

# 7. Parenting

Lionel Tiger:

- Greater division of labor on Kibbutz vs. rest of Israel
- Women overrode men's desire for collective child raising

Parental investment inversely proportional to # of offspring  
e.g.: oyster

Investment must outweigh cost

Selective nurturing of own offspring => not done for good of species

# Parenting: How but not Why

Never addressed by the Nebraska Symposium on Motivation  
Across at least a third of a century

Sternberg: “The needs that lead many of us to feel unconditional love for our children also seem to be remarkably persistent, for reasons that are not at present altogether clear”

- Fitness
- Is it unconditional?

# Why do Mothers exceed Fathers?

*The Evolution of Parental Care*, Clutton-Brock, 1991:

“...greatest debt to my wife,... [who] looked after our children  
While I wrote about parental care.”

1. Paternal Uncertainty?
2. Abandonment?
3. Mating Opportunity Cost?

1-3 Not mutually exclusive

1 & 3 “most viable”

# H<sub>x</sub>1: Parental Uncertainty

1. Female may have already mated and become pregnant
2. Female may be secretly mating during consortship

1. & 2. Suggest that it may be more advantageous for female to invest

Males: Reproductive success must exceed costs of diverted resources

**Differential survival x probability of paternity must > extra siring:**

If paternity probability is 0.6 & # of offspring is 10

Six offspring will be his

$.5 \times (10 \times .6) > .2 \times 12$  (probability of survival x # genetic offspring)

3 genetic offspring > 2.4 genetic offspring

Male Parental Care > Opportunity to sire 2x as many (12) offspring

## H<sub>x</sub>2: Abandonability

1. Males can abandon offspring sooner
2. Benefits of parental care puts more intense evolutionary pressure on abandoned parent

External fertilization tends to reverse differential evolutionary pressure

Fish & Amphibians Investment:

Internal fertilization: 86% of species >

External fertilization: 70% of species >

### Problems:

- Confound with lower paternity uncertainty
- Simultaneous gamete release should => 50/50 abandonment

78% of 46 species >

“Hypothesis not powerful enough”

# H<sub>x</sub>3: Mating Opportunity Cost

- Greater for males (internal fertilization)

- High mating opportunity should      reduced parenting:

In fish where females come to males makes no cost of parenting  
High level of nurturance

- In situations where there is a surplus of males:

Males engage in higher levels of parenting  
(Abundant evidence)

# Nature of Parenting must Enhance Fitness of Parent

**Parental Favoritism:** Preferential allocation of Investment:

Toward offspring with higher probability of reproductive return

Operates for both parents

Father-child bonds universal across cultures

Sensitive to:

1. Genetic relatedness
2. Offspring's ability to convert parental care into fitness  
(Lynn Fairbanks)
3. Competition with other investment
  - Offspring vs. nieces & nephews
  - Vs. additional mating opportunities

# 1. Genetic Relatedness of Offspring

- Cleveland, OH:
  - 53% of Step-Fathers claim “parental feelings”
  - 25% of Step-Mothers “ “
  - (Why the direction of gender difference?)
- Trinidad: Step-Father interaction less frequent, more aggressive  
Step-children leave home sooner
- “Evil step-parent” a frequent literary theme across cultures



# Sources of Paternity Information

1. Mother's behavior at time of Conception
2. Perceptions of child's resemblance

# Child Resemblance

## Daly & Wilson, 1982:

- 111 videotapes of American births
  - 68 references to baby's appearance by mother (sedation/sound)
    - 80% per father's resemblance
    - 20% per mother's resemblance
- 526 questionnaires to new Canadian parents (25% response; 2°ó²)
  - 81% of mothers responded child was more similar to father vs. 19% who said more similar to mother
    - Convergence with American data!
  - 66% (vs. 34%) of mother's relatives did the same
    - Vs. 71% of Father's relatives (opposite of hypothesis)
  - First-borns: 62% of mother's relatives (vs. 52% of father's)
    - Paternity uncertainty highest?

# Resemblance, continued

Yucatan:

Relatives asserted father's resemblance more often

- Stronger propensity in mother & her relatives
- Stronger propensity with 1st born (convergence)
- Stronger propensity with newer relationships

# Actual Resemblance?

## Christenfeld & Hill, 1995:

122 subjects asked to match picture of child with parents  
Against 3 male & 3 female faces  
Equal # of male and female children

### **Father data:**

Responses random for pictures at 10 & 20 years of age  
49.2% accuracy with pictures of Same Children at 1 year of age  
50% for boys, 48% for girls

### **Mother data:**

Performance always at chance (contra primates; matrilineal)

# Why the Parent Differences

1. Evolved benefit from looking like father?
2. Evolution favored fathers with recognizable, transmissible markers?
3. Mother's advantage to evolve suppression of her physical expression?

