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THE DISTRIBUTION OF BIRTH WEIGHTS AND THEIR DETERMINANTS IN THE REPUBLIC OF CYPRUS FOR THE PERIOD OF 1990–2002

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Abstract

Many factors including maternal, pregnancy-specific, physiological, genetic, pathological, and environmental can influence foetal weight. Although they have been well studied in most EU countries, no such studies are specifically available on Cyprus. This study was based on the raw data, concerning births and birth-weights for the period of 1990–2002, which we managed to obtain from the database of the “Centre for Preventive Paediatrics”, a non-governmental foundation on Cyprus. This first-ever study on the distribution of birth-weights in the Republic of Cyprus shows a downward trend in the birth-weights in the early 1990s (from the mean 3238 grams in 1991 to 3152 in 2002). The study also confirmed significant weight decrements for babies born prematurely, as a result of multifoetal pregnancies or to smoking mothers (mean decrement of 886 grams in the period of 1990–98 and 821 grams in the period of 1998–2002). Most importantly, this study shows a significant increase in the proportion of caesarean sections, which in 2002 reached almost four times the maximum number of caesarean sections recommended by the WHO (increase from 18 % in 1990 to 39 % in 2002). Furthermore, babies born by caesarean section were found to be significantly lighter than those born by natural delivery (by a mean of 147 grams for 1990–1996 and 212 grams for 1998–2002). An indirect result of this study also suggests that the overall proportion of Cypriot women who smoke, as reflected by the pregnant women, is much higher than previously thought. This study highlights the need for further investigations into these determinants of birth-weight in the Cypriot population.

Key words

Birth-weight, Premature delivery, Cyprus, Smoking, Caesarean sections

INTRODUCTION

The weight at birth is one of the variables that best reflects the intrauterine experience of the baby. It is a very good indicator of not only the mother’s general health, lifestyle and nutritional status but also of the newborn’s chances for survival, growth, long-term health, and even psychosocial development. The aim of this study was to investigate the distribution of birth weights for Cypriot children, examine the influence that different determinants have on it, and check whether there were any trends in either birth weights or determinants that were different than the internationally accepted ones.

