National Institute of Public Health and Central Statistical Office, Budapest

Demographic Characteristics of Multiple Births in Hungary

Andrew Czeizel, George Acsádi

SUMMARY

In Hungary the frequency of multiple births has been decreasing. In 1920 the rate of multiple births was 23.5‰; by 1968 this rate decreased to 18.2‰, i.e., only 77% of the 1920 data. The male preponderance in twin births is lower than in single births, and in triplets actually a female excess can be observed. Furthermore, it can be observed that there are more boys than girls among the first-born of multiple births. The average birth weight of liveborn and stillborn twins, and of liveborn triplets is 2101 g, 1458 g, and 1723 g respectively. The ratio of MZ to DZ twins is about 30:70 in 1968. The frequency of DZ twin births increases with maternal age (the peak is now over 40 years) and birth order. According to the 1959, 1960, and 1968 figures, both DZ and MZ twin births were significantly more frequent in mothers aged 16 or less than in mothers aged 17-19 years.

This demographic survey belonged to preparatory works connected with the setting up of the Budapest Twin Register which came into force on January 1st, 1970.

Since January 1st, 1970, multiple births have been recorded by the *Budapest Twin Register*, in the capital of Hungary where two million out of the ten million inhabitants live. In Budapest more than 99% of the deliveries take place in maternity wards. These institutions report multiple births by telephone, retain the placenta, mark the umbilical cord of the first born and fill in the "Registration Form of Multiple Births" indicating the most important personal and obstetrical data. Placentas with the Registration Forms enclosed are collected within one day after delivery and examined by a pathologist. Once a month the Central Statistical Office puts the list of Budapest multiple births at our disposal, which serves as a control of the reporting system. In like-sexed twins with dichorionic placentas zygosity is determined 6-12 months after birth by applying blood and serum protein group determinations and dermatoglyphics. (Blood and serum protein group determinations are performed also on the parents.) Before setting up the Budapest Twin Register it seemed expedient to study the demographic characteristics of Hungarian multiple births. The results of our relevant studies are reported here since such data are available only for a few countries and none have been reported from Hungary. In addition, Hungarian data seem to show some peculiarities.

In Hungary the *frequency of multiple deliveries* has been decreasing due to the lower frequency of twin deliveries constituting the majority of multiple deliveries (Tab. I). In the years 1959-1968 the ratio of twin deliveries to total deliveries was 1/100.6,

Rec. 25. VII. 1970

Acta Genet. Med. Gemellol. (1971), 20: 301-313

Tab. I. Multiple deliveries

Year	Total deliveries	Twin deliveries		Total deliveries to every twin set	Triplet deliveries		Total deliveries to every twin set	Total multiple deliveries	
		N	‰		N	‰		N	‰
1920	253,091	2,954	11.67	89	36	0.14	7,291	2,990	11.81
1930	223,540	2,557	11.44	87	28	0.12	7,983	2,585	11.56
1938	185,146	2,087	11.27	89	15	0.08	12,343	2,102	11.35
1948	194,699	1,895	9.73	103	17	0.09	11,453	1,912	9.82
1959	151,705	1,617	10,67	94	11	0.07	13,791	1,629[a]	10.74
1960	146,867	1,513	10.30	97	19	0.13	7,730	1,532	10.43
1961	140,604	1,477	10.50	95	12	0.09	11,717	1,489	10.59
1962	130,280	1,338	10.27	97	16	0.12	8,142	1,354	10.39
1963	132,678	1,284	9.68	103	12	0.09	11,056	1,296	9.77
1964	132,350	1,312	9.91	101	14	0.11	9,453	1,326	10.02
1965	133,150	1,345	10.10	99	15	0.11	8,876	1,360	10.21
1966	138,618	1,358	9.80	102	14	0.10	9,901	1,372	9.90
1967	149,077	1,375	9.23	108	5	0.03	29,815	1,381[a]	9.26
1968	154,542	1,402	9.07	110	11	0.07	14,094	1,413	9.14
1959-1968	1,409,871	14,021	9.94	100.55	129	0.09	10,929	14,150	10.03

[a] Includes a quadruplet delivery.

Tab. II. Multiple births and sex ratios

Year	Total births		Twin newborns		Triplet newborns		Total multiple births		
	N	M:1000 F	N	M:1000 F	N	M:1000F	N	‰	M:1000F
1920	265,513	1075	5,908	1018	108	830	6,016	23.49	1015
1930	226,153	1062	5,114	977	84	1545	5,198	22.98	984
1938	187,263	1062	4,174	1020	45	731	4,219	22.53	1017
1948	196,628	1063	3,790	1047	51	1040	3,841	19.53	1047
1959	153,347	1064	3,234	988	33	619	3,271[a]	21.33	985
1960	148,418	1072	3,026	1075	57	900	3,083	20.77	1072
1961	142,105	1072	2,954	1018	36	1571	2,990	21.04	1023
1962	131,650	1068	2,676	1036	48	920	2,724	20.69	1034
1963	133,986	1066	2,568	1014	36	714	2,604	19.43	1009
1964	133,690	1072	2,624	1084	42	1000	2,666	19.94	1083
1965	134,525	1065	2,690	1013	45	1368	2,735	20.33	1018
1966	140,004	1072	2,716	1037	42	1800	2,758	19.70	1046
1967	150,465	1069	2,750	1032	15	187	2,769[b]	18.40	1023
1968	155.966	1064	2,804	1017	33	941	2,837	18.19	1016
1959-1968	1,424,156	1068	28,042	1031	387	995	28,437	19.97	1030

