

# Gender-biased infanticide in contemporary Slovakia

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In our research we have discovered gender-biased infanticides in contemporary Slovakia. Newborn boys in Slovakia are three times more likely to become the victims of infanticide after the collapse of Communism 11 years ago. After a theoretical background on infanticide, I refer to the results of a pilot study on infanticide in Slovakia during 1981-1997 and then I suggest a new multi-national comparative study on infanticide in contemporary Europe.

## ***Introduction***

Due to discovery of “gender” and a gender discrimination we are starting to ignore the sex discrimination in society. Although, it is sometime very difficult to distinguish between “gender” and “sex”, what I have on mind is a discrimination in society based on the biological aspects of sexes. As they are, for example, reflected in a different reproductive potential.

We all know it from news and always we are horrified by it: a baby found in a plastic bag deposited in a litter bin. Could be something more sociopathological? “Killing your baby, what could be more depraved? For a woman to destroy the fruit of her womb would seem like an ultimate violation of the natural order.” With this words Steven Pinker starts his controversial article in New York Times on infanticide, or more specifically, on neonaticides<sup>1</sup>.

The term “domestic violence” has been used to describe actions or omissions in family relations that may include physical, sexual, psychological and mental violence. Its victims are among the most vulnerable and powerless, including women, children, the elderly and the disabled<sup>2</sup>. In order we are able to prevent various forms of domestic violence we have to start with the understanding the causes. Further, I will focus on one type of domestic violence – neonaticide.

Neonaticide, killing newborns by their own mothers, is one of extreme forms of domestic violence. Every year hundreds of mothers kill their own newborn children or let them die. Statistics covers only the tip of iceberg – most neonaticides in world remain undiscovered.

Just to have a view how frequent is neonaticide, I have compared infanticide rates (killed children under 1 year per 100 000 births) based on the World Health Statistics Annual<sup>3</sup> from 29 different countries around the world including countries from Europe, North and South America, Australia (no Asia and Africa). I have compared data mostly from the year 1995. Average neonaticide rate is  $7.2 \pm 5.4$  (median = 6.4) and it ranges from as high as 19.6 in Lithuania, 19.5 in Hungary or 18.5 in Russia to as low as 2.1 in Spain, 2.0 in Greece, 1.9 in Sweden. At the same time the average total homicide rate (killed per 100 000 population) is  $13.9 \pm 13.7$  (if we exclude extreme homicide rates 146 in Colombia). In other words, child

under one year old has a comparatively same chance to be killed as to be a victim of homicide as an adult.

We know that neonaticide has been with us for centuries. It has been practised as a brutal method of family planning. In times when modern methods of contraception were not available and abortions were seen with danger for the mother's life and future derogation of women's reproductive capacity, neonaticide was a common solution to the problem of unwanted children.

Where infanticide has occurred it is likely to have been gender biased – usually against females. In recent years, prenatal sex determination and sex selected abortion have facilitated the process of delivering offspring of the sex of choice. In many countries the availability of such techniques has led to increased abortion rates of female fetuses.<sup>4</sup> In societies where boy children are still valued economically and socially above girls, unequal gender population figures indicate that it remains widespread. In some areas of China, India and Pakistan, the asymmetry among genders has been reported to be as high as 5:1 towards males. This is the reason why the China's one-child policy has been criticized because it encourages infanticide of female babies.

### ***A short view to the history of Infanticide in Europe***

In spite of lower occurrence of this phenomenon in the second half of the XX century the infanticide still remains the highest single risk factor of child homicide, as supported by the results from countries like United States, Australia, Canada and United Kingdom. As noted at the [UNICEF Children and violence web-page](#), "...contrary to the usual assumption that the infanticide is an Eastern rather than a Western problem..." killing of illegitimate as well as legitimate children in Europe regularly continued up into the XIX century.<sup>5</sup>

Infanticide has been probably practiced by many different cultures throughout human history. Historians have tended to deny the existence of massive infanticide during the Middle Age in Europe. Europe has been very hypocritical on infanticide. However, literary sources reveal that "the rivers and latrines of medieval Europe resound with the cries of children who have been plunged into them". As Richard Trexler has shown Western Christian society has traditionally associated infanticide with cultural inferiority and under the male-dominated perspective. Infanticide was regarded

"almost exclusively as a female crime, the result of woman's inherent tendency to lechery, passion, and lack of responsibility... Oriental or primitive societies' control of the infant population was more comprehensible. They were godless and culturally inferior. Missionaries appealed to the shocked sensibilities of Europeans to raise money to buy Chinese infants so their souls and bodies could be saved. Ironically, the good people of Europe contributed to the cause at the very time when Europe could no longer ignore its own infanticide."<sup>6</sup>

Modern historical research is revealing that infanticide was a fact of life in Florence during quattrocento and cinquecento, as well as in other European cities – for example Nürnberg or Paris, or in the later Middle Age England. One very interesting aspect which has to be studied in future is the link between an infanticide and wet nursing, for example in Renaissance Florence mentioned above or in imperial Germany<sup>7</sup>.