Intrauterine growth retardation and low birth weights are used to describe foetuses with disproportionately small growth. Intrauterine growth retardation is defined as an estimated foetal weight at or below the 10th percentile for gestational age (*1*). Low birth-weight is a weight of less than 2,500 grams at birth. The term foetal macrosomia denotes a foetal size greater than 4,000 grams. Preterm delivery constitutes the single largest cause for low birth weight in newborns (*2*). Another major determinant of foetal weight is the maternal race and ethnic group (*3*) as well as maternal nationality. Black and Asian women have smaller foetuses compared to white women (*4*). Maternal obesity is associated with an increased likelihood of foetal macrosomia (*5*); conversely, women who weigh less than 45 kg prior to pregnancy, have an increased risk of delivering a low birth-weight newborn. Insufficient weight-gain by the mother during pregnancy can also be a cause of low birth-weight. High weight gain during pregnancy is itself a risk factor for excessive foetal growth (*6*). Maternal age at delivery is a very important determinant for low birth-weight. Women under the age of 17 or over the age of 35 are at increased risk of having low birth-weight babies (*7*). Women who experience excessive stress (*8*), unmarried mothers (*9*), women who have had a previous preterm birth, and victims of domestic violence (*10*) or other abuse may also be at increased risk of having low birth-weight babies. Parity exerts a modest effect on birth weight. First-born infants tend to be smaller (*11*) but this effect decreases with successive deliveries. Foetal gender is significantly associated with birth weight, with female foetuses being about 150 g smaller than male foetuses when matched for gestational age (*12*). Multifoetal gestations are more likely to be characterised by low birth-weight than singletons, due mostly to restricted foetal growth and preterm delivery (*13*). Taken together, these demographic factors can help explain more than one third of the variance in term birth-weight (*14*). By comparison, paternal factors are only minimally important in determining foetal weight, with paternal height being the only routinely measured paternal demographic variable that has significant influence on foetal weight (*15*). Uncontrolled maternal diabetes mellitus is a condition commonly associated with excessive foetal weight (*16*). When maternal glucose levels are excessive, abnormally high rates of foetal growth can be expected even in pregnant women without outright diabetes mellitus. Several maternal illnesses and complications of pregnancy are associated with decreased birth-weight through various mechanisms, including any that interfere with the uptake or delivery of nutrients or oxygen to the foetus. Medical complications affecting the microcirculation and resulting in foetal hypoxemia or vasoconstriction or a reduction in foetal perfusion, are also significantly associated with low birth-weight and intrauterine growth retardation. These include hypertension, both chronic and acute (*17, 18*), and severe chronic diseases, such as renal insufficiency (*19*). In addition, several environmental factors can have an adverse effect on foetal size, with the two chief among these being high altitude and cigarette smoking. Studies have showed a marked reduction in birth-weight in babies (*20*) and a greater proportion of babies with intrauterine growth retardation born at extremely high altitudes. It has been estimated that infants of smoking mothers have a weight decrement of 150–200 grams at birth, compared to non-smoking mothers (*21*). Studies have also shown a weight decrement of 25–40 grams at birth, for babies born to mothers exposed to environmental tobacco smoke. The most widely accepted hypothesis about the mechanism of smoking influencing the intrauterine growth retardation is intrauterine hypoxia or deficiency in the amount of oxygen reaching body tissues situated within the uterus, by decreased uteroplacental perfusion (*22*) and lower maternal blood pressure, which lead to decreased placental oxygenation. Alcohol is the most commonly used teratogen but at lesser amounts it can cause milder symptoms with regard to size (*23*). Heroin and cocaine addicts have an increased incidence of small infants (*24*), but they have so many other confounding variables that it cannot be said with certainty that the increased incidence is due to their drug use. Therapeutic agents known to be associated with growth restriction include anticonvulsants (*25*), folic acid antagonists (*26*), anticoagulants (*27*), and maternally administered immunosuppressive drugs. There is a relationship between intrauterine growth retardation and exposure to particulate matter less than or equal to 2.5 □m ($PM_{2.5}$) over 37 □g/m^3 in early pregnancy. Studies have also shown that the risk of delivering a growth retarded infant increases with the level of exposure to the carcinogenic fraction of polycyclic aromatic hydrocarbons (c-PAHs), which are usually bound to fine particles, in early gestation (*28*). Socioeconomic factors such as low income and lack of education also are associated with increased risk of having low birth-weight babies (probably linked with reasons mentioned above) (*29*). By definition, 10 % of infants in any population will be at or below the 10th percentile and would therefore be defined as intrauterine growth retarded. Low birth-weight, on the other hand, affects about one in every 13 (≈ 7.5 %) babies born each year in the USA (*30*) and about one in every 15 (≈ 6.5 %) babies born in Europe, and it is a factor in about 65 % of all infant deaths (*31*). Low birth-weight babies may face serious health problems as newborns, and are at increased risk of long-term disabilities such as mental retardation, cerebral palsy and impairments in lung function, sight, and hearing. Babies who were undernourished in the womb face a greatly increased risk of dying during their early months and years. Those who survive have impaired immune function and increased risk of disease; they are likely to remain malnourished, with reduced muscle strength throughout their lives, and suffer a higher incidence of diabetes and heart disease in later life. Children born underweight also tend to have a lower IQ and cognitive disabilities such as attention deficit disorder, affecting their performance in school and their job opportunities as adults.