Fathers invest more in recognizable offspring, fostering evolution of 1-3?

# Investment in Child's College Education

Anderson et al., 1997:

Predictions:

- Men will invest more in own genetic children
- Paternity uncertainty will reduce investment
- Investment will increase if child belongs to current mate  
Per mate attraction/retention

Subjects: 612 men in New Mexico parenting 1,246 children  
(1,158 genetic)

Data:

Any money for college

Amount

Percentage of college costs

# College Education, continued

## Outcome:

Genetic offspring:

- 5.5X more likely to receive support
- Received \$15,500 more support on average (1990 Dollars)
- 65% more of colleges expenses paid for

Low paternity certainty (caveat, n=6; under-reported?):

- Only 13% as likely to receive support
- Received \$28,400 less support (Confound with lower SES?)

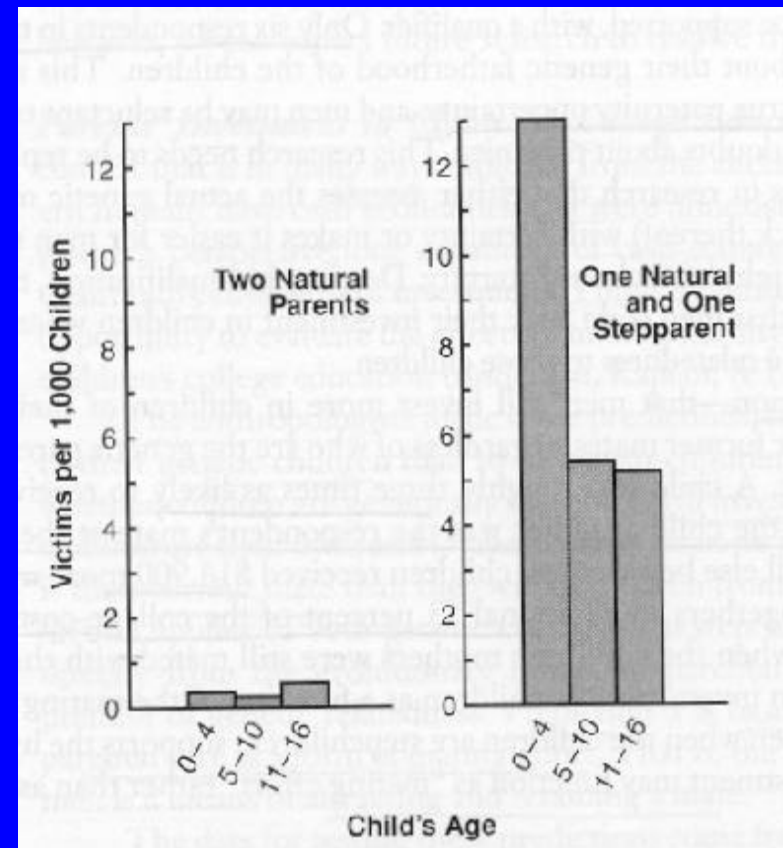
Current mate is child's mother (confound with divorce → ↓\$?):

- 3X more likely to receive support
- Received \$14,900 more support
- 53% more of college expenses paid for

# Risks of Un-Relatedness

- Secondary to marrying less desirable men?  
Design: Within family difference between natural & step
- Correlation between step-children & low SES, especially at younger ages?
- Does decline with age of child represent leaving abusive husband?

