Individual Differences

1. How do life history theory, costly signaling theory, balancing selection, and contingent shifts according to the environment predict individual differences? Give an example of each.

2. What aspects of our evolutionary past were likely to select for sex differences?

3. What is the evidence for sex differences in risk taking?

Birth Order

- Firstborns, middleborns and lastborns have different niches in a family.
- Salmon & Daly (1998) surveyed undergrads about who they were closest to.

Extended Family Involvement

Salmon (1999) hypothesized that the time spent with extended family (grandparents) would be a function of your parents’ birth order.
Multiple Mating Strategies

• Short-term strategy
  – Women - indirect benefits
  – Men - quantity of mates/offspring
• Long-term
  – Women - direct benefits
  – Men - quality of mates/offspring
• Mixed
• Conditional

(Gangestad & Simpson 2000)

Properties of Conditional Strategies

• Different behavioural tactics are consciously or unconsciously "chosen" by individuals.
• Choices are made in response to environmental cues, often relative mate value.
• Individuals are genetically monomorphic and can utilize the same set of possible tactics.
• A chosen tactic yields higher fitness given a current environment in situations like the EEA.

Good Genes Sexual Selection

• More symmetrical men (low FA) are chosen as extra-pair partners more often.
• Women report more orgasms with low FA partners.
• Women engage in more extra-pair sex during ovulation.
• Women emphasize attractiveness more in short-term mates.
• Ovulating women prefer the scent of low FA men.

Individual Differences

• Men with low FA report more extra-pair partners.
• Low FA men report less investment in their partners.
• Women with a less restricted sociosexual orientation prefer more symmetrical men and place more emphasis on attractiveness.
• What strategy would you expect high mate value women to pursue?

Population-Level Differences

• Men and women from high-pathogen areas place more importance on attractiveness.
• Pathogen prevalence correlates negatively with women’s rated desire for male characteristics signaling investment.
• High pathogen areas also have a higher probability of polygyny.
• Polygyny is more common where women have more control over resources.

Sex Differences in Homicide

• In 35 studies of homicide, between 85% and 100% of same-sex homicides occurred between men. (Most of the female-female homicides were infanticides.)
• Mass murderers and those who run amok are invariably men.
• The cause of male-male homicide is frequently intrasexual competition for resources or status.
Social Conflict Homicides

<table>
<thead>
<tr>
<th>Escalated</th>
<th>Showing off</th>
<th>Retaliation</th>
<th>Jealousy</th>
<th>Business</th>
<th>Family dispute</th>
<th>Other disputes</th>
<th>Insufficient Information</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>male killed</td>
<td>male killed</td>
<td>female killed</td>
<td>female killed</td>
<td>male killed</td>
<td>male killed</td>
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<td>female killed</td>
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<tr>
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<td>0</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Spousal Homicide

Data are from homicides recorded in Detroit, 1972; Miami, 1980; Houston, 1969; and Canada 1974-1983.

<table>
<thead>
<tr>
<th>males</th>
<th>females</th>
</tr>
</thead>
<tbody>
<tr>
<td>N cases</td>
<td>Suicides</td>
</tr>
<tr>
<td>711</td>
<td>238</td>
</tr>
</tbody>
</table>

Age and Sex

Sex Differences in Risk Taking

- Infant survival is more dependant upon maternal than paternal survival
- Men can more readily translate status and resources gained in risky activities to increased mating success
- Thus, we expect men to be riskier

Future Discounting

Organisms are expected to discount the future more or less steeply in response to cues of the utility of current versus future consumption.

Future discounting is likely to vary by sex and age, as well as in response to cues of the probability of surviving to reap future benefits and cues of social status or competitive position.

Calculating the K Parameter

\[
K \text{ parameter} = \frac{(future \$ - tomorrow \$)}{(delay \times tomorrow \$)}
\]

<table>
<thead>
<tr>
<th>$ tomorrow</th>
<th>$ future</th>
<th>Delay (days)</th>
<th>$ parameter</th>
<th>Interest rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>$34</td>
<td>$35</td>
<td>186</td>
<td>.000158</td>
<td>5.9 %</td>
</tr>
<tr>
<td>$54</td>
<td>$55</td>
<td>117</td>
<td>.000158</td>
<td>5.9 %</td>
</tr>
<tr>
<td>$78</td>
<td>$80</td>
<td>162</td>
<td>.000158</td>
<td>5.9 %</td>
</tr>
<tr>
<td>\ldots</td>
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<td>\ldots</td>
<td>\ldots</td>
<td>\ldots</td>
</tr>
<tr>
<td>$11</td>
<td>$30</td>
<td>7</td>
<td>.246753</td>
<td>4.55 \times 10^4</td>
</tr>
<tr>
<td>$20</td>
<td>$55</td>
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<td>.248848</td>
<td>4.55 \times 10^4</td>
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<tr>
<td>$31</td>
<td>$85</td>
<td>7</td>
<td>.250000</td>
<td>4.55 \times 10^4</td>
</tr>
</tbody>
</table>
In this task, individuals tend to make consistent choices, as if operating on some implicit personal interest rate (often astonishingly high!). The individual's estimated discount parameter is the geometric mean of the two boundary k values marking the switch from preference for money tomorrow to money in the future. The higher the k parameter the more steeply the future is being discounted.


