CLOSING THE LIFE EXPECTANCY GAP OF ROMA IN EUROPE

Roma Health and Early Childhood Development Study
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About EPHA

EPHA is a change agent – Europe’s leading NGO advocating for better health. We are a dynamic member-led organisation, made up of public health NGOs, patient groups, health professionals, and disease groups working together to improve health and strengthen the voice of public health in Europe. EPHA is a member of, among others, the Social Platform, the Health and Environment Alliance (HEAL) and the Better Regulation Watchdog.

Further reading

Roma Health and Early Childhood Development Campaign, EPHA
ABSTRACT

This study aims to present the overall picture of Roma health status and the Roma health gap in order to demonstrate that good Roma health outcomes require a holistic, cross sectoral approach.

The poor state of health in Roma communities is prevalent—and largely ignored—across Europe. Some Roma are completely excluded from health care, while most face hostility and discrimination within healthcare settings. Available literature on Roma and health agrees that:

1. Roma people suffer from poorer health and unhealthier living conditions compared to majority populations (Roma Health Gap)
2. better data is needed to explain the Roma health gap and design better interventions to reduce this gap
3. the poor health of Roma is closely linked to the social determinants of health (OSF 2011).

Studies have consistently found that Roma health is worse than the health of the majority populations or other ethnic minority groups. Estimated life expectancy for Roma is consistently lower than corresponding national averages. Infant mortality among Roma is estimated to exceed national averages by several percentage points. Roma are less likely to be covered by health insurance. Roma do not appear to enjoy preventive health care on equal footing with non-Roma and instead are more likely to rely on emergency services. Academics and advocates identify inadequate living conditions, poverty, limited education, and pervasive discrimination against Roma by health care professionals and the public as the key reasons for the poor health of Roma (Abdikeeva, Covaci 2017).

Like all Europeans, Roma represent patients, caregivers, and families. Yet on average, Roma will die ten - fifteen years earlier than most Europeans. Roma are less likely to be vaccinated, have fewer opportunities for good nutrition, and experience higher rates of illness. In some countries, six times as many of Roma infants do not make it to childhood. If they do, they will have experienced more infections and diseases than other groups living in similar economic conditions (SAITOVIC 2014).

The purpose of this paper is to provide an evidence-based literature review on the Roma life expectancy gap, and the following indicators:

1. Life expectancy gap between Roma and non-Roma
2. Roma children and infant mortality
3. Socio-economic Determinants of life expectancy

Methods and Information sources

In order to identify the Roma life expectancy gap in the literature, we carried out a search using terms
such as life expectancy, mortality, early childhood development, infant mortality and determinants. Both qualitative and quantitative studies were included. English and national language published articles were selected. Reports, surveys, statistics, strategy and discussion papers sources were also consulted. Different databases using a combination of specific terms were also searched.

In total a number of 57 specific information sources were selected and reviewed.

Three reviews were conducted on the life expectancy and infant mortality gap between Roma and non-Roma; on socio-economic determinants; and on healthcare determinants of Roma health. The report begins with a short description of Roma in Europe, highlighting their bad health conditions in comparison to the non-Roma population. In addition, discrimination and marginalization were described as some of the main factors contributing to the poor health status of Roma. In the key data inputs identified, the differences in life years between Roma and non-Roma in 16 EU countries and the life expectancy gap between Roma men and Roma women in 4 EU countries were highlighted. Infant mortality and early childhood development data were also identified.

Sources describing possible socio-economic factors associated to the difference in life expectancy between Roma and non-Roma in Europe were selected. Specific data on differences in the quality of health care, contribution of the environmental conditions, contribution of the socio-economic environment, were identified. Data on vaccination uptake, prevalence of major infectious diseases, health conditions and differences in the quality of healthcare has also been consulted.

**Data quality and limitations**

Beyond the data, information on life expectancy and mortality for the Roma community within Europe is disjointed and ad hoc. Inter-country differences are found in measurement scales and information contained in national reports and other sources include estimates by (sometimes unnamed) experts, region-specific information, anecdotal reports from various health care providers and estimates from population pyramid statistics. Health data collection in many countries does not include ethnicity, nor do the Roma population always categorize themselves in this way for fear of discrimination. Forming a conclusion or definitive answer on this topic is therefore difficult and involves an element of estimation and contains a wide margin for error. Despite these limitations, the information in this paper shows estimates from other countries where available.
1. Introduction: Health Inequalities in Europe – the situation of Roma

1.1 Health Inequalities in Europe

Health inequalities – the unfair but avoidable differences in health status across different socio-economic groups in society – usually result from the uneven distribution of social and environmental determinants; the differential access to resources such as education, employment, housing, health services; different levels of participation in society and different levels of control over life. (EPHA 2010)

Life expectancy and many other measures of health vary widely both between and within countries. Health inequalities generally reflect social inequalities, leading to a marked ‘social gradient’ in health and wellbeing. Moreover, certain communities — including ethnic minorities (especially Roma) and stigmatised groups, such as irregular migrants and sex workers — experience significant health inequalities.