[a] Includes a quadruplet birth (3 M, 1 F).
[b] Includes a quadruplet birth (4 F).

https://doi.org/10.1017/S1120962300011537 Published online by Cambridge University Press

and that of triplets 1/10,929 which approximates Hellin's (1895) hypothetical ratio of 1/10,120. Quadruplets were more frequent (1/704,936) than could be expected (1/1,018,072), similarly to the trend observed in the United States (Heuser, 1967). During the last fifty years only one quintuplet birth occurred in Hungary, in 1933. Data available suggest that the rate of multiple deliveries in the Hungarian population does not differ considerably from those of other countries (Bulmer, 1960; Demographic Yearbook, 1965; Susanne and Corbisier, 1969), though our country ranks among those with lower multiple-delivery rates.

The rate of multiple births corresponds to that of multiple deliveries (Tab. II and Fig. 1). In 1920 the rate of multiple births for 1000 total births was 23.5. In the interwar period this rate did not fall considerably: the yearly average between 1921-

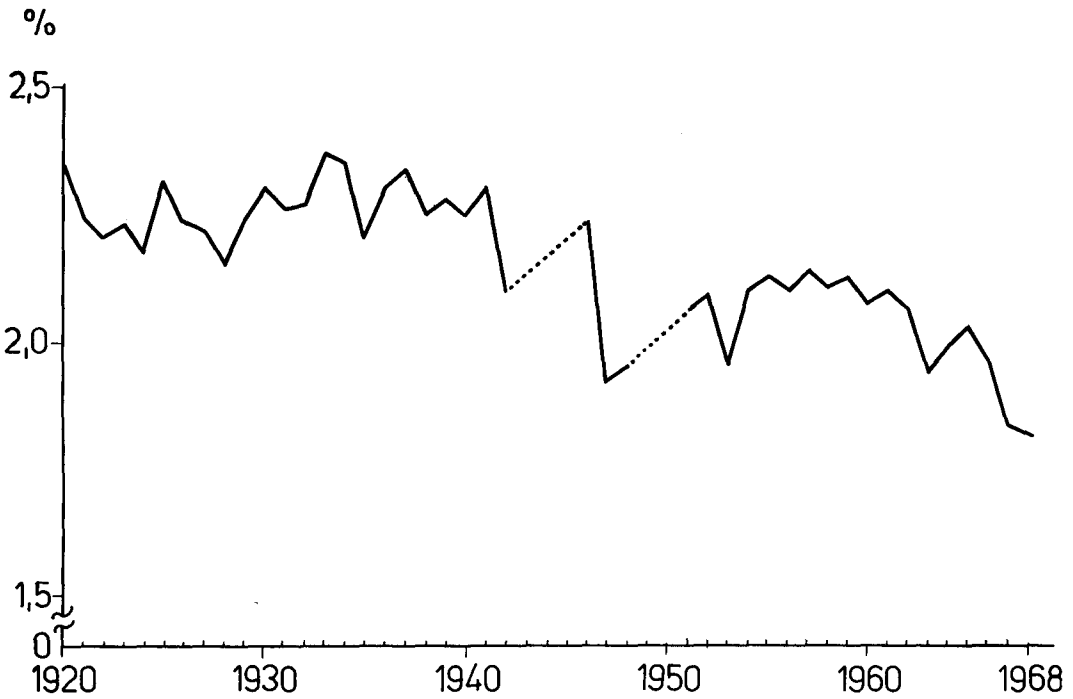

Fig. 1. The frequency of multiple births in Hungary, 1920-1968.

1930 was 22.3‰, between 1931-1938 22.9‰. After World War II this rate decreased to 20-21‰, and since the sixties it has not reached even 20‰. The lowest rate of multiple births was observed in 1968 amounting to 18.2 ‰, i.e., only 77% of the 1920 data.

