

# Seasonality of First Coitus in Northwestern Russia: the Importance of Location Availability

Mikhail V. Kozlov

Section of Ecology, University of Turku, FI-20014 Turku, Finland

mikoz@utu.fi

## Abstract

The majority of studies addressing sexual behavior of adolescents were conducted in the USA, which has prevented generalizations to the countries which differ from the USA in social interactions, quality of life and sexual culture. Furthermore, the studies of sexual debut usually explore the role of time availability and supervision, while location availability in some countries may be more important than time availability. The questionnaires filled in by 262 Russian students demonstrated relatively early sexual debut (males: 16.4 years; females: 17.0 years) and strong summer peak of coital activity associated with frequent use of marginally suitable locations. Use of marginally suitable locations was much higher in small villages than in cities, at a younger age, and when sex was by desire rather than by love. These data suggest 'Location Availability Hypothesis' partially competing with 'Summer Vacation Theory': in summer more sites, including marginally suitable locations, are available for adolescent sexual activity, and the use of these locations contributes to the summer peak in the onset of sexuality.

## Keywords

*Adolescence; Coitus; Seasonality; Sexual Behavior*

## Introduction

The seasonality in coital activity is still imperfectly documented, although several studies have demonstrated association of the major peak with late spring and summer; another peak, when detected, occurs in December (Udry & Morris, 1967; Naeye, 1980; Rodgers, Harris & Vickers, 1992; Barak, Stein, Ring, Ticher & Elizur, 1997; Levin, Xu & Bartkowski, 2002). It was suggested that social processes ('Summer Vacation Theory') are responsible for a larger part of the summer peak at the onset of sexuality (Rodgers, Harris & Vickers, 1992; Stein, Ring, Ticher & Elizur, 1997). In particular, this theory focuses on time availability or unsupervised time and, consequently, it is predicted that the seasonality of first coitus will decrease with the transition from school to work and college, when young

adults obtain more private opportunities for sex. However, the daily rhythm of coital activity did not fit the hypothesis on the leading role of supervision: coitus during potentially unsupervised afternoon time accounts for less than one third of all coital events in adolescent women in Indianapolis, USA (Forteberry, Katz, Blythe, Juliar, Wanzhu & Orr, 2006). Furthermore, the majority of studies addressing sexual behavior of adolescents were conducted in the USA, which has prevented generalizations to the countries which differ from the USA in social interactions, quality of life and sexual culture.

Living in satisfactory housing conditions is one of the most important aspects of the quality of life. In this respect, Russia with 19.1 m<sup>2</sup> of living space per person in 2000 (Stcherbakova, 2011) only slightly exceeded the level of overcrowding as accepted in the USA (15.3 m<sup>2</sup>: Measuring Overcrowding in Housing, 2007). Until very recently, as much as 4.8% of the Russian people share apartments with other families or live in dormitories (Stcherbakova, 2011). Furthermore, until the mid-1990s, hotels in Russia did not rent rooms to local residents as well as unmarried couples. Nowadays, the prices for hotel rooms in Russia are simply too high for young people (daily rate ranges 10-15% of an average countrywide earned monthly income), thus adolescents generally face serious problems in finding a site for sexual activities. The importance of site availability is in particular supported by many references to ill-chosen locations in the oral tradition of Russian scholars and students.

It is hypothesized that the seasonality in site availability is an additional factor contributing to the seasonality in coital activity. Particularly, intercourse under the open sky is less likely to occur in winter, especially in temperate and cold regions. The newly suggested 'Location Availability Hypothesis' predicts that the

summer peak should be stronger in communities where living conditions are lower and young people gain the financial independence later, and finding the site for premarital and extramarital sex is therefore a real problem.

Methods

Pilot study with the purpose of testing the 'Location Availability Hypothesis' was conducted in St. Petersburg, Russia, in February of 1998. The first-year students of the State Forest Technical Academy were selected for the study. This selection allowed obtaining a representative sample from northwestern Russia. In particular, the sample included 19.8% of students from rural communities which is nearly equal to the regional proportion of rural inhabitants (17.5%). Further, 88.5% of students reported to have had the first intercourse before entering the Academy. Therefore, individual respondents, rather than the groups of students, are considered as independent experimental units, and the results of the study can be generalized over the northwestern Russia.

