Seasonality of Birth: Is There a Link Between Primal Health Research and Astrology?

Author: Odent, Michel

Publication info: Journal of Prenatal & Perinatal Psychology & Health 20. 2 (Winter 2005): 143-155.
ProQuest document link

Abstract: None available.

Full Text: Headnote ABSTRACT: Health from a pre- and perinatal (primal period) perspective has been mostly a theoretical construct. However, in the last 20 years, published studies have confirmed the effects of environmental factors occurring pre- and perinatally and the development of a number of diseases. These indicators point to the fact that we should continue exploring links between the date of birth (or the date of conception) and a great variety of human health conditions, such as, diseases, abnormalities, personality traits, as well as states of health. However, the effects of the environment in modern times may be much less apparent. KEY WORDS: Astrology, season of birth, pre- and perinatal, primal period, birth year. INTRODUCTION Our health is, to a great extent, shaped during the 'primal period' (from conception until the first birthday). This was the main conclusion of my book 'Primal Health', published in the mid-1980s (Odent, 2002), based on theoretical considerations rather than on hard data that were not then available. At that time we could only anticipate that environmental factors and other events occurring during the period when our basic adaptive systems (those involved in what we commonly call health) are being established should have life long consequences. With the progress of information technology, especially the use of computers, we could anticipate that the development of the new branch of 'epidemiology" that we call 'primal health research' would support our theoretical basis. This framework includes all studies exploring correlations between what happened during the primal period and what will happen later on in life in terms of health and behaviour. During the past twenty years 'Primal Health Research' developed at such a speed that in the mid 1990s I found it necessary to establish and to constantly update the 'Primal Health Research Data Bank'. A REVIEW OF THE LITERATURE A Productive Keyword In 2005, among the hundreds of keywords our database offers, some lead to a great number of studies. 'Seasonality of birth' is one example. It confirms the determinant effects of environmental factors during the primal period. It seems obvious that prenatal and early postnatal environments are related to the season of birth. In many societies the food consumed by pregnant women and lactating mothers is highly influenced by the season. The risks of having certain viral diseases (e.g., the flu) are undoubtedly higher during certain months. The ambient temperatures, and therefore the activities of the thermoregulatory systems, fluctuate according to the rhythm of the seasons. Furthermore, we learned recently about the light-dark sensitivity of the pineal gland. The release of its hormone melatonin occurs mostly at night, and is therefore related to the comparative duration of light. In general, there are seasonal variations in hormonal balances. For example higher levels of testosterone in spring compared to autumn have been reported in females. It is also predictable that the long-term effects of the month of birth are linked to the place of birth. The hemisphere and the latitude should be taken into consideration. A great diversity of entries in the database can be accessed via the keyword 'seasonally of birth'. This is evidence that the time and place of birth have effects on humans. Among the characteristics that have been studied from this perspective, we found lifespan, height, degree of fecundity, learning abilities, handedness, psychological traits and tendencies to particular diseases. Life Expectancy An authoritative German inquiry, by demographic researchers at the Max Planck Institute, was based on population data with more than a million observations (Doblhammer &Vaupel, 2001). In two countries of the Northern hemisphere (Austria and Denmark) people born in autumn (October-December) live longer than those born in spring (April-June). Data from Australia show that, in the Southern Hemisphere, the pattern is shifted by half a year. The lifespan pattern of British immigrants to Australia is similar to that of Austrians and Danes and significantly different from that of Australians. The differences are independent of the seasonal distribution of deaths and the social differences in the seasonal distribution of births. In the Northern hemisphere, the excess mortality in the first year of life of infants born in spring does not support the explanation of selective infant survival. Instead, remaining life expectancy at age 50 appears to depend on factors that arise during the primal period. Interestingly, differences