Soz.- Präventivmed. 45 (2000) 95–101
0303-8408/00/020095-07 $ 1.50 + 0.20/0

Alkistis Skalkidou

Department of Hygiene and Epidemology, Athens University Medical School

Parental family variables and likelihood of divorce

Summary

It has long been established that divorced men and women have substantially higher standardized general mortality than same gender persons. Because the incidence of divorce is increasing in many countries, determinants of divorce rates assume great importance as indirect risk factors for several diseases and conditions that adversely affect health. We have undertaken a study in Athens, Greece, to evaluate whether sibship size, birth order, and the gender composition of spousal sibships are related to the probability of divorce. 358 high school students, aged between 15 and 17 years, satisfactorily completed anonymous questionnaires, indicating whether their natural parents have been separated or divorced, their parents' educational achievement, birth order and sibship size by gender. The study was analyzed as a twin case-control investigation, treating those divorced or separated as cases and those who were not divorced or separated as controls. A man who grew up as an only child was almost three times as likely to divorce compared to a man with siblings, and this association was highly significant ($p \sim 0.004$). There was no such evidence with respect to women. After controlling for sibship size, earlier born men – but not women – appeared to be at higher risk for divorce compared to those later born. There was no evidence that the gender structure of the sibship substantially affects the risk for divorce. Even though divorce is not an organic disease, it indirectly affects health as well as the social well-being. The findings of this study need to be replicated, but, if confirmed, they could contribute to our understanding of the roots of some instances of marital dysfunction.

Divorce is a common problem with increasing incidence in many countries and is frequently considered as a problem with serious social dimensions[1,2]. It has also been established that the divorce state is associated with substantially increased mortality from several causes among both men and women[3–9], thus, accounting for a sizable population attributable fraction of morbidity and mortality[10]. Several papers have hypothesized various explanations for this patterning, revolving primarily around two main theories, those of "marital selection" and "marital protection". The former suggests that health and health related attributes determine marital experience; the later suggests the other way around[11–15]. Many papers also try to assess the relative importance of psychological factors, such as stress, available material resources, support networks and health behaviours, in trying to explain the above mentioned difference in mortality and morbidity rates[16–18], while two papers have reported suppressed immunological functioning in stressful conditions such as divorce[19,20]. Although there is very extensive literature in the fields of sociology and psychology concerning the dynamics of marriage[21–25], the social consequences of divorce[1, 26, 27] and the secular trends and socio-economic differentials in divorce frequency[21, 28], very little is known about the effects of family structure and in particular sibship composition on divorce likelihood. We have undertaken a study in Athens, Greece, to evaluate whether sibship size, birth order, and the gender composition of spousal sibships are related to the probability of divorce. We hypothesized that individuals who grew up as only children would be

more prone to divorce and that children belonging to sibships containing both genders would be more likely to withstand the pressures of a later marriage.

Subjects and methods

In May 1997 we have asked the teachers of three senior classes of a Lyceum (high school) in Athens, serving the education of children from middle and upper-middle class families to help us in the implementation of a questionnaire-based study exploring the association between parental family structure and the risk of parental divorce.
Of 395 students from three classes, 358, aged between 15 and 17 years, satisfactorily completed anonymous questionnaires, indicating whether their natural parents have been separated or divorced, their parents' educational achievement (years of schooling as a proxy to socio-economic class), as well as their sibship size by gender and their birth order.

The study was analyzed as a twin case-control investigation, one focusing on fathers and the other on mothers, treating those divorced or separated as cases and those who were not divorced or separated as controls. The Mantel-Haenzel procedure was used to control for confounding when needed[29,30].

