4

CHARACTERISTICS OF CHILDBEARING WOMEN

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CORE

Multiple birth rate by number of fetuses (C7)
Distribution of maternal age (C8)
Distribution of parity (C9)

RECOMMENDED

Percentage of women who smoked during pregnancy (R8)
Distribution of mothers' educational level (R9)
Distribution of parents' occupational classification (R10)
Distribution of mothers' country of birth (R11)
Distribution of maternal prepregnancy body mass index (R12)

Pregnancy outcome varies considerably between social and demographic groups within populations. An understanding of the social and demographic characteristics of childbearing women is therefore crucial to interpreting differences between outcomes in EU member states. The EURO-PERISTAT indicator list includes 8 indicators which describe childbearing women — 3 core and 5 recommended. Two of the recommended indicators, maternal BMI and parental occupation, were added in the most recent update. Data on parental occupation, however, are not included in this report because of ongoing work to harmonise the presentation of occupational categories across countries.

All these indicators describe multiple and interrelated characteristics which affect the risk of adverse maternal or infant outcome during pregnancy. For each indicator, we describe the associations with maternal and infant health and the hypothesised pathways for these associations. These indicators are also important because they can reflect the success of preventive policies aiming to improve health — such as those to provide access to contraception, reduce smoking, and promote good eating habits.

C7 MULTIPLE BIRTHS BY NUMBER OF FETUSES

JUSTIFICATION

Compared with singletons, babies from multiple births have much higher rates of stillbirth, neonatal mortality, infant mortality, preterm birth, low birth weight, congenital anomalies, and subsequent developmental problems.[1-6] All of these have consequences for families and for society. Rates of multiple birth vary between countries and over time. They are influenced by differences in the proportions of older women giving birth (see C8), the extent of use of ovarian stimulation and assisted conception (see R13), and the policies for preventing multiple pregnancies in those situations, as well as by other factors.[1,7] They therefore contribute to variations in rates of mortality and morbidity in infancy and childhood, both geographically and over time.

DEFINITION AND PRESENTATION OF INDICATOR

Figure 4.1 shows the rates of twin and triplet and higher order births, expressed as numbers of women with twin and with triplet or higher-order births per 1000 women giving birth to one or more fetuses.

DATA SOURCES AND AVAILABILITY OF INDICATOR IN EUROPEAN COUNTRIES

Almost all countries provided data for this indicator. Data came primarily from medical birth registers as well as from civil registration systems. In the Netherlands, data came from linked professional registers.

METHODOLOGICAL ISSUES IN THE COMPUTATION, REPORTING, AND INTERPRETATION OF THE INDICATOR

The pregnancies included in civil registration systems depend on the laws governing the births requiring registration. These affect the extent to which multiple births in which one or more babies die before birth or registration are included. In addition, multiple births are rare events. In small populations such as those of Cyprus, Malta, and Luxembourg, year-to-year variation and confidence intervals are relatively wide. In comparing these data with other data sources, it is important to note that the multiple birth rate can be presented with births as the denominator (rather than pregnant women, as in the Euro-Peristat definition).

RESULTS

Multiple birth rates varied from a low of 9 to 13 per 1000 women with live births or stillbirths in Romania, Latvia, Lithuania, and Poland to more than 20 per 1000 in Brussels, the Czech Republic, Denmark, Cyprus, Spain, and Malta (Figure 4.1). There was no apparent association between the rates for triplet and higher-order births and those for twin births. Twin birth rates decreased in Denmark, the Netherlands, and Norway, increased slightly in Finland, Sweden, and Northern Ireland, and increased further in the other countries (Figure 4.2). The 3 countries that experienced a decrease had the highest twinning rates in 2004.

KEY POINTS

Very preterm multiple births impose considerable costs on health services, families, and societies. High rates due to either delayed childbearing or subfertility management raise questions about the need for policies to encourage earlier childbearing and to prevent multiple pregnancies in assisted conception (see recommended indicator R13). The decrease in twinning rates in some countries may be the result of these policies.[6] In the absence of data about ovarian stimulation and assisted conception, age-specific multiple birth rates can provide an indication of the extent of their use.[1]

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Figure 4.1 Multiple birth rates per 1000 women with live births or stillbirths by number of fetuses in 2010