in adult lifespan by month of birth decrease over time and are significantly smaller in more recent cohorts. Such findings were confirmed and completed by another German study. Data from 188,515 people who died in North Rhine in 1984 and from 188,850 who died in 1999 were analyzed (Lerchl, 2004). For comparative purposes, all deaths that occurred before age 50 were excluded. In general, individuals born from May through July had the lowest age at death while those born between October and December had the highest, supporting earlier findings. The observed differences between the highest and lowest values were more significant in men than in women. This was confirmed by separate analyses by gender, provided by the data from Germany, the Ukraine, and the USA. The effects of the month of birth are more pronounced for men. If life expectancy is influenced by the month of birth, one can assume that the seasonal variations in food consumption provide one of the possible explanations. Thus it is useful to analyze data from countries where the seasonal variations of available foods are enormous. This is the case in rural Gambia, where the wet season (July-October) coincides with an annual period where staple foods from the previous harvest are seriously depleted. During the "famine" the average birth weight is reduced by 200-300 grams, and the incidence of low birth-weight babies is doubled. An analysis of births and deaths in 3 Gambian villages provided data on the month of birth for 3,102 individuals born in 1949 and after (Moore, Cole, et al., 1997). The most interesting finding is that, at an early age, deaths were similar in groups born between January and June and between July and December. But, from the age of 15, the rate of premature death was multiplied by 3.65 among those born between July and December, and at the age of 35 the rate of death was multiplied by 10.4. These deaths resulted from a great variety of causes and included maternal deaths. Other Personality Traits The most authoritative study relating body height and month of birth was based on a population of 507,125 Austrian male subjects born over 10 years (Weber, Hermann, &Seidler, 1998). Body height was measured at age 18 during the birth month. The average height of those born during spring was 0.6 cm higher than the average height of those born in autumn. Not only is there a difference between the 'January to June' and the 'June to December' cohorts, but also a sinusoidal fluctuation over the year can be observed. The authors linked this fluctuation with the monthly variation in sunshine duration in Austria during the same interval. Handedness is an important trait, since all humans develop a dominant hand. We reported on handedness from a primal health research perspective in our summer 1998 newsletter (Odent, 1998). We came to the conclusion that handedness is to a great extent determined during fetal life. But, at that time, the data later provided by a team from Melbourne about seasonality of birth and laterality was not available. The Melbourne study examined the proposition that hand preference may change with season of birth in a group of 523 students born in South Australia (Nicholls, 1998). Hand preference and performance measures revealed a greater number of lefthanded students among individuals born in winter and autumn compared to summer and spring. These seasonal effects tended to be more pronounced for females compared with males. The authors mentioned that similar seasonal patterns had been observed in the Northern hemisphere. Today, thanks to the use of different personality and temperament "inventories", it is becoming commonplace to investigate the psychological traits of children and adults. A Japanese team looked at the effects of season of birth in 397 healthy Japanese adults (Tochigi, Marumo, Hibino, et al., 2004). They used the "NEO Personality Inventory-Revised". A trend for lower "agreeableness" in subjects born during winter (December to February) than other subjects was observed. The difference was statistically significant. A Swedish team had previously analyzed the "Temperament and Character Inventory" for 2,130 individuals taking part in the Betula prospective random cohort study in Umea (Chotai, Forsgren, Nilsson, &Adolfsson, 2001). It appeared that women born during February to April were significantly more likely than those born during October to January to have high "Novelty seeking" behaviour, particularly in terms of impulsiveness versus reflection, while men born during the same months had a higher score on "Persistence". Learning abilities are associated with personality traits. According to the concordant conclusions of several studies, those born in summer have, on average, significantly lower learning abilities (Bibby, Lamb, Leyden, &Wood, 1996; Carroll, 1992; Martin, Foels, Clanton, &Moon, 2004). A recent large study evaluated children born during each season in one geographical area of the state of Georgia (USA) served by 28 school districts. 