## ***Infanticide in wider biological and evolutionary framework***

Infanticide is not a human specific phenomenon, it appears in animal world. When infanticide among monkeys was first observed in the 1960s by Sarah Hrdy in langurs and by her student in macaques, biologists were horrified by the fact not for anthropomorphic sentiments, but that the phenomenon did not fit into the classical Darwinian paradigm dominated in that time by “the group selection” theory. Infanticide should not exist because killing its own offspring is against “the good of species” and therefore biologist saw animal infanticide as abnormality caused by human interference (overpopulation of monkeys due to human agricultural activities). However, new wave of evolutionary theory that began in the 1970s started to explain infanticide as a normal adaptive behavior and later it was found as a behavior typical of certain species within every major group of animals (in birds, fish, insects and among mammals mostly in rodents, carnivores and primates).

We have to note that most of this animal infanticide is a different from human neonaticides mentioned above. In mammals killers are usually not mothers, but stranger males genetically not related to offspring that by killing suckling baby accelerate the mother’s sexual availability. For example, stranger male lions overtaking pride kill the cubs. If cubs were not killed the female would not come into estrus for 25 months (suckling prevents ovulation). By killing the cubs females come to estrus after 9 months. Since lion males usually stay with pride 2-3 years before they are replaced by another younger and stronger strangers it could happen - if there were not infanticide taking place - that they would not conceive their own offspring.

What edification comes from this is that infanticide can serve as one of other strategies of reproductive behavior. Evolutionary psychologists are trying to apply Darwinian perspective for description of human social behavior. For example, kin selection theory can explain why, for example in the United States, a child living with a stepparent is 100 times more likely to be killed than a same-age child living with genetic parents<sup>8</sup>.

### **Trivers-Willard hypothesis**

According to a classical R.A. Fisher’s equilibrium sex ratio theory parents should allocate investment equally between two sexes when daughters and sons are equally costly produced. It holds for human as well as for non-human living beings. However, under specific circumstances parents might bias sex ratio of their offspring. According to Trivers and Willard<sup>9</sup> mothers in good conditions bias investment toward offspring of the sex most likely to benefit from mother’s advantaged situation and when the expectations of reproductive success of the offspring differ by sex. In many cases parents should produce sons when prospects are good to use male’s greater reproductive potential than the lower daughter’s reproductive potential.

### **Mother’s manipulation with sex ratio**

A large South American rodent, the nutria or coypu is able to adjust its offspring sex ratio according to environmental condition. When conditions are good, fat and healthy female coypu selectively aborts daughters. When diet of female opossum is experimentally manipulated, female receiving food supplements produces about 40 percent more male than female offspring. Experiments with mice have shown that crowding and caloric deprivation can produce biased sex ratio. In spider monkeys low-ranking mothers produce all daughters whereas high-ranking mothers have an equal sex ratio and carries sons for a longer period than their daughters. There are several examples how birds are violating equal sex ratio of their offspring. One of the most extreme examples are the Seychelles warblers. Recent study revealed that mothers facultatively skew the sex of their offspring in favour of daughters

when living on territories with rich resources (warbler sons leave nests, daughters stay and help parents).

According to the maternal dominance hypothesis<sup>10</sup> human mothers are able to manipulate with sex of an infant through the hormones (very likely testosterone, even it is present in women in only tiny amounts) of reproduction, so the sex of offspring is not only a matter of chance. Women whose scores high (top 20%) on measures of dominance in the special personality test are five times more likely to conceive sons than are women at the bottom of the scale. The hormonal mechanism by which the female reproductive system discriminate between X and Y sperms remains to be discovered. What would be the reason for sex manipulation of offspring in humans? According to Valerie Grant, the author of the hypothesis, since the dominance makes males sexually attractive to females it could pay a dominant woman to pass on her genes for dominance to male offspring.

### ***Postpartum Depression***

It was found that mothers who kill their older children are frequently psychotic, depressed or suicidal, but mothers who kill their newborns are usually not<sup>11</sup>. Therefore infanticide is usually linked with *postpartum depression symptoms (PPD)*.

