

PARENT DEATH IN RELATION TO AGE AND PARENTAL AGE AT BIRTH IN PSYCHIATRIC PATIENTS AND GENERAL POPULATION CONTROLS

BY

JOHN BIRTCHNELL, M.D., D.P.M., Dip. Psychother.
*Medical Research Council Clinical Research Fellow, Clinical Psychiatry Research Unit
Graylingwell Hospital, Chichester, Sussex*

Parent death occurring in childhood is an event which may have serious psychological consequences (Birtchnell, 1969a and b). Even during adult life it may be followed by a period of instability and increased vulnerability to mental breakdown (Birtchnell, 1969c and d). There are considerable problems in attempting to establish a relationship between parent death and ensuing psychiatric illness, due to the variety of factors which may be associated with parent death. In the present study two factors which have been considered important, the age of the subject and the parental age at birth, will be investigated. Their relationship to parent death will be considered in a group of psychiatric patients and a matched, local general population sample.

The likelihood of losing a parent by death depends upon the life circumstances of that parent. The expectation of life varies from one era to another. Although in general it has improved during the past century, male deaths greatly increased during the 1914-18 war and deaths of both sexes increased during the 1919 influenza epidemic. The era through which the subject's parent has lived depends both upon his own age and upon that of the parent at his birth. In a group of subjects aged 20-60 in 1960, the parental birth dates may range from 1840 to 1920 for fathers and from 1860 to 1920 for mothers. Further, the children of old parents are more likely to lose them early in life and *vice versa*.

METHOD

In psychiatric case histories date of parent death and age of parent at death are usually recorded. Age of parent at birth is not, but this may be obtained for patients whose parents have died by subtracting age of patient at death from age of parent.

The methods and problems of obtaining control data have been outlined by Gregory (1965, 1966)

and Dennehy (1966). For the present study a local population survey has been used, the main difficulty of which is that of obtaining an adequate response. This was overcome by collaborating with a long established general practitioner.

SOURCE OF DATA ON PSYCHIATRIC PATIENTS

The patients comprised 500 admissions to the Chrichton Royal Hospital, Dumfries. They were aged 20 to 59 in 1963 and included 100 patients from each of the years 1959 to 1963. They were taken consecutively, provided that a patient had not been included in the sample of a previous year. Amenity patients were included only if admitted from the hospital catchment area of Dumfriesshire, Kirkcudbrightshire, and Wigtownshire. The sample contained patients with a variety of diagnoses and both first and re-admissions.

DATA COLLECTION Information was obtained when possible by retrospective perusal of case records. Patients with inadequate records were sent questionnaires similar to those used for the control group. The small proportion of non-responders was visited by mental welfare officers. Information about both parents was obtained from 96% of the sample.

SOURCE OF CONTROL DATA

A survey of 500 subjects was carried out in a general practice in Langholm, Dumfriesshire. This was within the catchment area of the psychiatric hospital used as a source of patients.

Patients and controls were matched for age and sex by means of the practice age/sex register. This comprises two books, one for males and one for females, which list on separate pages all subjects born in a particular year. The required numbers were randomly selected from the appropriate pages.

Matching for social class was intentionally not

attempted for it was considered that social class of subject is no indication of social class of parent and a change in social class may be related to parent death. Matching for social class of parent would not be possible because such information is inadequately recorded and because, due to changes in occupational status, it would be difficult to assign any stated occupation of parent to the correct social class group.

DATA COLLECTION Each subject was sent a questionnaire and a covering letter. The questionnaire was similar to one which had been successfully used with the psychiatric patients whose case records were incomplete. Date of birth was requested as an identity check and an indication of correctness of replies. As with the patient group, age of parent at birth was derived from age of parent at death. An estimate of illegitimacy was sought by asking respondents to write 'never known' if they had never known their fathers. Reminder letters, with new forms and enclosed envelopes, were sent at the end of one week and a fortnight. There was an initial response of 70% to the first enquiry and a final response of 95%. There was no sign of age bias among the non-responders.

PRESENTATION OF RESULTS

In all instances only the subject's natural parent is referred to. In Fig. 1 and Table II all parent deaths are included. In other early parent death calculations only the earliest parent death is counted. In recent parent death calculations only the most recent parent death is counted. Cases for whom the time of parent death is not known are excluded from the appropriate denominators.

RESULTS

Figure 1 indicates the percentage of patients and control subjects in each age group whose parent was known to be alive in 1963. The percentages are relatively lower for fathers because (1) there is a higher proportion not known about due to illegitimacy and early desertion and (2) fathers tend to be older than mothers and to die at an earlier age.