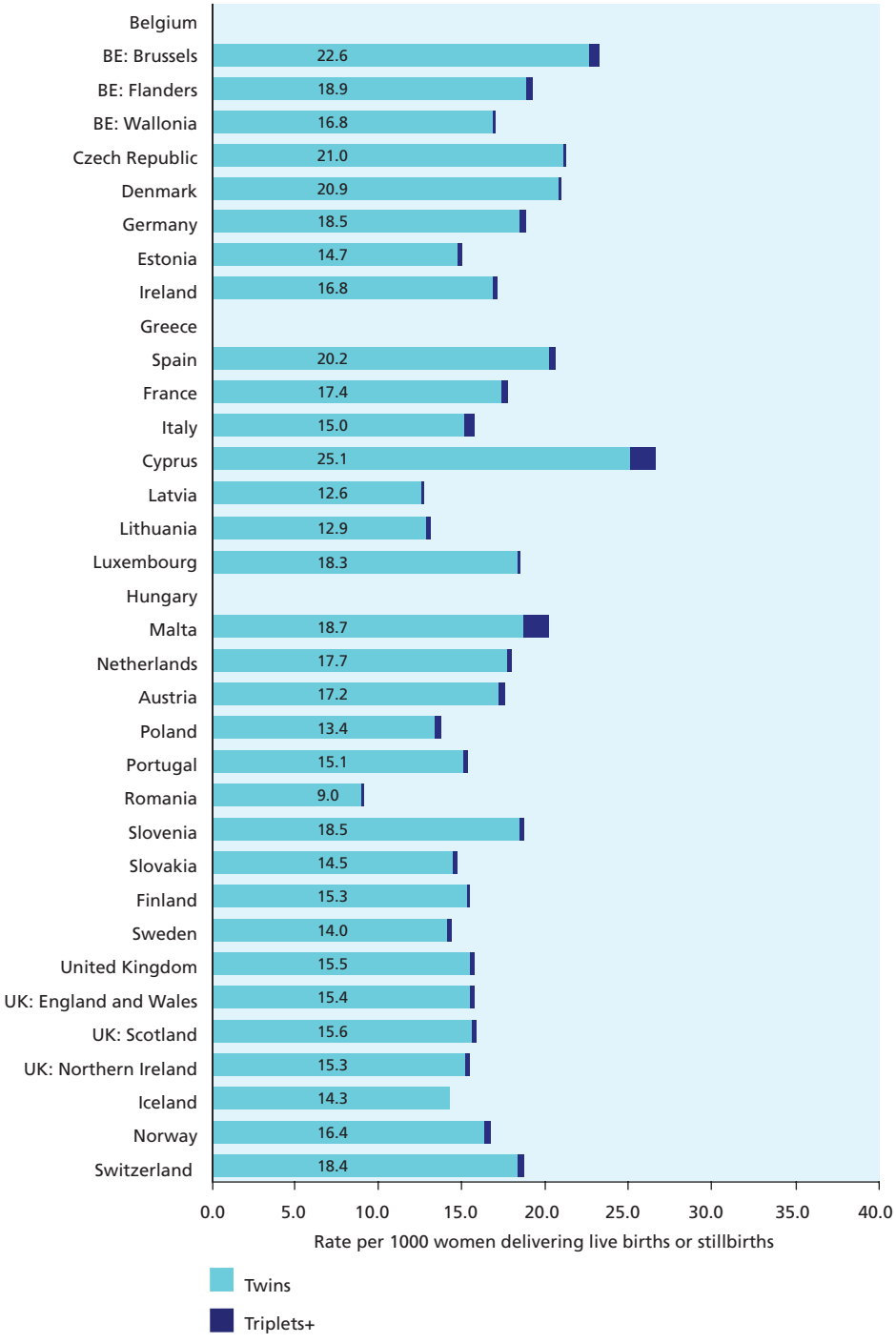
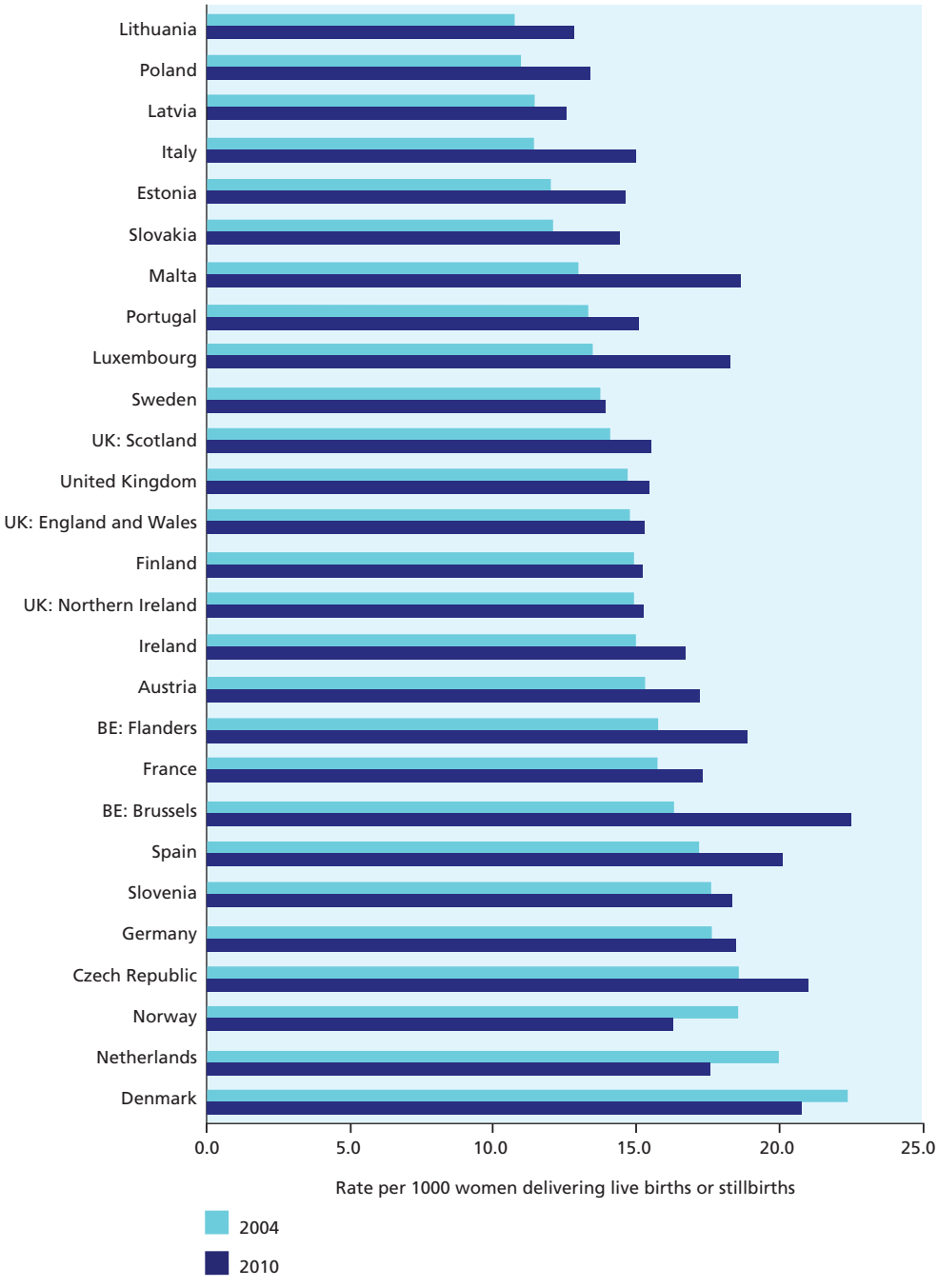


Figure 4.2 Twin birth rates per 1000 women in 2004 and 2010



NOTE: Countries ordered by ascending twin birth rates in 2004.

C8 MATERNAL AGE AT DELIVERY

JUSTIFICATION

Both early and late childbearing are associated with higher than average rates of preterm birth, growth restriction, and perinatal mortality.[1-4] Younger mothers are more likely to have low social status, and they have increased risks of unwanted or hidden pregnancy, inadequate antenatal care, and poor nutrition. Older mothers have a higher risk of multiple births (see C7) and a higher prevalence of pregnancy complications, including some congenital anomalies, hypertension, and diabetes. Older and younger women are at higher risk of maternal mortality and morbidity. Older mothers are more often delivered by caesarean section. Because of the association between maternal age and perinatal health outcomes and because the age at which women in European countries bear children differs widely, the maternal age distribution should be taken into account in comparisons between countries. Furthermore, mothers are increasingly having children later in life throughout Europe, and this likely affects trends in perinatal health outcomes. Policy issues include the orientation of antenatal surveillance towards the needs of older pregnant women and the provision of information about the risks associated with delayed childbearing. The prevention of teenage pregnancy is a policy concern in many countries.[5] Younger mothers may be exposed to less favourable social conditions and more vulnerable in times of economic crisis.

DEFINITION AND PRESENTATION OF INDICATOR

This indicator is defined as the distribution of age in years at delivery for women delivering a liveborn or stillborn baby. The recommended presentation is: 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, and 45 and older. This summary presentation focuses on the extremes of the childbearing distribution, defined as younger than 20 years and as 35 years and older.

METHODOLOGICAL ISSUES IN THE COMPUTATION, REPORTING, AND INTERPRETATION OF THIS INDICATOR

Some civil registration systems record the age the mother reaches during the year of birth and not her age at delivery. In some situations, age may be recorded during antenatal visits but not updated at delivery. These data are presented in relation to total births in Hungary and Romania, while Euro-Peristat recommends consideration of the total number of women giving birth instead. However, the differences between these 2 numbers are due to multiple births, which are a relatively small proportion of total births even among women aged 35 or more, so this is not a major problem.

DATA SOURCES AND AVAILABILITY OF INDICATOR IN EUROPEAN COUNTRIES

All countries were able to provide this indicator, although Belgium did not have national data.