Mothers with postpartum depression (PPD) exhibit fewer positive emotions and more negative emotions towards their infants, are less emotionally available, less responsive and less sensitive to infant cues, have a less successful maternal role attainment, and have infants that are less securely attached. PPD is a depressive episode with onset occurring one month postpartum. Three correlates of PPD are consistently found by researchers: marriage problems and lack of social support, particularly the father's, infant problems, including pregnancy and delivery problems, and a prior history of depression or other emotional problems. According to Edward Hagen from the UCSB postpartum depression can be seen as an "adaptation" strategy for mother to escape from costly situation. If an offspring is unlikely to survive to reproductive age, it would be better for the mother to invest her time, energy and resources in either existing or hopefully more viable future offspring. He thinks that during our evolutionary history, neglect and infanticide may have been two common forms of defecting from the child raising venture, and both are widely reported in a diverse array of societies. Daly and Wilson<sup>12</sup> in their cross-cultural study on the circumstances under which parents commit infanticide in 35 different societies have strongly supported the view that when parents kill their children it is because they feel they will be unable to raise them successfully due to lack of paternal or social support, and poor infant viability (as well as a lack of non-social resources): lack of paternal or social support 41%, lack of sufficient resources 27%, poor infant quality 19%, paternity uncertainty (and thus reduced or no paternal investment) 18%, mother unwed 12%, too many kids, or too soon 11%.

### ***Infanticide is defined as a lesser crime than murder***

In Slovakia, as in many other European countries, killing the child at or immediately after birth (within 24 hours) is not considered to be a first-order homicide, and it is treated under a different article of the Criminal Code. Article 220 is for an infanticide and article 219 for a homicide in the Slovak Criminal Code. Infanticide is punished less severely than murder (article 219), because mother is considered to acts under the psychic break caused by childbirth (postpartum depression). For example, infanticide is punished in Slovakia from 3 to 8 years (article 220 of Slovak Criminal Code), in neighboring Austria from 1 to 5 years

(article 79 of Austrian Criminal Code), but in Switzerland from 3 days to 3 years (article 111 of Swiss Criminal Code).

## ***Gender/sex selective infanticide***

### **India**

The correlation between preferential female infanticide and socio-economic status has been documented for pre-industrial India, China and Europe<sup>13</sup>. One of the most extreme example comes from Dickemann's classical study of some Rajpun castes in XIX century India. In this high caste almost all newborn daughters perished. Even after British law enforcement the sex ratio of 420 males to every 100 females was reported. Similar data are available for other numerous castes in Northern India. It is well known that female-selective abortion is practiced in contemporary India using a modern amniotic sex determination technique. The similar situation is known from contemporary China as a reaction to one-child policy.

### **The Mukogodo**

In contrast to common male offspring preference it is hard to find evidence for the preference of daughters. One of few exceptions is a recent case study of the Mukogodo people in central Kenya which has revealed parental effort favouring daughters and a tendency of parents to neglect sons<sup>14</sup>. The Mukogodo people recently changed their life from foragers and beekeepers to a sheep- and goat-herding. They are considered by neighboring tribes, like the Maasai, as not civilized, low-ranking people. The Mukogodo acquire cattle, sheep and goat mostly as bridewealth when daughters married men from neighboring herding tribes. For Mukogodo men it is much harder to find wives than for the men from other tribes. Cronk has found female-biased sex ratio of Mukogodo offspring. Although he was not able to find evidence for male-selective infanticide, he discovered significant higher care on daughters than sons: parents take their daughters more often than their sons for treatment to a local Roman Catholic mission.

Cronk interprets the parental behaviour of the Mukogodo people as an example of an adaptive response to the recent rapid economic transition, which put these people at the bottom of a regional hierarchy of wealth, in agreement with the Trivers-Willard hypothesis.

### **Hungarian Gypsy population**

Berezkei and Dunbar<sup>15</sup> have shown recently that Hungarian Gypsy population also invest more in daughters than in sons. They studied two Gypsy populations, rural and urban and compare them with two sympatric Hungarian populations (villages on close proximity and similar size).

First, more daughters than sons are born among Gypsies: 86.7 sons per 100 daughters as compared with 142.9 sons per 100 daughters among Hungarians (in case of first-born offspring and for pooled ethnic samples).

Second, Gypsy mothers are more likely to abort after having had one or more daughters, while Hungarians are more likely to do reverse. It makes sense if one sex is (reproductively) more valuable, so mother is trying to manipulate birth history in order to increase the number of children of desired sex.

Third, daughters are breast-fed longer (about 50%) than sons among Gypsies, while there is no difference in the duration of breast-feeding between sexes among Hungarians. Moreover, number of years of education completed by Gypsy girls (and Hungarian boys) was higher as compared to Gypsy boys (and Hungarian girls, respectively). Typically, the difference was more than one year.

Why there is a preference for daughters over sons among Gypsy population? According to Bereczkei and Dunbar their findings provide strong evidence in support for the Trivers-Willard hypothesis. In line with the predictions of Trivers and Willard populations living in poor socio-economic conditions (as Gypsy population) would prefer daughters over sons, because of possible marrying up. Gypsy women are more likely than Gypsy men to engage in exogamous marriages – almost one third of Gypsy women in the urban population do so. Bereczkei and Dunbar have shown that preference for daughters is a reproductive strategy which pays: on average Gypsies gain much more grandchildren through their daughters if their daughters have the opportunity to marry up into the Hungarian population. It is known that gypsy woman that marry Hungarian men have infants with lower mortality rates as corresponds to higher birth weights.