In general there is close correspondence between the patient and the control group, but in the 30-34 year age group there are approximately 20% fewer patients with either mother or father alive. This applies to both men and women.

Table I presents the mean age of the parent at birth of the subject for all subjects whose parent died and the age at death is known. For comparison, similar mean ages obtained by Munro in Edinburgh (1966b), irrespective of whether the parent has died, are presented. Munro's patients were of comparable age distribution. It will be seen that, in both studies, the mean ages for patients and controls are very similar.

In Table II only subjects aged 40 and over are considered, in order to ascertain the incidence of parent death by five-year age-spans from birth till age 39. The table shows that by the age of 40, 90.9% of patients and 91.9% of controls have experienced the death of at least one parent. The incidence of mother death in the two groups is similar, and that of father death is slightly higher in the patient group. The most striking difference occurs during the 0-9 age period, during which time significantly more patients had lost a parent ($P < 0.02$). Figure 2 presents the incidence of parent death from age 0 to 9 in relation to the age of the subjects. From age 30 onwards the incidence is greater in the patient

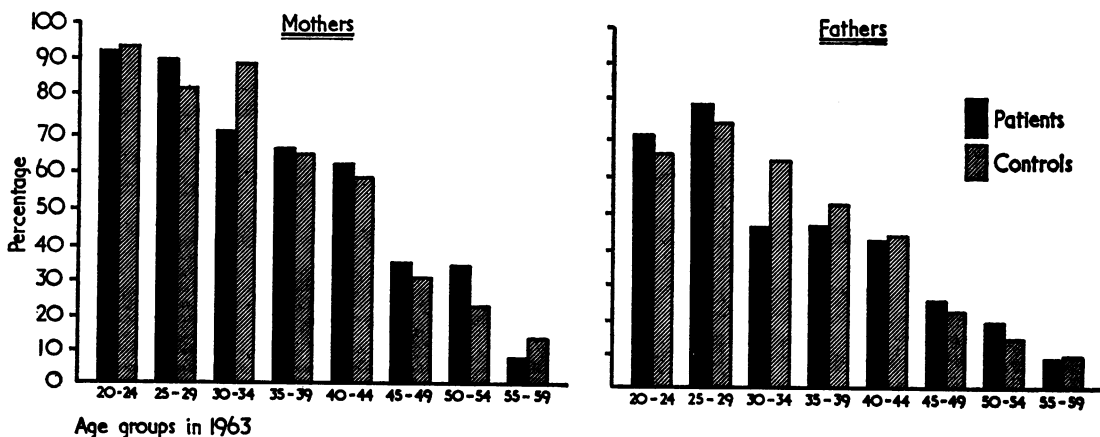


FIG. 1. Percentage of each age group whose parent was known to be alive in 1963.

group. In neither group does there appear to be a marked variation in incidence with age.

Table III presents the relationship between the age at death of the parent and the age of the parent at the birth of the subject. It would be expected that parents who died when the subjects were young would have been older at the subjects' birth. In neither patients nor controls does this appear to be

so. In three instances the mean age at birth is greater among parents who died during the later age span.

Table IV demonstrates that even when subjects whose parents died when they were 0-19 years are compared with those whose parents died when they were at the relatively late age-span of 20-39, there is still no appreciable difference in the mean age of

TABLE I
MEAN AGE OF PARENT AT BIRTH OF SUBJECT

	Mother				Father			
	Patients		Controls		Patients		Controls	
	n	Mean Age (years)	n	Mean Age (years)	n	Mean Age (years)	n	Mean Age (years)
Present study ¹	181	31.61	215	31.66	212	35.63	243	35.79
Munro, Edinburgh, 1966 (b) ²	163	30.15	153	30.37	163	33.19	153	33.08

¹For parents who had died. ²For all parents.