RESULTS

The percentage of mothers aged younger than 20 varied from 1.1 in Switzerland to 10.6 in Romania. Latvia, Malta, Hungary, Slovakia, and the UK, all with about 5% of mothers in this age group, are in an intermediate position (Figure 4.3). The percentage of older mothers, defined as women giving birth at 35 years or older, ranged from 10.9 in Romania to 34.7% in Italy. The group of women aged between 25 and 34 years, who have the lowest perinatal risks, is proportionally largest in Slovenia and Flanders (about 70%) because both younger and older women represent a small proportion of the women giving birth in these countries. On the contrary, the proportion of births to women aged 25-34 is relatively small in Romania (54%) because of the high proportion

of women under 25, and in Italy (55%) because of the high proportion of births to women aged 35+.

Figures 4.4 and 4.5 display the geographical distribution of high and low maternal age at childbirth; these figures illustrate the higher prevalence of births to women under 20 in eastern European countries. Older childbearing is less common in eastern Europe as well, but has a heterogeneous geographic pattern elsewhere.

Having children later in life is a general trend in Europe (Figure 4.6). Only Finland experienced a decrease between 2004 and 2010 in the proportion of women aged 35 years or more. The increase was relatively small in the countries of the UK, and very large in Italy, Estonia, Hungary, the Czech Republic, and Spain.

KEY POINTS

In more than half of EU countries or regions, births to teenaged mothers account under 3% of all deliveries. The proportion of women bearing children later in life varies substantially but in 40% of countries or regions, at least 20% of births were to women aged 35 years or more, and the proportion of births in this age group increased substantially in almost every country. This is a concern in countries which already had a high proportion of childbearing women in this age group. Policies should be developed to inform young women of the consequences of having children late in life so that they can make informed choices about when to have their children. Encouraging earlier childbearing may also require policies to support young parents and working mothers.

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Figure 4.3 Age distribution of women delivering live births or stillbirths in 2010

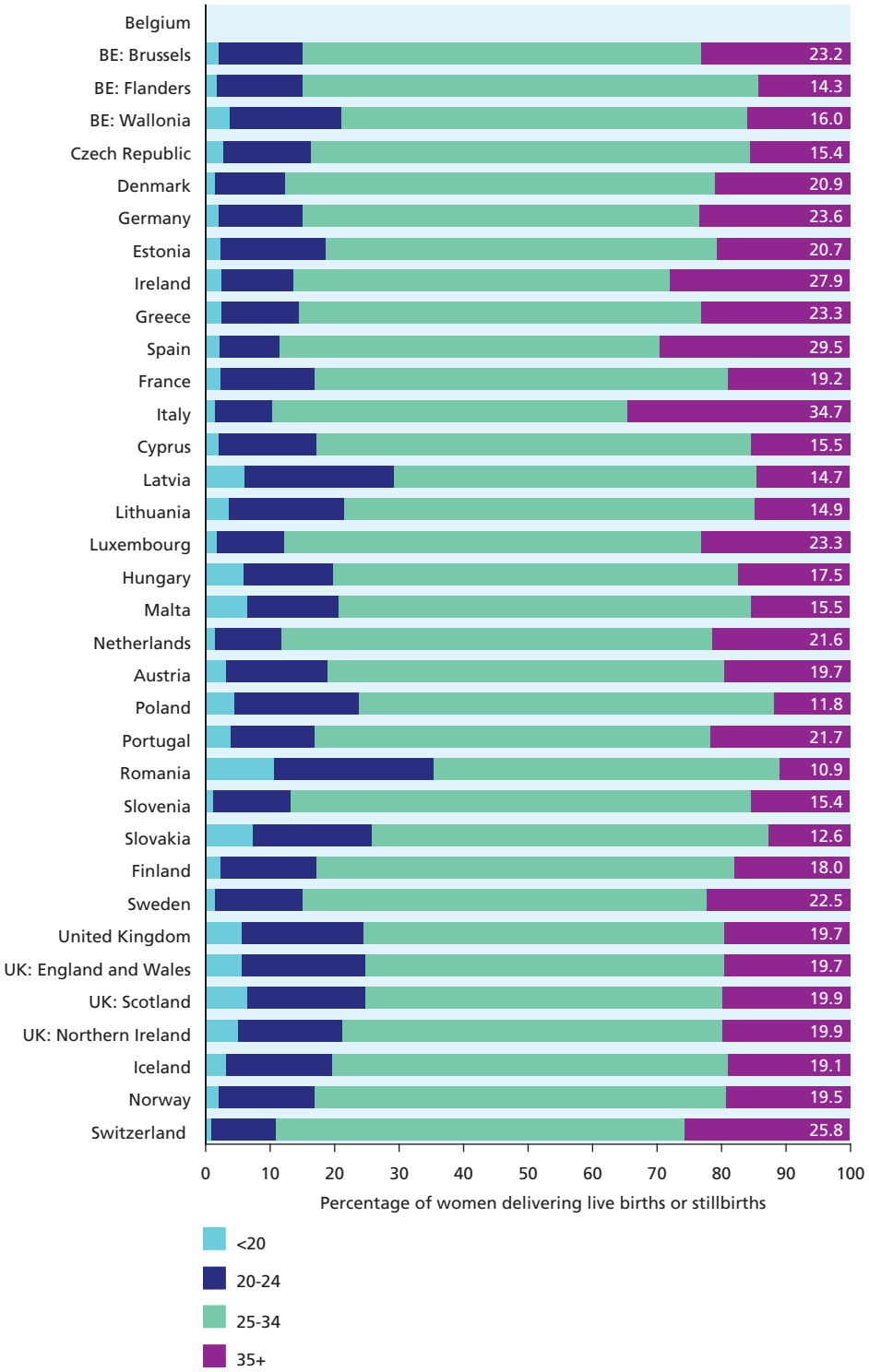
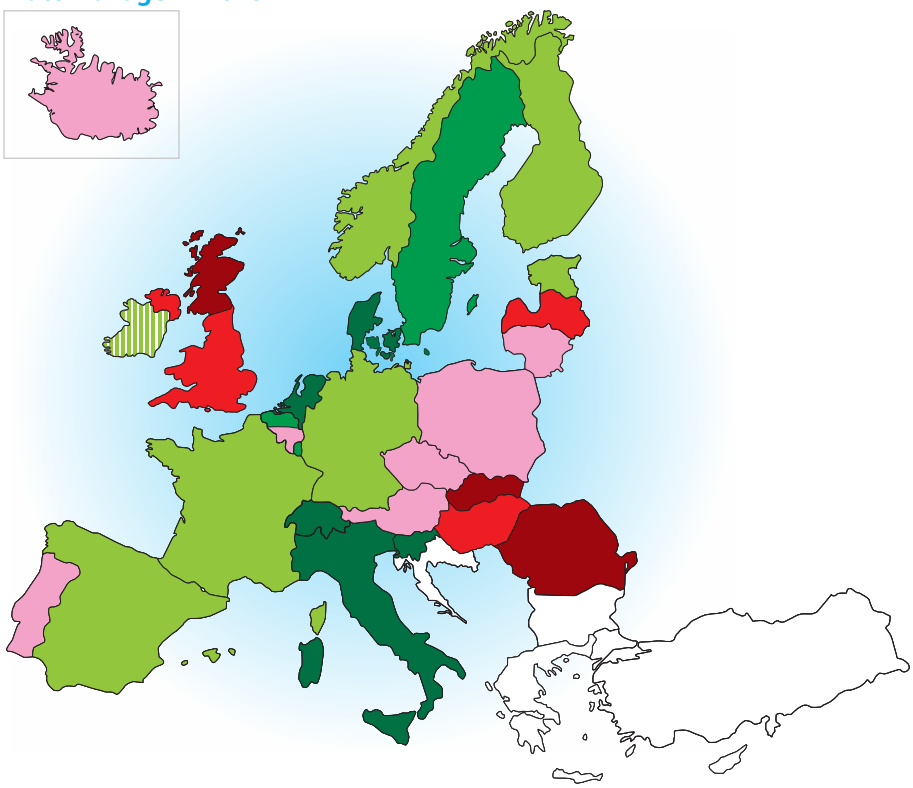
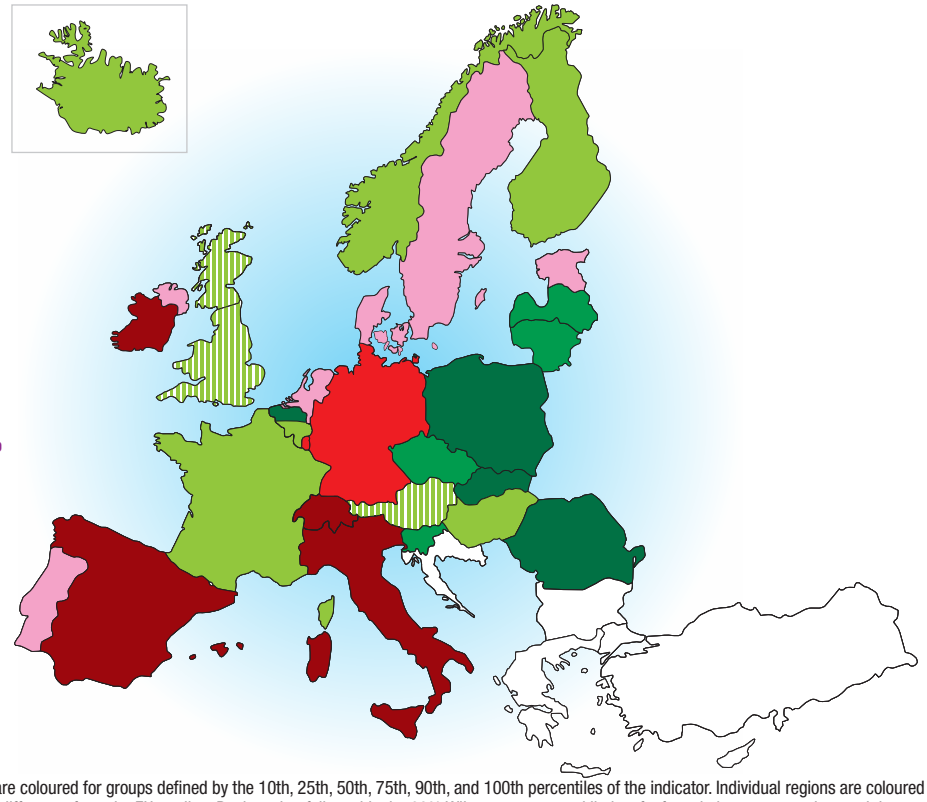