### ***Infanticide in contemporary Slovakia : Results of a case study***

I have analysed the Homicide Statistics of the Slovak Police for the years 1981-1997. The motivation was to find if there is a similar high correlation between the presence of stepparent in the family and risk of child to be victimized, even killed. Unfortunately, Slovak statistical records are not keeping the information about genetic relationship between killers and their victims. But since the homicide data distinguish the sex of victims, I have measured the sex ratio of child homicide victims and I have found that there was more male children killed in 1981-1997. I started to look at the data in a more detailed view.

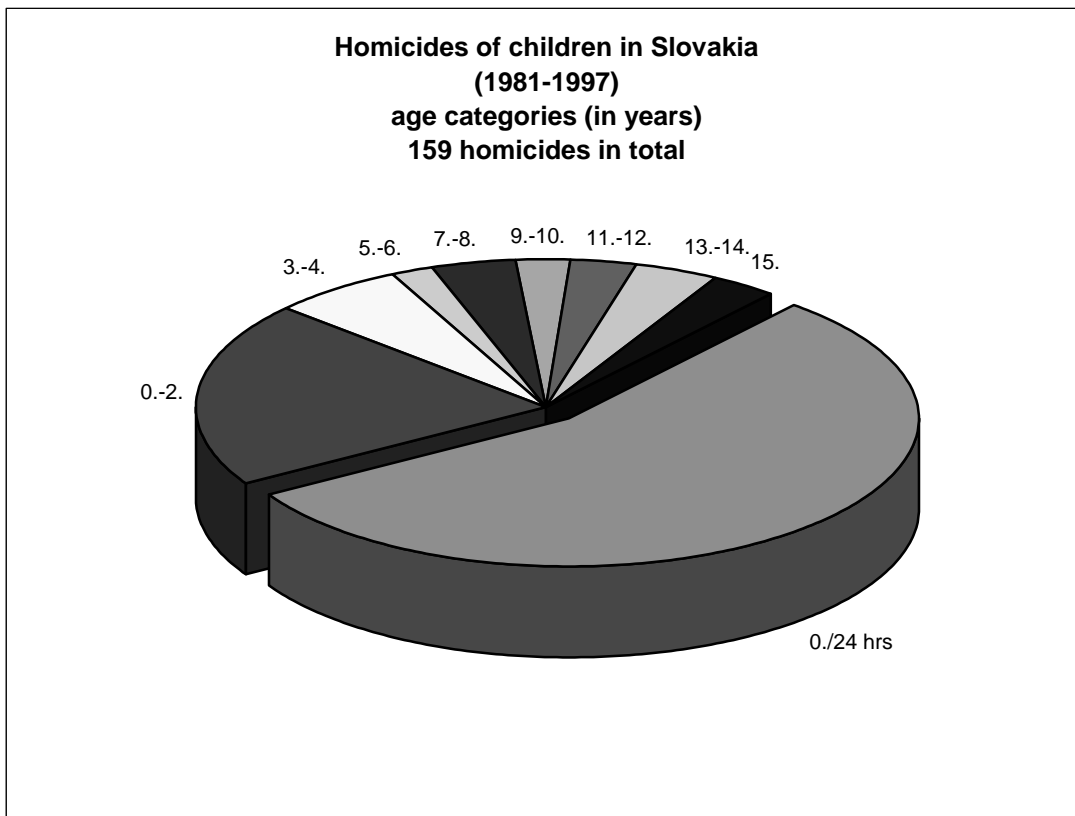
#### **1. Infanticide is the highest single risk factor of child homicide**

An analysis of 159 child homicides in Slovakia during the period of 1981-1997 involving victims under the age of 15 years showed that more than half, 55.3 per cent, had been killed as infants by their mothers during the first 24 hours after the birth, 88 cases in total, classified according to article 220 of the Slovak Criminal Code (Fig.1).

*Tab. 1: Age distribution of victims of child homicides in Slovakia during 1981-1997*

Age of victims	Within 24 hours	0-2 years	3-4 years	5-6 years	7-8 years	9-10 years	11-12 years	13-14 years	15 years	Total
Number of cases	88	32	10	3	6	4	5	6	5	159
Percent of total	55.35	20.13	6.29	1.89	3.77	2.52	3.14	3.77	3.14	100

Fig. 1: Homicides of children in Slovakia during 1981-1997



Children victims of first-order homicides under the age of 2 represent 20.13 per cent of all child homicides. Fraction of higher age categories of child victims ranks from 6 to 2 percent. From data about follows that the highest risk to be killed as a child is immediately after the birth within 24 hours by its own mother. Similar pattern of child victim age distribution have been reported from the other countries like United States, Australia, Canada and United Kingdom. Infants and very young children are often found to be the age group most at risk. For example in the UK under-one-year-olds are four times as likely to be victims of homicides as any other age group.

