



Psychosexual Study of Communist Era Hungarian Twins

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Our aim in this study is to describe the characteristics of sexual development in twins and estimate the role of heritability and environmental factors as causes of certain sexual disorders. Two hundred and ten adult same-sex twin pairs (92 monozygotic [MZ] female, 41 MZ male, 55 dizygotic [DZ] female and 22 DZ male pairs) were involved in the study. Data were collected in 1982 by self-administered questionnaires that included items on sexual maturation, sexual life, contraception, mutual sexual activity within twin pairs and alcohol use. The ratio of married to unmarried twins was nearly the same in MZs and DZs, with the exception that the divorce rate was higher in MZ female twins (14%), and DZ and male twins were slightly more likely to be single. Menarche was later in twins compared to non-twin Hungarian women. 57% of MZs experienced menarche within 3 months of each other, 77% within 6 months while it occurred for 30% and 43% respectively in DZs. The first seminal emission indicated some delay in male twins compared with the Hungarian general population sample. MZ first kisses occurred later than DZ's first kisses. The same was true for the first petting, masturbation and first sexual intercourse. Anorgasmia is 27% heritable but the estimate is not statistically significant. Concordance rate for premature ejaculation in MZs was greater than in DZs but the structural equation model showed significant misfit. Age at menarche appeared to be strongly heritable.

■ **Keywords:** marital status, menarche, menstruation, masturbation, intercourse, ejaculation, anorgasmia

The Budapest Genetic Counseling Clinic was often visited in the late 1970s and early 1980s by clients who asked, *inter alia*, for advice concerning psychosexual problems. For this reason, the last author developed an interest in understanding the role of genetic heritability and environmental factors in the origin of frequent sexual disorders. Though many studies have been done since Kinsey's seminal publications, and multiple twin studies have explored normal aspects of sexuality (Chilton, 1972; Martin, 1978, Martin & Eysenck, 1976; Martin et al., 1977; Zazzo, 1960), to the best of our knowledge only a few have investigated genetic aspects of sexual disorders (Bailey et al., 2000; Zietsch et al., 2010).

The Hungarian Budapest Twin Registry was established by the Department of Human Genetics and Teratology, National Institute of Hygiene, on January 1, 1970, and remained in operation for 25 years. Collection and analysis of twin placentas were performed at the Heim Pál

Children's Hospital. The scientific utilization of the twin registry resulted in several findings. The experiences of the Budapest Twin Registry and the most important results of the twin research in national and international collaborations were published (Agarwal et al., 1997; Breitbart et al., 1996; Czeizel et al., 1979; Flatz et al., 1985; Hundrieser et al., 1992; Láng et al., 1992; Mastroiacovo et al., 1999; Métneki, 1988; Métneki, 1996; Métneki & Czeizel, 1980; Métneki & Czeizel, 1987; Métneki & Czeizel, 1989; Métneki et al., 1992; Métneki et al., 1996; Pados et al., 1989; Roser et al., 1993; Török et al., 1985; Weincenthal et al., 1994).

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At the beginning of the 1980s, one group of twins who took part in the first international twin research (Métneki et al., 1984) established a Twin Club in Hungary. As well as presentations on cultural and health themes, excursions, amusing performances and balls were organized at the monthly meetings. This developed friendly relationships, and their common twin-status gave a cohesive atmosphere that significantly enhanced the twins' participation in further twin research.

The main purpose of this study was to determine the heritability of two frequent problems of sexual life, that is, anorgasm in females and premature ejaculation in males. In addition, we also hoped to describe the characteristics of sexual development in twins.

Subjects and Methods

Five hundred and fifty adult same-sex twin pairs present in the available volunteer registry were contacted, inviting them to participate in our study. Two hundred and ten complete pairs complied with the request, comprising 92 MZ female, 41 MZ male, 55 DZ female and 22 DZ male pairs. Diagnosis of zygosity was made by physiognomic comparison of twin pairs. In some doubtful cases, zygosity determination was performed by blood- and serum-protein examination carried out by the Legal Medical Institute. No twin pairs with uncertain zygosity were included in the sample. Different sex twin pairs were excluded from the study because of the sex-specific character of the research. The sample has an excess of female (70%) and MZ (63%) pairs, which is common in volunteer twin studies.