Figure 4.4 Mothers aged younger than 20 years as a percentage of all pregnancies with known maternal age in 2010



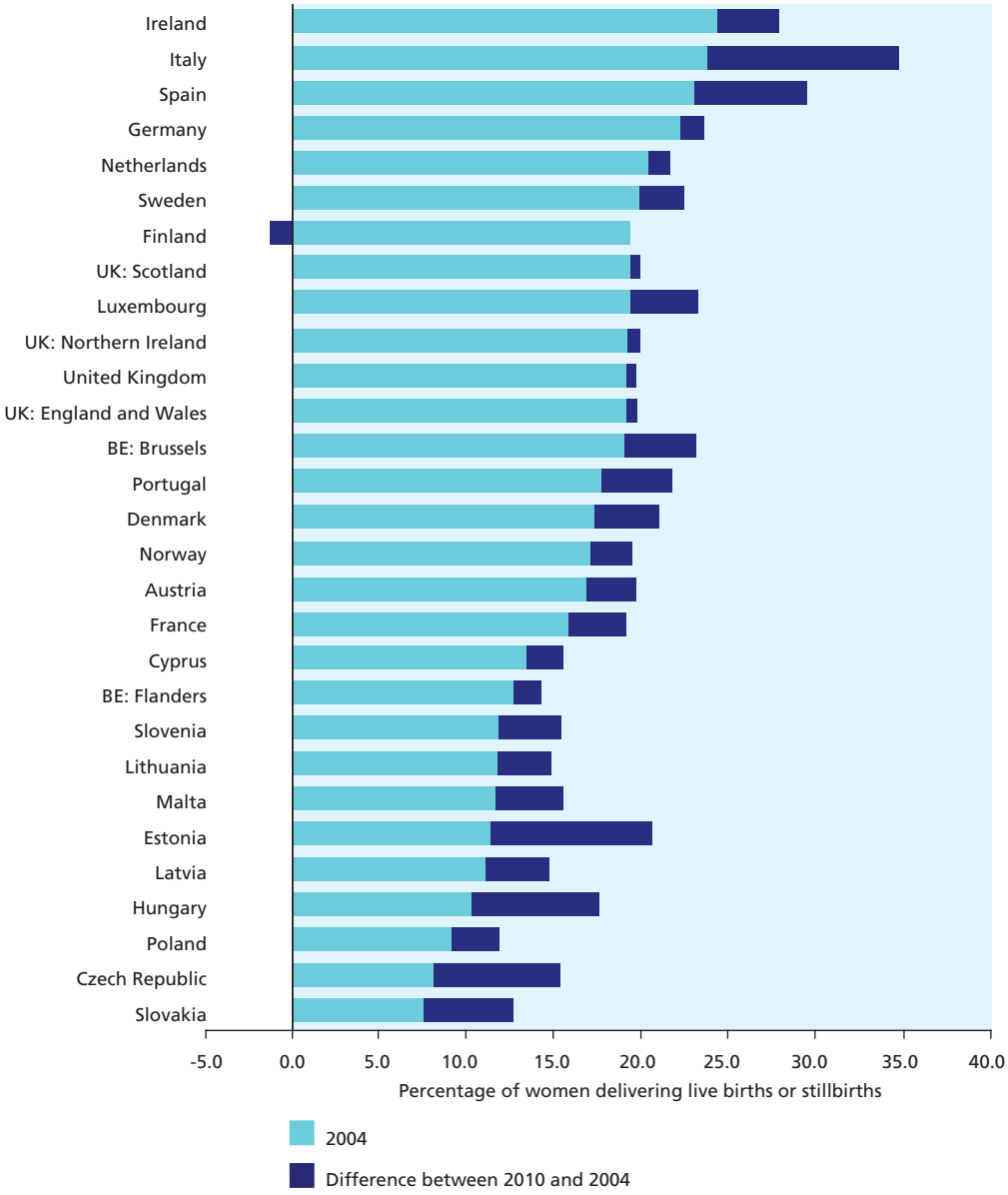
NOTE: Rates for countries and regions are coloured for groups defined by the 10th, 25th, 50th, 75th, 90th, and 100th percentiles of the indicator. Individual regions are coloured to show sign and significance of difference from the EU median. Regions that fall outside the 99% Wilson-score control limits of a funnel plot constructed around the EU-median against population size differ significantly (sig) and are shown as solid colours. Regions within the control limits (n.s.) are displayed with vertical hatching.