Disparities in health reflect variations in the structures of societies in which people live and the conditions of their daily lives. They are generally mediated by factors such as alcohol and tobacco use and risk behaviours typically associated with low education, income and skills and adverse environments. Health inequalities also have major economic consequences for countries, in terms of lost productivity and additional healthcare and welfare costs. (European Commission 2014)

Richard Wilkinson, Professor Emeritus, University of Nottingham and co-founder of The Equality Trust, co-author of “The Inner Level: How More Equal Societies Reduce Stress, Restore Sanity and Improve Everyone’s Wellbeing” demonstrates how in countries regarded as more unequal, citizens are considered worse off in regards to public health, non-communicable diseases and education. In his other book “The Spirit Level: Why More Equal Societies Almost Always Do Better”, he argues that there are “pernicious effects that inequality has on societies: eroding trust, increasing anxiety and illness, (and) encouraging excessive consumption”. It claims that for each of eleven different health and social problems: physical health, mental health, drug abuse, education, imprisonment, obesity, social mobility, trust and community life, violence, teenage pregnancies, and child well-being, outcomes are significantly worse in more unequal countries, whether rich or poor.

The report “Health Inequalities in Europe. Setting the Stage for Progressive Policy Action” carried out by the Foundation for European Progressive Studies (FEPS) and the Think Tank for Action on Social Change (TASC), proposes a progressive agenda to take action on health inequalities, and - in doing so - achieve the SDGs on health. Only by simultaneously providing universal health coverage to all populations in Europe and evaluating policies regarding their health impacts can we level the inequalities in health. Doing so
promises economic benefits at a national level, but more importantly, it delivers on a basic human right: the right to health, irrespective of place of birth, ability, or socioeconomic background. (Kentikelenis et al 2018)

Many people being in a vulnerable situation such as, refugees, homeless, migrants, travelers, sex workers, etc., have a valid case for action. However, this study focuses only on Roma as there is not enough available data on Roma life expectancy gap and 80% of this population according to EU MIDIS II survey, are living beyond the limits of extreme poverty and faced centuries of discrimination in access to social services. Nevertheless, Roma people fall also within the categories of most of the aforementioned vulnerable/underrepresented groups, in many cases.

1.2 How systemic exclusion results in poor Roma health outcomes?

Today, the more than 12 million Roma in Europe still suffer from systemic exclusion that is the legacy of centuries of discrimination. (FRA 2016) They are severely disadvantaged when it comes to housing, education, employment, all of which contribute to what is termed the Roma health gap.

The European Roma population are present in most European countries. Most Roma live in Central Eastern Europe (CEE) — Romania, Slovakia, Bulgaria, Hungary and the Czech Republic. (The largest Roma population in Europe lives in Turkey but is not in the scope of this study). Likewise, this review does not cover the Traveller community. Less than 20% of Roma in Europe are nomadic. (Tanner 2005) Roma migrate from East to West, to seek opportunities denied at home and escape from the racism perpetuating their marginalisation. Emigration appeals to CEE Roma because many of their marginalised communities suffer deep structural poverty. (Guy 2015) However, Roma migration to Western and Northern Europe and their integration into those societies is also outwith the scope of this study.

Available data consistently show higher rates of illness and mortality among Roma than in majority populations. Indeed, the health of Roma communities is significantly worse than that of the majority population of any country where they live. Roma populations have on average a life expectancy that is 5-20 years shorter (European Commission 2014) and are at much higher risk of suffering from “communicable and non-communicable diseases” compared to the rest of the population.

Roma health is a European public health challenge. The recent Fundamental Rights Agency (FRA) report and evaluation by the European Commission of the current EU Roma Framework have demonstrated how little progress in the area of health has been achieved, with a few indicators even falling behind. Roma integration is another example of social and fundamental rights policy which needs a health in all policies approach as well as coordinated, European action to improve population health.

Roma face several systemic barriers to
accessing healthcare. Adequate, affordable and accessible healthcare is a key factor shaping overall health, and it is critical to increasing social inclusion of Roma and ensuring equal opportunities for all. Barriers such as a widespread lack of health insurance and personal documentation, geographic isolation from healthcare facilities, lack of awareness, cultural and linguistic barriers, and rampant discrimination in healthcare towards Roma patients contribute to exacerbating this situation and increasing the life expectancy gap even further. For the millions of Roma living in Central and Eastern Europe and South Eastern Europe, persistent discrimination and marginalization are a daily reality that results in poorer health for individuals and communities. (FRA 2016)

The European Union (EU) is committed to reducing health inequalities between the general population and the Roma population. Since 2011, all EU Member States have designed national strategies on Roma inclusion with targets for education, employment, housing and healthcare. However, while those factors are significant determinants of Roma health, this briefing aims to present the overall picture of Roma health status and the Roma health gap in order to demonstrate that good Roma health outcomes would require a holistic, cross-sectoral approach. Mainstreaming early childhood development of Roma is also key for health outcomes. The EU has also made improving access to healthcare a priority in order to promote social inclusion and equal opportunities for all.