Data were collected in 1982 by self-administered questionnaires, which were completed by twins in one of four sessions held on Saturdays in the lecture theater of National Institute of Public Health. Co-twins were seated apart so they could not consult with each other. Four Hungarian sexologists compiled the 78-item questionnaire.

The questionnaire included items on sexual maturation (menarche in females, first nocturnal emission in males, masturbation in both sexes), sexual life (experience, problems, erogenous zones, frequency of intercourse, number of partners, and so on), contraception and alcohol use. There were also items on mutual sexual activity within twin pairs, including sexual contact with the same partner. Finally, twins were also asked about their opinion concerning the study.

After a short oral explanatory introduction, twins were asked to complete the questionnaire anonymously within the allotted 2-hour time period. Each twin received a number and a code: 'A' for the first-born twin and 'B' for the second-born twin. There were two experts in the lecture hall and we suggested that twins consult with them if they had any problems. Questionnaires were anonymously dropped off in a collection bin upon completion.

While the original data from the study was never digitized and some of it is lost forever, we were able to partially reconstruct results of interest using two conference papers (Czeizel & Métneki, 1985; Métneki & Czeizel, 1986,), presentation slides and handwritten notes. This is what we are presenting in this study. For more information please see Authors' Notes at the end of this article.

Results and Discussion

We had some anxiety about the reaction of twins to our study due to the intimate nature of the questions. Their remarks, however, were unanimously positive and their responses suggest that participants took the study seriously.

Age and Marital Status

As presented in Table 1, nearly two-thirds of participants were under 30 and may clearly remember the beginning of their sexual lives. The youngest age of subjects was 18 in both genders. The average age of females and MZs was two years older than of males and DZs, respectively. The ratio of married to unmarried twins were, to a large extent, similar in MZs and DZs; the divorce rate was the highest in MZ female twins (14%). It seems that many female MZ pairs may relate to each other so closely that they have difficulty maintaining marital relationships. Zazzo reported that peculiarities of the twins' development, such as delayed intellectual development, difficulties and fragility of self consciousness, reduced sociability are influenced by biological, peculiar parental attitude, and the twin situation itself (Zazzo, 1976). DZ and male twins were slightly more likely to be single. More MZ and female twins were married, but divorce rates among them were also 6–7% higher.

Menarche and Menstruation

In our sample of female twins, mean age at menarche was 13.2 years. Unfortunately, we cannot directly compare this to a general population mean, but we do know that the

TABLE 1
Age Distribution of Twins (%)

Age groups	MZ (n = 133)	DZ (n = 77)	Male (n = 147)	Female (n = 63)
< 21	11	26	14	24
21–25	23	25	23	24
26–30	29	22	25	28
31–35	23	10	18	19
36–40	10	8	12	3
41–45	3	6	5	2
> 45	1	3	3	—
Average age	29	27	29	27
Mean age at pollutarche/ menarche	*	*	14.5	13.2

Note: *Unavailable values due to unrecoverable information.
MZ: monozygotic; DZ: dizygotic; n = twin pairs.

median age of menarche in the Hungarian general population at about this time was 12.8 years (Farkas, 1979). When we consider the difference in age at menarche, 57% of MZs experienced menarche within 3 months of each other, 77% within 6 months and 90% within 12 months. The corresponding figures for DZs are 30%, 43% and 66%. This strongly suggests the influence of genetic factors on age at menarche, although we know, from the differences within MZ pairs and the recent dramatic changes in age at menarche, that environmental factors are also important. Meyer et al. suggest that additive genetic and dominance genetic effects contribute to shared variation in age-at-menarche. If there are common environmental influences on the timing of menarche, they are completely obscured by nonadditivity in genetic factors, and information from other relationships would be required to detect their effect (Meyer et al., 1991). We also asked females to report on regularity of menstruation. Female twins taking oral contraceptives were told to answer according to their menstrual cycles before they had started contraceptives. Concordance for this item was higher in MZs (70%) than DZs (46%), also suggesting the importance of genetic factors.