'Standardized achievement scores' in reading, mathematics, and science were reliably lower for those born in summer. Furthermore, there was a strong relationship between season of birth and the rate at which children received a diagnosis of 'specific learning disabilities'. These results concur with results of studies looking at the date of birth of medical students. Among medical students in Porto, Portugal, a significantly higher incidence was born before summer, during the second trimester of the year (Azevedo, Pinto, &Borges, 1995). The authors underlined that students entering Portuguese medical schools are among the most successful high school students. Similar results were provided in Florence, Italy, among medical students selected after the numerus clausus introduced during the 1988-89 academic year (Boddi, Brizzi, et al., 1996). The influence of the month or season of birth on human 'fecundability' is probable but difficult to demonstrate among contemporary populations in the age of effective and widespread methods of birth control. This influence appeared significant in a pre-modern Canadian population (Lummaa &Tremblay, 2003), and also in the 19th century Dutch population. Dutch women who married between 1802 and 1829 were more at risk of remaining childless if they were born in January or July. Those who were born in September had the greatest number of children (Smits, Van Poppel, Verduin, et al., 1997). Among 800 women born between 1873 and 1887 in or near Rotterdam, the peaks of 'reproductive failures' were among those born either January 1st through February 11 or between July 1st and August 11 (Smits, Jongbloet, &Zielhuis, 2001). In order to examine whether the effect of birth date is valid in contemporary women, an Austrian team investigated the association between birth month and measures of 'reproductive performance' (number of live-born children and percentage of childless individuals) in a representative sample of contemporary women (Huber, Fieder, Wallner, &Moser, 2004). They found that, on average, women born in summer months have fewer children than women born during the remainder of the year. No significant association between birth month and the percentage of childless individuals was found. In a separate study the same team found that men born in autumn had fewer offspring and a higher probability of remaining childless than men born in spring (Huber, Fieder, Wallner, Iber &Moser, 2004). While we are in the field of human reproduction, let us mention the use of a population-based historical French-Canadian database to examine the effects of maternal birth season on sex ratio at birth (the comparative number of boys and girls) during the 18th century (Nonaka, Desjardins, et al., 1999). The mother's birth season was the single most significant factor influencing the sex ratio. Mothers born in February-April gave birth to a comparatively small number of boys (sex ratio: 1.013). In contrast, the season of the father's birth did not affect the sex ratio. Proneness to Diseases Most studies exploring the influence of the month or the season of birth on the incidence of particular diseases are very recent. Their results should encourage further research. A large study in the USA found a relationship between month of birth and the incidence of two varieties of adult brain tumors (glioma and meningioma), with peaks in February and January and troughs in August and July (Brenner, Linet, Shapiro, et al., 2004). The association between month of birth and risk of glioma differed significantly by handedness, with left-handed and ambidextrous subjects born during late fall through early spring being at particularly high risk of adult glioma compared with those born at other times. The same team of researchers had previously revealed that persons who described themselves as left-handed or ambidextrous appeared to be at reduced risk of glioma relative to those who described themselves as right-handed. The association was similar for men and women, and for left-sided and right-sided tumors (Inskip, Tarone, &Brenner, 2003). The risk of multiple sclerosis (MS) in relation to the month of birth is also well documented. The most authoritative inquiry involved 17,874 Canadian patients and 11,502 British patients with multiple sclerosis (Wilier, Dyment, &Sadovnick, 2005). In Canada, significantly fewer patients with MS were born in November compared with controls from the population census and unaffected siblings. These observations were confirmed in a group of British patients, showing also an increased risk among those born in May. Furthermore, a pooled analysis of data from Canada, Great