Lecture 12-Marriage Systems

- Mating Strategies
- Reproductive Value
- Marriage Systems
  - 19th Century Mormon Polygyny
  - Tibetan Polyandry
  - 19th Century Ireland
  - !Kung Hunter-Gatherers

Reproductive Success is limited by:

- Ability to find and retain a mate
- Energetic constraints on reproduction
- Offspring survival

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Triver’s Parental Investment Hypothesis

- Whichever sex invests more effort and more resources in offspring is, in effect, the limiting resource for the reproduction of the less investing sex and thus the object of competition.

Trivers, 1972

Male Reproductive Success is limited by:

- Ability to find and retain a mate
  - Human males can exert much more control over females and female sexuality than is seen in most other mammals.
Reproductive Success is limited by:

- Ability to find and retain a mate
  - Human males can exert much more control over females and female sexuality than is seen in most other mammals.
- Offspring survival
  - Human males can invest much more in offspring survival (direct care and resources) than in most other mammals.

Reproductive Strategies

Males and females have different reproductive interests and constraints (even in a couple).

What are male reproductive strategies and how do females respond to them?

Male Reproductive Strategies

- Investment in Offspring / Mate
  - Necessary for offspring survival
  - Paternity certainty is high
  - Access to mates is socially limited
  - Resources can be passed on

- Investment in Mating Effort
  - When male investment won’t increase offspring survival
  - Paternity certainty is low
  - Low cost to mating effort

Control of Females/Female Sexuality

- More male investment, especially in wealth and resources, leads to increased concern about paternity certainty and thus increased control of female sexuality (by men and female family members)
- Monopolarizes females by controlling sexual access to them on a short term basis
Male Reproductive Strategies

- Control of Females/Female Sexuality
  - Acquire more resources for spouse and children
- Male-Male Competition
  - Investment in Offspring / Mate
  - Investment in Mating Effort
  - Investment in mating through competition for mates

Direct Competition

Male and Female Homicide Rates

<table>
<thead>
<tr>
<th>Place</th>
<th>Year</th>
<th>Male Killed Male</th>
<th>Female Killed Female</th>
<th>Proportion M:F</th>
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<tr>
<td>Canada</td>
<td>1974-1983</td>
<td>2965</td>
<td>175</td>
<td>0.944</td>
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<td>Miami</td>
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<td>4</td>
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<tr>
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<td>603</td>
<td>28</td>
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<td>105</td>
<td>1</td>
<td>0.991</td>
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<tr>
<td>Munda, India</td>
<td>1974</td>
<td>43</td>
<td>0</td>
<td>1</td>
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<td>Kung San</td>
<td>1920-1955</td>
<td>19</td>
<td>0</td>
<td>1</td>
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<tr>
<td>Gisa, Uganda</td>
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<td>0.979</td>
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<td>Congo</td>
<td>1948-1957</td>
<td>156</td>
<td>4</td>
<td>0.975</td>
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</tbody>
</table>

(Maly & Wilson, 1988)

Male-Male Competition

- Mating Competition
  - Direct Competition
    - Physical
    - Non-physical
  - Indirect Competition
- Resource Competition

Sexual Dimorphism

How do humans compare?
Male-Male Competition

- Mating Competition
  - Direct Competition
    - Physical
    - Non-physical
  - Indirect Competition
- Resource Competition

Sperm Competition

- Frequency of multiple-mating
- Duration of overlap in multiple-mating

Testes & Body Weight

Male-Male Competition

- Mating Competition
  - Direct Competition
  - Indirect Competition
    - Sperm competition
- Resource Competition

Resource Competition

- Extreme in humans compared to other primates
  - Particularly in Stratified societies where the means of production can be controlled
Male Reproductive Strategies

- Control of Females/Female Sexuality
- Male-Male Competition
- Investment in Offspring / Mate
- Investment in Mating Effort

Male Investment

- When should males invest in their spouse and/or children instead of seeking other mating opportunities?

Male Investment

- Necessary for offspring survival
- Paternity certainty is high
- Access to mates is socially limited
- Resources can be passed on

Aka Pygmies

Aka Paternal Care

- Fathers second most active care-givers behind mothers
- Provided most of care-giving in camp
- Style of care-giving intimate and affectionate

The Ache

The Aka

Hadza

Aka Pygmies

Holding or within arm's reach of infant
Care-giving of 4 mth old in camp

Percentage of Time

40
30
20
10
0

44
33
Aka Paternal Care

- More common if father:
  - No brothers
  - Wife from distant clan
  - Married late
  - Monogamous
  - Small hunting net
  - More reliance on traps
  - Not high status

- Paternal care more common than in other foragers because of type of hunting practiced (net hunting)

- Men with fewer resources spend more time in direct child care

Conclusions

- Where resources essential to survival can be accumulated or where males are the primary contributors to subsistence, fathers invest more time in competing for these resources and thus spend less time in direct child care

- Where resources are not accumulable men spend more time in direct care of children

Ache of Paraguay

Does male investment help offspring survival?