The standard of health of the Cypriot population can be considered quite high. Already life expectancy at birth has reached 80 years for women and 75 years for men. Infant mortality rates have been successfully reduced to 6 per thousand and the crude death rate stands at 7.6 per thousand of population. Regrettably there has

Table 1
Number of cases according to answer in smoking questionnaire and the equivalent percentage of total

Not smoking before or during pregnancy	Smoking both before and during pregnancy	Smoking before but not during pregnancy	No answer given	Unclear answer
47909	823	833	9057	392
81.2 %	1.4 %	1.4 %	15.3 %	0.7 %

Table 2
Two-sample *t*-test for the hypothesis that there was no change between two successive years or periods

	Valid N	Mean	Difference from previous year	p-level
1991	9555	3238	6	0.264
1992	10765	3232	6	0.198
1993	10050	3230	2	0.386
1994	9743	3206	24	0.000
1995	9278	3198	8	0.134
1996	5471	3209	11	0.093
1998	4565	3152	57	0.000
1999	8314	3165	13	0.087
2000	8109	3167	2	0.401
2001	7868	3143	24	0.002
2002	2423	3152	9	0.224
1998–2002	31279	3157	65	0.000

Table 3
t-test for the null hypothesis that the linear regression line of birth weights against time has a gradient equal to zero

	B value	p-level
1990	-0.109	0.45
1991	-0.028	0.56
1992	0.006	0.90
1993	-0.047	0.31

1994	-0.030	0.53
1995	-0.106	0.034
1996	-0.31	0.002
1998	-0.132	0.33
1999	-0.018	0.74
2000	-0.022	0.69
2001	-0.023	0.69
2002	0.050	0.86
1990–1996	-0.0243	0.000
1998–2002	-0.0125	0.082

Table 4

Confidence intervals for the differences of the mean birth weights and the odds ratios of underweight and premature babies for different groups in comparison to non-smoking mothers

	Smoking before and during pregnancy		
	Total population	Singleton boys	Singleton girls
Difference from non-smoking mothers 95 % CI	92 [59–125]	66 [22–110]	109 [62–156]
% of underweight babies	6.4 %	3.1 %	7.1 %
% change from non-smoking mothers (relative risk)	51.2 %	12.5 %	78.4 %
Odds ratio 95 % CI	1.54 [1.16–2.04]	1.13 [0.65–1.97]	1.84 [1.22–2.78]
% of premature babies	10.5 %	6.7 %	9 %
% change from non-smoking mothers (relative risk)	141.2 %	84.2 %	157.6 %
Odds ratio 95 % CI	2.58 [2.05–3.25]	1.90 [1.28–2.82]	2.73 [1.87–3.97]

Table 5

t-test for the null hypothesis that the linear regression line of birth weights against time for caesarean births has a gradient equal to zero

	Gradient of slope	t-value	p-level
1990–1996	0.01	8.73	0.000
1998–2002	0.02	8.63	0.003
1990–2002	0.02	21.44	0.000

never been an adequate statistical analysis or even data collection to examine any Cypriot health singularities in any given sector of the population. An indication of the lack of data available is the WHO Health for all database (*32*), which shows that Cyprus is one of only two countries out of the 25 EU members that has no data available for babies born with a low birth-weight.

MATERIALS AND METHODS

We obtained data for variables concerning births and newborns, for the years from 1990 until 2002, from the database of a non-governmental foundation, the 'Centre for Preventive Paediatrics'. Although the data was kept in many separate tables and using many separate types of software, all babies had their own unique identification number making it possible to link all variables to the relevant birth. The method used by the 'Centre for Preventive Paediatrics' for the collection of the data was more or less the 'population data' method (census), i.e., every data available was collected. These amounted to more than 32,500 cases for the period between June 1998 and May 2002 and more than 65,000 cases for the period between January 1990 and August 1996. Unfortunately no data existed for the period between September 1996 and May 1998. Although again no specific statistics exist about the exact number of births in Cyprus every year, it is estimated that the data available in their database represent more than 95 % of all births in Cyprus in the same period. Some variables for which data was collected included Name, Address / town, Gender, Birth-date, Weight, Premature birth (yes/no), Birth type (i.e. normal or caesarean), Number of foetuses, and Name of maternity clinic. The data from the year 1990 until the year 1996 was originally recorded using software which operated in paradox form while in 1998 the software was changed to one which operated in dbase IV form. In addition, the data was divided into seventeen tables each one of which contained only a few of the variables mentioned above making comparison between variables and or relating different variables in the original form virtually impossible. In order to work with the data and link the tables, the tables in their original form were first opened as Microsoft access documents. Each table was then subdivided into further tables with each one containing a constant that we wanted to investigate. Finally, using the unique identification number of the babies we joined the tables together using queries to create tables containing every variable available for the specific constant. In the end each new table completed was opened as an Excel file, saved, and then re-opened as a statistica file in order to be handled.