Sex ratio in multiple births is more proportional than that observed in total births (Tab. II). In 1968 the male-female ratio of twins and triplets was 1017/1000 and

Tab. III. Viability of twins and triplets by sex and birth order

Type of birth	Livebirths			Stillbirths			Total		
	MZ	%	M:1000F	MF	%	M:1000F	MF	%	M:1000F
Singletons	151,633	99.00	1065	1,496	1.00	1089	153,129	100.0	1064
Twins	2,753	98.18	1020	51	1.82	899	2,804	100.0	1017
first-born	1,379	98.36	1096	23	1.64	917	1,402	100.0	1093
second-born	1,374	98.00	949	28	2.00	867	1,402	100.0	947
Triplets	33	100.00	941	—	—	—	33	100.0	941
first-born	11	100.00	1750				11	100.0	1750
second-born	11	100.00	571				11	100.0	571
third-born	11	100.00	833				11	100.0	833
Total	154,419	99.01	1064	1,547	0.99	1082	155,966	100.0	1064

941/1000, whereas for total births it was 1064/1000. In the years 1959-1968 the yearly average of sex distribution in twins and triplets was 1031/1000 and 995/1000, whereas for total live births it was 1068/1000. Consequently, the male preponderance in twin births is lower than in single births. But in the triplets and in certain years, e.g., in 1959, in twin births there was even a female preponderance.

Studying the *birth order* within multiple births it can be observed that there are more boys than girls among the first-born of multiple births (Tab. III). In twins the male-female ratio among first-born was 1093/1000, among second-born 947/1000. The same could be observed in triplets.

It has long been observed that more *stillbirths* occur among multiple births than among single births. In 1968, 1.82% of twins but only 1.0% of singletons were stillborn. Though the stillbirth rate is generally higher for boys, in 1968 the stillbirth rate of twin-born girls was higher than that of twin-born boys (1.94 vs. 1.70). In twin sets the stillbirth rate was higher for the second-born (2.00 vs. 1.64 for first-born).

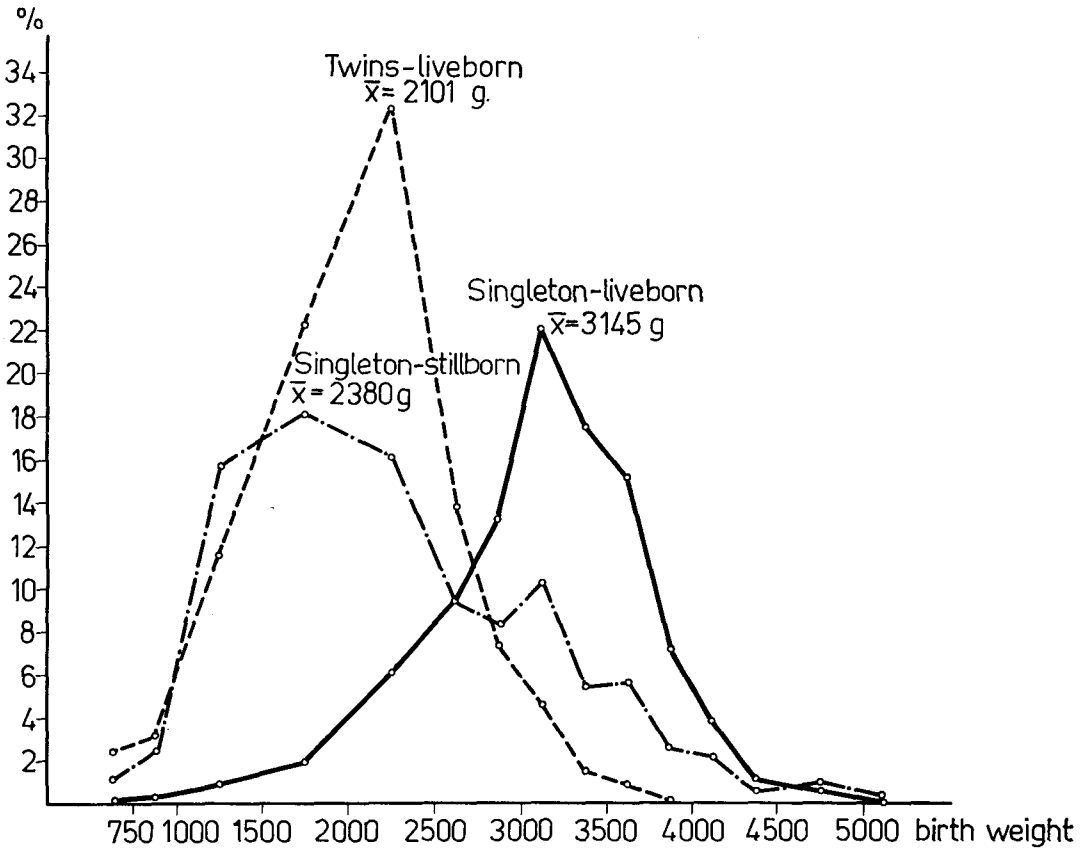

Fig. 2. The distribution of birth weight of liveborn twins, liveborn and stillborn singletons in Hungary, 1968.