[Graph showing survival rates for poor and good hunters with certain paternity]

Hadza of Tanzania

Male care of Stepchildren and Biological Children

Does paternity effect male investment?

[Graph showing relationship between child's age and male care]
Male Care and “Fertile” Women in Camp

*Switch to mating effort with more women in camp*

(Marlowe, 1999)

Hadza Men

- Biological offspring received more care than stepchildren
  > Male care was not mating effort but paternal investment
- Men provide less care to their biological children as their mating opportunities increase
  > Males were investing less in parenting effort than in mating effort when mating opportunities increased.

Male Reproductive Strategies

- Investment in Offspring / Mate
- Control of Females/Female Sexuality
- Male-Male Competition
- Investment in Mating Effort

Men’s Reproductive Investment Decisions: Paternity Confidence

Two possible proxies of paternity:
1. Phenotypic Resemblance
2. Perception of mate’s fidelity

Men’s perception of their mate’s fidelity and their perceived resemblance to their offspring predicted men’s reported investment in their children.

Men’s Reproductive Investment Decisions: Mate Value

- Self-perceived mate value was positively related to mating effort and negatively related to reported paternal investment.
- Men with a high mate value were more likely to reduce their parental investment in relation to reduced mate fidelity as compared to men with a low mate value. But both high and low mate value men react in similar ways to reduced resemblance.
- Are low mate value men more likely to tolerate unfaithful mates and lowered paternity?

(Apicella & Marlowe, 2004)

Male Reproductive Strategies

- Investment in Offspring / Mate
- Control of Females/Female Sexuality
- Male-Male Competition
- Investment in Mating Effort

(Apicella & Marlowe, 2005)
Human Marriage Systems

**Human Mating Systems/Marriage**

**MALE RELATIONSHIPS**

- Nonkin Only
- No other Male
- Male Kin
- Males Absent

**FEMALE RELATIONSHIPS**

- Nonkin Only
- No other Female
- Female Kin
- Females Absent

**Human family systems vary**

- **Husband's resources**
  - Important
  - Not so important

- **Extended family**
  - Important
  - Not so important

- **Extended family**
  - Important
  - Not so important

**Important**

- Extended families
- Marital systems

**Not so important**

- Nuclear families
- ?

**Trends across Human Societies**

- Males maintain kin ties, even with matrilocal residence
- Females usually maintain kin ties, even with patrilocal residence
- Males cooperate in conflicts, both social and physical, against other males
- Females also cooperate, but seldom if ever do so in physical conflicts against other females.

**What determines Human Mating/Marriage Systems?**
What determines Human Mating/Marriage Systems?

Questions addressed:

• Can some of the variation in human marriage systems be explained by ecological factors?
• How does human reproductive behavior respond to local circumstances?
• Do humans behave adaptively?
• Do humans, in general, try to engage in behaviors that maximize fitness?
• Do these factors account for some of the variation seen in human mating systems?

Ecology & Mating Systems

Resource Distribution

Optimal competitive strategies of females (without males)

Unrealized Distribution of females

Optimal competitive strategies of males

Optimal competitive strategies of females with males

Observed distribution of females

Observed distribution of males

SOCIAL SYSTEM

Oneida Community

“Complex Marriage”

I saw in the middle of the midwinter’s night, in 1846, with the prospect of a newly formed and solid member of this human society, with a cloud of dispensations and decrees from my father, the President of the United States, and an appeal to the Legislature of New York, a vision Luigi Clio di Sacco, who commended to me that a brief course of instruction was given to the children who had been committed to my care and concern.

John Noyes, Founder
Human Marriage Systems

- General Polygyny: 51%
- Polyandry: 3%
- Monogamy: 51%
- Slight Polygyny: 3%

Polygyny and Social Stratification

- Monogamy: 1.55
- Slight Polygyny: 1.65
- General Polygyny: 2.05
Polygyny Threshold Model

Average Reproductive Success (RS) of Females

Why be Polygynous?