TABLE II
INCIDENCE OF PARENT DEATH BY FIVE-YEAR AGE-SPANS FOR SUBJECTS AGED OVER 40

Age at Death of Parent (years)	Mother				Father				Either Parent			
	Patients		Controls		Patients		Controls		Patients		Controls	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
0-4	18	6.2	8	2.9	20	7.1	9	3.3	33	11.6	16	5.9
5-9	11	3.8	9	3.3	16	5.7	11	4.0	26	9.1	20	7.4
10-14	9	3.1	12	4.4	16	5.7	14	5.1	25	8.8	26	9.6
15-19	5	1.7	9	3.3	14	5.0	16	5.9	18	6.3	25	9.2
20-24	14	4.8	12	4.4	12	4.3	19	7.0	25	8.8	30	11.0
25-29	21	7.3	17	6.3	23	8.2	18	6.6	43	15.1	35	12.9
30-34	15	5.2	20	7.4	29	10.3	27	9.9	41	14.4	45	16.5
35-39	25	8.7	26	9.6	27	9.6	28	10.3	48	16.8	53	19.5
Total parent death	118	40.8	113	41.5	157	55.9	142	52.2	259	90.9	250	91.9
Illegitimate					19	6.8	14	5.1				
Alive before subject aged 40	171		159		105		116					
Not known	3		17		11		17		7		17	
Total	292		289		292		289		292		289	

Death of either parent age 0-9 patients: controls $\chi^2 = 5.4844$, d.f. = 1, $P < 0.02$.

TABLE III
RELATIONSHIP BETWEEN AGE AT DEATH OF PARENT AND MEAN AGE OF PARENT AT BIRTH OF SUBJECT

Age at Death of Parent (years)	Mother					Father				
	Patients		Controls		Difference	Patients		Controls		Difference
	n	Mean Age at Birth	n	Mean Age at Birth		n	Mean Age at Birth	n	Mean Age at Birth	
0-9	38	30.7	21	33.3	2.6	35	35.4	24	35.9	0.5
10-19	19	32.9	26	31.5	1.4	46	38.3	43	37.5	0.8
Difference		2.2		1.8			2.9		1.6	

Patients, $t = 1.0085$, d.f. = 55, N.S.
Controls, $t = 0.8161$, d.f. = 45, N.S.

Patients, $t = 1.2679$, d.f. = 78, N.S.
Controls, $t = 0.6205$, d.f. = 65, N.S.

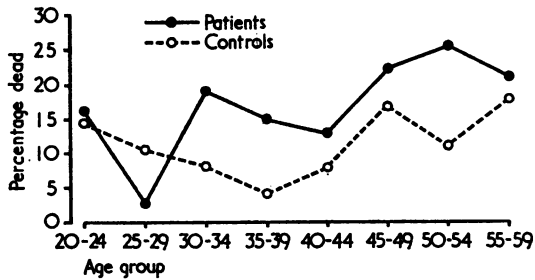


Fig. 2. Relationship between age in 1963 and death of either parent from age 0-9.

parents at the subjects' births. Thus there appears to be little relationship between age at death of parent and parental age at birth.

In Fig. 3 the incidence of parent death occurring one to five years before admission is presented in relation to the age of the patient on admission, and of the control subjects in 1963. Because recent parent death is uncommon in young subjects the first three age groups have been combined. One

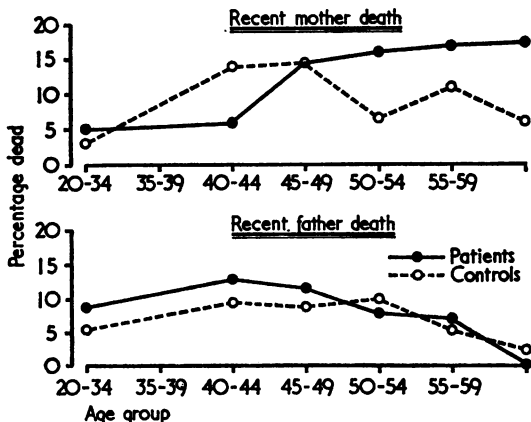


Fig. 3. Relationship between age on admission and death of a parent one to five years before admission.

might anticipate that recent parent death would reach a peak around middle life and decline in later life, by which time most parents would have died. This picture is shown in the control group for both mother and father deaths. In the patient group there are relatively more father deaths during early years and relatively more mother deaths during later years, and a decline in mother deaths does not occur.

In Table V the incidence of parent death during the most recent five-year period is presented as a proportion of those whose parent is known to be alive at the beginning of that period. As patients and controls are matched for age in 1963, and not age on admission, it is not possible to compare the total incidences. As is suggested from Fig. 1, a significant excess of patients aged over 40 experienced maternal bereavement during this period. The excess of patients in the younger age group who experienced paternal bereavement is not significant.

Table VI presents the mean age of parent at birth of subject for those who lost parents during the most recent five-year period. The mean ages are very similar, but for both patients and controls they are slightly lower than those presented in Table I for all bereaved subjects.