Data for a total of 98,057 babies were available for the 1990–2002 period (65,483 and 32,574 for the 1990–1996 and 1998–2002 periods, respectively). From these, 90,298 (59,019 and 31,279 for the 1990–1996 and 1998–2002 periods, respectively) had valid birth-weight data. The minimum birth-weight recorded in our investigation was 700 grams (same for both periods) and the maximum was 5,620 grams (5,260 grams for the period of 1998–2002). Weights in the 1990–1996 period were recorded in kilograms but were quoted with an accuracy of two decimal places whereas weights in the 1998–2002 period were recorded in decagrams.

The data that the 'Centre for Preventive Paediatrics' had on the smoking history of the mother was only available for the 1990–1996 period and was documented during private interviews between the doctor and the mother (*Table 1*). Many more factors other than smoking influence the birth-weight of the baby as well as the gestation period. In order to further identify and pinpoint smoking as a cause of low birth weights and premature births in our population we removed the babies' gender and information on whether the birth was multiple or singleton from our data and recalculated the same test statistics as before.

The unique Cypriot demography may influence the distribution of birth-weight. In order to examine further this hypothesis we tried to separate the Armenian population from the rest of the population in our 1998–2002 data in order to handle it separately. Armenians have lived in Cyprus for centuries, but the present community on the island is mainly the result of immigration immediately after the Armenian Genocide of 1915–1923 in Turkey. Currently, some 2,000 Armenians or an approximate 3 per thousand of the total population live in Cyprus. Armenians were our choice of 'race' for two main reasons:

The Armenian Cypriots maintain a sense of community and solidarity and live separately from the other Cypriots around their churches and schools. In addition they maintain their national identity through speaking their own language. Therefore cross-religion marriages are not very usual.

Armenian surnames almost always finish by the syllables ian or yan, which is almost never true about the surnames of any other race in Cyprus.

In order to separate the cases of Armenian parenthood from the rest of the cases, more than 1,800 Armenian surnames and an equal number of names were cross-checked with our data and 94 cases (or 3 per thousand of all cases) were found to match.

In 61067 (67.6 % of valid data) (41728 (70.7 %) and 19339 (61.9 %) for the 1990–1996 and 1998–2002 periods respectively) of the cases it was stated that the baby was a result of a normal delivery and in 21788 (24.2 %) (11454 (19.4 %) and 10334 (33 %) for the 1990–1996 and 1998–2002 periods respectively) of the cases it was stated that the baby was a result of a caesarean delivery. In 7443 (8.2 %) of the cases (5837 (9.9 %) and 1606 (5.1 %) for the 1990–1996 and 1998–2002 periods respectively) nothing was stated.

Premature births and births by caesarean section constitute two of the biggest determinants for low birth-weight. Other factors like multiple births (twinning) as well as smoking are also important determinants of birth-weight. We therefore tried to remove these variables from the cases under investigation and subsequently investigated only the births of the controlled subjects. In this way, we tested whether removing these variables made any difference to the pattern of birth-weight through time. Since smoking mothers were only recorded for the period of 1990–1996, all four determinants were only removed from these first seven years whereas from the two periods of 1990–1996 and 1998–2002 separately we removed only the three determinants, prematurity, caesareans and multiple births, so that they could be compared. From the period of 1990–1996, 37,785 cases corresponded to a non-premature baby, from a normal delivery, not part of a multiple birth, whereas 34,657 cases from these were to mothers not smoking during or before pregnancy.