1.3 A Roma public health emergency

1.3.1 Roma population health

According to data shared by the EU Fundamental Rights Agency, Roma tend to have higher rates of illnesses associated with poor diet and stress. (FRA 2013a). Some Roma also suffer anxiety as a result of traumatic experiences from the wars in the Balkan region, leading to mental health problems and psychosomatic complaints. There is also a high frequency of eye and dental problems, which can be attributed to poor diet and malnutrition (FRA 2013a)

EU MIDIS II shows that 7% of the Roma surveyed live in households in which at least one person regularly went to bed hungry in the preceding month (that is, 4 times or more). This is experienced by 17% of Roma in Croatia, 13% of Roma in Greece and 11% of Roma in Hungary. In Greece, almost every second person (47%) lives in a household in which a person had to go to bed hungry at least once in the preceding month. This is of particular concern as Greece shows the highest rates of Roma in paid work, which appears to be insufficient to cover even basic needs, such as food. Moreover, the findings show that, on average, every third Roma child in the countries surveyed, lives in a household that faced hunger at least once in the preceding month. Compared with the 2011 survey findings, the proportion of Roma living in households in which at least one person went to bed hungry at least once in the previous month declined in Bulgaria, the Czech Republic, Hungary and Romania. It did not change in Greece, Slovakia and Spain. (FRA 2016)
In relation to alcohol consumption there are contrasting trends, with most studies suggesting the Roma population consume less alcohol than non-Roma populations.

In relation to tobacco, The UNDP/WB/EC Regional Roma Survey in Croatia observed 52% more Roma smokers than non-Roma in Croatia. (Mihailov 2012) The UNDP et al survey data also shows that across the countries studied the total number of Roma smokers over the age of 16 is significantly higher (by 20%), compared to the neighboring non-Roma population — 53% and 33% respectively. The survey data found that the highest numbers of Roma who smoke are found in the Czech Republic, Slovakia and Croatia with the fewest number in Bulgaria and Romania; however, these Roma populations still smoke significantly more than the non-Roma population (Mihailov 2012). For example, in the Czech Republic, the prevalence of adult (aged 16+) Roma smokers was 77% compared with 43% of the non-Roma population (Mihailov 2012). Evidence from UNDP et al also suggests that Roma quit smoking less frequently, but also do it at a later age than non-Roma living in their neighborhood. For example, in Spain, daily consumption of tobacco in the case of Roma women is lower than in the overall female population (16.7% vs. 21.7%) and higher in Roma men (54.2% % versus 28.3%). In the case of alcohol consumption, there is evidence of lower consumption in men and women of the Roma community than in the whole population of Spain: from 50.6% to 64.6 % in men and from 19.1% to 38.9% in women. However, within dietary habits, daily consumption of fresh fruit is less frequent in the Roma community than in the general population: 39.1% in Roma men as opposed to 56.1%, and 40, 5% in Roma women versus 63.1%. (MSSI 2014)

Again, in relation to a healthy diet, Roma generally have a poor diet, most likely a result of poverty. Roma tend to eat fewer vegetables, consume less nutritional food and eat more fatty food. Where studies on diet are available, data on weight and obesity is often available. In addition, Bulgaria, the Czech Republic, Hungary, Portugal and Romania report low numbers of Roma (adults and/or children) who undertake physical activities to stay healthy. The study has been able to highlight examples of cultural factors which may be associated with unhealthy lifestyles (European Commission 2015).

2. Life expectancy gap between Roma and non-Roma

2.1. European overview according to the data

As a result of the overall poor Roma health status, overall life expectancy years for the Roma community are estimated to be between 5 and 20 years lower (European Commission 2014).

As a whole, the Roma population is demographically different from the European populations insofar as it is noticeably younger, and consistently so, across Europe. Using the average for the EU-28, the European Roma population has an average age of 25.1 years in comparison with 40.2 years for the non-Roma population. (Fundación Secretariado Gitano et
Mortality rates and life expectancy data refer to the number of deaths in a population, relative to the size of that population per unit of time; and the expected number of years remaining at a given age (usually at birth).