Tab. IV. Birth weight and viability of twins and triplets

Birth weight (in grams)	Singleton				Twins				Triplets				Total			
	Liveborn		Stillborn		Liveborn		Stillborn		Liveborn		Stillborn		Liveborn		Stillborn	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
...- 749	369	0.2	18	1.2	66	2.4	12		3		—		438	0.3	30	1.9
750- 999	563	0.4	40	2.7	88	3.2	2		—		—		651	0.4	42	2.7
1000-1499	1,563	1.0	236	15.8	317	11.6	13		9		—		1,889	1.2	249	16.1
1500-1999	2,879	1.9	273	18.2	618	22.4	8		9		—		3,506	2.3	281	18.2
2000-2499	9,295	6.1	241	16.1	891	32.4	13		10		—		10,196	6.6	254	16.4
2500-2749	14,627	9.6	144	9.6	381	13.8	2		1		—		15,009	9.7	146	9.4
2750-2999	20,098	13.2	125	8.3	202	7.3	—		—		—		20,300	13.1	125	8.1
3000-3249	33,503	22.1	154	10.3	125	4.5	—		—		—		33,628	21.8	154	10.0
3250-3499	26,593	17.6	83	5.5	38	1.5	1		—		—		26,631	17.2	84	5.4
3500-3749	23,066	15.2	85	5.7	22	0.8	—		1		—		23,089	14.9	85	5.5
3750-3999	10,793	7.1	40	2.7	3	0.1	—		—		—		10,796	7.0	40	2.6
4000-4249	5,662	3.8	31	2.1	1	0.0	—		—		—		5,663	3.7	31	2.0
4250-4499	1,655	1.1	8	0.6	1	0.0	—		—		—		1,656	1.1	8	0.5
4500-4999	870	0.6	12	0.8	—		—		—		—		870	0.6	12	0.8
5000-...	94	0.1	5	0.3	—		—		—		—		94	0.1	5	0.3
Unknown	3	0.0	1	0.1	—		—		—		—		3	0.0	1	0.1
Total	151,633	100.0	1,496	100.0	2,753	100.0	51		33		—		154,419	100.0	1,547	100.0
Average birth weight	3145		2380		2101		1458		1723		—		3138		2360	

The *average birth weight* of liveborn twins (2101 g) is lower as compared not only to that of total liveborn (3138 g) in 1968, but also to the 2500 g weight limit of low weight (premature) babies (Tab. IV and Fig. 2). The average birth weight of (liveborn) triplets does not reach that of liveborn twins, but exceeds that of stillborn twins. As many as 6.2% of multiple-born babies weigh less than 1000 g. In Hungary multiple births make up 12.1% of all low-weight newborns.

The relative frequency of MZ and DZ *twins* can be estimated on a population level applying Bertillon-Weinberg's formula (Bertillon, 1898; Weinberg, 1901). In the survey this procedure was used and calculated on the basis of the sex ratio of total births in the respective year. However, it has to be emphasized that Weinberg's calculation is but an estimate and not reliable if applied to small numbers. In Hungary, e.g., 25 twin sets were born in 1960 to mothers aged 40 years or over: 15 unlike-sexed pairs and 10 like-sexed pairs (6 MM and 4 FF pairs). According to Weinberg's formula out of the 25 twin pairs 30 should have been DZ and so the calculated number of MZ twin sets would be −5. The estimated frequency and distribution of MZ and DZ twins in Hungary are shown in Tab. V. The ratio of MZ to DZ twins is about 30:70 in 1968. Whereas the proportion of MZ twins decreased by about 10% in the

Tab. V. Twin pairs by sex and zygosity

Sex

	MF		MM		FF		Total	
	N	%	N	%	N	%	N	%
1921-30	9,406	36.0	8,596	32.9	8,125	31.1	26,127	100.0
1951-52	1,377	34.9	1,306	33.1	1,263	32.0	3,946	100.0
1954-58	3,520	34.9	3,328	33.0	3,237	32.1	10,085	100.0
1959	587	36.3	509	31.5	521	32.2	1,617	100.0
1960	554	36.6	507	33.5	452	29.9	1,513	100.0
1968	487	34.7	464	33.1	451	32.2	1,402	100.0

Zygosity

	MZ			DZ			Total		
	N	‰ all births	% twin births	N	‰ all births	% twin births	N	‰ all births	% twin births
1921-30	14,556	6.13	27.9	37,698	15.88	72.1	52,254	22.0	100.0
1951-52	2,374	6.02	30.1	5,518	14.00	69.9	7,892	20.0	100.0
1954-58	6,062	6.27	30.1	14,108	14.59	69.9	20,170	20.9	100.0
1959	884	5.76	27.3	2,350	15.30	72.7	3,234	21.3	100.0
1960	806	5.42	26.6	2,220	14.94	73.4	3,026	20.8	100.0
1968	854	5.47	30.5	1,950	12.50	69.5	2,804	18.2	100.0

period from 1921-30 to 1968, the occurrence of DZ twins decreased by more than 20%.