Polygyny in 19th Century Utah

Joseph Smith

Polygyny in 20th Century Utah

Polygyny amongst 19th Century Mormons

The “Law of Sarah”

“When a man who has a wife, teaches her the law of God, and she refuses to give her consent for him to marry another according to that law, then, it becomes necessary, for her to state before the President the reasons why she withholds her consent; if her reasons are sufficient and justifiable and the husband is found in the fault, or in transgression, then, he is not permitted to take any step in regard to obtaining another. But if the wife can show no good reason why she refuses to comply with the law which was given unto Sarah of old, then it is lawful for her husband, if permitted by revelation through the prophet, to be married to others without her consent, and he will be justified, and she will be condemned, because she did not give them unto him, as Sarah gave Hagar to Abraham, and as Rachel and Leah gave Bilhah and Zilpah to their husband, Jacob.” - Apostle Orson Pratt

Polygyny amongst 19th Century Mormons

Polygyny in 19th Century Utah

Polygyny in 20th Century Utah

Polygyny amongst 19th Century Mormons

The “Law of Sarah”
Polygyny amongst 19th Century Mormons

Number of Grandchildren

Number of Children

Fertility of Children

Polygynous women had fewer children, but those children had greater fertility

The Kipsigis

Hypotheses Tested

• Is higher bridewealth paid for brides who are likely to increase their husband’s reproductive success?
  • Do men pay higher bridewealth for women of high reproductive value?
  • Do men pay higher bridewealth for nulliparous women?
  • Do men pay higher bridewealth for women who provide reliable economic contributions?
  • Does the status of the bride’s kingroup influence bridewealth?
Reproductive Value

- Probable future reproductive success
- Reproductive value peaks around the age of menarche
- Contrasts with reproductive ability or fecundity which peaks around age 27

Age-specific expectation of future offspring

Do men pay higher bridewealth for women of high reproductive value?

Do men pay higher bridewealth for nulliparous women?

Does the status of the bride’s kingroup influence bridewealth?

Borgerhoff-Mulder, 1998

Borgerhoff-Mulder, 1998
Explaining Bridewealth Payments

Studies of Human Marriage

Borgerhoff-Mulder, 1998

Tibetan Polyandry

Carrying capacity of the land restricted to can’t be subdivided

Polyandry in Tibet

• One marriage per generation on agricultural estates
• Monomarriage means no sub-division of land

Polyandry in Tibet

• One marriage per generation on agricultural estates
• Monomarriage means no sub-division of land
• Economic release leads to changes in marital patterns
Polyandry in Tibet

- One marriage per generation on agricultural estates
- Monomarriage means no sub-division of land
- Economic release leads to changes in marital patterns
- Completed polyandrous family size is larger

Polyandry in Tibet

- Probable substantial reproductive variance amongst brothers.

Studies of Human Marriage

- Oneida
- Mormon
- Kipsigis
- Mosou
- Tibet

Stem Marriage in 18th-19th Century Ireland

What role did ecological or economic constraints have on postponement of marriage and reproduction?

Women (25-34 yrs) never married

[Bar chart showing comparison of marriage status across different regions.

<table>
<thead>
<tr>
<th>Region</th>
<th>1930's</th>
<th>1960's</th>
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<tbody>
<tr>
<td>Ireland</td>
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<tr>
<td>United States</td>
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<tr>
<td>Spain</td>
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</table>

Strassman & Clarke, 1998
18th-19th Century Ireland

- Only 1 child inherited ownership
- Only heirs allowed to marry
- Women needed a dowry to marry
- Potato allowed expansion of cultivation into previously unsuitable areas
  - Increased subdivisions
  - Increased marriage rates

Effects

- Marriage rates for farmers varied directly with the availability of farms
- Incidence of celibacy among male heirs increased as farm size decreased

The Celibacy Option

- Labor of unmarried siblings enhanced farm wealth
- Wealthier families had increased birth rates, decreased mortality
- Heirs of wealthier farms had higher reproductive success
• Probability of emigrating influenced by # of same sex siblings.

Emigration increased as economic opportunities in rural Ireland decreased

Immigrants improved their chances for marriage by leaving Ireland

Excess of females emigrated

Nine times as many people emigrated as remained celibate
Emigration Option

- Probability of emigrating influenced by # of same sex siblings.
- Emigration increased as economic opportunities in rural Ireland decreased.
- Immigrants improved their chances for marriage by leaving Ireland.
- Excess of females emigrated.
- Nine times as many people emigrated as remained celibate.
- Percentage of emigrants who married greater than those who stayed in Ireland.

Irish Immigration:
*Flight from Famine?*

Famine vs. Marriage Opportunities?

- Even before the famine had highest emigration rate in Europe.
- Continuing emigration in 20th century.
- Life expectancy of males in 1930’s was actually higher in Ireland.
- Alternative explanation: increased economic and marriage opportunities.

Studies of Human Marriage

- Kipsigis
- Mormon
- Oneida
- Tibet
- Mosou
- Ireland
- Mosou of China

“Walking Marriage”

Temporary consortships in matrifocal communities.
Mosuo - Luoshui Village

Mosou

!Kung Hunter-Gatherers
Next Time …

- Life History
- Contraception
- Abortion
- Infanticide
- Wet Nursing
- Assisted Reproduction