The longevity rate — i.e. the proportion aged 75 and over — was, 25.7 % for the EU-27 Roma population and 51 % for the EU-27 non-Roma population in 2009 (Fundación Secretariado Gitano et al 2009). In Croatia the life expectancy of Roma (not gender disaggregated) is 66.6 years — 10 years less than the non-Roma population (GOHRRNC 2012).

According to the data collected for the Roma Health Report (European Commission 2014), in the Czech Republic, Roma life expectancy is about 10–15 years less than the majority population. This estimate is generally accepted for the Roma population in Europe. More precise data has not been found (very probably not available). Life expectancy at birth in the EU-28 was estimated at 81.0 years in 2016, reaching 83.6 years for women and 78.2 years for men., and 64 years for Roma men and 70 years for Roma women. (Eurostat 2018a) However, the recorded average age of death in 2011 was 59.2 years for Roma men compared to 65.6 years for non-Roma men and 63 years for Roma women compared to 80.2 for non-Roma women. Differences between age of death and/or predicted life expectancy are more pronounced for women at 17 years. This suggests that the life expectancy of Roma women is 17 years shorter than for non-Roma women, but that life expectancy is increasing for both Roma and non-Roma groups.

In Belgium, the Brussels municipal social services (CPAS) estimate that Roma have a life expectancy of 55 years and that Roma health is poor, even when compared to refugees and undocumented migrants; and suggests this to be linked to housing conditions. Irish data also suggests that Travellers have a lower life expectancy than the general population, estimated at 5 - 10 years lower. In Austria regional estimates suggest that the mortality rate for Roma is 14 % higher than for the rest of the country.

In Slovakia the biggest gap in life expectancy is present in segregated and secluded areas of Roma settlements with poor living conditions, and it is estimated that the mortality rate in such settlements is twice or three times higher compared to integrated Roma. (European Commission 2015) In Romania Roma live on average 16 years less than the general population, and deaths among the Roma population occur at an average age of 52.5 years, compared with 68.8 years in the general population, according to a report on
As a result of the overall poor Roma health status, overall life expectancy years for the Roma community are estimated to be between 5 and 20 years lower.
Romania from the European Center for Roma Rights (ERRC 2013). Although quantifications of higher mortality and/or shorter life expectancy are not largely available, almost two-thirds of the 31 countries in the Roma health report (60%) estimate or can evidence poorer Roma health compared to the non-Roma population. The relevant tables can be found in the annex to this study.

2.2. Early Childhood Development and Roma Health

Health and well-being in the early childhood period is a key determinant of health and educational status in later life. While risk factors affecting health can and will occur throughout the course of life, early childhood is a critical (and potentially vulnerable) stage where extreme poverty and malnutrition have lasting negative effects on subsequent health and development. When it comes to development, the first five life years are the most important. It is when children will learn appropriate healthy behavior that will remain with them for life.

Early childhood is the most rapid period of development in a human life. The years from conception through birth to eight years of age are critical to the complete and healthy cognitive, emotional and physical growth of children. The rapid development of children’s brains begins in the prenatal stage and continues after birth. Although cell formation is virtually complete before birth, a newborn baby has about a 100 billion brain cells - brain maturation and important neural pathways and connections are progressively developed after birth in early childhood. Therefore, early childhood is a period in development where environment actually has an important impact on determining how the brain and central nervous system grows and develops. Environment affects not only the number of brain cells and the number of connections among them but also the way these connections are “wired.” The process of eliminating excess neurons and synapses from the dense, immature brain, which continues well into adolescence, is most dramatic in the early years of life, and it is guided to a large extent by the child’s sensory experience of the outside world. Inadequate nutrition before birth and in the first years of life can seriously interfere with brain development and lead to such neurological and behavioral disorders as learning disabilities and mental retardation. There is considerable evidence showing that infants exposed to good nutrition, and adequate psychosocial stimulation had measurably better brain function at twelve years of age than those raised in a less stimulating environment. (UNICEF undated)

Early adversities undermine healthy brain development and diminish human potential and future productivity. The brain architecture is sculptured under the influence of the environment. Any adversity in the child’s environment has the potential to have a negative impact on early brain development, and therefore acts as a risk factor for the health and development of the child. Many children exposed to adversities in early years including extreme poverty, maternal depression, chronic neglect, physical and emotional abuse do not acquire a strong foundation for health, learning and development throughout life. Gaps in skills emerge as early as 2-3 years of age and if not
addressed at that point they tend to widen. (Eurochild 2018)

2.3. Roma children – Higher Infant mortality rate

Some researchers (Langhamrová and Fiala 2003) estimate that Romani infant mortality rates and health levels are similar to these of the majority population in 1970s. Despite the lack of data, it is probable that health risks for young children from socially excluded Roma families are much higher than in the mainstream population. It is reasonable to assume that persistent poverty over generations, weak access to pre- and post-natal care, intolerable housing and unsafe environments, poor nutrition and unhealthy lifestyles seriously influence the general health levels of young Roma children. In addition to the environmental risks linked to living in poor neighborhoods, access to health and social services is generally lower in such localities (Bennett 2013)