RESULTS

The distributions of weights for all individual years as well as for all the periods were bell-shaped, very similar in shape to the normal distribution but with an elongated lower tail. Testing for any changes between the mean birth-weights of successive years we performed two sample *t*-tests (*Table 2*). These indicated significant changes, at 99 % confidence level, only from 1993 to 1994, from 2000 to 2001, from 1996 to 1998 (when there was the gap of 1997 and the change in the software used for the collection of the data), and from 1990–1996 to 1998–2002. Investigating the possibility that there might be a trend of birth-weights through time, we calculated linear regression lines for the linear relationships of weights with time (*Table 3*). Only for the year 1996 and the 1990–1996 period were there significant downward trends at 99 % confidence level of weights against time. 6.13 % and 8.41 % of the babies were underweight in the 1990–1996 and 1998–2002 periods respectively. The percentages of underweight babies for each separate period did not have any significant trend through time. The average percentages of underweight babies, weighted for population, were calculated by the WHO, for the years 1990–2001 for the whole of the European Community. In turn using the population weighted averages per year, we calculated basic statistics together with 99 % confidence intervals (99 % CI 6.05–6.39) for the average percentage of underweight babies for the years 1990–2002 for the whole of the European Community. All the years between 1998 and 2002 but only the year 1995 for the period of 1990–1996 were outside the 99 % confidence level of the 12-year European average.

There was no significant trend of premature births in time for either of the two periods. The difference between the birth-weights of premature and non-premature babies in the period of 1990–1996 was 886 grams and in the period of 1998–2002, 821 grams. The mean birth-weights of premature and non-premature births had a difference of over 800 grams for all years under investigation except for the years 1996 and 2002 where it dropped to 759 and 650 grams, respectively. Although on average premature babies constitute less than 10 % of all the babies born in Cyprus, they account for about 55 % of all underweight babies.

According to the data obtained for this study approximately half of the women that have been known from previous studies to smoke (*33*) (approximately 3.3 % of all valid answers) admitted to have smoked until directly prior to being pregnant and less than a quarter (approximately 1.7 % of all valid answers) admitted to have smoked during their pregnancy. Comparing the birth weights for smoking and non-smoking mothers (*Table 4*) indicated that there was a significant difference between babies born to mothers that didn't smoke before or during their pregnancy and mothers that smoked during their pregnancy (significant for both singleton boys and singleton girls). In addition, smoking during pregnancy significantly increased the chance of an underweight baby in comparison to babies born to non-smoking mothers (not significant and significant for singleton boys and singleton girls, respectively) and similarly significantly increased the chance of premature birth by smoking women in comparison to non-smoking women (significant for both singleton boys and singleton girls). Babies born to women that gave up smoking before being pregnant were not significantly different than babies born to women that never smoked for either the whole population, singleton boys or singleton girls. Another result was that babies for which mothers did not answer whether they had been smoking or not had a very significant decrease of 203 grams in their birth-weights in comparison to non-smoking mothers, as well as a very significant increase in the occurrence of underweight and premature babies.

For the period of 1998–2002 boys were 57 grams above and girls 61 grams below the total population and for the period of 1990–1996 boys were 65 grams above and girls 68 grams below the whole population. In general the difference between the mean birth-weights of boys and girls for all the years was between 100 and 160 grams.

As our data indicate, the number of caesareans on Cyprus steadily increased from an 18 % of all births in 1990 to 39.3 % of all births or almost four times the WHO-recommended number in 2002. There was a significant upward trend for caesarean sections for all the periods (*Table 5*) and the difference of mean birth weight from normal births was significant for both periods (212 grams for 1998–2002 and 147 grams for 1990–1996). The differences in the mean birth weights for every separate year between 1990 and 2002 were between 120 and 230 grams. There was a difference of about 9 % between the number of caesarean sections performed in private clinics (39 %) and public hospitals (30 %) when expressed as percentage per category.