The self-administered anonymous questionnaire contained the following questions:

- Sex (M/F)
- Age (complete years)
- The age of the first intercourse (complete years)
- Where did you reside at the time of the first intercourse? (1, city with >100,000 residents; 2, city with <100,000 residents; 3, small settlement or village)
- Was your first intercourse by romantic love? (1, yes; 2, no; 3, difficult to answer)
- In which month you were first engaged in the intercourse?
- Where were you first engaged in the intercourse? (1, in inhabitable lodging such as apartment, room in hostel, hotel room etc.; 2, in uninhabitable lodging such as cellar, garage, garret, staircase, elevator, shed etc.; 3, in a car; 4, in tent or shelter of branches; 5, in the open air)

A total of 280 questionnaires (translated to Russian) were distributed in six groups of students; 93.6% of which were filled in (98 by male and 164 by female students) and then handed back in sealed envelopes. The research hypothesis was not disclosed to the respondents. In processing the data, the sites numbered

2, 4 and 5 (the last question) were classified as 'marginally suitable locations' (MSL), because they provide much less privacy than sites 1 and 3, and in particular do not assure comfortable temperature during the cold season. The age of the respondents and their age at the first intercourse followed a normal distribution, justifying the use of ANOVA (SAS GLM procedure, type III sum of squares). The other data were analyzed by SAS FREQ procedure that uses  $\chi^2$  as the test statistics (SAS Institute, 2009).

Results

The mean age of the respondents ( $\pm$  S.E.) was  $19.2 \pm 0.1$  years. A large (84%) proportion of respondents reported having an intercourse; males reported slightly younger age at the first intercourse than females ( $16.43 \pm 0.18$  and  $16.97 \pm 0.14$  years respectively;  $F = 5.73$ ,  $df = 1, 209$ ,  $p = 0.02$ ). Monthly distributions of the records were similar in males and females ( $\chi^2 = 15.3$ ,  $df = 11$ ,  $p = 0.17$ ) which justified pooling of the data in further analyses.

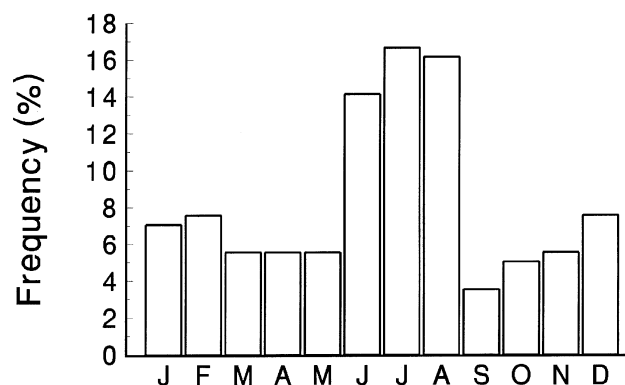


FIG. 1. MONTHLY FREQUENCIES OF THE FIRST REPORTED INTERCOURSE (N = 198).

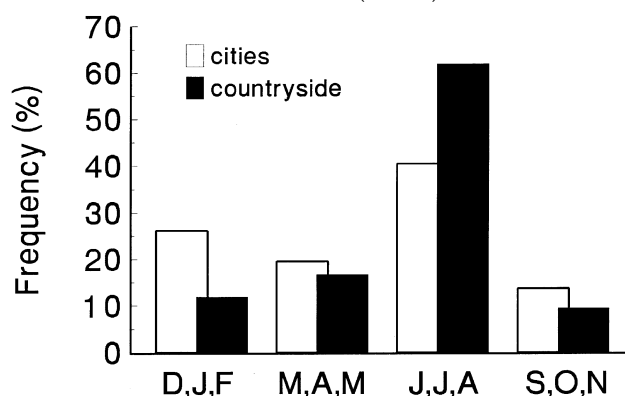


FIG. 2. SEASONAL FREQUENCIES OF THE FIRST REPORTED INTERCOURSE IN CITIES (N = 168) AND IN SMALL SETTLEMENTS / VILLAGES (N = 42).

Nearly a half of the respondents reported the first coital activity during June – August (Fig. 1), but the pattern differed between urban and rural inhabitants. In

countryside, 61.9% of respondents lost the virginity during June - August compared with 40.7% in cities (Fig. 2;  $\chi^2 = 6.09$ ,  $df = 1$ ,  $p = 0.01$ ).