DISCUSSION

Table VII shows the incidence of early parent death obtained in the present study, compared with that quoted by four other British studies. There is close agreement apart from the incidence of father death occurring in the 0-4 age span. Dennehy (1966), Brown (1961), and Munro (1965) show relatively higher incidences of loss during this period, and it is possible that this may be due to a confusion between illegitimacy and early father death. By including the category of 'never known' in the questionnaire, it is more likely that only fathers who died were recorded. Further, the

TABLE IV
RELATIONSHIP BETWEEN AGE AT DEATH OF PARENT AND MEAN AGE OF PARENT AT BIRTH OF SUBJECTS AGED OVER 40

Age at Death of Parent (years)	Mother				Difference	Father				
	Patients		Controls			Patients		Controls		
	n	Mean Age at Birth	n	Mean Age at Birth		n	Mean Age at Birth	n	Mean Age at Birth	
0-19	34	32.0	33	33.0	1.0	51	35.1	46	37.3	2.2
20-39	51	32.7	75	32.2	0.5	71	36.5	90	36.5	0.0
Difference		0.7		0.8			1.4		0.8	

TABLE V
INCIDENCE OF PARENT DEATH, 1-5 YEARS BEFORE ADMISSION, BY SEX OF PARENT LOST AND AGE ON ADMISSION

Age on Admission (years)	Patients						Controls					
	Father		Mother		Either		Father		Mother		Either	
	Deaths no. (%)	Total at Risk	Deaths no. (%)	Total at Risk	Deaths no. (%)	Total at Risk	Deaths no. (%)	Total at Risk	Deaths no. (%)	Total at Risk	Deaths no. (%)	Total at Risk
20-39	24 15.5	155	12 6.6	182	36 17.1	210	14 9.9	142	14 8.1	173	28 14.3	196
40-59	19 23.8	80	42 33.1	127	61 39.1	156	18 20.9	86	26 21.7	120	44 28.8	153
Total	43 18.3	235	54 17.5	309	97 26.5	366	32 14.0	228	40 13.7	293	72 20.6	349

Age 20-39, recent father death, patients:controls, $\chi^2 = 2.1013$, d.f. = 1, N.S.

Age 40-59, recent mother death, patients:controls, $\chi^2 = 4.0221$, d.f. = 1, $P < 0.05$

TABLE VI
COMPARISON OF MEAN PARENTAL AGE AT BIRTH IN PATIENTS AND CONTROLS WHO SUFFERED PARENT DEATH 1-5 YEARS BEFORE ADMISSION

	Father		Mother	
	n	Mean Age (years)	n	Mean Age (years)
Patients	33	33.9	37	29.8
Controls	32	34.0	40	30.0
Differences		0.1		0.2

Father $t = 0.0463$, d.f. = 63, N.S.

Mother $t = 0.1376$, d.f. = 75, N.S.

anonymity of the questionnaire makes it easier to admit to illegitimacy. This is an important point, for the 0-4 age span would appear to be the most crucial, and a difference of 3% may double the incidence and seriously affect a test of significance. Norton (1952), who showed a relatively low incidence of father loss in his control group, is one of the few workers to demonstrate early father death as a possible aetiological factor.

Figure I and Table II together indicate the pattern of parent death through life. By age 40 most people have lost at least one parent and by age 50 approximately three quarters of the population have lost both parents. The deficit of patients with parents alive in the 30-34 age group is apparent to the same extent for both fathers and mothers. This is an unexpected finding and suggests that this might be a time when the support of a parent would help to prevent hospital admission. It may be deduced that it is more traumatic for a child to lose a parent during the first five years of life. Twice as many patients as controls have lost a parent during this period. This is so for both mother and father death. The importance of this period is probably related as much to parental absence following the loss as to the trauma of the loss itself. During subsequent years losses are slightly greater for the controls, such that the cumulative percentages become similar. However, it should be stressed that, even among the controls, one-third have lost at least one parent by age 20, indicating that early parent death is a relatively frequent occurrence in the

TABLE VII
INCIDENCE OF EARLY PARENT DEATH IN GENERAL POPULATION OBTAINED IN FIVE BRITISH STUDIES, INCLUDING PRESENT STUDY

Study	Source	Parent	Age at Loss (years)			
			0-4	5-9	10-14	15-19
Dennehy 1966	1921 Census	Father	6.0	3.4	2.5	—
		Mother	2.2	1.6	2.0	—
Brown 1961	276 G.P. attenders	Father	5.7	4.2	3.5	4.2
		Mother	3.0	3.4	2.3	3.1
Munro 1965	210 Medical and surgical O.P.	Father	5.7	4.3	2.4	5.0
		Mother	3.3	1.9	2.9	1.6
Norton 1952	500 Medical and surgical I.P.	Father	1.4	2.4	3.8	5.4
		Mother	2.2	1.8	3.2	2.8
Birtchnell present study	500 Local community	Father	2.3	3.6	3.6	5.0
		Mother	2.4	3.0	3.2	2.2

general population and a large number of individuals must make a satisfactory adjustment to it.