40X elevation in risk



Child abuse per capita, Hamilton Ontario, 1983



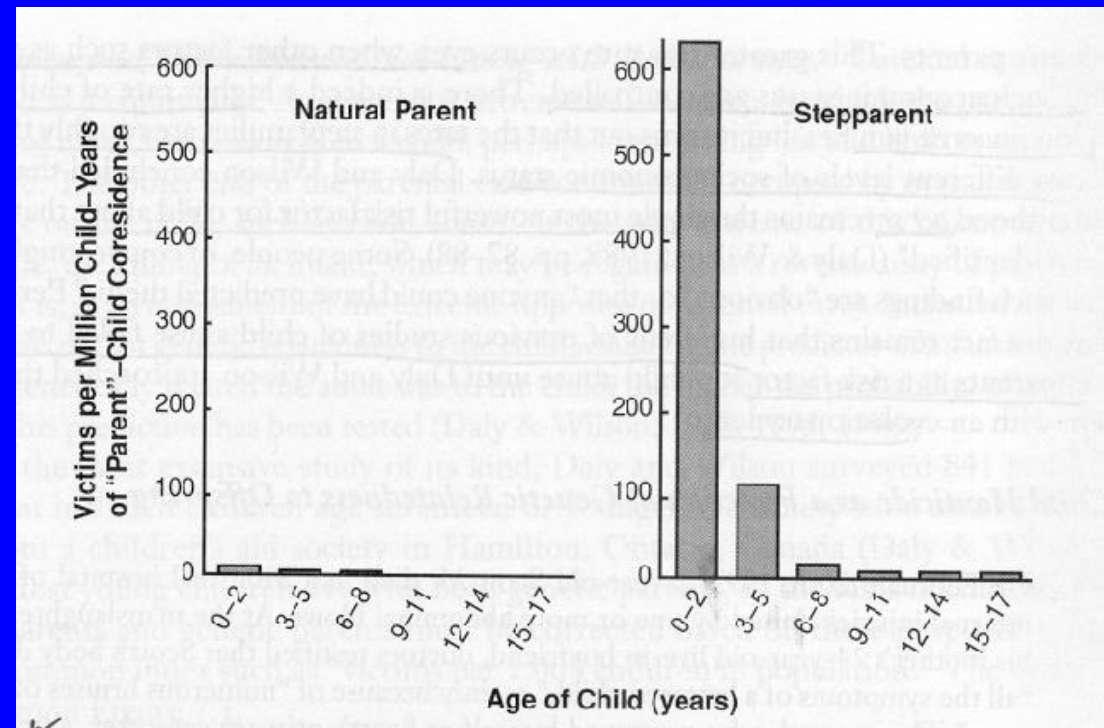
# Child Abuse, continued

- Higher rates of child abuse in low-income families
- But, rates in step-family abuse SAME across SES!
- Daly & Wilson, 1998:  
Step-parenthood *per se* is single most powerful risk for child abuse!
- Buss: Hundreds of previous studies of child abuse failed to identify step-parents as a risk factor!
  - Because they didn't assess this variable
  - Contribution of Evolutionary Psychology

# Un-Relatedness and Risk of Homicide

Risk 40-100X higher  
in pre-schoolers

Adultery (paternity?)  
mentioned as grounds  
for infanticide in 15/39  
societies where mentioned



Canada, 1974 - 1983

# Un-Relatedness and Risk of Homicide, continued

3 tribal societies insist upon infanticide where paternity questionable (physical features)

Oceania & Venezuela insist as a condition of marriage to mothers

Buss: Step-parenting is single greatest risk that has yet been identified!

## 2. Ability to Exploit Paternal Resources

Lynn Fairbanks

Reproductive Value related to Child's:

1. Age
2. Health

Conflict: Same unit of investment benefits an ill child more, (who could then replicate your genes) but devoting that same unit to a healthy child might have greater pay-off (probabilistically)

Unconscious psychological adaptive strategies of parents triggered by environment

# Health of Child

Institutionalization of seriously ill children:

A modern form of abandonment?

- 12% of institutionalized U.S. children never visited
- Additional 22% only visited once a year or less  
(Lantraman State: Trisomy, Post-drowning)

Rate of U.S. child abuse: 1.5%

7.5 - 60% in children with congenital abnormalities

# Health of Child, continued

Healthy Baby Hypothesis, Janet Mann, 1992:

7 premature twin pairs, discordant for health

Positive Maternal Behavior (both awake, father not present):

Kissing, holding, soothing, talking to, playing with, gazing

At 4 months:

Half of mothers favored healthier baby

Others showed no preference

At 8 months:

All mothers favored healthier twin

(Health correlated with Length of breastfeeding  
Negatively with Inter-Birth Interval)