## 2. Infanticide rate declines maybe as a result of contraception use

Data shows that an infanticide rate (killed newborns per 100 000 births) does not copy the steady decline in births thorough 1980-1990s (see Fig. 2) However, infanticide rate shows similar “hill” pattern to the abortion rate (number of abortions per 1 birth): increase in the 1980s and then decrease in the 1990s (see Fig. 3, note that extreme values of infanticide rate for 1988 and 1996 are excluded). We have no explanation for this similarity, maybe it is purely coincidental, maybe it corresponds to an increase of use of contraception in Slovakia in the 1990s.

Fig. 2: Births and Infanticide in Slovakia during 1981-1997

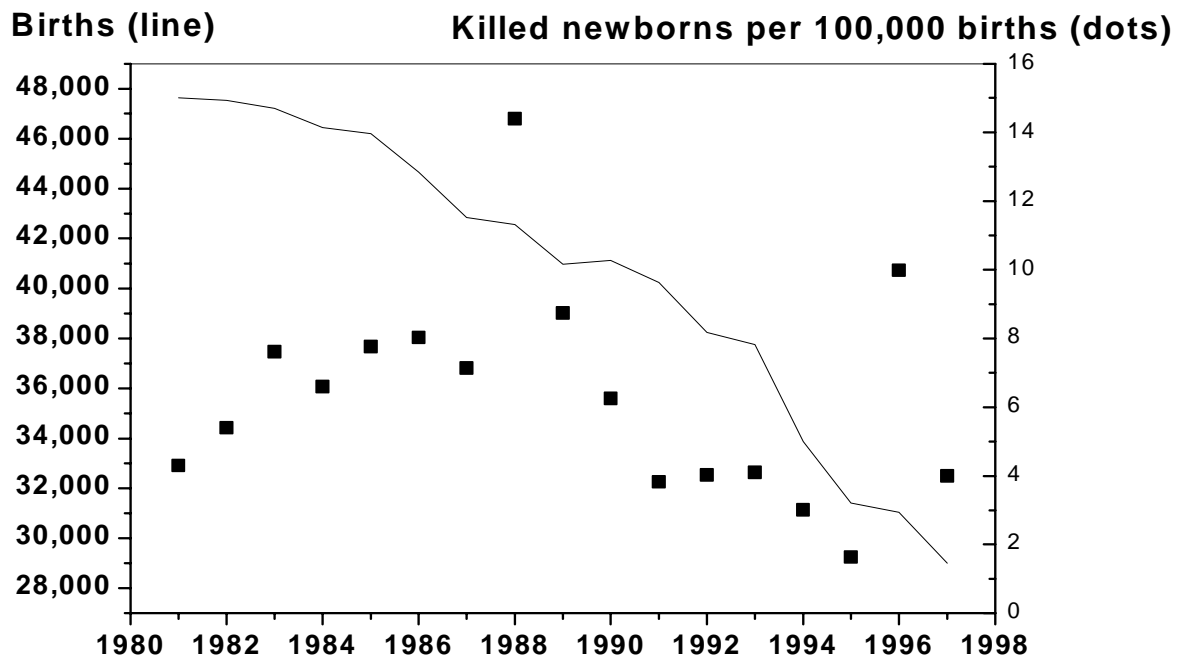
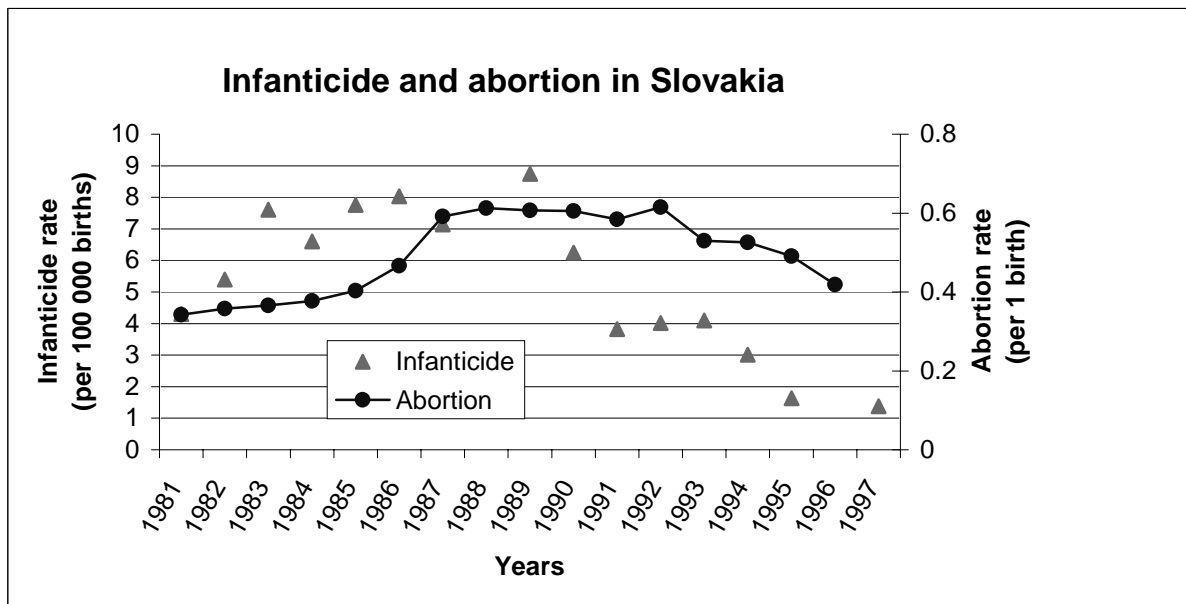