The transition from school to work or college (which usually occurs in Russia at the age of 17) did not alter the pattern of seasonality of the first coitus. Proportions of respondents who lost their virginity during June-August were similar among those who had sexual debut at the age of 17 or less, and those who had it at the age 18 or more (46.1% and 45.0%, respectively;  $\chi^2 = 0.02$ ,  $df = 1$ ,  $p = 0.89$ ).

The use of MSL was larger in summer and autumn than that in winter and spring (18.0 and 7.8% respectively;  $\chi^2 = 4.61$ ,  $df = 1$ ,  $p = 0.03$ ) and much larger in small villages than that in cities (31.0 and 9.6%, respectively;  $\chi^2 = 12.8$ ,  $df = 1$ ,  $p = 0.0001$ ). The respondents aged 10-17 at the first intercourse (scholars who generally stay with parents) reported 16.5% use of MSL whereas the respondents aged 18-23 at the first intercourse reported much lower rate of MSL use (6.7%;  $\chi^2 = 3.48$ ,  $df = 1$ ,  $p = 0.06$ ). When the first intercourse was by romantic love, only 9.2% of respondents lost the virginity in MSL, whereas in the remaining situations the use of MSL was much higher (18.5%;  $\chi^2 = 3.86$ ,  $df = 1$ ,  $p = 0.05$ ).

## Discussion

The study was based on a relatively small sample and therefore the conclusions should be considered tentative. In particular, more data are needed to further analyze the monthly distribution of coital activity and the use of MSL in different social and climatic environments. Still the results give a new insight into the possible reasons behind the increased coital activity of adolescents in summer time. The study also reveals information on the age at coital debut in Russia, which can be used in comparative analysis of adolescent sexual behavior in countries with different sexual cultures (Stigum, Samuelsen & Traeen, 2010).

The detected seasonal pattern in sexual debut generally agrees with the results obtained in other countries (Udry & Morris, 1967; Naeye, 1980; Rodgers, Harris & Vickers, 1992; Barak, Stein, Ring, Ticher & Elizur, 1997; Levin, Xu & Bartkowski, 2002). However, in Russia the summer peak in coital activity is more pronounced than in the USA: 47% of Russian respondents lost the virginity during June - August, compared with 33% in the USA (Rodgers, Harris, & Vickers, 1992). Although the detected peak corresponds to the time of summer vacations in schools, still the results allow attributing some 10-15% of the increase in sexual activity of the

adolescents during the warm season in northwestern Russia to the possibility to use MSL, thus providing support for the 'Location Availability Hypothesis'. Interestingly, 7.6% of the Russian participants have been reported having first intercourse under the open sky, compared with 3% in the USA (Papillo, Franzetta, Manlove, Moore, Terry-Humen & Ryan, 2002), although climatic conditions of northwestern Russia are generally less favorable for outdoor sexual activities than those of the USA. The extent and seasonality of the use of MSL in other societies, especially those with strict parental monitoring (e.g., Japan: Nagamatsu, Saito & Sato, 2008) remain to be investigated.

The seasonal pattern discovered in the present study is nearly opposite to the pattern of conception recently reported for different age groups, including teenagers, in Texas (Scafetta, Restrepo & West, 2003; Chandwani, Cech, Smolensky, Burau & Hermida, 2004). Although the lowest conception rate observed in summers may have resulted from the direct effects of temperature on fertility, the summer depression of conception was much more expressed in unmarried than that in married teens (Scafetta, Restrepo & West, 2003), suggesting the contribution of social processes to this pattern. Unfortunately, inferring the causality from the observational data is highly problematic, and therefore it is difficult to exclude the contribution of environmental factors, e. g. changes in photoperiod (Haim, Shanas, Zubidad & Scantelbury, 2005), to the detected seasonal rhythm.