Fewer males could remember the precise date of their first seminal emission (pollutarche) but it seems that there may also be some delay in this attribute of male twins (mean 14.5 years) compared with a Hungarian population sample (14.3 years; Maródi, 2006).

Sex Life

Our second purpose was to describe the characteristics of sexual initiation of Hungarian twins. Mean ages of the different phases of sexual initiation for each sex/zygosity group are shown in Table 2. Those twin pairs who had not experienced kissing, petting, sexual intercourse and orgasm at the time of completing the questionnaire, were excluded from the table. It can be seen that MZs are older than DZs at the moment of first kissing, first petting and first sexual intercourse. Notice that in females, the first orgasm occurred, on average, two years later than first sexual intercourse, and that MZs still slightly later than DZs. This delayed sexual activity in MZs is probably due to their peculiarly intense social relationship with each other.

The later psychosexual maturation of MZs is also reflected in the age distribution of onset of masturbation in females (Table 3). Twins who had not yet masturbated were excluded from the table. Of pairs where both had started masturbating, 60% of DZs ($n = 27$ pairs) had masturbated before the age of 15, while only 36% of MZs ($n = 27$ pairs) had done so. Twenty-seven per cent of MZs ($n = 20$ pairs) started masturbating later than age 20, compared with only 7% of DZs ($n = 3$ pairs). In addition, the frequency of masturbation among DZ females was somewhat higher (52%, $n = 54$ pairs) than in MZ females (46%, $n = 85$ pairs). Concordance for 'Ever masturbated' was slightly higher in female MZs (72%, $n = 65$ pairs) than DZs (60%,

TABLE 2

Beginning Steps of Sexual Life (Mean age)

Age (years)	Male		Female	
	MZ ($n = 40$)	DZ ($n = 21$)	MZ ($n = 174$)	DZ ($n = 94$)
First kissing	15.1	14.6	15.8	15.4
First petting	16.1	15.9	17.6	17.3
First sexual intercourse	18.1	17.8	19.7	18.5
First orgasm	—*	—*	21.8	21.5

Note: *unavailable values due to unrecoverable information.
MZ: monozygotic; DZ: dizygotic; n = number of twin pairs.

TABLE 3

Beginning of Masturbation at Female Twin Pairs (%)

Age (years)	MZ ($n = 75$)*	DZ ($n = 45$)*	Total (MZ + DZ) ($n = 120$)
< 10	15% ($n = 11$)	20% ($n = 9$)	17% ($n = 20$)
11–15	21% ($n = 16$)	40% ($n = 18$)	28% ($n = 34$)
16–20	37% ($n = 28$)	33% ($n = 15$)	36% ($n = 43$)
21–25	17% ($n = 13$)	7% ($n = 3$)	13% ($n = 16$)
26–30	3% ($n = 2$)	—	2% ($n = 2$)
> 30	7% ($n = 5$)	—	4% ($n = 5$)

Note: *Total number of twin pairs, excluding non-replying twins.
MZ: monozygotic; DZ: dizygotic; n = number of twin pairs.

$n = 28$ pairs). Given the slightly different age distribution of MZ and DZ twins it is possible that some younger individuals could still begin masturbation after the survey. This problem is also present in the male subsample. Unfortunately, especially in absence of the original detailed data, we had no way to correct for this.

Among male MZs, there is a surprisingly large number (13%) who reported not having masturbated. These comprised 11 concordant and 3 discordant pairs. There were only two DZ twins who reported that they had not masturbated, both from discordant pairs. This difference is significant at $p < .001$, using a one-tailed Fisher's exact test.