Britain, Denmark, and Sweden showed that significantly fewer (8.5%) people with MS were born in November and significantly more (9.1%) were born in May. The effect of month of birth was most evident in Scotland, where MS prevalence is the highest. The data provided by this large inquiry confirm previous findings in Northern countries (Bharanidharan, 1997; Sadovnick &Yee, 1994; Templer, Trent, Spencer, et al., 1992). Interestingly, a different pattern of births among MS patients is observed in Sicily, a country with a paradoxically high incidence of MS, in spite of its Mediterranean latitude. The distribution of births among Sicilian MS patients compared with the general population was no different when tested with the usual statistical methods (chi square statistics). By using a more specific test (The Hewitt's non-parametric test for seasonally') the researchers could, however, demonstrate an excess of births between June and November among MS patients (Salemi, Ragonese, Aridon, et al., 2000). The Scottish, Yorkshire, and British Paediatric Association registers contained respectively 2258, 1142, and 1265 patients with childhood diabetes type 1 (insulin dependent) born during 1974-88. For each register the monthly pattern of births differed significantly from that in the general population (Rothwell, Staines, Smail, Wadsworth, &McKinney, 1996). For each register more patients were born during the spring and early summer and fewer during the winter months compared with the general population. However, further studies across European populations (by the 'Eurobiab Seasonality Of Birth' Group) found no uniform seasonal pattern of birth in childhood diabetes patients (McKinney &EURODIAB Seasonality of Birth Group, 2001). According to an inquiry involving 4286 British women aged 60 to 79, being born during the cold months is associated with increased risk of coronary heart disease, insulin resistance, dyslipidaemia. and poor lung function. This research has not been repeated (Lawlor, Davey Smith, Mitchell, &Ebrahim, 2004). As for the risks of dying from cerebrovascular diseases in relation to month of birth, our data base includes a large Japanese study involving 853,981 people born in the years 1900-1959. It appears that, in Japan, the risk of dying from subarachnoid haemorrhage is more than 10% higher among those born in the summer (June to September) (Nonaka &Imaizumi, 2000). As early as 1989, a British inquiry found a significant excess of births during the first three months of the year in Alzheimer's patients without a family history of dementia (Philpot, Rottenstein, Burns, &Der, 1989). These data were compatible with the results of a study in Quebec, that showed a significant deficit of births in the month of May among Alzheimer's patients (Vezina, Houde, Charbonneau, et al., 1996), and by a study in Minnesota, which found a peak period during the first three months of the year for female patients (Dysken, Kuskowski, Skare, et al., 1991). On the other hand, an Australian study could not find any link between the season of birth and the risk of Alzheimer's disease in the Southern hemisphere (Henderson, Korten, Jorm, et al., 1991). It is difficult to classify the results of studies exploring substance abuse in relation to the month of birth. A sophisticated study analyzed the half years of birth among 113,276 alcoholic patients in the U.S. Army Alcohol and Drug Abuse Prevention and Control Program from 1986 through 1990 (Levine &Wojcik, 1999). The 17-21 year old and the 22-39 year old age groups were compared. Both groups differed significantly from the normal annual birth pattern, but in opposite ways. The findings support the differentiation of types of alcoholics by age, according to Cloninger's classification. An interview-based study of 42,862 American men and women provided data to assess the association between quarter-year of birth and lifetime diagnoses of substance abuse (Goldberg &Newlin, 2000). It revealed decreased winter births among men with histories of alcohol dependence and an excess of births in autumn among male but not female alcoholics. Men and women with histories of illicit drug use had excess births in autumn. The similar birth patterns of illicit drug users and male alcoholics suggest that they may share some common etiological factor. These patterns contrast with those found among psychotic patients. The Particular case of Schizophrenia The number of studies relating the keywords 'seasonality of birth' and 'schizophrenia' is impressive. It is also noticeable that many of these studies preceded the development of the branch of epidemiology we call 'primal health research'. In the late 1960s and the early 1970s it was already clear that in the Northern hemisphere there was a significant excess for winter/spring births among schizophrenic patients (Hare &Price, 1969; Hare, Price, &Slater, 1973). This is confirmed today by an overview of the medical literature (Battle, Martin, Dorfman, &Miller, 1999; Berk, Terre-Blanche, Maude, et al., 1996; Carrion-Baralt, Fuentes-Rivera, Schmeidler, &Silverman, 2004; D'Amato, Dalery, Rochet, Terra, &Marie-Cardine, 1991; D'Amato, Guillaud-Bataille, Rochet, et al., 1996; Davies, Ahmad, Chant, Welham, &McGrath, 2000; Davies, Welham, Chant, Torrey, &McGrath, 2003; Eagles, Hunter, &Geddes, 1995; Kirkpatrick, Tek, Allardyce, Morrison, &McCreadie, 2002; Kunugi, Nanko, Hayashi, et al., 1997; McGrath, Welham, &Pemberton, 1995; McGrath &Welham, 1999; Messias, Kirkpatrick, Bromet, et al., 2004; Messias &Kirkpatrick, 2001; Morgan, Jablensky, &Castle, 2001; O'Callaghan, Cotter, Colgan, et al., 1995; O'Callaghan, Gibson, Colohan, et al., 1991; Parker, Mahendran, Koh, &Machin, 2000; Suvisaari, Haukka, &Lonnqvist, 2001; Tatsumi M, Sasaki T, Iwanami A, et al., 2002). It appears also that the quarterly birth distribution of patients with schizophrenia is reversed in the Southern hemisphere (Berk, TerreBlanche, Maude, et al., 1996; Davies, Ahmad, Chant, Welham, &McGrath, 2000; McGrath &Welham, 1999; McGrath, Welham, &Pemberton, 1995) and that the season-of-birth effects are difficult to demonstrate in tropical and equatorial countries (Carrion-Baralt, Fuentes-Rivera, Schmeidler, &Silverman, 2004; D'Amato T, GuillaudBataille JM, Rochet, 1996; Parker, Mahendran, Koh, &Machin, 2000). According to recent studies, 'deficit schizophrenia' has a season of birth pattern that differs from that of nondeficit schizophrenia (Kirkpatrick, Tek, Allardyce, Morrison, &McCreadie, 2002; Messias &Kirkpatrick, 2001; Messias, Kirkpatrick, Bromet, et al., 2004). Deficit schizophrenia is defined with respect to the lack of positive symptoms, when a person has mainly negative symptoms (lack of emotions, lack of pleasure, etc.): it is a severe form of the illness. This analysis supports the notion of a separate disease category within the diagnosis of schizophrenia. Similarly, the keyword 'seasonality of birth' leads to the notion of a sub-category within eating disorders. The first quarter peak seasonal patterns may imply links between aetiology of early-onset eating disorders and psychosis, while a June birth peak was found in the study of later-onset eating disorders (Resaul, Persaud, Takei, &Treasure, 1996). THE FUTURE The keyword 'seasonality of birth' triggers so many results that we should expect more research exploring links between the date of birth (or the date of conception) and a great variety of personality traits, states of health, diseases, and abnormalities. Some studies might be inspired by animal experiments. For example the scoliosis of chickens whose pineal gland has been removed is prevented by injections of melatonin: what about the risk of human scoliosis in relation to the month of birth? We should expect also a proliferation of theoretical interpretations of hard data provided by epidemiologists. While in some cases one factor associated with the season is obviously involved (for example the risk of premature death in Gambia in relation to poor maternal nutrition during the wet season) in other cases several interpretations may be offered and discussed. Many theoretical interpretations will probably refer to the activity of the pineal gland and the release of melatonin, since this hormone, which has wide-ranging interactions with growth factors, is also a mediator of immune functions and an effective free radical scavenger. Giovanni Marzullo, from the Per Aspera Research Foundation, in New York, and F. Clarke Fraser, from McGill University in Montreal, have recently offered an example of the kind of theoretical interpretations we are expecting. They take into account the similarity of seasonal variation in month of conception between spina bifida, schizophrenia, left-handedness and artistic intuition (Marzullo &Fraser, 2004). Because we live in a world illuminated artificially, it is plausible that the season-of-birth effects are decreasing. It is noticeable, in particular, that human neonates are routinely exposed to powerful lights that can cause a reduction in melatonin production during a critical period of development. We must add that today the activities of our thermoregulatory systems are not highly influenced by the seasons, since we rely on effective heating and air conditioning, even when in a car. In the age of supermarkets, we can consume a great variety of food throughout the year. The risks of viral infections, on the other hand, remain highly influenced by the seasons. Our physician-astrologer predecessors would just claim that we are not able modify the positions of the planets. . . . Sidebar Editor's note: This essay is reprinted with permission of Michel Odent, MD, Director, Primal Health