The frequency of DZ twin births increases with *maternal age*: for the years 1954-58 it reached its maximum in the age group of 30-39, or rather 35-39 ($DZ_{30-34}=22.23$; $DZ_{35-39}=28.40$), while in 1959 and 1968 the peak shifted to the age group over 40 years (Tab. VI and Fig. 3). (Dizygosity is due to multiple ovulation caused by an excessive pituitary gonadotropin secretion. The postponement of menopause observed lately and the shift of the maximal DZ frequency to the age group over 40 years might indicate some " phase-displacement " in the functioning of the pituitary.) The frequency of MZ twins in the age group 17-19 is the same as the DZ frequency, but in the group over 30 years the DZ frequency increases 5-6 times, and the MZ frequency only 1.5-2 times. It is interesting to note that, according to the 1959, 1960, and 1968 figures, both DZ and MZ twin births were significantly more frequent in mothers aged 16 years or less than in mothers of 17-19 years of age. As far as we know such an observation has not yet been reported, though it is true that mostly mothers below 20 are just lumped together into one group. This phenomenon may perhaps be con-

Tab. VI. MZ and DZ twinning by maternal age

Maternal age	DZ twins				MZ twins			
	1954-58	1959	1960	1968	1954-58	1959	1960	1968
				Number				
...-16	28	16	16	28	44	42	32	16
17-19	589	112	92	100	499	92	56	94
20-24	3,461	636	585	629	2,021	330	341	295
25-29	4,098	701	757	589	1,740	207	115	277
30-39	5,508	821	709	560	1,584	195	273	156
40-...	396	64	60	44	198	18	(-10)	16
Total	14,084[a]	2,350	2,219	1,950	6,086	884	807	854
				‰ *births*[b]				
...-16	3.80	9.91	9.64	16.78	5.97	26.01	19.29	9.59
17-19	6.47	6.05	5.05	4.81	5.48	4.97	3.08	4.52
20-24	10.30	11.04	10.35	10.07	6.01	5.73	6.03	4.72
25-29	15.57	17.44	19.45	13.88	6.61	5.15	2.95	6.53
30-39	23.95	24.62	23.01	20.98	6.83	5.85	8.86	5.84
40-...	16.29	30.72	—	23.32	8.08	8.64	—	8.48
Total	14.79	15.32	14.95	12.50	6.39	5.76	5.44	5.48

[a] Including 4 cases from mothers of unknown age.

[b] Frequencies of twinning referred to all births for the years 1959, 1960, and 1968, but only to livebirths for the years 1954-58.