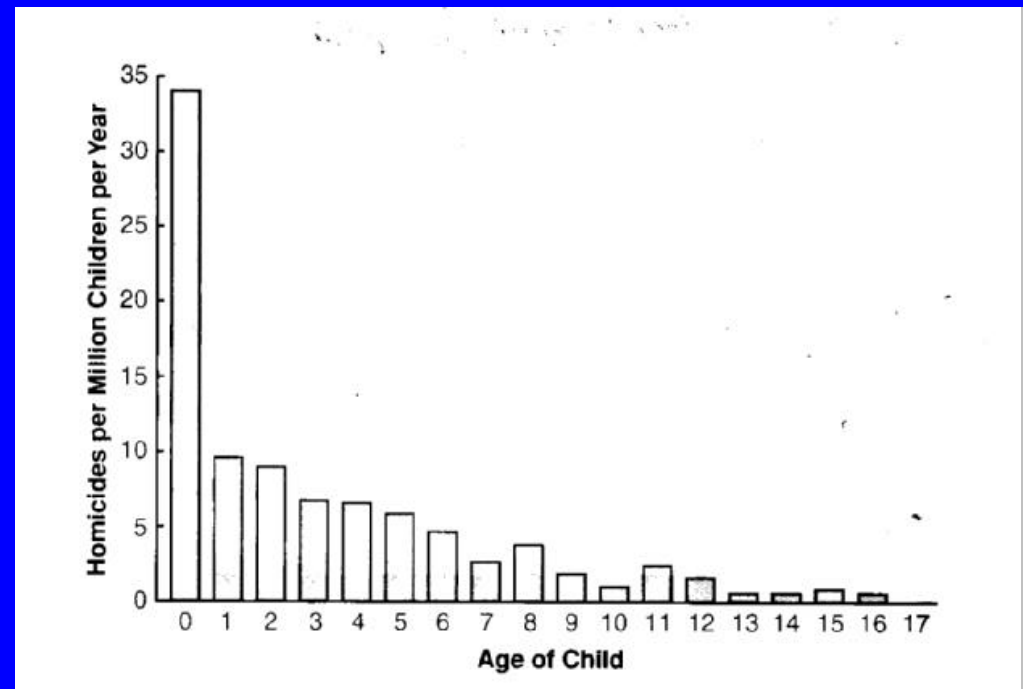
# Age of Child

Reproductive value:

- Increases from birth to pubescence
- Mortality higher in EEA

Daly & Wilson  $H_x$ :

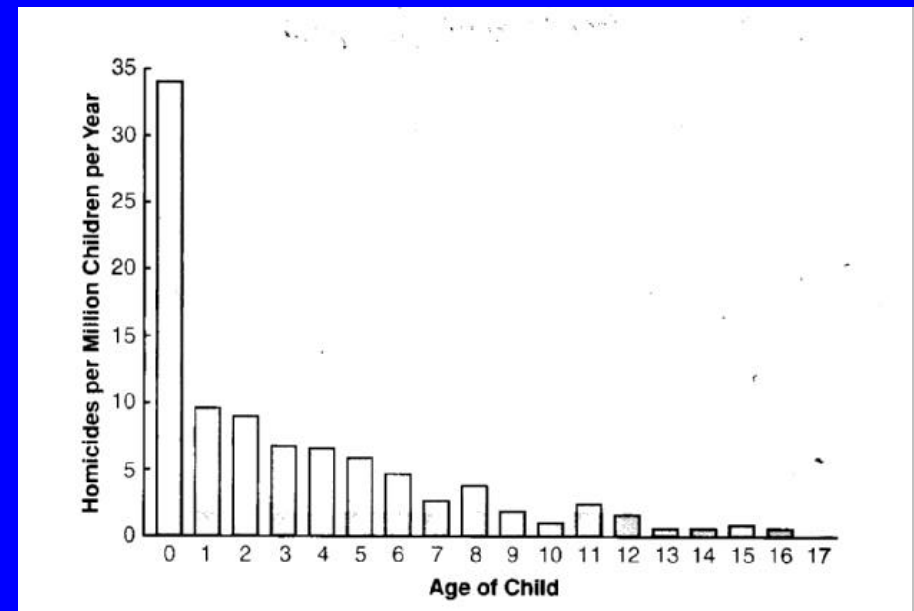
- 1) Homicide negatively correlated with age
- 2) Only with natural parents



Homicides by Natural Parents  
Canada 1974 - 1983

# Age of Child

- Secondary to Sleep Deprivation?
- Duration effect?  
If you are a killer, how long until you express it?
- Does parenting get easier with age of child?
- If you can take the disruption for the first 3 years, you can probably persevere