Results

Table 1 shows the distributions of fathers and mothers of the participating 358 students by parental sibship size, birth order and marital status. Thus, among divorced fathers, 12 were only children, whereas 10 had a single sibling; the corresponding numbers among non-divorced fathers were 44 and 137. Similarly, among divorced mothers, 16 had another sibling and of those, 11 were first born and five were second born; among non-divorced mothers, the corresponding numbers were 79 and 63.
Table 2 indicates whether the sibships of parents who were not themselves only children also included siblings of the opposite gender. For example, among divorced mothers, six had only sisters whereas 25 had at least one brother; the corresponding numbers among controls were 84 and 181.
The results of the statistical analysis are summarized in Table 3. A man who grew up as an only child was almost three times as likely to divorce compared to a man with siblings, and this association was highly significant ($p \sim 0.004$). There was no such evidence with respect to women. There was some evidence that men and women from small families are at somewhat higher risk for divorce, but neither of the respective associations was statistically significant. After controlling for sibship size, earlier born men – but not women – appeared to be at higher risk for divorce compared to those later born ($p \sim 0.07$). Finally, there was no evidence that the gender structure of the sibship substantially affected the risk of divorce.

Birth order	Father (cases/controls)					Mother (cases/controls)				
	1	2	3	4+	All	1	2	3	4+	All
Sibship size										
1	12/44 *(27.3%)*				**12/44 *(27.3%)***	7/55 *(12.7%)*				**7/55 *(12.7%)***
2	5/71 *(7.0%)*	5/66 *(7.6%)*			**10/137 *(7.3%)***	11/79 *(13.9%)*	5/63 *(7.9%)*			**16/142 *(11.3%)***
3	5/16 *(31.3%)*	3/22 *(13.6%)*	2/19 *(10.5%)*		**10/57 *(17.5%)***	7/24 *(29.2%)*	3/29 *(10.3%)*	3/17 *(17.6%)*		**13/70 *(18.6%)***
4+	2/15 *(13.3%)*	3/19 *(15.8%)*	0/17 *(0.0%)*	1/31 *(3.2%)*	**6/82 *(7.3%)***	0/7 *(0.0%)*	1/13 *(7.7%)*	0/12 *(0.0%)*	1/21 *(4.8%)*	**2/53 *(3.8%)***
All	**24/146 *(16.4%)***	**11/107 *(10.3%)***	**2/36 *(5.6%)***	**1/31 *(3.2%)***	**38/320 *(11.9%)***	**25/165 *(15.2%)***	**9/105 *(8.6%)***	**3/29 *(10.3%)***	**1/21 *(4.8%)***	**38/320 *(11.9%)***

Table 1. *Frequency distributions of the parents of 358 high school students in Athens, by their sibship size, birth order and marital status (cases: divorced or separated; controls: other).*

	Fathers[a]				Mothers[a]			
	with brother(s) only		with at least one sister		with sister(s) only		with at least one brother	
	N	(%)	N	(%)	N	(%)	N	(%)
Cases	8	(8.3)	18	(8.8)	6	(6.7)	25	(12.1)
Controls	89	(91.7)	187	(91.2)	84	(93.3)	181	(87.9)

[a] Parents who were themselves only children are not included.

Table 2. *Distribution of parents with siblings by gender composition of their sibship and marital status (cases: divorced or separated; controls: other).*

Evaluated variables	Control variables[b]	χ^2 (1 df)	p (two-tailed)	Odds ratio	95 % Confidence interval
Father only child vs. other	None	8.2	0.004	2.9	1.4 to 6.0
Mother only child vs. other	None	0.0	0.97	1.1	0.5 to 2.6
Paternal sibship size, *ordered*	None	2.7	0.10		trend test (inverse)
Maternal sibship size, *ordered*	None	0.5	0.48		trend test (iinverse)
Paternal birth order, *ordered*	Sibship size	3.2	0.07		trend test (inverse)
Maternal birth order, *ordered*	Sibship size	1.2	0.27		trend test (inverse)
Father with sister(s) vs. brother(s) only	Sibship ≥ 2	0.0	0.88	1.1	0.5 to 2.6
Mother with brother(s) vs. sister(s) only	Sibship ≥ 2	2.0	0.16	1.9	0.8 to 4.8

[a] References 15, 16.
[b] There were no substantial or statistically significant differences with respect to age or educational level between cases and control fathers, and cases and control mothers.