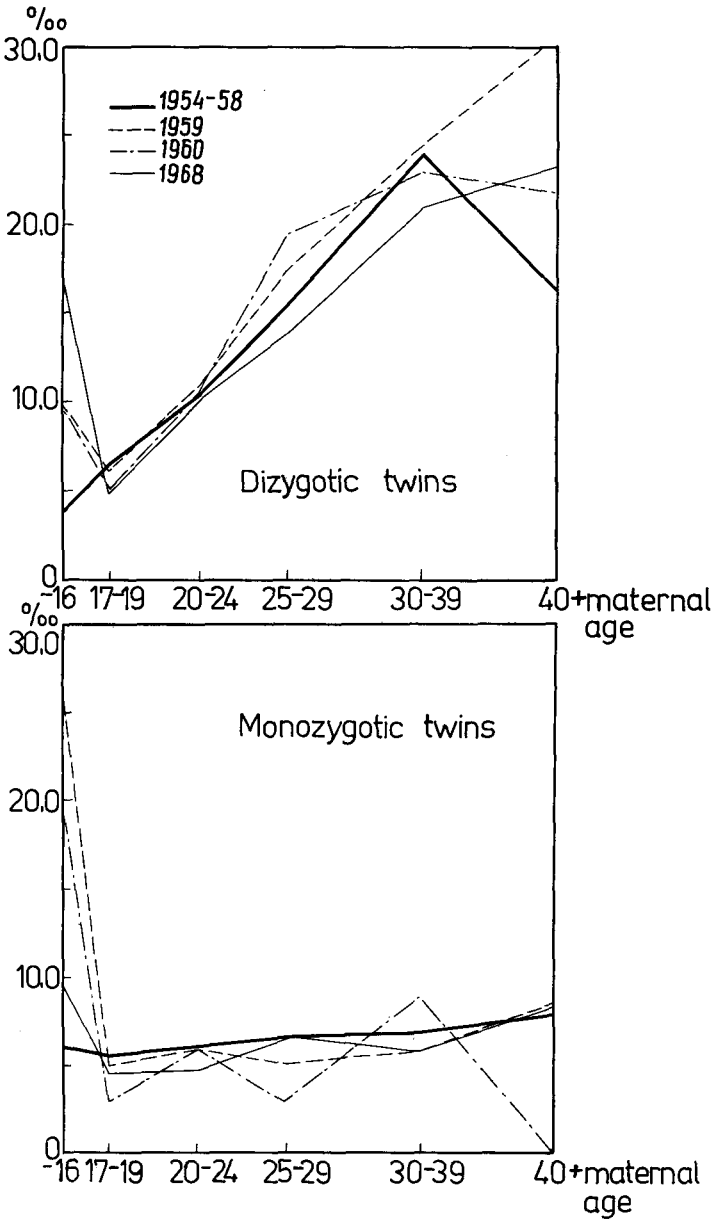

Fig. 3. The frequency of MZ and DZ twinning by maternal age in Hungary.

https://doi.org/10.1017/S1120962300011537 Published online by Cambridge University Press

nected with the finding of Eriksson and Fellman (1967a, b) that illegitimate maternities lead to higher frequencies of multiple births, because one would expect the majority of mothers aged 16 or less to be unmarried. On the other hand averages for the years 1954-1958 correspond to the international pattern (Strandskov and Edelen, 1946; Enders and Stern, 1948; Waterhouse, 1950; McArthur, 1954; Bulmer, 1959; Heuser, 1967; Shipley, 1967; Gedda and Brenci, 1968; Susanne and Corbisier, 1969).

In Hungary the frequency of DZ and MZ twinning by *birth order* (Tab. VII and Fig. 4) is in accordance with international figures. The incidence of DZ increases with birth order. (With mothers of the same age, DZ twinning may be observed more often in subsequent than in the first pregnancy. It seems obvious, however, that of these two factors the maternal age has the greater influence.) MZ frequency does not depend on birth order. Comparing the data of 1954-58 and those of 1959, 1960, and 1968 respectively, no such discrepancies were found concerning birth order as

Tab. VII. MZ and DZ twinning by birth order

Birth order	DZ twins				MZ twins			
	1954-58	1959	1960	1968	1954-58	1959	1960	1968
				Number				
1st	3,657	701	525	649	2,305	395	365	367
2nd	4,082	757	757	733	1,780	217	197	309
3rd	2,403	368	401	228	873	90	127	84
4th	1,558	196	168	128	376	74	46	26
5th	793	108	140	84	265	46	12	8
6th	561	68	108	36	203	28	16	14
7th	1,030[a]	36	48	24	284[a]	14	12	20
8th ...	—	116	72	68	—	20	32	26
Total	14,084	2,350	2,219	1,950	6,086	884	807	854
				‰ *births*				
1st	9.66	10.41	8.05	8.61	6.09	5.87	5.60	4.87
2nd	14.35	16.59	17.36	14.00	6.26	4.75	4.52	5.90
3rd	17.47	19.98	21.23	16.12	6.35	4.89	6.72	5.94
4th	22.32	22.21	19.91	22.32	5.39	8.39	5.45	4.53
5th	21.15	22.43	29.71	27.35	7.07	9.55	2.55	2.60
6th	25.35	22.27	37.51	19.18	9.17	9.17	5.56	7.47
7th	27.93[a]	17.93	26.09	18.59	7.70[a]	6.97	6.52	15.49
8th ...	—	35.52	24.14	32.19	—	6.12	10.73	12.31
Total	14.56	15.32	14.94	12.50	6.29	5.76	5.43	5.47

[a] Seventh and subsequent orders of birth.