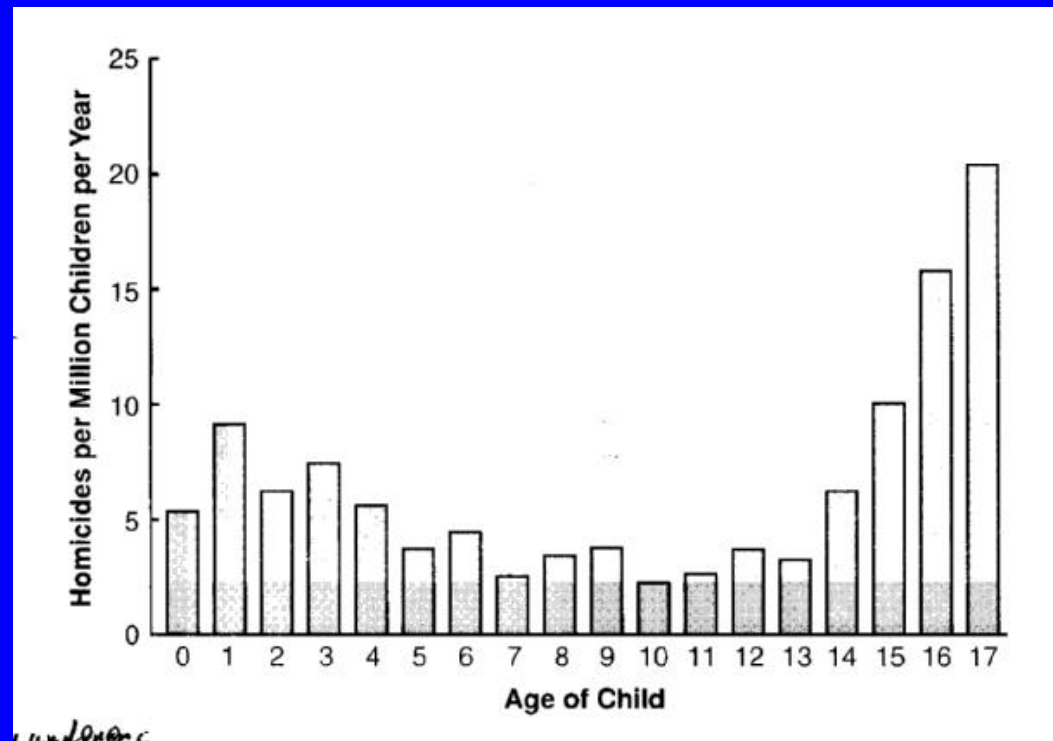


Homicides by Natural Parents



# Opposite relationship for Homicide by Non-Relative

- Controls for issues on previous slide
- In first year step-parents do better!
- Early time effect weaker
- Deaths due to step-parents?
- Why the increase at 17yrs?  
Sexual competition?



Same population, same time frame

# Homicide, continued

- Eleven ethnically diverse cultures report (Human Relations Area Files):
  - Child will be killed if birth interval too short or family too large
  - In all eleven cultures it is the newborn which is killed
- **Discriminative Parental Solitude** (Daly & Wilson, 1988):
  - Parents feel more favorable toward children with higher probability of converting parental resources into reproductive success
- Child homicide not an adaptation, just a **behavioral assay** of lack of parental feeling toward offspring

# Zero-Sum: Child's Competition with Other Resource Allocation

**Context** influences decision-making rules for allocation of resources:

1. Woman's age:

Younger women have more opportunity to bear offspring

2. Woman's marital status:

Children of an unwed mother consume resources which could be expended to attract a mate

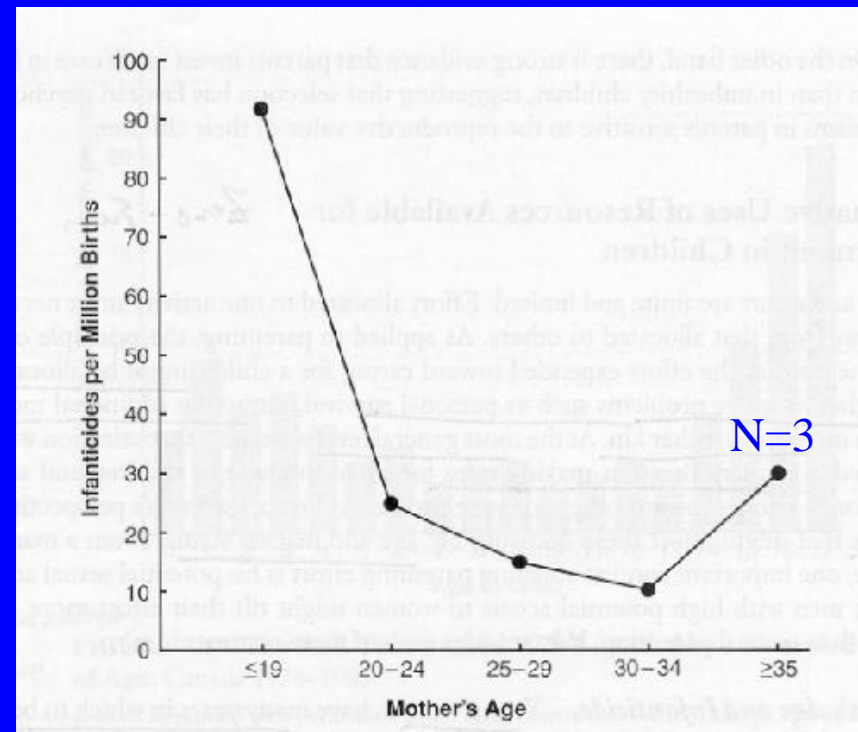
Predictions: Infanticide is related to mother's Age & Marital Status