Figure 4.5 Mothers aged 35 years and above as a percentage of all pregnancies with known maternal age in 2010



NOTE: Rates for countries and regions are coloured for groups defined by the 10th, 25th, 50th, 75th, 90th, and 100th percentiles of the indicator. Individual regions are coloured to show sign and significance of difference from the EU median. Regions that fall outside the 99% Wilson-score control limits of a funnel plot constructed around the EU-median against population size differ significantly (sig) and are shown as solid colours. Regions within the control limits (n.s.) are displayed with vertical hatching.

Figure 4.6 **Percentages of mothers aged 35 or older in 2004 and differences between 2010 and 2004**



NOTE: Countries ordered by proportion of older mothers in 2004.

C9 DISTRIBUTION OF PARITY

JUSTIFICATION

The incidence of maternal conditions such as hypertension and preeclampsia differs by parity, as do use of services and interventions during pregnancy, labour, and delivery, as well as health behaviour.[1-3] Primiparous women (ie, those giving birth for the first time) are at above average risk of adverse outcomes compared with multiparous women (those with at least one previous delivery). Their stillbirth and neonatal mortality rates, for example, are higher. They also have

higher rates of caesarean sections.[4] Risks are also higher for women of higher parity who have had many previous births (grand multiparous women).[5]

DEFINITION AND PRESENTATION OF INDICATOR

Parity is defined as the number of previous total live births and stillbirths (0, 1, 2, or 3+ births). Figure 4.7 shows the distribution of parity as a percentage of women with live births and stillbirths.

DATA SOURCES AND AVAILABILITY OF INDICATOR IN EUROPEAN COUNTRIES

Most countries were able to provide data on parity. Romania provided data on parity at the level of the child (number of live births and stillbirths) rather than the mother.

METHODOLOGICAL ISSUES IN THE COMPUTATION, REPORTING, AND INTERPRETATION OF THE INDICATOR

Many civil registration systems do not count previous stillbirths as a birth in the computation of parity (for instance, Switzerland). Attention should also be paid to the recording of previous multiple births. WHO defines a woman who had twins as having 2 previous births. The proportion of missing cases is high in Italy (5%) and in England and Wales (19%), where parity was derived from hospital and community data, respectively, because up to April 2012 parity was recorded only for births to married couples and excluded any births before marriage in civil registration data (19%). In England, numbers were extrapolated to deal with the large number of missing values. Missing data are probably imputed in many countries.

RESULTS

The percentages of women having their first birth ranged from 39% in Iceland and Slovakia to 50-53% in Spain, Italy, Malta, Poland, Portugal, Romania, Slovenia, Wales in the UK, and Switzerland; the percentages of women with 3 or more previous births ranged from 3% in Spain, Italy, Portugal, Slovenia, and Switzerland to 9% or higher in Brussels (Belgium), Ireland, Finland, Slovakia, and the UK.

KEY POINTS

As fertility is rather low in Europe, attention is paid to women having their first birth and the associated risks rather than to women with many previous births. Demographic patterns of childbearing differ within Europe, but the increase in fertility rates in some countries[6] may result in a decrease in their proportion of women having first births and a trend towards more homogeneity in the distribution of parity.

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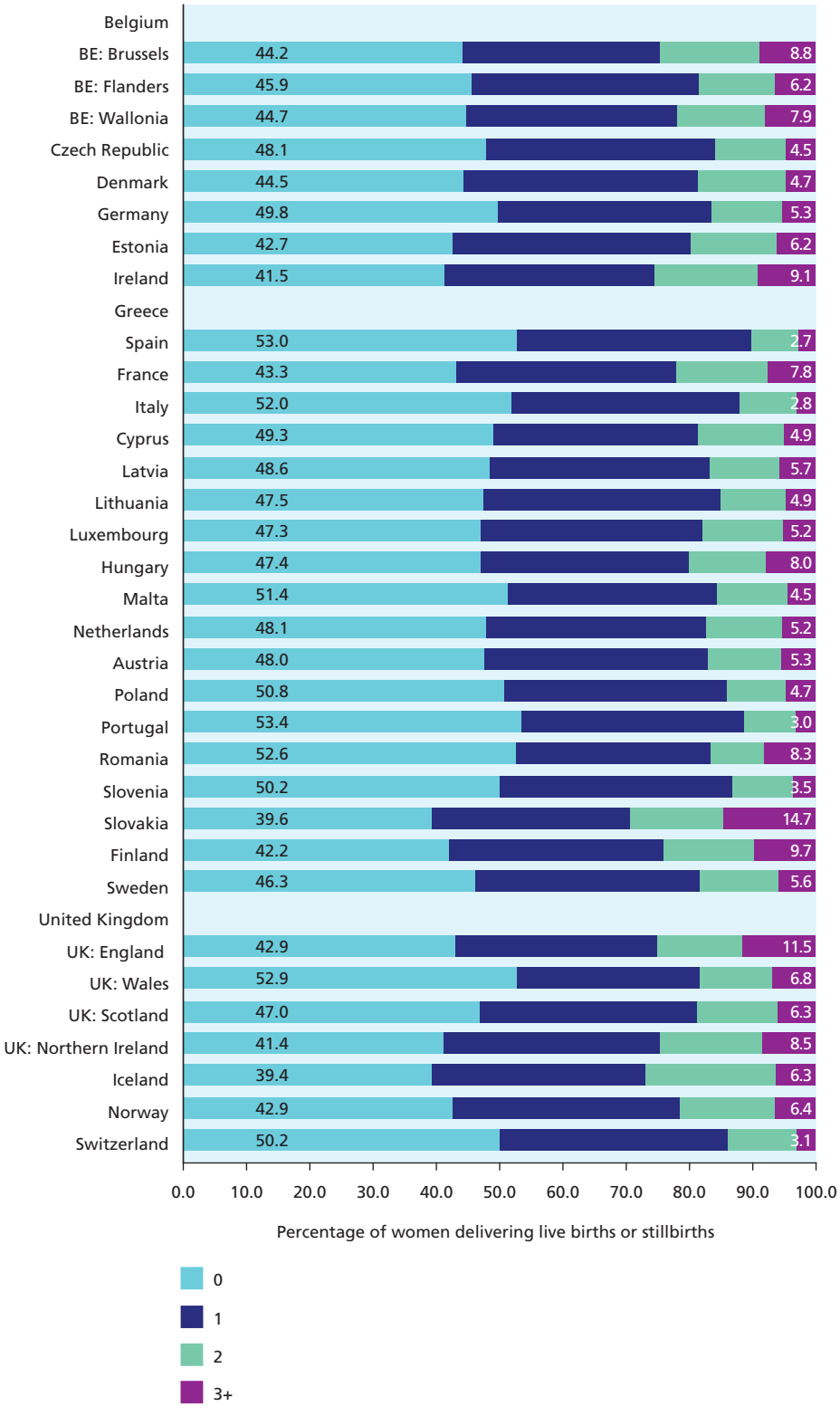
Figure 4.7 Distribution of parity for women delivering live births or stillbirths in 2010