Figure 2 reveals very little relationship between parent death occurring during the important age span of 0-9 and age. Early parent death is excessive among patients in all but one age group and is most marked for those aged 30-39 and 50-54. The latter age group would have lost parents during the 1914-18 period.

It is difficult to examine the relationship between parent death and parental age at birth for the latter is itself related to a number of variables which themselves may be aetiological factors, *e.g.*, social class, size of sibship, birth order, and, as Goodman (1957) has pointed out, ability of the parent to tolerate psychiatric patients out of hospital. Munro (1966a, b), comparing depressed patients and general medical controls, showed no significant difference either in the incidence of early parent death or in maternal or paternal age at birth. Hill and Price (1967) considered an increased incidence of early father death in depressed patients to be secondary to increased paternal age at birth, because even when patients bereaved at age 0-14 were excluded, the depressed patients were born to significantly older fathers than non-depressed patients. Moran (1968), reviewing a number of recent studies, concluded that the size of the effect of early mother death is not large enough to account for the observed shift in maternal age at birth and that probably both factors play some part in the cause of mental illness.

In the present study the parental age at birth is known only for subjects whose parent has died and who may on average have been older. The mean ages for all known cases are presented in Table II. The correspondence between patients and controls is very close. In the same table Munro's data are presented irrespective of whether the parent has died. Patients and controls again correspond closely. It is not possible to say whether Munro's lower figures are due to the inclusion of living parents or to differences in the ages of having children in the two locations. In Tables III and IV the mean age of parent at birth is calculated separately for all subjects whose parents died during the age-spans 0-9 and 10-19, and for subjects aged over 40 whose parents died during the age-spans 0-19 and 20-39. For patients whose parents died during the crucial 0-9 age-span the mean age of parent at birth is relatively low, suggesting that the excessive number of parent deaths occurring during this period is not due to parents being elderly. Further, when deaths occurring during this period are excluded the mean parental age at birth is not unduly high in the

patient group. Thus the present findings do not support the hypothesis of Hill and Price (1967).

A definite association appears to exist between recent parent death and age. In the case of fathers, who tend to be older than mothers and to die at an earlier age, the incidence of recent death tends to diminish markedly in later life, and this is shown for both patients and controls. A decline in recent mother deaths after age 44 is apparent in the control group but no such decline occurs in the patient group, suggesting that parent death in later life may be more traumatic.

The association between recent parent death and hospital admission may be due either to the emotional reaction of the patient to the death of the parent or to the reorganization of the family following parent death. The remaining parent and children may make added demands upon the patient who may even require to take them into his home. This may result in disharmony within his own family. Alternatively, the lost parent could have been a source of protection and support to the patient which prevented earlier admission. It is only possible to state that recent parent death increases the likelihood of mental hospital admission.

SUMMARY

The relationship between early and recent parent death, age, and parental age at birth is investigated in 500 psychiatric admissions and a control group of similar size matched for age and sex.

Within the 30-34 age group, approximately 20% more controls have a mother or father known to be alive. In other age groups the proportions of patients and controls with parents alive correspond closely. The mean age of parents at birth of patients and controls whose parent has died is comparable.

Over 90% of both patients and controls, aged over 40, have been bereaved of at least one parent. Significantly more patients aged over 40 were bereaved before the age of 10. However, there appeared to be little variation in the incidence of early bereavement with age of subject.

For both patients and controls no relationship was shown between age at death of parent and mean parental age at birth, and subjects bereaved before age 10 did not appear to have elderly parents.

A larger proportion of patients aged 20-39 had suffered recent father death and a larger proportion of those aged 40-59 had suffered recent mother death. The mean parental age at birth of patients and controls whose parents died one to five years before admission is similar.

I should like to thank Dr. Watt, of Langholm, Dumfriesshire, for allowing me access to his age/sex registers and for permission to include his patients in the postal survey; the secretarial staff of St. John's Hospital, Stone, Aylesbury, Buckinghamshire for the preparation of letters and questionnaires; the Oxford Regional Hospital Board for a grant to cover the cost of postage; and Mr. David Hall of the Mental Health Research Unit, University of Aberdeen for statistical advice.

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