Table 3. *Results from the statistical analyses using the Mantel extensions of Chi-square procedure[a].*

Discussion

Divorce has, in addition to a wide-range of social consequences, several adverse health effects on the persons involved, as well as on their children. Divorced men and women have higher overall mortality than their married, widowed or single counterparts[4–6, 8]. Specifically, divorced individuals, in comparison to married ones, have been found to be at increased risk for cardiovascular diseases[31–34], depression[35], neurotic behavior[36], eating disorders[37], panic attacks[38], suicide[39] and accidents[40]. It has been suggested that divorcees may also be at increased risk for several cancers[9,41], including cervical cancer[42], prostate cancer[43], lung cancer[41] and gastrointestinal tumours[44], while married individuals might have better survival rates among patients with cancer[45,46]. It has been reported that the divorced state is associated with the perception of pain and the general prognosis in conditions such as rheumatoid arthritis[47] and musculosceletal pain[48] and that increased rates of divorcees are being noted among fibromyalgia syndrome patients[49]. It has also been claimed that divorced individuals adopt high-risk behaviours, such as smoking[50–52], drinking[52,53] and drug-taking[54], which are precursors to a variety of adverse health effects, while the divorced state has been reported as a predictor of non-adherence to medical rehabilitation programs[55]. In addition, children of divorced parents have demonstrable psycho-developmental aberrations[26, 56–60] and often neurologic manifestations such as pseudo-seizures[61] and tension-type headaches[62].

Thus, it is not possible to equate lack of statistical significance with lack of association. Statistically significant results, however, and those that approach conventional levels of significance can justifiably be subjected to further consideration. There is no obvious source of bias in the present database because all students of particular classes of a regular school were included and

the reasons for questionnaire exclusion were purely technical (mostly omissions in some of the items). Age and social class are generally associated with divorce [21,28] but in this data set the respective associations were both minimal and statistically non-significant. Sibship size and birth order were mutually adjusted for in order to control confounding. It appears that the two findings that stand out in the present investigation, that is, the higher divorce risk of men who grew up as only children and the apparent higher risk for divorce of men belonging to earlier birth orders can legitimately be considered as genuine.

Factors affecting divorce vary considerably by time, place, socioeconomic conditions, religious beliefs, social traditions and legal constraints [21–24, 63, 64]. Therefore, the results of the present investigation are not necessarily generalizable to other population groups, time periods, or cultural settings. It should be realized, however, that generalizability can only be compromised when the factors that define a particular population group (e.g. time, culture, religion, etc.), *interact* with the variables that predict the outcome under study – in this instance, divorce [10]. Interactive phenomena may be more common in the social sciences than in biology, but they have to be demonstrated rather than assumed in order to challenge generalizability.

Social values are rapidly changing in Greece, but undercurrents of the male dominance and the special, and spoiling, attention bestowed to male only children and early-born boys are still easily identifiable. It is not difficult to attribute an increased divorce proneness to men brought up with the illusion that they should represent the focus of their social milieu. In contrast, we found no evidence in these data that early-life interaction with siblings of the other gender affects to a demonstrable degree the likelihood of divorce. Divorce is not an organic disease, but it indirectly affects health as well as the social well-being. The findings of this study need to be replicated, but, if confirmed, they could represent a contribution to our understanding of the roots of some instances of marital dysfunction.