Studies suggest that at least in some Roma groups, the higher rates of infant mortality appear to be associated with poorer living conditions (housing, low educational attainment and migrant Roma). According to Roma Inclusion Index 2015(Roma Inclusion Secretariat 2015) infant mortality rate of Roma in Bulgaria is twice that of total population and the situation has not changed over the last decade. In Bosnia and Herzegovina earlier data show that infant mortality of Roma is 4 (3 for females) times more than others, but recent data are not available to assess any change. In Spain, infant mortality rate for Roma is almost three times greater than for children from other parts of the population.

Italian data pertaining to infant mortality rates is scarce, outdated and somewhat inconsistent. In addition, there is no available data on maternal mortality. According to a Save the Children (2008) report that presents data from 1992–95 in the Lazio region, the rate of infant mortality at birth for Roma equaled 6.5/1 000 as opposed to 3.5/1 000 for Italians, while infant mortality within the first week equalled 15.3/1 000 for the Roma, as opposed to 4.4/1 000 for Italians. The infant mortality rate among Roma children in Romania is four times higher than the national average, according to the National Report on Roma Inclusion in Early Childhood Development Services (Bennett 2010)

Data reporting higher infant mortality rates for Roma children have also been found in Slovakia, Hungary and the Czech Republic. In the latter country, at least one study illustrates the relationship between higher infant mortality among Roma and the socio-economic conditions and high incidence of risk factors among pregnant women, especially smoking during pregnancy (57%), and poor environmental conditions, especially housing. (Rambouskova 2003)

These socio-economic conditions and health behaviours increase the relative risk of lower birth weight and other non-favourable outcomes (Bobak et al 2005, Mihailov 2011) The RECI report mentions that official statistics covering birth rates, infant mortality and general health levels in Roma communities are
not available in the Czech Republic. (Bennett 2013)

According to the 1992–2012 findings of the Prognostic Institute of the Slovak Academy of Science, compared with the whole population of Slovakia, the infant mortality rate in Roma communities was approximately 2.5 times higher in the first year of life. Of the 1,000 live births in Roma localities during that time period, 20 infants under the age of 1 died; 8 died in the Slovak majority population. (Vancíková et al. 2017)

Table 3 (see Annex) provides a series of indicators relevant to early child development in Serbia (Mihailov 2011). In the table, both the high mortality rates of Roma infants and the condition of the surviving infants merit attention. Any society based on human rights and social justice should not be indifferent to unnecessarily high mortality rates, or the effects of ill-health and early malnutrition in surviving children. Low-birth-weight contributes significantly not only to infant mortality, but is strongly correlated to other risks among the infants who survive. Also apparent from the table is the greater incidence among Roma children with a disability, or with special educational needs. Infant malnutrition and poor growth strongly impact on cognitive development and educational attainment. (Mihailov 2011) Roma children’s health is limited due to inadequate and/or sometime late access to health monitoring and developmental and language screening. (UNESCO et al 2015 p24)

3. The impact of social exclusion on the health status of Roma

In general, the data confirms that demographic factors (age and gender) are the leading determinants of perceived health status (reported long-standing illnesses). If considered literally, the findings suggest an increased need to support elderly and female Roma. However, it should be recognized that many health problems originate from a multiple set of health determinants, accumulated through the course of life. Therefore, greater efforts to reduce health inequalities during childhood, to avoid increased health costs in older age, are needed.

The poor health of Roma is closely linked to social determinants of health. Fully understanding the effects of social determinants on population health and on health inequalities requires working through long causal chains of mediating factors. Many of these factors tend to cluster among individuals living in underprivileged conditions and often interact with each other. (Solar et al. 2010) The WHO Commission on Social Determinants of Health (CSDH) regards processes of social exclusion as the major cause of health inequalities among migrants and ethnic minorities. It must also be observed that in this context health is a holistic concept which also includes disease prevention, health promotion and efforts to address concerns in the wide range of health areas — i.e. nutrition, physical activities, alcohol and tobacco — as well as in other policy sectors — i.e. employment, housing and environment (WHO Europe 2008)

In the specific context of the health status of Roma, it is important to understand that the health status of Roma populations, and
variations of health status amongst Roma populations in different countries, may be due to factors that are unrelated to a person’s status as a member of the Roma population, but may be a result of other socio-economic, cultural or environmental conditions. For example, in the specific context of Roma accessing regular health check-ups with primary care physicians, uptake of services or lack thereof could be due either to (i) barriers created by social exclusion, i.e. living far from service providers, (ii) discrimination; such as by primary care services preventing Roma without proof of domicile from registering, (iii) the result of a lack of health literacy due to barriers in accessing health education programmes and hence limited understanding of the benefits of preventative education, or (iv) cultural definitions of ‘ill’ health which decrease Roma engagement with health services unless symptoms arising from serious health problems impact on functioning. (European Commission 2015)