There was no significant trend of multiple births with time, either, for both of the periods. Similarly no significant trends of twin or triple births were observed for the 1998–2002 period (t value -0.56 p value 0.62, and t value 0.10 p value 0.92 respectively). The birth weights for single, twin and triple births for the period of 1998–2002 were significantly different (single and twin births were 863 grams apart whereas twin and triple births were 547 grams apart). Single births had a difference of 650–970 grams from multiple births for all years under investigation whereas for the years 1998–2002 the differences of twin births from single births were from 800 to 900 grams and the differences of triplets from single births were from 1100 to 1600 grams. Around 6 % of the births were less than 2,500 grams (61 % and 96 % in twin and triple births respectively).

The babies with Armenian surnames had a mean birth weight which was by 95 grams heavier than that of the whole population. Performing the two-sample *t*-test for comparing the means gave us a common variance of 267460, a t-value of 1.783 and a p-value of 0.037.

Removing premature births, caesarean deliveries, multiple births, and births to smoking mothers for the years between 1990 and 1996 shows that although for the period of 1990–1996 there is a significant (t value -8.29, p value 0.000) downward trend of means through time, the means of successive years do not have a significant difference. However, the mean birth weights for the years 1990 and 1996 have a significant difference. Similarly, removing premature births, caesarean deliveries, and multiple births for the years between 1998 and 2002 shows that this time there is neither a significant difference for the mean birth weights of successive years nor a significance in the linear regression line of the means against time. Removing from the two periods only the three determinants of birth weight (prematurity, multiple birth and caesarean deliveries) decreased the difference of the means of the two periods to just 34 grams, which is nonetheless still a significant difference (t-value 9.03, p-value 0.000). It should be noted that on the contrary the mean birth weights for the two years 1996 and 1998 did not have a significant difference (t-value 2.19, p-value 0.014). The regression lines of birth weights against time for these data show that for both periods the trend of birth weights with time is becoming smaller, although the slope of the line for the period of 1990–1996 is still significant (t-value -6.63, p-value 0.000 for the period of 1990–1996 and t-value -1.154, p-value 0.249 for the period of 1998–2002).

DISCUSSION

Our data indicated a significant downward trend for birth-weights through time for the period of 1990–1996. Despite the decrease in the mean birth-weights from the year 1996 to the year 1998 being statistically significant, it was so rapid that it most likely reflected a change in either the collection methods or the organisation methods used to insert the data in the software that subsequently led to an error. The percentages of underweight babies for most of the later years did not fit the 99 % confidence intervals of the European mean percentages, weighted for population, but the real significance of this is unclear, since the European mean percentages of underweight babies have also a significant increase through time with the years after 1997, themselves not fitting their 99 % confidence intervals.

Our data has confirmed the generally observed statistics about foetal growth retardation and the higher risk of premature delivery influenced by smoking during pregnancy. The difference in birth weights in babies born to smokers and non-smokers was less in our population than what is suggested in international publications. One possibility is that passive smoking had an effect. Unfortunately no data was available on passive smoking of pregnant women, but the Cypriot law does not provide sufficient protection to any non-smokers from passive smoking (*34*). No regulation exists about smoking in private companies and the only regulation about bars and restaurants is that they should post a visible health warning. One final possibility for the reason why our data differed from the internationally accepted ones is that, for social reasons, women on Cyprus might be ‘ashamed’ to admit that they are smokers. In this case, data for smoking women could have been either included in the ‘non-smoking’ group or in the group of women that gave no answer to the smoking questionnaire. This hypothesis is supported by the fact that the mean birth-weights of babies that were born to women that did not answer the smoking questionnaire had even bigger differences from the ‘non-smoking mothers’ population than babies born to women that admitted to have been smoking both before and during pregnancy.

In the case of caesarean births, there was a significant upward trend for all periods. In fact, in this case there did not seem to be a ‘step’ between the two periods, but rather a uniform upward trend. On Cyprus there is a ‘tendency’ between mothers to opt for caesarean sections rather than normal delivery as it is viewed as a ‘cleaner’ as well as a less painful and therefore more convenient delivery. This ‘trend’ also seems to be informally encouraged by private maternity clinics probably since it is considered to be less prone to complications as well as being more ‘profitable’ since it is faster and more expensive. Babies born by caesarean section were found to be much lighter than other children. Since most of the caesarean sections are probably elective, a serious risk to the baby born like this is iatrogenic prematurity (the caesarean section is performed too early) as the standard deviation for estimating gestational age is large, creating errors in judging when to perform an elective caesarean section (*35*).