Zusammenfassung

Variablen der elterlichen Familie und Scheidungswahrscheinlichkeit

Es ist seit langem bekannt, dass geschiedene Männer und Frauen eine wesentlich höhere standardisierte allgemeine Sterblichkeit haben als Personen des gleichen Geschlechtes, die nicht geschieden wurden. Da die Ehescheidungsraten in vielen Ländern zunehmen, können Determinanten, die mit Ehescheidung assoziiert sind, eine wichtige Rolle als indirekte Risikofaktoren für Krankheiten und andere, die Gesundheit negativ beeinflussende Lebensumstände, sein. Wir haben deshalb eine Untersuchung in Athen, Griechenland, durchgeführt, die zum Ziel hatte, die Zusammenhänge von Zahl, Reihenfolge, und Geschlechtszusammensetzung der Geschwister der Ehepartner mit der Wahrscheinlichkeit einer Ehescheidung zu korrelieren. Hierzu beantworteten 358 Schüler im Alter von 15 bis 17 Jahren einen anonymen Fragebogen über den Ehestatus und die Berufsausbildung ihrer leiblichen Eltern sowie deren Geschwisterzahl, Geschlecht der Geschwister und die Geburtsreihenfolge der Geschwister. Die Untersuchung wurde als Fallkontrollstudie ausgewertet, wobei geschiedene oder getrennt lebende Elternteile als Fälle und nicht geschiedene bzw. getrennt lebende Elternteile als Kontrollfälle dienten. Die Ergebnisse zeigten, dass Männer, die als Einzelkinder aufwuchsen, eine nahezu dreifach höhere Ehescheidungsrate aufwiesen als Männer mit Geschwistern ($p < 0.005$). Für Frauen wurde ein solcher Zusammenhang nicht beobachtet. Nach Kontrolle der Geschwisteranzahl hatten früher in der Geschwisterreihenfolge geborene Männer, nicht aber Frauen, eine höhere Scheidungsrate als Erwachsenene als später geborene Männer. Es fanden sich keine Hinweise über die Rolle der Geschlechtszusammensetzung der Geschwister. Obwohl eine Ehescheidung keine organische Erkrankung ist, beeinflusst sie dennoch Gesundheit und soziales Wohlbefinden. Die Ergebnisse dieser und gleichartiger Untersuchung könnten dazu beitragen, ein besseres Verständnis über die Ursachen von letztlich nicht erfolgreichen ehelichen Gemeinschaften zu erhalten.

Résumé

Variables de la famille des parents et probabilité de divorce

C'est connu depuis longtemps que les hommes et les femmes divorcés ont une mortalité générale plus haute que les autres personnes du même genre. Puisque l'incidence de divorces augmente dans beaucoup de pays, les causes determinantes de divorce prennent grande importance en tant que facteurs indirects de risque pour plusieures maladies et conditions que compremettent la santé. Nous avons entrepris une étude a Athenes, Grèce, pour évaluer si le sexe et le nombre d'enfants de la famille d'origine d'une personne et son rang de naissance sont liés a la probabilité de divorce de cette personne. 358 etudiants du lycée, agés entre 15 et 17 ans ont remplis d'une manière satisfaisante des questionnaires anonymes indiquant si leurs parents naturels ont été separés on divorcés, le niveau d'education et une description du rang de naissance des frères et soeurs de leurs parents. L'étude a été analysée comme recherche de castémoins jumelle, traitant ceux qui ont été separés ou divorcés comme cas et ceux qui n'ont pas été separés ou divorcés comme témoins. Un homme qui a grandi comme seul enfant avait une probabilité de divorcer trois fois plus grande, en comparaison avec un homme avec des frères et/ou soeurs, et cette association etait très significative (p ~ 0.004). Il n'y avait aucune evidence pareille en ce qui concerne les femmes. Après avoir contrôlé pour le nombre des enfants de la famile d'origine, les hommes – mais pas les femmes – nés en avance étaient caractérisés par une probabilité de divorce plus grande, en comparaison avec ceux qui étaient nés plus tard. Il n'y avait aucune evidence que le sexe des enfants de famille d'origine affecte sensiblement la probabilité de divorce. Quoique le divorce ne soit pas une maladie organique, il affecte indirectement la santé, aussi bien que le bien-être social. Les resultats de cette étude doivent être repliqués, mais si confirmés, pourraient contribuer à notre compréhension des racines de quelques exemples de dysfonctionnement matrimonial.