Research Center in London and the newsletter Primal Health Research, published in North and South America by Birth Works, Inc., Medford, NJ. Contact: mfo@birthworks.org or (609) 953-9380. Free access to the Primal Health Research Data Bank is provided at: www.birthworks.org/primalhealth. Email for Dr. Odent is: modent@aol.com References REFERENCES Azevedo, L, Pinto, O.P., &Borges, N. (1995). Birth dates. Nature, 376, 381. Battle, Y.L., Martin, B.C., Dorfinan, J.H., &Miller, L.S. (Seasonality and infectious disease in schizophrenia: the birth hypothesis revisited. Journal of Psychiatric Research, Nov-Dec 33(6), 501-9. Bharanidharan, P. (1997). Monthly distribution of multiple sclerosis patients' births. International Journal of Biometeorology, Apr 40(2), 117-8. Berk, M., Terre-Blanche, M.J., Maude, C., Lucas, M.D., Mendelsohn, M., &O'Neill-Kerr, A. J. (1996). Season of birth and schizophrenia: southern hemisphere data. Aust NZJ Psychiatry, Apr 30(2), 220-2. Bibby, P.A., Lamb, S.J., Leyden, G., &Wood, D. (1996). Season of birth and gender effects in children attending moderate learning difficulty schools. British Journal Educational Psychology, Jun 66 (Pt 2), 159-68. Boddi, V., Brizzi, E., et al. (1996). Birth dates in Florence. Nature, 379, 394. Brenner, A.V., Linet, M.S., Shapiro, W.R., Selker, E.G., Fine, H.A., Black, P.M., &Inskip, P.D. (2004). Season of birth and risk of brain tumors in adults. Neurology. Jul 2, 63(2), 276-81. Carrion-Baralt, J.R., Fuentes-Rivera, Z., Schmeidler, J., &Silverman, J.M. (2004). A case-control study of the seasonality effects on schizophrenic births on a tropical island. Schizophrenia Research, Nov 1, 77(1), 145-53. Carroll, H.C. (1992). Season of birth and school attendance. British Journal Educational Psychology, Nov 62 (Pt 3), 391-6. Chotai, J., Forsgren, T., Nilsson, L.G., &Adolfsson, R. (2001). Season of birth variations in the temperament and character inventory of personality in a general population. Neuropsychobiology, 44(1), 19-26. D'Amato, T., Dalery, J., Rochet, T., Terra, J.L., &Marie-Cardine, M. (1991). Seasons of birth and psychiatry. A retrospective inpatients study. Encephale. Mar-Apr 17(2), 67-71. French. D'Amato, T., Guillaud-Bataille, J.M., Rochet, T., Jay, M., Mercier, C., Terra, J.L., &Dalery, J. (1996). No season-of-birth effect in schizophrenic patients from a tropical island in the Southern Hemisphere. Psychiatry Research, Mar 29, 60(2-3), 205-10. Davies, G., Ahmad, F., Chant, D., Welham, J., &McGrath, J. (2000). Seasonality of first admissions for schizophrenia in the Southern Hemisphere. Schizophrenia Research, Feb 14, 41(3), 457-62. Davies, G., Welham, J., Chant, D., Torrey, E.F., &McGrath, J. (2003). A systematic review and meta-analysis of Northern Hemisphere season of birth studies in schizophrenia. Schizophrenia Bulletin, 29(3), 587-93. Review Doblhammer, G., &Vaupel, J.W. (2001). Lifespan depends on month of birth. Proceedings of the National Academy of Sciences-USA, 98(5), 2934-9. Dysken, M.W., Kuskowski, M., Skare, S.S., Roessmann, U., Noronha, A., &Frey, W.H. (1991). Seasonal distribution of births in Alzheimer's disease. International Psychogeriatrics, Spring, 3(1), 53-8. Eagles, J.M., Hunter, D., &Geddes, J.R. (1995). Gender-specific changes since 1900 in the season-of-birth effect in schizophrenia. British Journal of Psychiatry, Oct 167(4), 469-72. Goldberg, A.E., &Newlin, D.B. (2000). Season of birth and substance abuse: findings from a large national sample. Alcoholism, Clinical and Experimental Research, Jun 24(6), 774-80. Hare, E.H. &Price, J.S. (1969). Mental disorder and season of birth: comparison of psychoses with neurosis. British Journal Psychiatry, May 115(522), 533-40. Hare, E.H., Price, J.S., &Slater, E. (1973). Mental disorder and season of birth. Nature, Feb 16, 241(5390), 480. Henderson, A.S., Korten, A.E., Jorm, A.F., McCusker, E., Creasey, H., &Broe, G.A. (1991). Season of birth for Alzheimer's disease in the Southern Hemisphere. Psychological Medicine, May 21(2), 371-4. Huber, S., Fieder, M., Wallner. B, Iber, K. &Moser, G. (2004). Season of birth effects on reproduction in contemporary