3.1. The socio-economic determinants of Roma health

3.1.1. The poverty trap of many Roma

According to EU MIDIS II, 80% of the Roma surveyed and their children live with an income below the respective national at risk-of-poverty threshold. (FRA 2016) In comparison, on average across the EU, 17% of the population were at risk of poverty in 2014. In Spain (98%), Greece (96%) and Croatia (93%), almost the entire Roma population covered by the survey has incomes below the national income poverty threshold. The rate is lowest in the Czech Republic (58 %) – but it is still almost six times higher than that of the general population. Income poverty seems to be related to the residential concentration of Roma. In most countries, the proportion of Roma at risk of poverty is highest in neighbourhoods that respondents assess to be populated by residents who are “all” or “most” of Roma background. Greece and Spain are the exception – in these Member States, the risk of poverty is particularly high but not substantially different across neighbourhoods. When asked if the total household income is sufficient to make ends meet, 92% of Roma surveyed indicate that they face some difficulties in this regard, with 45% facing ‘great difficulties. In Greece and Portugal, this proportion reaches 74%.

3.1.2. Education

EU MIDIS II shows that half of the Roma between 6 and 24 years of age do not attend school. Of those who do, only 1% attend school at a higher level than the one corresponding to their age; 18% attend at an educational level lower than the one corresponding to their age, either because they repeated classes, started school later, or both. This share is highest (20%) among Roma of the age for upper secondary education. One of the main reasons is segregation in school. According to the same EU MIDIS II study, segregation in classes is similar to school segregation. The proportion of Roma children attending classes where ‘all classmates are Roma’ ranges from 29% in Bulgaria to 4% in Spain. If classes in which ‘most’ classmates are Roma are considered as segregated, the share of children attending
education in segregated classes ranges from 63% in Slovakia to 19% in Portugal (FRA 2016)

EPHA’s scoping survey shows that 57.25% of the respondents answered that there is a kindergarten in their local community while 42.75% answered that there is no kindergarten in the community. Where a kindergarten exists, it is situated less than 1 km far away from the Roma houses and where there is no kindergarten, the nearest one is 1-5 km far away for the Roma houses. Out of 630 children (0-6 years old), almost two thirds of them go to kindergarten while 40.79% do not attend or are missing from kindergarten. Some of the main reasons for attending kindergarten are: “my child can play there,” “my child can learn there,” “kindergarten has a programme that provides a free meal or other material support”. The main reasons for not attending kindergarten are: social status of the family, lack of material support, lack of transportation or ethnic issues. (EPHA2017)

In FYRO Macedonia, 75.71% of the respondents answered that there is a kindergarten in the community while 24.29% answered that there is no kindergarten in the community. Out of 161 children (0-6 years old), almost two thirds of them are going to kindergarten while 36.65% are not attending or missing kindergarten.

Despite the lack of accurate statistical ethnic data in Slovakia, the current enrolment ratio of Roma children aged 3 to 6 in kindergartens is deeply unsatisfactory. The Atlas of Roma Communities 2013 (Mušinka et al. 2014) estimates that the number of Roma children enrolled in kindergartens in 2013 was 7,703. For the same year, the official statistics from the Centre of Scientific and Technical Information indicate that only 627 Roma children were enrolled in kindergartens. Older findings by the World Bank (2012) showed marked differences between enrolment of Roma and non-Roma children; in 2011 only 18% of interviewed Roma children attended kindergarten, whereas the overall average in Slovakia was 72% for that age group. (Vanciková et al 2017)

3.1.3. Unemployment

In all Member States compiling statistics on Roma employment, unemployment rates of Roma are higher than non-Roma. For instance, in Bulgaria 40% of Roma are unemployed compared to 20% of non-Roma. In Ireland up to 84% of Roma are unemployed. In Lithuania, 57% were unemployed. In Croatia only 14% of Roma is employed, while 49% of non-Roma is employed. In Hungary only 20% of Roma are employed, compared to 55% of non-Roma (UNDP/WB/EC 2011, Central Statistics Office 2011)