# 1. Infanticide: An Assay of Maternal Investment & Age

Convergent with Ayoreo Indians:  
38% of all births result in  
infanticide

Greater proportion of primiparous  
below age 19?

Cohort Effects: Values, % Married,  
% planned, Resources of mate,  
Drugs?



Canadian Mothers, 1974 - 1983

## 2. Marital Status as Context

HRAF: The most extensive ethnographic database in existence  
(Human Relations Area Files)

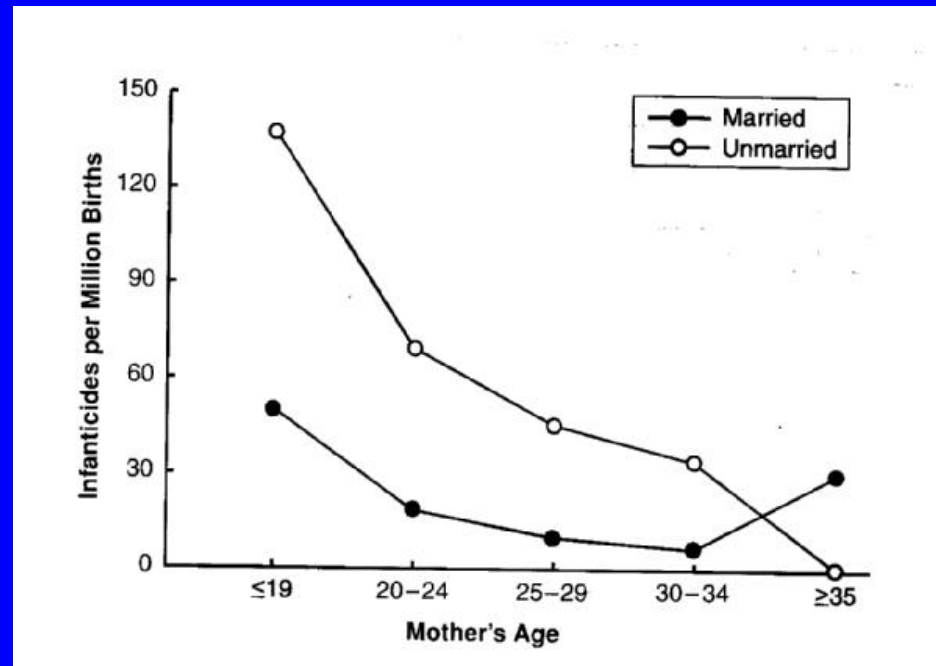
- Six Cultures: Infants killed when no male acknowledges or accepts child
- 14 Additional Cultures: Unwed status a compelling reason for infanticide

# Removing Age as a Confound

12% of births to unwed mothers

50% of infanticides by unwed mothers

Self-selection: Unwed mothers less responsible individuals in general (not in specific)



Canadian Mothers, 1977 - 1983

# Parenting vs. Mating Strategies

Across cultures, women spend more time interacting with offspring

Aka: “A society of mothering men”

Females exceed men

U.S.: 90% of single parents female

A culturally determined difference?

Slides of babies

17% increase in pupillary dilation in females

0% increase in males

An involuntary autonomic reflex

Slides of mother holding baby: 24% vs. 5% increase

# Parenting vs. Mating, continued

Mothers, but not Fathers, can identify own child by smell  
Within 6hr. *post partum*

Women, but not men:

Can identify tachistoscopic infant facial expressions  
**Unaffected** by previous experience



# Parenting vs. Mating, continued

Aka pygmies:

High status men polygynous

Low status men monogamous

Compensate by increased parenting

Smuts & Gubernick, 1992:

Rural Trinidad men interact with female's child more  
before they get married

A mating strategy?