R8 SMOKING DURING PREGNANCY

JUSTIFICATION

Maternal smoking during pregnancy is a well-established risk factor for adverse perinatal outcomes. It can impair normal fetal growth and development and thus increase the risk of low birth weight, preterm birth, intrauterine growth restriction, and some congenital anomalies.[1-4] Maternal smoking not only influences outcomes during the perinatal period but probably has long-term and lifelong consequences. Although not all of these have yet been recognised, they are known to include obesity later in childhood,[5] neurobehavioural and cognitive deficits,[6] and impaired lung function, including wheezing and asthma.[7] Over the past 2 decades, smoking among pregnant women has declined by about 60–75% in developed countries.[1] It nonetheless continues to account for a substantial proportion of fetal and infant morbidity and mortality.[8] Maternal smoking may be considered the most important preventable factor associated with adverse pregnancy outcome.[9] Smoking cessation is one of the most effective interventions for improving mothers' and children's health[10] and thus serves as an indicator of the quality of antenatal preventive healthcare services.

DEFINITION AND PRESENTATION OF INDICATOR

Smoking during pregnancy was defined as the proportion of women who smoked during pregnancy among those with liveborn or stillborn babies. When possible, data were collected for 2 time periods: an earlier (ideally, first trimester) and a later (ideally, third trimester) phase.

DATA SOURCES AND AVAILABILITY OF INDICATOR IN EUROPEAN COUNTRIES

The data were provided by 23 countries or regions. Some countries or regions provided data based on routine surveys (France, the Netherlands, Valencia, and the UK). The UK data come from the infant feeding survey conducted every 5 years. In Spain, data come from the region of Valencia and are based on a representative sample of pregnant women, excluding women with high risk pregnancies.

METHODOLOGICAL ISSUES IN THE COMPUTATION, REPORTING, AND INTERPRETATION OF THE INDICATOR

To be able to compare countries or regions or to evaluate time trends, a common time frame is essential. This is important because many women stop smoking during pregnancy. If a single measure is the most practical option, it should relate to the last trimester of pregnancy so that the length and timing of exposure can be taken into account. Differences in the type of data (antenatal care records, medical records in maternity units, and birth surveys including interviews with mothers before and after birth) and the questions asked are additional sources of potential bias. Accordingly, the quality of the information is variable. Some data sources may record a woman as a non-smoker if smoking is not recorded in medical records. The rate of missing data varied from 0% (the Czech Republic, Germany, Latvia, Lithuania, Malta, and Slovenia) to 6% (Poland) and 17% (Norway). Finally, there is evidence that some women may under-report smoking, as they know that they should not be smoking during pregnancy. Misclassification and inaccurate estimates of smoking may thus result. Many of the data providers expressed reservations about the quality of these data because they were based on self-report, and missing data were not well recorded. Data were not collected on amount smoked, so these data include women who smoked daily and those who smoked occasionally.

RESULTS

Table 4.1 presents information on the time periods covered by the data and the proportions of smokers during both periods. Data on smoking in the second period (during pregnancy or in the last trimester) varied from under 5% in Lithuania and Sweden to 14.0% in Catalonia, 15% in Northern Ireland, 16% in Wales, 17.1% in France, and 19% in Scotland. When prevalence was available for 2 periods, the percentage of smokers was always lower closer to delivery.

Countries that had data points for 2004 and 2010 reported slightly lower proportions of smokers in the last trimester in 2010 — by about 1-3%. In France, the Netherlands, and the UK, the decrease was more pronounced.

KEY POINTS

In many European countries, more than 10% of women smoke during their pregnancy. Not all countries could provide data on maternal smoking during pregnancy, and standardised collection procedures are necessary to improve comparability for those countries that did. Tobacco use during pregnancy is insufficient to assess the effectiveness of preventive policies during pregnancy, as this use is largely influenced by habits before pregnancy. Given the adverse effects of smoking on fetal and infant health and since pregnancy care is considered an ideal setting for intervention, having high quality and comparable information on smoking before and during pregnancy should be a priority.

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Table 4.1 Estimates of proportion of women smoking during pregnancy in routine data, according to period for which data are collected in 2010

Time Period			Smokers in 2010		2004
Countries	Period 1	Period 2	Period 1 %	Period 2 %	Latest period %
Belgium					
Czech Republic		During pregnancy		6.2	6.1
Denmark		During pregnancy		12.8	16.0
Germany		During pregnancy		8.5	10.9
Estonia	1st trimester	During pregnancy	9.1	7.8	9.9
Ireland					
Greece					
Spain					
ES: Catalonia	Before pregnancy	3rd trimester	36.7	14.4	
ES: Valencia	1st trimester		15.8		19.6
France	Before pregnancy	3rd trimester	30.6	17.1	21.8
Italy					
Cyprus	1st trimester		11.5		
Latvia		During pregnancy		10.4	11.3
Lithuania	Before pregnancy	During pregnancy	7.0	4.5	4.8
Luxembourg		3rd trimester		12.5	--
Hungary					
Malta	1st trimester		8.2		7.2
Netherlands	1st trimester	After 1st trimester	10.5	6.2	13.4
Austria					
Poland	Before pregnancy	3rd trimester	24.6	12.3	--
Portugal					
Romania					
Slovenia		During pregnancy		11.0	10.9
Slovakia					
Finland	1st trimester	After 1st trimester	15.5	10.0	12.4
Sweden	1st trimester	3rd trimester	6.5	4.9	6.3
United Kingdom	Before or during	During pregnancy	26.0	12.0	17.0
UK: England	Before or during	During pregnancy	26.0	12.0	17.0
UK: Wales	Before or during	During pregnancy	33.0	16.0	22.0
UK: Scotland		During pregnancy		19.0	24.9
UK: Northern Ireland	Before or during	During pregnancy	28.0	15.0	18.0
Iceland					
Norway	1st trimester	3rd trimester	18.6	7.4	11.1
Switzerland					

R9 MOTHERS' EDUCATIONAL LEVEL

JUSTIFICATION

Social disadvantage remains a major determinant of poor perinatal outcome and requires effective action.[1] Many perinatal health indicators, including maternal mortality, preterm birth, and duration of breast feeding, are inversely related to variables measuring social disadvantage, such as education, occupation, and income. Because there are no universally agreed-upon measures of social disadvantage, researchers use a wide variety of different indicators, sometimes individually and sometimes combined: occupation, educational level, income and other measures of wealth, housing conditions, lack of access to health care, and others. The Euro-Peristat group initially chose to use maternal educational level as its marker of social status. Because some countries do not collect data on education, our recent update of our indicator list (see Chapter 2) also added parental occupation, which captures different dimensions of social status. Much of the research on perinatal health has studied maternal educational level and has shown that it is correlated with perinatal outcomes, even after adjustment for lifestyle factors such as smoking and obesity;[2] these associations are observed in many different settings.[3]

As an indicator for international comparisons, educational level has the additional advantage that UNESCO has established an international classification, the International Standard Classification of Education (ISCED), which has also been adopted by the EU Directorate General for education and culture.[4]

DEFINITION AND PRESENTATION OF INDICATORS

For the present data collection, we asked countries to provide the ISCED classification when they used it and, if not, to provide their local classifications. These were then coded to match the ISCED definitions. The ISCED classification contains the following categories:

- Level 0 - Preprimary education
- Level 1 - Primary education or first stage of basic education
- Level 2 - Lower secondary or second stage of basic education
- Level 3 - (Upper) secondary education
- Level 4 - Postsecondary non-tertiary education
- Level 5 - First stage of tertiary education
- Level 6 - Second stage of tertiary education.