humans. Human Reproduction, 19, 445-447. Huber, S., Fieder, M., Wallner, B., Moser, G., &Arnold, W. (2004). Brief communication: birth month influences reproductive performance in contemporary women. Human Reproduction, May 19(5), 1081-2. Kirkpatrick, B., Tek, C., Allardyce, J., Morrison, G., &McCreadie, R.G. (2002). Summer birth and deficit schizophrenia in Dumfries and Galloway, southwestern Scotland. American Journal Psychiatry, Aug 159(8), 1382-7. Inskip, P.D., Tarone, R.E., Brenner, A.V., Fine, H.A., Black, P.M., Shapiro, W.R., Selker, R.G., &Linet, M.S. (2003). Handedness and risk of brain tumors in adults. Cancer Epidemiol Biomarkers Prev. Mar 12(3), 223-5. Kunugi, H., Nanko, S., Hayashi, N., Saito, K., Hirose, T., &Kazamatsuri, H. (1997). Season of birth of schizophrenics in a recent Japanese sample. Psychiatry and Clinical Neuroscience, Aug 51(4), 213-6. Lawlor, D.A., Davey Smith, G., Mitchell, R., &Ebrahim, S. (2004). Temperature at birth, coronary heart disease, and insulin resistance: cross sectional analyses of the British women's heart and health study. Heart. Apr 90(4), 381-8. Lerchl, A. (2004). Month of birth and life expectancy: role of gender and age in a comparative approach. Naturwissenschaften. Sep. 91(9), 422-5. Levine, M.E., &Wojcik, B.E. (1999). Alcoholic typology and season of birth. Journal of Addictive Diseases, 18(1), 41-52. Lummaa, V. &Tremblay, M. (2003) Month of birth predicted reproductive success and fitness in pre-modern Canadian women. Proc R Soc Land B, 270, 2355-2361. Martin, R.P., Foels, P., Clanton, G., &Moon, K. (2004). Season of birth is related to child retention rates, achievement, and rate of diagnosis of specific LD. Journal of Learning Disabilities, Jul-Aug, 37(4), 307-17. Marzullo, G. &Fraser, F.C. (2004). Similar rhythms of seasonal conceptions in neural tube defects and schizophrenia: A hypothesis of oxidant stress and the photoperiod. Birth defects research. Part A, Clinical and molecular teratology. Dec 15. [Epub ahead of print] McGrath, J.J., &Welham, J.L. (1999). Season of birth and schizophrenia: a systematic review and meta-analysis of data from the Southern Hemisphere. Schizophrenia Research, Feb IS, 35(3), 237-42. McGrath, J., Welham, J., &Pemberton, M. (1995). Month of birth, hemisphere of birth and schizophrenia. British Journal of Psychiatry, Dec 167(6), 783-5. McKinney PA; EURODIAB Seasonally Of Birth Group. Europe and Diabetes. (2001). Seasonality of birth in patients with childhood Type I diabetes in 19 European regions. Diabetologia, Oct 44, Suppl 3, B67-74. Messias, E. &Kirkpatrick, B. (2001). Summer birth and deficit schizophrenia in the epidemiological catchment area study. The Journal of Nervous and Mental Disease, Sep 189(9), 608-12. Messias, E., Kirkpatrick, B., Bromet, E., Ross, D., Buchanan, R.W., Carpenter, W.T. Jr., Tek, C., Kendler, KS., Walsh, D., &Dollfus, S. (2004). Summer birth and deficit schizophrenia: a pooled analysis from 6 countries. Archives of General Psychiatry, Oct 61(10), 985-9. Moore, S.E., Cole, T.J., Poskitt, E.M., Sonko, B.J., Whitehead, R.G., McGregor, I.A., &Prentice, A.M. (1997). Season of birth predicts mortality in rural Gambia. Nature, 388, 434. Morgan, V.A., Jablensky, A.V., &Castle, D.J. (2001). Season of birth in schizophrenia and affective psychoses in Western Australia 1916-61, Acta Psychiatr Scand. Aug 104(2), 138-47. Nicholls, M.E. (1998). Seasonal trends in the birth of sinistrals. Laterality, 3(3), 241-53. Nonaka, K., &Imaizumi, Y. (2000). Deaths from cerebrovascular diseases correlated to month of birth: elevated risk of death from subarachnoid hemorrhage among summer-born. International Journal Biometeorolology, Nov 44(4), 182-5. O'Callaghan, E., Cotter, D., Colgan, K., Larkin, C., Walsh, D., &Waddington, J.L. (1995). Confinement of winter birth excess in schizophrenia to the urban-born and its gender specificity. British Journal of Psychiatry. Jan 166(1), 51-4. O'Callaghan, E., Gibson, T., Colohan, H.A., Walshe, D., Buckley, P., Larkin, C., &Waddington, J.L. (1991). Season of birth in schizophrenia. Evidence for confinement of an excess of winter births