Fig. 3: Infanticide and Abortion rates in Slovakia during 1981-1997



### 3. Sex-biased infanticide after the collapse of communism

We have also compared the mean sex ratio of infanticides among newborns in the years before and after the fall of the communist regime in Slovakia. The analysis of the sex ratio is based on the identification of as many as 88 newborn homicides (children killed by their mothers within 24 hours after birth) according to police coding within the national

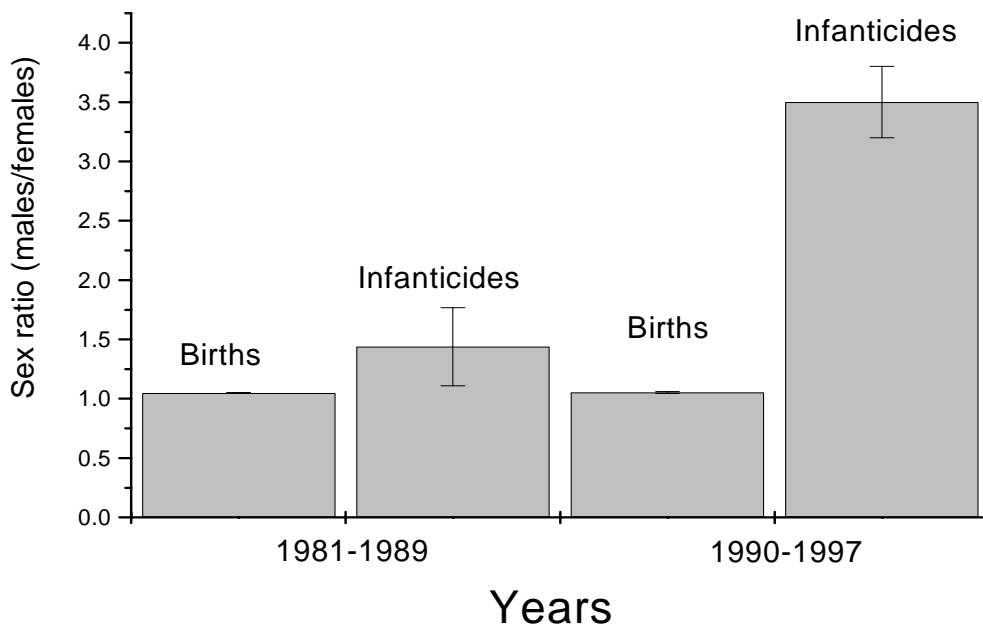


Fig. 5: Sex ratio of killed newborns before after the collapse of Communism in 1989