EU-MIDIS II finds that only one in four Roma aged 16 years or older reports ‘employed’ or ‘self-employed’ as their main activity at the time of the survey. Roma women report much lower employment rates than Roma men – 16% compared with 34%. Overall, the survey shows paid work rates for Roma aged 20-64 years to be 43%, well below the EU average of 70% in 2015. The situation of young people is substantially worse: on average, 63% of Roma aged 16-24 were not employed, in education or training at the time of the survey, compared with the 12% EU average on the rate of
young people not in education, employment or training (NEET) for the same age group. For this age group, the results also show a considerable gender gap, with 72% of young Roma women not employed, in education or training, compared with 55% of young Roma men, (FRA 2016) and as a consequence of these high unemployment rates, many Roma live in poverty. Reasons that were reported for these high unemployment rates are language difficulties, poor education levels, cultural differences and discrimination. They are by and large considered job seekers and thus excluded from ordinary healthcare services. Private insurance is an option but often unaffordable (Amnesty 2013)

3.2. Environmental determinants of Roma health

3.2.1. Substandard Housing

Roma living standards Roma are well below those of the rest of the population. They often live in inadequate or poor quality housing in segregated areas without basic services, which also has a negative impact on Roma health. According to EPHA’s scoping survey, (EPHA 2017) in Romania, over 35% of respondents self-report the incidence of chronic illnesses. Overcrowding is also associated with, psychological problems, tuberculosis, respiratory infections, increased risk of fire and domestic accidents. (Eurofound 2012).

The availability of sufficient personal space at home is another key indicator of housing quality. Eurostat measures housing quality and looks particularly at the overcrowding rate, which measures the space available to the household, taking into account the household’s size and its members’ ages and family situation (Eurostat 2018). The EU-SILC also measures the average number of rooms per person by tenure status and dwelling type (Eurostat undated). This indicator can be compared against EU-MIDIS II findings on Roma households and results suggest that insufficient space remains a problem in Roma households, which contributes to severe housing deprivation. The results show considerable differences between Roma and the general population. (FRA 2016)

Housing deprivation is assessed through various indicators of housing deficiencies. These include a lack of basic sanitary facilities, such as a bath, shower and indoor flushing toilet; and the dwelling’s general condition, such as a leaking roof or being too dark, or rotting walls or window frames.

Access to electricity is a key social inclusion indicator, as it is essential for daily activities, such as cleaning and cooking and for providing light so that children can do their homework. EU-MIDIS II results show a slight improvement compared with the results of the 2011 Roma survey. Nearly all Roma live in households with electricity supply in Bulgaria, the Czech Republic, Spain and Hungary (97-98%); in Portugal, 88% of Roma and in Greece, 89% of Roma do so. The situation is worse with regard to access to clean drinking water through a connection to a water supply system with public access. EU-MIDIS II results show that, with the exception of the Czech Republic and
Spain, the share of Roma living in households without tap water inside their dwelling is much higher than for the general population. For Roma, this ranges from 9% in Greece to 68% in Romania. While many Roma live in households without tap water inside the dwelling across the 9 EU Member States, an even higher percentage live in households without a toilet and shower or bathroom inside their homes. This rate ranges from 17% in Portugal to 44% in Bulgaria and 79% in Romania (FRA 2016).

The living conditions in Roma or ‘nomad’ camps in Italy can be equally severe. Monasta et al (2008) studied how living in such a camp affects the health of children. They found a high presence of diarrhea, coughs and respiratory problems and concluded that ‘risk factors associated with these outcomes include years spent living at the camp, overcrowding, housing conditions, use of wood burning stoves, presence of rats, and issues related to quality of sanitation and drains. The detailed analysis by Monasta et al gives their findings strength, but comparison with non-Roma living in similar conditions could have added additional valuable information on possible discrimination and its relative importance in understanding health inequalities for Roma.

3.2.2. Environmental factors: air pollution, chemicals, access to water

A considerable number of Roma report that pollution, grime and other environmental problems – such as smoke, dust and unpleasant smells or polluted water—are a problem, particularly in the Czech Republic and Portugal, where 41% and 36%, respectively indicate this to be an issue, (ERRC 2017) as well as nearly one in every three Roma in Slovakia and Croatia, and for more than every fourth in Hungary, Spain, Bulgaria and Greece. (FRA 2016)

According to the World Health Organization, between 14% and 19% of diseases are caused by exposure to poor environments, causing more than 24% of deaths and 22% of disease in children under 14. Exposure to bacteria, chemicals, pollutants, are all potential dangers people are confronted with on a daily basis (EPHA 2011).

In Romania and Slovakia, the findings of an assessment into carbon monoxide (CO) and carbon dioxide (CO2) levels suggest that indoor air pollution in Roma settlements is also a potential health threat. Maiden et al in 2013 found that as well as the fact that inhabitants spend a relatively long time inside the houses, they were also vulnerable to a number of additional environmental and behavioural hazards such as indoor smoking, pets inside or lack of ventilation; emphasizing the importance of the indoor air quality for health. Priority attention should be paid to these issues by health authorities and researchers. Levels of CO and CO2 were higher in winter in both countries compared to summer, with the limit value of 10 mg/m3 CO being exceeded in a few cases in both countries. In general, levels of CO and CO2 were higher in Romania. The reported self-perceived quality of the indoor environment was poor in many aspects.