References

1 *Kitson GC, Morgan LA.* The multiple consequences of divorce: a decade review. J Marriage Family 1990; *52*: 913–24.

2 *White, LK.* Determinants of divorce: a review of research in the eighties. J Marriage Family 1990; *52*: 904–12.

3 *Carter H, Glick PC.* Marital status and health. In: Marriage and divorce: a social and economic study. Cambridge, MA: Harvard University Press, 1976: 324–57.

4 *Hu YR, Goldman N.* Mortality differentials by marital status: an international comparison. Demography 1990; *27*: 233–50.

5 *Joung IM, van de Mheen H, Stronks K, van Poppel FW, Mackenbach JP.* Differences in self-reported morbidity by marital status and by living arrangement. Int J Epidemiol 1994; *23*: 91–7.

6 National Office of Vital Statistics. Mortality from selected causes by marital status, United States, 1949–1951. Vital Statistics Special Reports 1954; *39*: 301–429.

7 *Rosengren A, Wedel H, Wilhelmsen L.* Marital status and mortality in middle-aged Swedish men. Am J Epidemiol 1989; *129*: 54–64.

8 *Tucker JS, Friedman HS, Wingard DL, Schwartz JE.* Marital history at midlife as a predictor of longevity: alternative explanations to the protective effect of marriage. Health Psychol 1996; *15*: 94–101.

9 *Ben-Shlomo Y, Smith GD, Shipley M, Marmot MG.* Magnitude and causes of mortality differences between married and unmarried men. J Epidemiol Community Health 1993; *47*: 200–5.

10 *MacMahon B, Trichopoulos D.* Epidemiology – principles and methods. Second Edition. Boston. Little, Brown 1996.

11 *Cheung YB.* Can marital selection explain the differences in health between married and divorced people? From a longitudinal study of a British birth cohort. Public Health 1998; *112*: 113–7.

12 *Joung IM, van de Mheen HD, Stronks K, van Poppel FW, Mackenbach JP.* A longitudinal study of health selection in marital transitions. Soc Sci Med 1998; *46*: 425–35.

13 *Waldron I, Hughes ME, Brooks TL.* Marriage protection and marriage selection – prospective evidence for reciprocal effects of marital status and health. Soc Sci Med 1996; *43*: 113–23.

14 *Burman B, Margolin G.* Analysis of the association between marital relationships and health problems: an interactional perspective. Psychol Bull 1992; *112*: 39–63.

15 *Goldman N.* Marriage selection and mortality patterns: inferences and fallacies. Demography 1993; *30*: 189–208.

16 *Wyke S, Ford G.* Competing explanations for associations between marital status and health. Soc Sci Med 1992; *34*: 523–32.

17 *Lillard LA, Panis CW.* Marital status and mortality: the role of health. Demography 1996; *33*: 313–27.

18 *Joung IM, Stronks K, van de Mheen H, Mackenbach JP.* Health behaviours explain part of the differences in self reported health associated with partner/marital status in The Netherlands. J Epidemiol Community Health 1995; *49*: 482–88.

19 *Ader R, Cohen N, Felten D, eds.* Psychoneuroimmunology. San Diego: Academic Press, 1990.

20 *Calabrese JR, Kling MA, Gold PW.* Alterations in immunocompetence during stress, bereavement, and depression: focus on neuroendocrine regulation. Am J Psychiatry 1987; *144*: 1123–134.

21 *Uchida E, Araki S, Murata K.* Socio-economic factors affecting marriage, divorce and birth rates in a Japanese population. *J Biosoc Sci* 1993; *25*: 499–507.

22 *Penn CD, Hernandez SL, Bermudez JM.* Using a cross-cultural perspective to understand infidelity in couples therapy. Am J Fam Therapy 1997; *25*: 169–85.