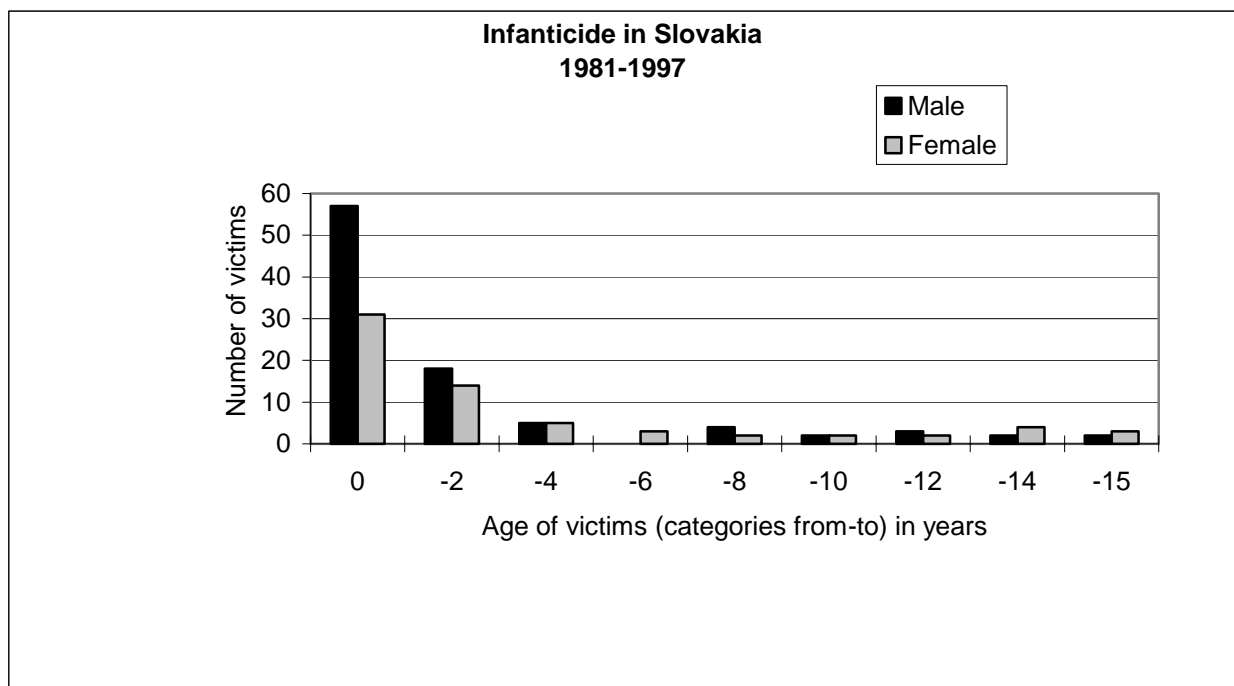


Fig 6. Infanticide in Slovakia - sex and age categories

statistics of all homicides known to have occurred in Slovakia from 1981 to 1997. The mean sex ratio (males/females) of infanticides among new-borns between the years 1981-89 before the socio-economic shift was 1.44 (36 killed sons compared to 25 killed daughters), which is not a statistically significant deviation from the birth sex ratio (  $n=61$ , chi-square = 1.026,  $p>0.22$ ,  $df=1$ ). In contrast, the sex ratio of infanticides among new-borns after the fall of Communism between 1990-1997 rose as high as 3.5 (21 killed sons compared to 6 killed

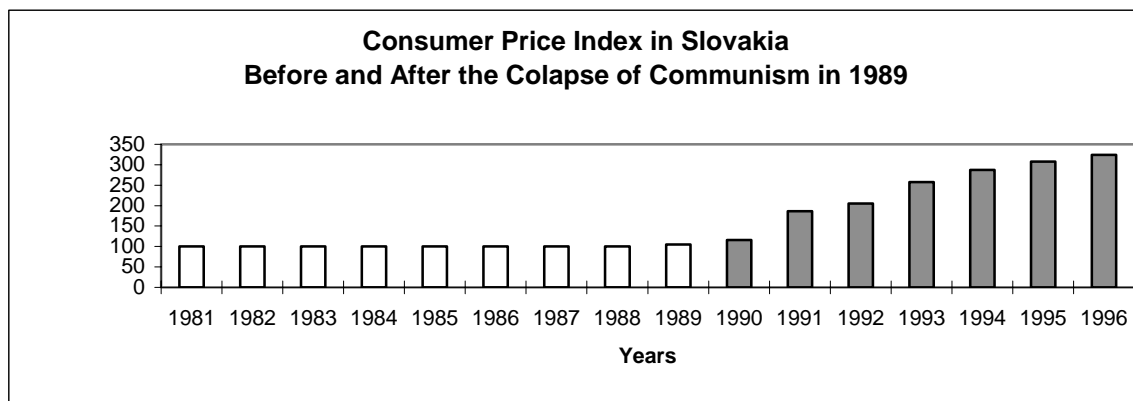
daughters), which is a statistically significant sex ratio bias ( $n=27$ ,  $\chi^2 = 6.868$ ,  $p < 0.01$ ,  $df=1$ ).

### Explanation/hypotheses

*“ The story of infanticide ... demonstrates that beneath the ethical veneer of his civilisation Man’s real behaviour pattern is dominated by the fundamental law of nature, the instinct of self-preservation, and, where the pressure of his environment becomes intolerable, he will react ruthlessly and mechanically to restore the balance.”*<sup>16</sup>

We explain a significant increase in male-preferred infanticide in Slovakia in line with the Trivers-Willard hypothesis as an adaptive reaction to abrupt change to worse in a socio-economic situation of mothers after the collapse of communism and starting transition to free market economy. It is now well documented that after the fall of Communism in 1989 its immediate effect on a wide range of child and family welfare indicators has been almost exclusively negative in the countries of Central and Eastern Europe, including Slovakia.<sup>17</sup>

Fig. 6: Consumer Price Index in Slovakia Before and After the Collapse of Communism in 1989