The definition of anorgasmia in females is the lack of sensual enjoyment or a feeling of disappointment during intercourse. To assess this, we asked twins 'Do you experience orgasm, and if yes, how many times from 10 intercourses?' (Table 4). Women who had never had intercourse or orgasms were excluded from the table. Table 4 includes women who had had orgasms in the past but were not currently having them. Using the summary statistics on concordance and discordance we used maximum likelihood (with Classic MX) to estimate the proportion of heritability, common and unique environmental influences. Note that birth order was ignored in all such estimations in the study by the equal distribution of discordant pairs among the Yes–No and No–Yes contingency table cells. This was necessary as we only had combined summary statistics of discordant pairs. The assumption of no birth-order effect is probably appropriate as during our extensive literature review we found no

TABLE 4

Concordant and Discordant Occurrence of Orgasm by Zygosity (%)

Orgasm	MZ	DZ
Concordant (yes)	80% (n = 42)	88% (n = 21)
Concordant (no)	8% (n = 5)	3% (n = 1)
Concordant (total)	88% (n = 47)	91% (n = 22)
Discordant	12% (n = 19)	9% (n = 12)
Total	100% (n = 66)	100% (n = 34)

Note: MZ: monozygotic, DZ: dizygotic, n = number of twin pairs.
 Maximum likelihood estimate of heritability = 0.2307, common environment = 0.
 ACE model χ^2 test 0.801, df = 3, p = .849. No significant difference between ACE, AE, CE or E models. Calculated using classic MX.

TABLE 5

Occurrence of Premature Ejaculation

Premature ejaculation	MZ	DZ
Concordant (yes)	24% (n = 10)	0% (n = 0)
Concordant (no)	35% (n = 14)	30% (n = 6)
Concordant (total)	60% (n = 24)	30% (n = 6)
Discordant	40% (n = 16)	70% (n = 18)
Total	100% (n = 40)	100% (n = 21)

Note: MZ: monozygotic, DZ: dizygotic, n = number of twin pairs.
 ACE model χ^2 test 8.688, df = 3, p = .034. Calculated using classic MX.
 Estimates are not trustworthy due to significant misfit in the model.
 No significant difference between ACE, AE, CE or E models (0 cell was replaced by 1).

study that reported such an effect using these or related phenotypes. The heritability estimate of anorgasm is 27% with 0% common environmental influence, though this cannot be stated with any acceptable level of statistical certainty due to the low sample size. The experience of orgasm seems to be predominantly environmentally determined, which is in agreement with Kinsey's view (Kinsey, 1953; Van Wyk & Kinsey, 1984) that orgasm is an acquired, or more precisely, a learned trait. It is noted that 11% of female twins taking part in our survey had not had any orgasm to date, which produces an unfortunate ascertainment bias. Dawood et al. investigated 3,080 Australian twin women and found that genetic influences account for approximately 31% of the variance of frequency of orgasm during sexual intercourse, 37% of the variance of frequency of orgasm during sexual contact other than during intercourse, and 51% of the variance of frequency of orgasm during masturbation (Dawood et al., 2005).

Premature ejaculation is defined as ejaculation before introitus or as occurring when a lack of ejaculatory control interferes with sexual or emotional wellbeing in one or both partners. Of course, the time estimate of the latter may be subjective, but this problem was known as an unfavourable phenomenon in couples. To assess this issue, we asked male twins if they had ever ejaculated prematurely. Twenty per cent of male twins reported premature ejaculation, which may occur during foreplay (1%), directly after introitus (8%) or mainly in several minutes after introitus (62%). Results are presented in Table 5 of male twins who had sexual intercourse. We found much lower frequency of premature ejaculation in DZ twins (and there were no concordant yes pairs) in the sample. Heritability could not be estimated because of a significant χ^2 test of the ACE model, probably due to the low sample size even after the concordant DZ Yes 0 cell was replaced by 1. Still, the concordance for premature ejaculation in MZs is greater than in DZs and this suggests a genetic component in liability to this problem. This is in line with our experience obtained in genetic counseling clinics that premature ejaculation tends to aggregate in certain families.

Among questions regarding twinhood we received a concordant Yes response to the question 'Have you ever helped each other masturbate' in a relatively high frequency in MZs, particularly in male pairs (20%, with females being 12%). Fisher's exact test yielded significant differences between MZ and DZ twins for both males and females on this trait (Table 6).

Twins, due to their unusual status, are interested in other twins. We asked 'Have you ever wanted to have a partner who was a twin?' More than half of MZs and one-third of DZs said they would have liked a twin partner but, unfortunately, for them, this was rarely realized in our sample.