23 *Noller P.* What predicts divorce – the relationship between marital processes and marital outcomes. Contemp Psychol 1996; *41*: 988–90.

24 *Amato PR, Rogers SJ.* A longitudinal study of marital problems and subsequent divorce. J Marriage Family 1997; *59*: 612–24.

25 *Trost J.* Family studies in Sweden. Marriage and Family Review 1996; *23*: 723–43.

26 *Teachman JD, Paasch KM.* Financial impact of divorce on children and their families. Future Child 1994; *4*: 63–83.

27 *Amato PR.* Life-span adjustment of children to their parents' divorce. Future Child 1994; *4*: 143–64.

28 *Nakosteen RA, Zimmer MA.* Men, money, and marriage – are high earners more prone than low earners to marry. Soc Sci Quart 1997; *78*: 66–82.

29 *Mantel N, Haenszel W.* Statistical aspects of the analysis of data from retrospective studies of disease. J Natnl Cancer Institute 1959; *22*: 719–48.

30 *Mantel N.* Chi-square tests with one degree of freedom: extensions of the Mantel-Haenszel procedure. J Am Statistical Association 1963; *59*: 690–700.

31 *Johannson S, Vedin A, Wilhelmsson C.* Myocardial infarction in women. Epidemiol Rev 1983; *5*: 67–95.

32 *Lindgarde F, Furu M, Ljung BO.* A longitudinal study on the significance of environmental and individual factors associated with the development of essential hypertension. J Epidemiol Community Health 1987; *41*: 220–26.

33 *Ebrahim S, Wannamethee G, McCallum A, Walker M, Shaper AG.* Marital status, change in marital status, and mortality in middle-aged British men. Am J Epidemiol 1995; *142*: 834–42.

34 *Koskenvuo M, Kaprio J, Kesaniemi A, Sarna S.* Differences in mortality from ischemic heart disease by marital status and social class. J Chronic Dis 1980; *33*: 95–106.

35 *Asseltine RH Jr, Kessler RC.* Marital disruption and depression in a community sample. J Health Soc Behav 1993; *34*: 237–51.

36 *Robertson NC.* The relationship between marital status and the risk of psychiatric referral. Br J Psychiatry 1974; *124*: 191–202.

37 *Kiriike N, Nagata T, Matsunaga H, Tobitan W, Nishiura T.* Single and married patients with eating disorders. Psychiatry Clin Neurosci 1998; *52* Suppl: S306–8.

38 *Rouillon F.* Epidemiology of panic disorder. Encephale 1996; *22*: 25–34.

39 *Rossow I.* Suicide, alcohol and divorce; aspects of gender and family integration. Addiction 1993; *88*: 1659–65.

40 *Selzer ML, Vinokur A.* Role of life events in accident causation. Mental Health Soc 1975; *2*: 36–54.

41 *Kvikstad A, Vatten LJ, Tretli S, Kvinnsland S.* Widowhood and divorce related to cancer risk in middle-aged women. A nested case-control study among Norwegian women born between 1935 and 1954. Int J Cancer 1994; *58*: 512–16.

42 *Leck I, Sibary K, Wakefield J.* Incidence of cervical cancer by marital status. J Epidemiol Community Health 1978; *32*: 108–10.

43 *Wei Q, Tang X, Yang Y, Zhan Y, Yin H.* Risk factors of prostate cancer – a matched case-control study. Hua Hsi I Ko Ta Hsueh Hsueh Pao 1994; *25*: 87–90.

44 *Lee JA, Chin PG, Wuthrich KJ.* Relationships in Canada between mortality from tumours of the gastrointestinal tract and marital status. Can Med Assoc J 1975; *113*: 839–43.

45 *Kvikstad A, Vatten LJ, Tretli S.* Widowhood and divorce in relation to overall survival among middle-aged Norwegian women with cancer. Br J Cancer 1995; *71*: 1343–47.