Martin Daly and Margo Wilson argue that a capacity for infanticide is built into the biological design of our parental emotions. Human are extreme among animals in the amount of time, energy and food they invest in their young. Since parental investment is a limited resource mothers have to “judge” the situation and “decide” whether to allocate it to their newborn or to their current or future offspring. If a survival of newborn is not promising, mothers may cut their losses in bad contemporary situation and try again later one. According to evolutionary psychologist If there are psychological “decision” mechanisms in mother’s minds responsible for a judging the situation immediately after the birth they had to be selected

## Suggestions for a comparative East and West European study on infanticide

Abrupt socio-economic changes of a scale of transition from communism to free market economy give an excellent opportunity to study the possible Trivers-Willard effect on demography in modern European societies. Analysing the sex ratio in similar infanticide data from the other East European post-communist countries we can test possible generality of sex-bias infanticides associated with the transition process in post-communist countries. We hope to widen this research to countries like Ukraine, Hungary and Poland with population totalling 90 million compared with Slovak's 5 million. It is also reasonable to look at the similar data from Western European countries which did not experience an abrupt changes in their socio-economic development.

I believe that the application of evolutionary perspective can bring a new fresh perspective to at least some human social behavior, specially to a violent one. However, the question is if we are ready to accept this view. Recently, professor Steven Pinker in his article for New York Time was trying to put infanticide into a framework of evolutionary psychology in order to argue that mothers who kill their newborns should not be judged as harshly as killing adult, similarly to Europe. In the reaction, he was accused from saying that society cannot blame killing mothers because they only followed their "infanticidal instincts"<sup>18</sup>. Despite of this a new evolutionary perspective on a history of mothers and infants is rising<sup>19</sup> which has to be discovered by human and social scientists.

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<sup>1</sup> Pinker, S. (1997): Why They Kill Their Newborns (New York Times, November 2, Sunday Section)

<sup>2</sup> According to WHO-Violence and Injury Prevention. <http://www.who.int/pvi/infokit>

<sup>3</sup> World Health Statistics, WHO, Geneva 1986-1998

<sup>4</sup> Judson, O. P. (1994) Killing the sex ratio. *Nature* vol. 372 (December 8<sup>th</sup>), 603-604.

<sup>5</sup> Innocenti digest: Infanticide and homicide of children.

<Http://www.unicef-icdc.org/information/digest/violence/intra01.htm>

<sup>6</sup> Trexler, R.C. (1973). Infanticide in Florence: New Sources and First Results. *History of Childhood Quarterly: The Journal of Psychohistory* vol. 1, No. 1, pp. 98- 116, see also other articles on infanticide in European History.

<sup>7</sup> Richter, J.S. (1998). Infanticide, child abandonment, and abortion in imperial Germany. *Journal of Interdisciplinary History*, vol. 28, No.4, 511-555.

<sup>8</sup> Daly, M., & Wilson, M. (1988). *Homicide*. New York: A. de Gruyter.

<sup>9</sup> Trivers, R. L. and D. E. Willard. (1973). "Natural selection of parental ability to vary the sex ratio of offspring." *Science* 179: 90-91.

<sup>10</sup> Grant, V. J. (1998). Maternal Personality, Evolution and the Sex Ratio. London and New York, Routledge.

<sup>11</sup> According to Phillip Resnick's findings as mentioned in Steven Pinker: Why They Kill Their Newborns (New York Times, November 2, 1997, Sunday Section)

<sup>12</sup> Daly, M., & Wilson, M. (1988). *Homicide*. New York: A. de Gruyter.

<sup>13</sup> Dickmann M. Female Infanticide, Reproductive Strategies, and Social Stratification: A Preliminary Model. In: Chagnon NA, Irons W, editors. *Evolutionary Biology and Human Social Behavior: An Anthropological Perspective*. North Scituate, MA: Duxbury Press;1979. p. 321-67

<sup>14</sup> Cronk, L. Parental Favoritism toward Daughters. *American Scientist* 1993; 81(May-June): 272-279.

<sup>15</sup> Bereczkei, T. and R. I. M. Dunbar. (1997). "Female-biased reproductive strategies in a Hungarian Gypsy population." *Proc. R. Soc. Lond. B* **264**: 17-22.

<sup>16</sup> Rose, L. (1986). *Massacre of the Innocents: Infanticide in Great Britain in 1800-1939*, Routledge and Kegan Paul, London, p. 187

<sup>17</sup> UNICEF International Child Development Centre. *Children at Risk in Central and Eastern Europe. Economies in Transition Studies. Regional Monitoring Report No.4*. Florence: The UNICEF; 1997.

<sup>18</sup> Kelly, M. (1997): Arguing for Infanticide. *Washington Post*, November 6<sup>th</sup>, p. A23.

<sup>19</sup> Hrdy, S. B. (1999). *Mother Nature- A History of Mothers, Infants, and Natural Selection*. New York, Pantheon Books.