Table 7 shows the so-called 'cross' love feelings. A high proportion of twins (mainly males) fell in love with the partner of their co-twin. Furthermore, a considerable number of them acted on this feeling. Forty-six per cent of MZ male pairs had the same partners, and 33% have gone out with the same girl simultaneously or successively (many twins reported orally on in written comments that they both knew about these happenings). Unfortunately these differences are not statistically significant in the sample as the ratio of the common partners was high (37%) in DZ male pairs as well. Results are similar for females but at lower rates. Further, MZ males had simultaneous sexual intercourse with the same partner in an additional 13% of the cases as opposed to 5% for DZ male twins (p = .131). Simultaneous sexual intercourse was less common for females (MZ = 8%, DZ = 2%) but the difference between zygosity was significant (p < .05).

TABLE 6

Occurrence of Mutual Masturbation (%)

Answer	MZ F-F (n = 186)	DZ F-F (n = 100)	MZ M-M (n = 80)	DZ M-M (n = 44)
Yes (concordant)	12% (n = 22)	2% (n = 2)	20% (n = 16)	0% (n = 0)
No	88% (n = 264)	98% (n = 98)	80% (n = 64)	100% (n = 44)

Note: MZ: monozygotic, DZ: dizygotic, F: female, M: male, n = number of twin pairs.
 One-tailed Fisher's Exact Test: females: p < .05, males: p < .01 (0 cell was replaced by 1)

TABLE 7

Occurrence of the Same Sexual Partner

Answer	MZ F-F (n = 186)	DZ F-F (n = 100)	One-tailed Fisher's Exact Test	MZ M-M (n = 80)	DZ M-M (n = 44)	One-tailed Fisher's Exact Test
Simultaneous going out	10% (n = 19)	8% (n = 8)	ns	10% (n = 8)	5% (n = 2)	ns
Successive going out	8% (n = 15)	12% (n = 12)	ns	23% (n = 18)	27% (n = 12)	ns
Total	18% (n = 34)	20% (n = 20)	ns	33% (n = 26)	32% (n = 14)	ns
Simultaneous intercourse	8% (n = 15)	2% (n = 2)	$p < .05$	13% (n = 10)	5% (n = 2)	($p = .131$)

Note: MZ: monozygotic, DZ: dizygotic, F: female, M: male, n = number of twin pairs; ns = not significant.

We asked twins, 'Do you consider that being a twin ever caused you difficulties in making contact with the opposite sex?' Many twins responded *Yes*, including 20% of MZ females and, surprisingly, 16% of DZ males. The main difficulties are caused by their comparative isolation from normal social contacts due to their mutual dependence and extreme affection for each other, as has been documented by Zazzo (Zazzo, 1960, 1976). This is exemplified by the remark: 'I could devote myself completely to my husband only after my sister got married'. Another difficulty arises from the fact that twins are constantly being compared, often resulting in one twin developing an inferiority complex. However, in many of our pairs, both members complained that they suffered socially as a result of being a twin.

Conclusion

It seems that many female MZ pairs may relate to each other so closely that they have difficulty maintaining marital relationships. Menarche may be slightly later in twins compared to non-twin Hungarian women. There appears to be a strong influence of genetic factors on age at menarche. The delayed sexual activity in MZs is probably due to their peculiarly intense social relationship with each other. The experience of orgasm seems to be only moderately heritable. Premature ejaculation suggested a genetic component.

Authors' Notes

This article was reconstructed from a Hungarian paper and an international conference paper (Czeizel & Ménéki, 1985; Ménéki & Czeizel, 1986), presentation slides and scribbled notes that were up to 28 years old. The original data were never digitized and the results only survived in these forms. If the calculations presented in the study seems archaic or in any way inadequate, it is entirely due to the complete information not being available anymore. We attempted to reanalyze the original data, but much if it was lost due to a complex 'communist era' filing system that involved paper-clipped (or not) questionnaires stored in trash bags (one of which was completely lost, and with it, all the DZ male questionnaires and more). The editor still encouraged us to write the paper due to the novelty of

the data that we will probably never be able to replicate due to today's institutional reviews that were not in place in 1982 Hungary.

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