Many adolescent pregnancies occur soon after onset of sexuality (Zelnick, 1980), thus the patterns of conception and, consequently, induced abortion and birth, may mirror seasonal onset of coital behavior (Rodgers, Harris & Vickers, 1992). Since the use of MSL by adolescents for subsequent sexual activity is presumably larger than for the first coitus (13.2%), it seems possible that in many societies the availability of locations for premarital and extramarital sex may influence (or may have been influencing in the past) seasonality of births, especially illegitimate births. The comparison between the patterns of legitimate and illegitimate births has demonstrated higher seasonality of illegitimate births in countries with cold winters (with the peak corresponding to summer conception) and absence of the seasonal differences in the Dominican Republic (Zelnick, 1980), thus providing indirect support for the 'Location Availability Hypothesis'. Also 'smoothing' of birth seasonality pattern in some modern societies compared to the pattern observed some decades ago (Cowgill, 1966;

Bronson, 1995) may to a certain extent reflect the increased availability of locations for premarital and extramarital sexual activities.

#### ACKNOWLEDGEMENTS

This research was supported, in part, by the University of Turku, Finland. The author is grateful to Prof. A. Selikhovkin for practical arrangements, to V. Zverev for discussion on location availability in Russia, and to the late Dr. G. S. Robinson for linguistic comments.

#### REFERENCES

- Barak, Y., Stein, D., Ring, A., Ticher, A. & Elizur, A. Patterns of first intercourse: a survey among Israeli women. *Biological Rhythm Research* 28 (1997): 36–41.
- Bronson, F. H. Seasonal variation in human reproduction: environmental factors. *Quarterly Review of Biology* 70 (1995): 141–64.
- Chandwani, K. D., Cech, I., Smolensky, M. H., Burau, K. & Hermida, R. C. Annual pattern of human conception in the State of Texas. *Chronobiology International* 21 (2004): 73–93.
- Cowgill, U. M. Season of birth in man: contemporary situation with special reference to Europe and the Southern hemisphere. *Ecology* 47 (1966): 614–23.
- Fortehberry, J. D., Katz, B. P., Blythe, M. J., Juliar, B. E., Wanzhu, T. & Orr, D. P. Factors associated with time of day of sexual activity among adolescent women. *Journal of Adolescent Health* 38 (2006): 275–81.
- Haim, A., Shanas, U., Zubidad, A. E. S. & Scantelbury, M. Seasonality and seasons out of time—the thermoregulatory effects of light interference. *Chronobiology International* 22 (2005): 59–66.
- Levin, M. L., Xu, X. & Bartkowski, J. P. Seasonality of sexual debut. *Journal of Marriage and Family* 64 (2002): 871–84.
- Measuring Overcrowding in Housing, 2007. Accessed January 19, 2013. [http://www.huduser.org/publications/pdf/Measuring\\_Overcrowding\\_in\\_Hsg.pdf](http://www.huduser.org/publications/pdf/Measuring_Overcrowding_in_Hsg.pdf).
- Naeye, R. L. Seasonal variations in coitus and other risk factors, and the outcome of pregnancy. *Early Human Development* 4 (1980): 61–8.
- Pittman, S., Tita, A. T. N., Barratt, M. S., Rubin, S. R. & Hollier, L. M. Seasonality and immediate antecedents of sexual intercourse in adolescents. *Journal of Reproductive Medicine* 50 (2005): 193–7.
- Rodgers, J. L., Harris, D. F., Vickers, K. B. Seasonality of first coitus in the United States. *Social Biology* 39 (1992): 1–14.
- Papillo, A. R., Franzetta, K., Manlove, J., Moore, K. A., Terry-Humen, E. & Ryan, S. Facts at a glance. Washington, DC: Child Trends, 1992.
- SAS Institute. SAS version 9.2 for Windows. Cary, NC: SAS Institute, 2009.
- Scafetta, N., Restrepo, E & West, B. J. Seasonality of birth and conception to teenagers in Texas. *Social Biology* 50 (2003): 1–22.
- Stcherbakova, E. Russian demographical barometer. *Demoscope weekly* 449-450, 1-23 January 2011 (in Russian). Accessed January 19, 2013. <http://www.demoscope.ru/weekly/2011/0449/barom01.php>.
- Stigum, H., Samuelsen, S.-O. & Traeen, B. Analysis of first coitus. *Archives of Sexual Behavior* 39 (2010): 907–14.
- Udry, J. R. & Morris, N. M. Seasonality of coitus and seasonality of birth. *Demography* 4 (1967): 673–79.
- Zelnick, M. Sexual activity, contraceptive use and pregnancy among metropolitan area teenagers: 1971–1979. *Family Planning Perspectives* 12 (1980): 69–76.