We further grouped these data into 3 basic categories:

√ Primary school completed, or started, or no formal education (levels 0, 1)

√ Any secondary (levels 2, 3)

√ Any postsecondary (levels 4, 5, 6).

DATA SOURCE, AVAILABILITY, AND METHODOLOGICAL ISSUES

Twenty-six countries or regions provided information on the educational level of childbearing women. As mentioned earlier, education is one indicator of social position among others; in some countries, it is not the preferred indicator. Concerns about its use include: possible selection bias in missing data, poor comparability of the educational level classifications inside Europe, and difficulties classifying women with low professional training. Another concern is the fact that some countries report that no women are in the category of primary education or less. This is surprising because all European countries have migrant women from regions of low literacy,

who belong to this category. However, some countries, such as Finland, do not register primary education because it is assumed that everyone has it.

RESULTS

Figure 4.8 describes the distribution of maternal education level in European countries according to the classification described above. Depending on the country, missing values (educational level not reported) varied from less than 1% to more than 25% of women. For the women for whom information on educational level was available, the largest group in most countries — 37 to 72% — had secondary education as their highest level. Nonetheless, the proportion with postsecondary education was also high, ranging from 22 to 61%. Mothers with a primary school education or less accounted for 0 to 18% of the population. Some of this variation may be related to the differences in the manner that educational level is measured.

KEY POINTS

The distribution of educational level varies widely between the European countries that provided data for this indicator. Many countries cannot provide data on educational level, which is one of the reasons that Euro-Peristat has added a second indicator of social status, parental occupation, to its list of indicators. Further research will be required into the possibility of effectively comparing educational level and occupational class as it seems unlikely that the countries that do not collect education will do so in the near future. However, even if educational and occupational levels are not comparable, collecting these data — either or both, according to availability — will make it possible to compare fetal and neonatal mortality outcomes between these groups within countries and call attention to the differences related to social factors. These analyses are underway for 2010 and will be issued shortly.

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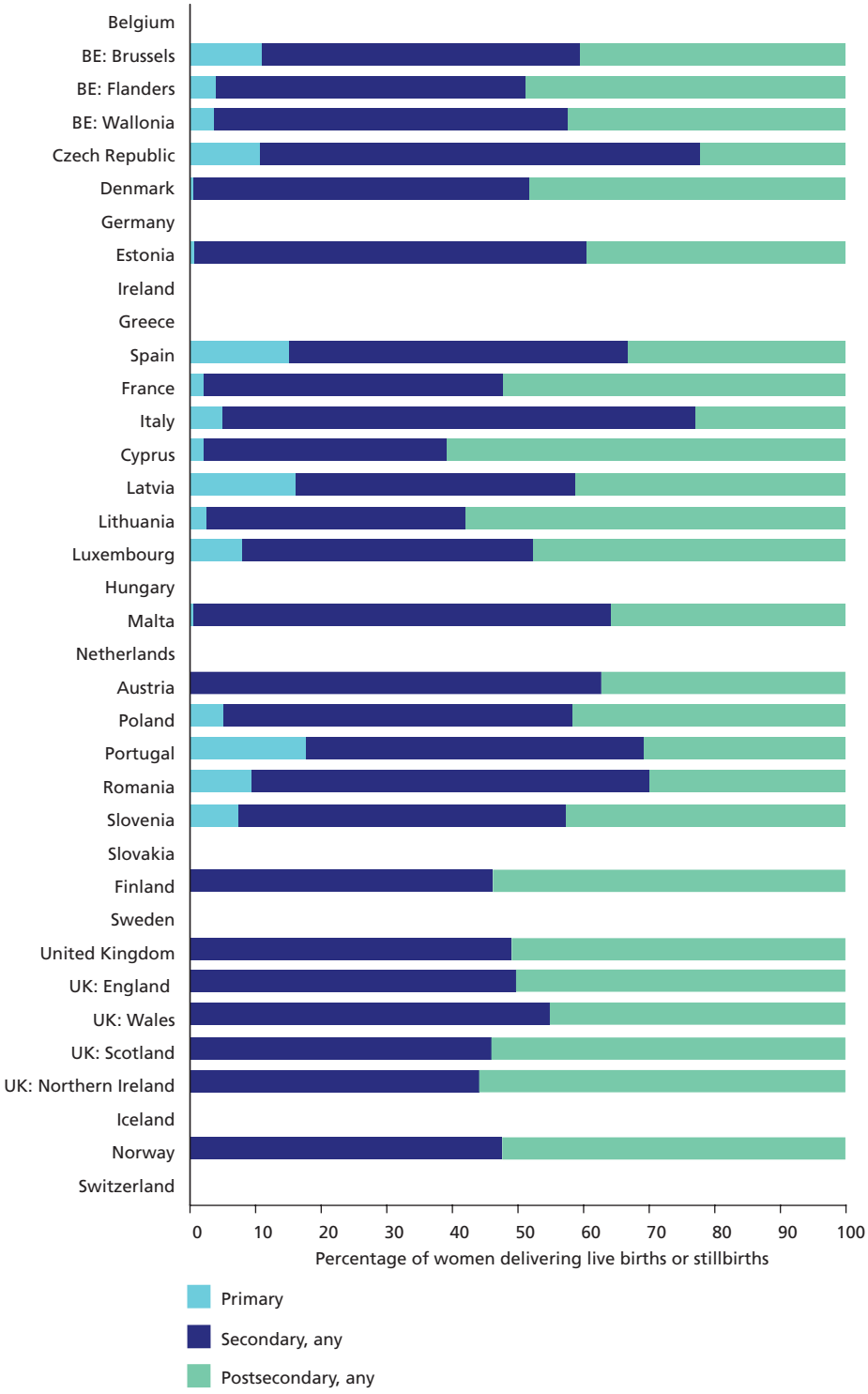
Figure 4.8 Distribution of mothers' education in 2010



R10 PARENTS' OCCUPATIONAL CLASSIFICATION

(new indicator – to be published in October, see discussion in R9)

R11 MOTHERS' COUNTRY OF BIRTH

JUSTIFICATION

International migration to industrialised countries may be accompanied by health disparities in perinatal outcomes between migrants and women born in receiving countries and also between groups of migrants. Some studies have shown poorer medical care,[1] higher rates of maternal complications,[2,3] and worse perinatal health outcomes for migrants, including increased rates of obstetric interventions,[4] perinatal mortality, low birth weight, and preterm birth.[5] In other cases, migrants' outcomes are as good and sometimes better than those of the host population. This has been described as a "healthy migrant" effect, meaning that migrants tend to be more healthy than the general population because unhealthy people are less likely to migrate. Outcomes vary both by the migrant's country of origin and by receiving country.[6] Comparing the health of and care provided to migrant women in diverse settings can help to identify factors associated with suboptimal care. These factors may include more limited access to care during pregnancy and differences in care related to language limitations and cultural differences. This indicator represents one social measure of subpopulations of women and children potentially at risk for adverse outcomes in the perinatal period. Euro-Peristat has collaborated with the ROAM (Reproductive Outcome and Migration: an international collaboration) project to study this question in detail and to develop international indicators.[7]