to patients without a family history of mental disorder. British Journal of Psychiatry, Jun 158, 764-9. Odent, M. (1998). Where does handedness come from? Primal Health Research Newsletter, 6(1). Nonaka, K., &Desjardins, B., et al. (1999). Human sex ratio at birth and mother's birth season: multivariate analysis. Human Biology, 71(5): 875-84. Odent, M. (1986). Primal health. London: Century-Hutchinson. (2nd edition. Clairview 2002). Parker, G., Mahendran, R., Koh, E.S., &Machin, D. Season of birth in schizophrenia: no latitude at the equator. British Journal Psychiatry, Jan 176, 68-71. Philpot, M., Rottenstein, M., Burns, A., &Der, G. (1989). Season of birth in Alzheimer's disease. British Journal of Psychiatry, Nov 155, 662-6. Resaul, I., Persaud, R., Takei, N., &Treasure, J. (1996). Season of birth and eating disorders. International Journal Eating Disorders, 19(1), 53-61. Rothwell, P.M., Staines, A., Smail, P., Wadsworth, E., &McKinney, P. (1996). Seasonality of birth of patients with childhood diabetes in Britain. British Medical Journal. Jun 8, 312(7044), 1456-7. Sadovnick, A.D., &Yee, LM. (1994). Season of birth in multiple sclerosis. Aeta Neural Scand. Mar 89(3), 190-1. Salemi, G., Ragonese, P., Aridon, P., Reggio, A., Nicoletti, A., Buffa, D., Conte, S., &Savettieri, G. (2000). Is season of birth associated with multiple sclerosis? Acta Neural Scand. Jun 101(6): 381-3. Smits, L.J., Jongbloet, P.H. &Zielhuis, G.A. (2001). Season of birth and reproductive performance: an analysis of family reconstitutions of 800 women born in the Netherlands at the end of the 19th century. Chronobiology Int., 18, 525-539. Smits, L.J., Van Poppel, F.W.A., Verduin, J.A., Jongbloet, P.H., Straatman, H. &Zielhuis, G.A. (1997). Is fecundability associated with month of birth? An analysis of 19th and early 20th century family reconstitution data from The Netherlands. Human Reproduction, 12, 2572-2578. Suvisaari, J.M., Haukka, J.K., &Lonnqvist, J.K. (2001). Season of birth among patients with schizophrenia and their siblings: evidence for the procreational habits hypothesis. American Journal of Psychiatry, May 158(5), 754-7. Tatsumi, M., Sasaki, T., Iwanami, A., Kosuga, A., Tanabe, Y. &Kamijima, K. (2002). Season of birth in Japanese patients with schizophrenia. Schizophrenia Research, Apr 1, 54(3), 213-8. Templer, D.I., Trent, N.H., Spencer, D.A., Trent, A., Corgiat, M.D., Mortensen, P.B., &Gorton, M. (1992). Season of birth in multiple sclerosis. Acta Neural Scand. Feb 85(2), 107-9. Tochigi, M., Marumo, K., Hibino, H., Otowa, T., Kato, C., Marui, T., Araki, T., Otani, T., Umekage, T., Kato, N., &Sasaki, T. (2004). Season of birth effect on personality in a general population. Neuroscience Letters, July 22, 365(2), 120-3. Vezina, H., Houde, L., Charbonneau, H., Beaudry, M., Cholette, A., Daoud, N., Mathieu, J., Robitaille, Y., &Veilleux, F. (1996). Gauvreau, D. Season of birth and Alzheimer's disease: a population-based study in Saguenay-Lac-St-Jean/Quebec (IMAGE Project). Psychological Medicine, Jan 26(1), 143-9. Weber, G.W., Hermann, P., &Seidler, H. (1989). Height depends on month of birth. Nature, 391, 754-55. Willer, C.J., Dyment, D.A, Sadovnick, A.D., Rothwell, P.M., Murray, T.J., &Ebers, G.C. (2005). Tinning of birth and risk of multiple sclerosis: population based study. British Medical Journal, 330, 120-3. AuthorAffiliation Michel Odent, Primal Health Research Center, London, England

Publication title: Journal of Prenatal&Perinatal Psychology&Health

Volume: 20

Issue: 2

Pages: 143-155

Number of pages: 13

Publication year: 2005

Publication date: Winter 2005

Year: 2005

Publisher: Association for Pre&Perinatal Psychology and Health

Place of publication: Forestville

Country of publication: United States

Journal subject: Medical Sciences--Obstetrics And Gynecology, Psychology, Birth Control

ISSN: 10978003

Source type: Scholarly Journals

Language of publication: English

Document type: General Information

ProQuest document ID: 198695838

Document URL: http://search.proquest.com/docview/198695838?accountid=36557

Last updated: 2010-06-06

Database: ProQuest Public Health