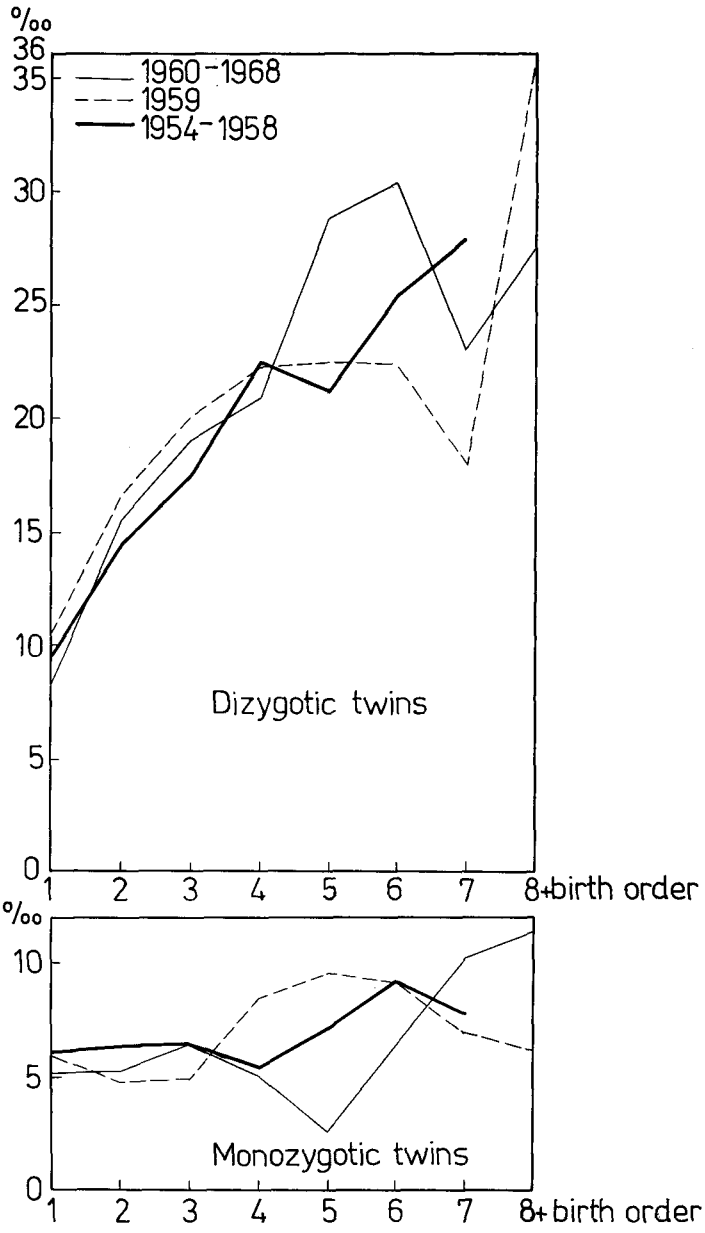

Fig. 4. The frequency of MZ and DZ twinning by birth order in Hungary.

https://doi.org/10.1017/S1120962300011537 Published online by Cambridge University Press

observed in maternal age. In the sixties, almost 50% of the babies are first-born in our country (Czeizel et al, 1969) so the small number of births to mothers aged 16 or less cannot make their effect felt.

In the last decades the number of deliveries has decreased considerably in Hungary. The average order of total deliveries, which amounted to 2.18 in 1960, fell below the second parity (1.93) by 1968. This tendency has been manifest also in twin deliveries, though here the average order of deliveries is higher (2.69 in 1960; 2.37 in 1968) due to its positive relationship with maternal age and the order of delivery. As DZ frequency is interrelated to maternal age, the decrease of twinning in our country can be ascribed to the reduced fertility of mothers over 30-35. The relationship between DZ frequency and the order of delivery also plays a minor role in this connection.

References

Bertillon J. (1898). La gémellité selon l'âge de la mère et le rang chronologique de l'accouchement. J. Soc. Stat. Paris, **39:** 146-149.

Bulmer M. G. (1959). The effect of parental age, parity and duration of marriage on the twinning rate. Ann. Hum. Genet., **23:** 454-458.

Bulmer M. G. (1960). The twinning rate in Europe and Africa. Ann. Hum. Genet., **24:** 121-125.

Czeizel A., Tusnadi G., Domány Z. (1969). Genetic aspects of the demographic consequences of family planning. Orv. Hetil., **110:** 2993-3000.

Enders T., Stern C. (1948). The frequencies of twins, relative to age of mothers, in American populations. Genetics, **33:** 263-268.

Eriksson A. W., Fellman J. (1967a). Twinning and legitimacy. Hereditas (Lund), **57:** 395-402.

Eriksson A. W., Fellman J. (1967b). Twinning in relation to the marital status of the mother. Acta Genet., (Basel), **17:** 385-398.

Gedda L. (1961). Twins in History and Science. Charles C. Thomas Publ., Springfield,

Gedda L., Brenci G. (1968). Fertility and multiple births. Acta Genet. Med. Gemellol., **17:** 417-427.

Hellin D. (1895). Die Ursache der Multiparität der Unipaaren Tiere überhaupt und der Zwillingsschwangerschaft beim Menschen. München. Cit. L. Gedda, 1961.

Heuser R. L. (1967). Multiple births. US 1964 Vital Health Statistics. Series 21, No. 14. US National Center for Health Statistics, Washington.

McArthur N. (1954). The relative aetiological effect of maternal age and parity in binovular twinning. Ann. Eugen., **18:** 203-210.

Shipley P. W. (1967). Frequency of twinning in California. Its relationship to maternal age, parity and race. Amer. J. Epidem, **85:** 147-156.

Strandskov H. H., Edelen E. W. (1946). Monozygotic and dizygotic twin birth frequency in the total, the "white" and the "colored" US populations. Genetics, **31:** 438-446.

Susanne C., Corbisier J. V. (1969). Twin births in Belgium (1960-1961). Acta Genet. Med. Gemellol., **18:** 294-320.

United Nations (1966). Demographic Yearbook 1965. New York.

Waterhouse J. A. H. (1950). Twinning twin pedigrees. Brit. J. Soc. Prev. Med., **4:** 197-216.