DEFINITION AND PRESENTATION OF INDICATOR

The ROAM collaboration and Euro-Peristat recommend using the mother's country of birth as the primary indicator and presenting it in 2 ways: (1) geographic regions, classified according to the UN list of world macro regions and components, with Europe further subdivided into EU27 and non-EU27, and (2) regions grouped by income level, as classified by the World Bank.[7] Many European countries do not record the country of birth, but record related data, which have been used to construct this indicator. In Belgium, nationality (citizenship) at birth is used. Some east European countries use a mix of ethnicity and nationality, as women can be classified as either. In the UK, data are collected on ethnicity, but information can also be provided on mothers' country of birth. For the UK and its constituent countries, the percentages of mothers born outside the UK are shown in Tables 4.2 and R11.

DATA SOURCES AND AVAILABILITY OF INDICATOR IN EUROPEAN COUNTRIES; METHODOLOGICAL ISSUES IN THE COMPUTATION, REPORTING, AND INTERPRETATION OF THE INDICATOR

Most countries were able to provide information on country of birth or ethnicity or another indicator of maternal origin, more than those providing other Euro-Peristat indicators of social circumstances: educational level and occupation. When countries provided data, they were complete with few missing. Not all countries collect data by individual country of birth, which makes it difficult to standardise reporting categories according to the ROAM recommendations. For this report, we show the proportions of women born outside the country. It should be borne in mind that these groups include privileged as well as disadvantaged populations. For instance, in Brussels, foreign-born women include civil servants for the EU or other international institutions but also asylum seekers and undocumented persons from low and middle income countries. In Portugal, foreign-born women include a sizeable proportion of Portuguese women whose parents migrated out of Portugal.

RESULTS

Table 4.2 describes the availability of data about country of birth and its distribution in Europe. The percentage of foreign-born mothers ranged from 3% or less (the Czech Republic) to 66% (Luxembourg) and the proportion of women with a foreign nationality from 1.0% in Poland and Iceland to 30.2% in Latvia. The rates of foreign-born or foreign-nationality mothers in most countries in western Europe exceeded 25%. Countries provided this information with different levels of detail. In many countries, however, it should be possible to classify women by region of birth, as recommended.

KEY POINTS

In many European countries, a sizeable proportion of births are to women born outside of the country. Data are available in many countries to permit an analysis of health outcomes by mothers' countries or regions of birth.

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Table 4.2 Proportion of women with live births or stillbirths who were of foreign origin (or nationality or ethnicity) as defined by country of birth in 2010

Country/coverage	Country of birth %	Nationality %	Ethnicity %	Other %
Belgium				
BE: Brussels	66.2			
BE: Flanders	23.2			
BE: Wallonia	25.2			
Czech Republic	2.6			
Denmark			15.2	
Germany			16.9	
Estonia			24.9	
Ireland	24.6			
Greece				
Spain	23.6			
France	18.3			
Italy		19.0		
Cyprus	32.7			
Latvia		30.2		
Lithuania		12.8		
Luxembourg	66.0			
Hungary				
Malta		9.2		
Netherlands				21.1[1]
Austria	29.3			
Poland		0.04		
Portugal	19.0			
Romania				
Slovenia				
Slovakia				
Finland	6.2			
Sweden	24.4			
United Kingdom	24.0			
UK: England and Wales	25.2			
UK: Scotland	13.9			
UK: Northern Ireland	13.5			
Iceland		12.1		
Norway	24.8			
Switzerland	41.1			

NOTES (1) Country or nationality at birth or ethnicity.

R12 DISTRIBUTION OF MATERNAL PREPREGNANCY BODY MASS INDEX (BMI)

JUSTIFICATION

Women's weight before and during pregnancy affects the course of pregnancy, its outcome, and the health of offspring. Mothers who are underweight before pregnancy have a higher probability of delivering growth-restricted babies,[1] with all the consequences that entails for their adult life. On the other hand, obese mothers have higher risk of gestational diabetes mellitus and preeclampsia.[2,3] The relative risk of stillbirth[4] or a baby with a neural tube defect, spina bifida, or some other congenital anomalies is also higher in this group and increases with the level of obesity.[5,6] As well, macrosomia (birth weight ≥4500 g) and caesarean sections are 2-3 times more common among women who are obese or severely obese.[6,7]

DEFINITION AND PRESENTATION OF INDICATOR

This indicator is defined as the percentage of women delivering live births or stillbirths by their prepregnancy body mass index (BMI). This distribution is presented as follows: <18.5 (underweight), 18.5-24.9 (normal), ≥25.0 (overweight and obese). Overweight and obese women can be subdivided as pre-obese (BMI 25.0-29.9), obese class I (BMI 30.0-34.9), obese class II (BMI 35.0-39.9), and obese class III (BMI ≥40.0).

DATA SOURCES AND AVAILABILITY OF INDICATOR IN EUROPEAN COUNTRIES

This indicator is available in the 3 regions of Belgium (Brussels, Flanders, and Wallonia), Denmark, Germany, France, Malta, Poland, Slovenia, Finland, Sweden, Scotland, and Norway.

METHODOLOGICAL ISSUES IN THE COMPUTATION, REPORTING, AND INTERPRETATION OF THE INDICATOR

In most countries for which data are available, prepregnancy BMI is recorded at the first antenatal visit, which may slightly overestimate the mothers' BMI before pregnancy. When data are reported directly from women, as it is for instance in France, BMI may be underestimated as women tend to report their weight as being lower than it actually is. Seven countries or regions reported a proportion of missing data less than 10% (Flanders, Denmark, France, Poland, Slovenia, Finland, and Sweden); the frequency of missing data was higher in the other countries.

RESULTS

Figure 4.9 shows that women with a low prepregnancy BMI accounted for 2.5 to 8.7% of mothers delivering in countries for which data are available; the highest proportions were in Poland (8.7%), France (8.3%), and Wallonia (7.1%), and the lowest in Sweden (2.5%), Scotland (2.6%), Finland (3.6%), and Germany (3.6%). The proportion of overweight or obese women was typically about 30-37% with the exception of Poland (25.6%), France (27.2%), and Slovenia (27.8%), where lower percentages were reported, and of Scotland, where it reached 48.4%. Obese women accounted for 7.1 (Poland) to 20.7% (Scotland) of all pregnant women.

KEY POINTS

Maternal weight before and during pregnancy affects the course of pregnancy, its outcome, and the offspring's lifelong health. BMI before pregnancy is one of the simplest indicators of maternal nutrition, and it is not available in most European countries. Countries for which data are available report high variability of the proportion of both underweight and obese women, although in most countries, more than 10% of childbearing women are obese. This indicator of maternal weight should be monitored in more European countries in view of the possible changes in proportions of underweight, overweight, and obese women in the upcoming generations of women of childbearing age and the impact of these changes on perinatal health outcomes.

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Figure 4.9 Distribution of maternal prepregnancy body mass index (BMI) in 2010