In 2 replications in 1998, McMaster students discounted smaller rewards more steeply than larger ones (P<.001).

K Parameter

Average (+SE) k parameter value

<table>
<thead>
<tr>
<th>Delayed Reward</th>
<th>Men (N=66; 148)</th>
<th>Women (N=41; 171)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$30</td>
<td>0.26±.004</td>
<td>0.27±.005</td>
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<tr>
<td></td>
<td>0.30±.003</td>
<td>0.25±.002</td>
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<tr>
<td>$55</td>
<td>0.18±.004</td>
<td>0.18±.004</td>
</tr>
<tr>
<td></td>
<td>0.20±.002</td>
<td>0.17±.002</td>
</tr>
<tr>
<td>$80</td>
<td>0.13±.002</td>
<td>0.10±.002</td>
</tr>
</tbody>
</table>

Experimental Hypothesis

Experimental “induction” of a mindset analagous to courtship or mating effort will activate future discounting inclinations in men.

Recall . . .

Men are expected to discount the future more steeply than women, both because men are less likely to live to see the future, and because immediate, even total, resource expenditure is more likely to pay off for a man (as mating effort) than for a woman.

Will discounting increase after viewing pictures of attractive persons of the opposite sex?

Protocol:

9 pairs of monetary choices before seeing pictures
12 pictures of opposite-sex persons were rated on a 7-point scale according to their appeal.
9 pairs of monetary choices.
Pair of dice rolled: double 1’s wins dollar value of one randomly drawn choice. Post-dated cheque written.

9 paired choices before the pictures

<table>
<thead>
<tr>
<th></th>
<th>tomorrow</th>
<th>future</th>
<th>Delay (days)</th>
<th>k</th>
</tr>
</thead>
<tbody>
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<td>7</td>
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<tr>
<td>34</td>
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<td>186</td>
<td>.0001581</td>
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</tr>
</tbody>
</table>

Both men and women rated the High and Low Stimulus Sets differently

Both men and women rated the High and Low Stimulus Sets differently

p = .01
p < .001

1= unappealing & 7=very appealing
9 additional money choices matched with pre-image choices on k values

<table>
<thead>
<tr>
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<th>k</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>55</td>
<td>7</td>
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<tr>
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</tr>
<tr>
<td>54</td>
<td>55</td>
<td>117</td>
<td>.0001583</td>
</tr>
</tbody>
</table>

For men, the discount parameter was significantly higher after viewing attractive faces than unattractive faces. For women, there was no significant change.

Discount parameter $K = \frac{(\text{future} \$ - \text{tomorrow} \$)}{(\text{delay} \times \text{tomorrow} \$)}$

Change in discount parameter = (Post-image $K$ – Pre-image $K$)

Discount Parameter

<table>
<thead>
<tr>
<th>Discount Parameter</th>
<th>p &gt; .05</th>
<th>p = .01</th>
</tr>
</thead>
<tbody>
<tr>
<td>women</td>
<td></td>
<td></td>
</tr>
<tr>
<td>men</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Individual Differences

- Birth order
- Niche
- Conditional strategies
- Direct benefits
- Indirect benefits
- Good-genes sexual selection
- Future discounting
- K parameter

Infanticide may be expected when:

- The infant shows signs of being unrelated (men only)
- The infant is of poor quality
- The parent(s) would do better raising a child in a different circumstance
  - Too-short birth spacing
  - Lack of paternal support
  - Harsh circumstances (that have the potential to change for the better)

Evidence from the HRAF

Daly & Wilson (1984) collected 112 examples from 60 “independent” societies of circumstances in which infanticide was said to occur.

- 20 (18%) in case of non-paternity
  - 15 adulterous conception
  - 3 infant features were suspicious
  - 2 new step-fathers demanded infanticide
- 21 (19%) deformed or very ill infant

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Evidence from the HRAF

- 56 (50%) Poor circumstances
  - 14 twins
  - 14 mother unwed
  - 11 short birth interval, too many children
  - 6 no male support
  - 1 quarrel with husband
  - 6 mother died
  - 3 economic hardship
  - 1 wrong season
Mother’s Age and Infanticide

Older mothers are not as likely to commit infanticide, as they have fewer future chances to invest. These data are from 54 infanticides out of 141 births for the Ayoreo.

(Bugos & McCarthy 1984)

Marital Status and Infanticide

Canada 1974-1983.

(Daly & Wilson)