Although there seems to be a significant difference between the birth weights of the general Cypriot population in our data and the equivalent ‘Armenian’ population, the number of observations was too small for us to assess this any further. This together with the fact that the test statistic was only barely significant also casts a shadow over the actual significance of the result.

There was no significant trend in the number of premature babies for any of the periods and, despite the international trends, for the percentages of multiple births, either (*36*). Our data confirmed that prematurity, twinning, and gender are as important determinants of birth weight in Cyprus as they are internationally.

If the trends in birth weights were caused only by equivalent trends in the variables that play a part in determining the birth weights of children, then the trends in birth weights should not exist after controlling our population for these variables and removing cases that were influenced by them. But even then there still was a significant trend of birth weights through time for the period of 1990–1994 with the birth weights after that levelling off. At the same time, even though the step between the two periods was still present with a significant difference between the mean birth weights of the two periods, the difference between the birth weights of the two years 1996 and 1998 was not significant indicating that other determinants of birth weights for which data was not available to us were also responsible. Given that there is no organisation, governmental or private, in the Republic of Cyprus that has a more extensive database for births or birth weights than the one analysed in this project, there was no data that could help us investigate further this trend.

Random sample studies need to be organised in order to study further the distribution of birth weights in the Republic of Cyprus, and similar independent studies should examine separately groups stratified for different determinants. This work should also draw attention to and stress the need for better official data collection for births in the Republic of Cyprus. The proper registration of births would be a very good first step and the foundation stone for the establishment of proper and most importantly viable preventive programmes since it would enable professionals to intervene, either through education or medical checks, directly in the right population groups.

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ROZLOŽENÍ PORODNÍCH HMOTNOSTÍ A JEJICH DETERMINANTY V KYPERSKÉ REPUBLICE ZA OBDOBÍ 1990–2002

Souhrn

Mnoho faktorů, včetně mateřských, těhotensko-specifických, fyziologických, genetických, patologických a faktorů zevního prostředí může ovlivňovat hmotnost plodu. Ačkoliv tyto faktory byly dobře zkoumány ve většině zemí Evropského společenství, nejsou dostupné žádné takové studie týkající se specificky Kypru. Tato studie byla založena na hrubých datech, týkajících se porodů a porodních hmotností za období 1990–2002, které se podařilo získat z databáze Centra pro preventivní pediatrii, nevládní nadace na Kypru. Tato vůbec první studie rozložení porodních hmotností v Kyperské republice ukazuje sestupný trend porodních hmotností v časných devadesátých letech (z průměru 3238

gramů v roce 1991 na 3152 v roce 2002). Studie rovněž potvrdila významný váhový deficit u dětí narozených předčasně, jako důsledek vícečetných těhotenství nebo kouření matek (průměrný deficit 886 gramů pro období 1990–98 a 821 gramů pro období 1998–2002). Nejzávažnějším nálezem je významné zvýšení podílu porodů císařským řezem, které v roce 2002 dosáhly téměř čtyřnásobku maxima doporučeného WHO (zvýšení z 18 % v roce 1990 na 39 % v roce 2002). Dále bylo zjištěno, že děti narozené císařským řezem měly významně nižší hmotnost oproti dětem narozeným přirozenou cestou (v průměru o 147 gramů za období 1990–1996 a 212 gramů pro období 1998–2002). Nepřímý výsledek této studie rovněž svědčí o tom, že celkový podíl kyperských kouřících žen, jak se odráží mezi těhotnými, je mnohem vyšší, než se dříve předpokládalo. Studie poukazuje na potřebu dalšího zkoumání determinant porodní hmotnosti u kyperské populace.

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