Weinberg W. (1901). Beitrage zur Physiologie und Pathologie der Mehrlingsgeburten beim Menschen. Pflueger. Arch., **88:** 346-430.

Acknowledgement. We are very grateful to Mogens Hauge, Institute for Human Genetics, Copenhagen, for his helpful suggestions.

RIASSUNTO

In Ungheria la frequenza di nascite multiple è andata decrescendo: mentre nel 1920 era del 23.5‰, nel 1968 essa è diminuita al 18.2‰ (cioè solo il 77% della frequenza del 1920). La prevalenza di maschi è inferiore nei gemelli che nei mononati, mentre nei trigemini si può addirittura osservare una prevalenza di femmine; d'altra parte, i primi nati di nascite multiple sono più frequentemente di sesso maschile che femminile. Il peso medio alla nascita di gemelli nati vivi e nati morti, e di trigemini nati vivi, è rispettivamente di 2101, 1458 e 1723 g. Il rapporto tra gemelli MZ e DZ risulta di circa 30:70 (dati 1968). La frequenza di nascite gemellari DZ aumenta con l'età materna (la punta massima supera ora i 40 anni) e l'ordine di genitura. Dai dati degli anni 1959, 1960 e 1968, le nascite di gemelli, sia MZ che DZ, risultano significativamente più frequenti in madri di 16 anni o meno, piuttosto che in madri di 17-19 anni.

Questa ricerca demografica fa parte dei lavori preparatori connessi con l'istituzione del Registro Gemellare Ungherese, entrato in funzione dal 1° gennaio 1970.

RÉSUMÉ

La fréquence de naissances multiples en Hongrie est en train de se réduire: elle était de 23.5‰ en 1920, alors que, en 1968, elle était tombée au 77% de cette valeur, c'est-à-dire 18.2‰. La prépondérance des mâles est inférieure chez les jumeaux par rapport aux naissances simples, et chez les triplettes une prépondérance de femelles peut être observée; par ailleurs, les premiers-nés dans les naissances multiples sont plus souvent de sexe masculin que féminin. Le poids moyen à la naissance est, respectivement chez les jumeaux nés vivants, les jumeaux mort-nés et les triplettes nés vivantes, de 2101, 1458 et 1723 g. Le rapport entre jumeaux MZ et DZ est d'environ 30:70 (données 1968). La fréquence des naissances DZ augmente avec l'âge maternel (le maximum est maintenant au dessus des 40 ans) et le rang de naissance. D'après les données 1959, 1960 et 1968 les naissances de jumeaux, MZ et DZ, paraissent significativement plus fréquentes chez les mères de 16 ans, ou moins, par rapport aux mères de 17-19 ans.

Cette recherche démographique a été conduite en rapport avec l'institution du Régistre Gémellaire Hongrois datant du 1er janvier 1970.

ZUSAMMENFASSUNG

In Ungarn ist die Häufigkeit der Mehrlingsgeburten zurückgegangen: während sie 1920 noch 23.5‰ betrugen, stellten sie 1968 nur noch 77% dieses Wertes, d.h. 18.2‰ dar. Das Überwiegen des männl. Geschlechts ist bei Zwillingen weniger ausgeprägt als bei den Einlingsgeburten; bei den Drillingsgeburten lässt sich sogar ein Überwiegen des weibl. Geschlechts feststellen. Andererseits sind jedoch die zuerst Geborenen der Mehrlingsgeburten häufiger männlich als weiblich. Das durchschnittliche Geburtsgewicht beträgt für lebend und tot geborene Zwillinge sowie für lebend geborene Drillinge 2101 bzw. 1458 und 1723 g. Das Verhältnis zwischen MZ und ZZ war 1968 ungefähr 30:70. Das Vorkommen von ZZ-Geburten steigt mit dem zunehmenden Alter der Mutter (Hochstwerte liegen zur Zeit über 40 J.) und der Geburtenfolge an. Aus Erhebungen der Jahre 1959, 1960 und 1968 ging hervor, dass Zwillingsgeburten, sowohl MZ als ZZ, bei Müttern im Alter von 16 J. und darunter bedeutend häufiger waren als bei 17-19 jährigen Müttern.

Diese demographische Untersuchung gehört zu den vorbereitenden Arbeiten für die Einrichtung des ungarischen Zwillingsregisters, welches am 1. Januar 1970 regelrecht eröffnet wurde.

A. CZEIZEL, M.D., National Institute of Public Health and Central Statistical Office, Gyali Ut. 2-6, Budapest IX, Hungary.

ADVANCES IN TWIN STUDIES

Proceedings of the First International Symposium on Twin Studies

Edited by Paolo Parisi

With a Foreword by

Professor Luigi Gedda, President of the Symposium

Acta Genet. Med. Gemellol. (1970), **19:** 1-382

ACTA GENETICAE MEDICAE ET GEMELLOLOGIAE