46 *Ganz PA, Lee JJ, Siau J.* Quality of life assessment. An independent prognostic variable for survival in lung cancer. Cancer 1991; *67*: 3131–35.

47 *Waltz M, Kriegel W, van't Pad Bosch P.* The social environment and health in rheumatoid arthritis: marital quality predicts individual variability in pain severity. Arthritis Care Res 1998; *11*: 356–74.

48 *Grossi G, Soares JJ, Angesleva J, Perski A.* Psychosocial correlates of long-term sick-leave among patients with musculoskeletal pain. Pain 1999; *80*: 607–19.

49 *Wolfe F, Hawley DJ.* Psychosocial factors and the fibromyalgia syndrome. Z Rheumatol 1998; *57* Suppl 2: 88–91.

50 *Giovino GA, Henningfield TE, Tomar SL, Escobedo LG, Slade J.* Epidemiology of tobacco – use and dependence. Epidemiol Rev 1995; *17*: 48–65.

51 *Colby JP Jr, Linsky AS, Straus MA.* Social stress and state-to state differences in smoking and smoking related mortality in the United States. Soc Sci Med 1994; *38*: 373–81.

52 *Hallberg H, Mattsson B.* Separation and distress – sickness absence and health screening in newly divorced middle-aged Swedish men. Scand J Prim Health Care 1992; *10*: 91–7.

53 *Blankfield A.* Grief and alcohol. Am J Drug Alcohol Abuse 1982–1983; *9*: 435–36.

54 *Ambert AM.* Drug use in separated/divorced persons. Gender, parental status, and socio-economic Status. Soc Sci Med 1982: *16*: 971–76.

55 *Young P, Dewse M, Fergusson W, Kolbe J.* Respiratory rehabilitation

in chronic obstructive pulmonary disease: predictors of nonadherence. Eur Respir J 1999; *13*: 855–59.

56 *Angold A, Costello EJ.* Developmental epidemiology. Epidemiol Rev 1995; *17*: 27–31.

57 *Bell DS, Champion RA.* Deviancy, delinquency and drug use. Br J Psychiatry 1979; *134*: 269–76.

58 *Gerra G, Caccavari R, Delsignore R* et al. Parental divorce and neuroendocrine changes in adolescents. *Acta Psychiatr Scand* 1993; *87*: 350–54.

59 *Mauldon J.* The effect of marital disruption on children's health. Demography 1990; *27*: 431–46.

60 *Palosaari U, Aro H.* Effect of timing of parental divorce on the vulnerability of children to depression in young adulthood. Adolescence 1994; *29*: 681–90.

61 *Wyllie E, Glazer JP, Benbadis S, Kotagal P, Wolgamuth B.* Psychiatric features of children and adolescents with pseudoseizures. Arch Pediatr Adolesc Med 1999; *153*: 244–48.

62 *Karwautz A, Wober C, Lang T* et al. Psychosocial factors in children and adolescents with migraine and tension-type headache: a controlled study and review of the literature. Cephalalgia 1999; *19*: 32–43.

63 *Call VRA, Heaton TB.* Religious influence on marital stability. J Scientific Study of Religion 1997; *36*: 382–92.

64 *Christopher AJ.* The Irish divorce referendum of 1995. Geography. 1997; *82*: 79–81.

Acknowledgements

I am grateful to the students and teachers of the Leodio Lyceum of N. Smyrni, Athens, for their co-operation, and to Dr. Dimitrios Trichopoulos, Dr. Eleni Petridou and Mr. Nikos Dessypris for their advice and support during all stages of this study.

Address for correspondence

Alkists Skalkidou
Dept of Hygiene and Epidemiology
Athens University Medical School
75, Mikras Asias st.
Athens 11527
Greece
Tel: +301 7773840
Fax: +301 7773840
alkistis@homemail.com, fot@hol.gr