

# Parental Investment at the Margins

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- ❑ Parents face a trade-off between high investment in offspring versus high production of offspring (quality/quantity trade-off)
  - ❑ The more one invests in one (quantity/quality) the less that can be invested in the other (quantity/quality)
  - ❑ With each child a parent must decide on how much and for how long to invest
  - ❑ Extreme situations allow us to see the factors that influence parental investment decisions
  - ❑ Research on infanticide and parental responsiveness will be addressed
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# The Puzzle of Infanticide

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- ❑ Like abuse and neglect of children, infanticide makes no apparent evolutionary sense because it reduces fitness
  - ❑ Nevertheless, there appear to be situations when it might be better (from a fitness and not a moral perspective) to sacrifice an infant to enhance future reproduction or safeguard the success of current children
  - ❑ Infanticide is a decision to end investment & most commonly occurs in societies without effective means of contraception
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## *Reasons for Infanticide* from an evolutionary perspective

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- Using evolutionary theory, Daly & Wilson predicted that infanticide would occur under three general conditions:
    1. uncertain paternity
    2. defects in offspring
    3. lack of parental resources to successfully rear the child
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# Data collection and methods

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- From the HRAF Daly & Wilson analyzed the 60 societies in the probability sample. They found that 39 societies (65%) practiced infanticide. Of these, 35 gave reasons for infanticide with a total of 112 reasons for infanticide (many societies gave multiple reasons for infanticide).
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# Methods of Analysis and Results

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- These reasons were placed into four categories: the three deduced from evolutionary theory by the researchers and a fourth was were a collection of reasons that could not be classified from an evolutionary perspective.
  - Of the 112 reasons, 97 or 86% fell into one of the three evolutionary explanations.
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## *Evolutionary Reasons for Infanticide in a Representative Cross-Cultural Sample of Societies*

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Reason 1: Is the infant the offspring of the mother's current husband?

<input type="checkbox"/> Number of instances	20 (17%)
<input type="checkbox"/> Adulterous conception	15
<input type="checkbox"/> Non-tribal sire	3
<input type="checkbox"/> Sired by mother's first husband	2

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# Evolutionary Predictions

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Reason 2: What is the infant's quality, and hence its ability to convert parental assistance into eventual fitness?

- Number of Instances 21 (19%)
    - Infant deformed or very ill 21 
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# Evolutionary Reasons

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Reason 3: Are present circumstances favorable for child rearing?

<input type="checkbox"/> Number of Instances	<b>56 (50%)</b>
<input type="checkbox"/> Twins	14
<input type="checkbox"/> Birth too soon or too many children	11 
<input type="checkbox"/> No male support	6
<input type="checkbox"/> Quarrel with husband	1
<input type="checkbox"/> Mother died	6
<input type="checkbox"/> Mother unwed	14
<input type="checkbox"/> Economic hardship	3
<input type="checkbox"/> Wrong season	1

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## Non-evolutionary reasons

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□	Number of Instances	<b>15 (14%)</b>
■	Female infant	4
■	Eliminating claimants to throne	2
■	Ritual purposes	3
■	By maternal grandfather	
	out of enmity with son-in-law	1
■	By matrilineal male kin to avoid	
	obligation to “sister's sons”	1
■	To avoid lactational sex taboo	1

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Modified from Daly and Wilson, 1984

# What does this all mean?

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- ❑ The degree to which a woman is willing to invest in a child is conditional. Three of these conditions are documented in the Daly & Wilson model of infanticide.
- ❑ The above point is extensively made in Hrdy's *Mother Nature*. She demonstrates that the nature of motherly love is contingent.
- ❑ If, for example, a child is born deformed then the mother will have an emotional reaction (depression or inability to bond) to the child that will diminish her willingness to care for the child.
- ❑ However, these reactions may be mediated by social factors. For example, twin killing is sharply decreased when a mother has alternative caretakers (sisters & mothers) who can assist her in child care.
- ❑ Finally, post-partum depression is also associated with a lack of social support. That is, depression occurs when a woman believes that husband and/or others are not likely to assist them in their time of need. A cry for help.



# What has evolved?

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- ❑ A mother's reaction to her newborn is dependent on factors relevant to her ability to successfully rear the infant and the quality of the infant.
  - ❑ This is not to suppose that a mother is making a rational cost-benefit analysis.
  - ❑ Rather a mother has a range of emotional reactions that affect her behavior and attitude towards the infant.
  - ❑ These reactions are most likely culturally mediated (i.e., the reaction is affected by cultural knowledge of the acceptability of infanticide or the availability of alloparents to assist the mother in difficult situations).
  - ❑ The behavior itself is **not** adaptation per se but rather the contingently variable emotional reaction that motivates the behavior is.
  - ❑ An evolutionary explanation does not provide an automatic moral justification for infanticide, abuse, neglect or any other behavior
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# The Case of Twin Infanticide

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- **Granzberg's research on twin infanticide:** using a large HRAF data set he found 70 societies with information on the killing of twins. He cross-classified the killing of twins with amount of maternal support from relatives such as sisters and mothers. He discovered that twin killing occurred in 16 of 37 societies where mothers had little or no support but only 2 of 33 cases where mothers had considerable support.
- It should be noted that in the 18 cases of killing because of twinning, only in 2 cases were both twins killed. The one killed is the weaker, smaller, or female.



# Children at risk

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- There is a literature on “children at risk” and it frequently occurs among children who have serious congenital or developmental problems: they are more likely to be abused or neglected than other children
- It is clear some parents make heroic efforts in caring for children with serious problems. These parents are an exception.



# The Effect of Birth Intervals on Infant Survival

