

Estimating trafficking of Myanmar women for forced marriage and childbearing in China, Johns Hopkins Bloomberg School of Public Health and the Kachin Women's Association Thailand (2018)

https://reliefweb.int/sites/reliefweb.int/files/resources/ETFM_Full%20Report_07Dec2018_Final.pdf

Figure E.2: Rate of Forced Marriage and Forced Childbearing in the Study Area

Among women and girls who have migrated from Myanmar to China in the past five years...



11%

(18,200 out of 171,000)

will end up married
to a Chinese
husband.



4%

(7,500 out of 171,000)

will be in a forced
marriage.

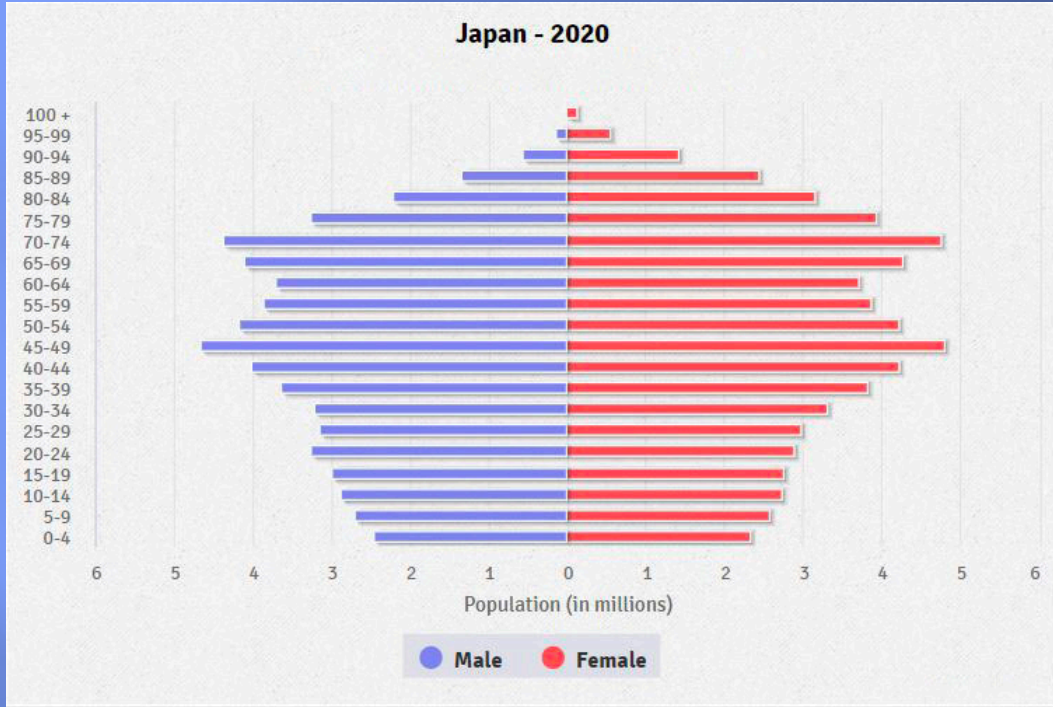


3%

(5,100 out of 171,000)

will be forced to
bear children.

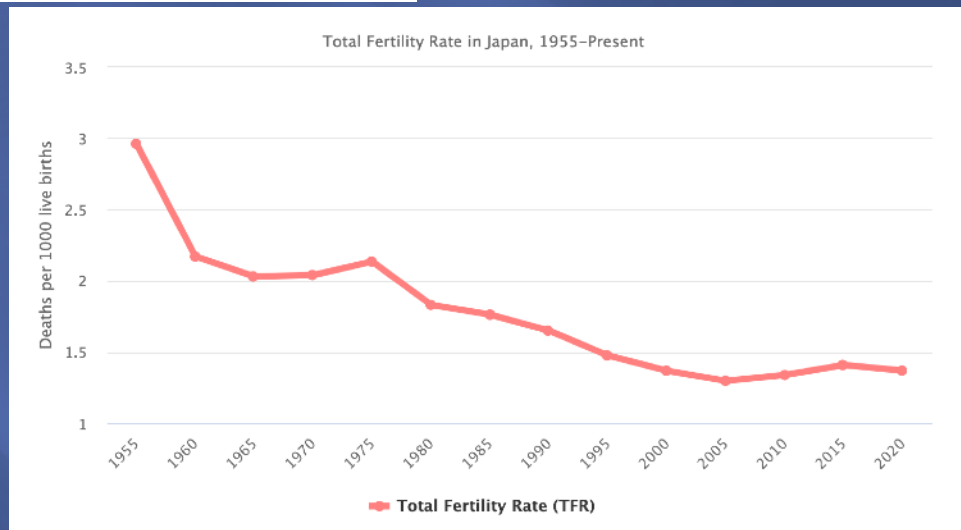
The Gender Crisis—Japan



www.indexmundi.com

Constrictive

www.worldometers.info
2020 TFR = 1.4



The Gender Crisis—Japan

University of Tokyo Study 2019 (data by the National Fertility Survey of Japan, designed and implemented approximately every five years by the Japanese National Institute of Population and Social Security Research)



IN



FIRST NATIONAL ESTIMATES OF VIRGINITY IN JAPAN



1 in 10 Japanese adults in their 30s has no heterosexual experience.



Japan might be leading a global trend of more people not having sex.

Lack of heterosexual experience in those aged 18 to 39 is increasing.



22 in 100 in 1992
25 in 100 in 2015

20 in 100 in 1992
26 in 100 in 2015



Japanese government surveys do not collect data on same-sex experience.



Men with permanent, full-time employment and high income were more likely to have had sex.



The Gender Crisis—Japan

“Why have young people in Japan stopped having sex?” Abigail Haworth Oct 2013

A survey earlier this year by the Japan Family Planning Association (JFPA) found that 45% of women aged 16-24 "were not interested in or despised sexual contact". More than a quarter of men felt the same way.

Marriage has become a minefield of unattractive choices. Japanese men have become less career-driven, and less solvent, as lifetime job security has waned. Japanese women have become more independent and ambitious. Yet conservative attitudes in the home and workplace persist.

Japan's punishing corporate world makes it almost impossible for women to combine a career and family, while children are unaffordable unless both parents work.

Cohabiting or unmarried parenthood is still unusual, dogged by bureaucratic disapproval.

Married working women are sometimes demonised as oniyome, or "devil wives".

Around 70% of Japanese women leave their jobs after their first child.

The Gender Crisis—Japan

Further exacerbating the problem?

“Sex robots could lead to population crisis as men opt for virtual girlfriends”



<https://www.youtube.com/watch?v=TgbTrusgsqA>

Modern Status

Summary Thoughts

Drive to procreate is both biological and cultural

can override sympathy

Correlate to socio-economic status plays role

some are more advantaged than others and drive increasing pressures and desperation down the scale

Sex drive biologically drives procreation

archaically the inability to prevent fertilization, lack of female autonomy, lack of safe abortion technology helped drive fertility rates (*at same time, high childbirth mortality for both newborn and mother*)

modern times change that equation

modern times also drive “life purpose” away from strictly procreation both sexes

increased female autonomy (in particular) can steer purpose away from procreation

other “activities” or technologies that also satisfy sex in and of itself sans partner