Table 5 (see Annex) summarizes the results of the survey by Maidan et al. The median
A considerable number of Roma report that pollution, grime and other environmental problems – such as smoke, dust and unpleasant smells or polluted water – are a problem.
number of persons in the households was 4 in both countries. A high proportion of inhabitants spent at least half a day inside the house and were thus exposed to the indoor hazards. In Slovakia, most of the participants perceived their overall indoor environment as dry and dusty, and in Romania, as humid. In Slovakia, the usage of common household waste as a heating fuel was usual in all households. Other appliances, besides biomass cook-stoves, were used, such as natural gas driven furnaces or ovens in less than a half of the households in Slovakia. Ventilation frequency was higher in Romanian houses and in the majority of Slovakian houses the windows were rarely or never opened (some windows could not be opened because they missed a handle). Smoking inside the houses and even in the bedrooms was a very common habit in both countries. Both domestic animals and rodents were commonly reported to be present inside the houses.

3.2.3. The segregation and isolation of Roma settlements.

The segregation and isolation of Roma populations has implications for their health. In Hungary, poor Roma cluster together in isolated small rural settlements that have seen a general exodus of non-Roma inhabitants and a consequential dwindling of public institutions and basic service provision. (Eurofound 2012) In other cases, health threats do not result from a lack of services but rather from the presence of dangerous and toxic environments. The Roma settlement of Patoracka outside of Rudnany in eastern Slovakia, for example, is located on the grounds of a former mercury mine, and in North Mitrovica, Kosovo, 700 Roma individuals, including children, have been living in camps situated on lead-contaminated land, (Eurofound 2012) or as in Poligon/Skopje in FYRO Macedonia on the bank of the Vardar River. Here, some two hundred people share a pump supplied by the contaminated river water (the tests have repeatedly demonstrated the high levels of pollution). The pump was previously used as a water supply for agricultural production; there is no sewage and waste removal, and people either use self-made pit-latrines or defecate in the open among waste piles (ERRC 2017).

4. Healthcare determinants of Roma health

4.1. Discrimination in health

Most of the discrimination against Roma citizens is institutional, that is, exclusion is often a consequence of poorly functioning health systems. The poor financing of these services disproportionately affects the health and well-being of children and adults from low-income backgrounds. There are multiple British studies referring both to Gypsy travellers in the United Kingdom as well as migrant Roma from Central and Eastern Europe which indicate that barriers to health care are rooted in experiences of racism and discrimination as well as a lack of understanding of Gypsy traveller culture by many health professionals. German literature also draws attention to mistrust of health providers and personnel, which in turn limits access to health services by Roma and Sinti. (Bartlett 2011) Reports on discrimination or fear of discrimination (self-
assessed) or cultural barriers preventing access to health care are also found in France (Médecins du Monde 2012), Sweden (Statens Folkhälsoinstitut 2010), Slovakia. (Popper et al 2009), Poland (Puckett 2005) and Spain (La Parra-Casado et al 2005).

In Romania, according to EPHA’s survey, 68% of the respondents have experienced negative attitudes when accessing health services. Most of the cases occurred when they asked medical information, medical advice and when receiving treatment or medical care, while in FYRO Macedonia, 63% of the respondents have experienced negative attitudes in access to health services, based on their Roma ethnicity. (EPHA 2017, EPHA 2017a)

4.2. Differences in the quality of health care coverage of Roma: the health of Roma women.

When discussing women aged over 50, Roma women declare themselves to be in significantly worse health than their non-Roma counterparts. The self-declared health status of Roma and the ability to access healthcare facilities are covered in the 2013 FRA report. However, as women generally report a lower self-perceived health status than men, this data has been compared with data from non-Roma women. Looking at women in ‘bad’ or ‘very bad’ health, all but one of the countries covered reported higher occurrences of these indicators in Roma women (16+) compared with non-Roma women. For instance, in Poland 75% of Roma women stated that they were in ‘bad’ or ‘very bad’ health and in Italy a 58% difference exists between the self-declared health status of Roma and non-Roma women. Roma women also encounter greater limitations in their daily activities because of poor health. On average 23% of Roma women experience limitations compared with 17% of non-Roma women. This is most evident in Poland where a 17% gap exists between the self-declared limitations of Roma women versus non-Roma women. 18% of Roma women compared with 8% of non-Roma women declared having no medical insurance, with Bulgaria, Romania and Greece reporting...
differences of 37%, 25% and 31% respectively. Within Roma communities, women have slightly higher levels of medical insurance than men as 82% of Roma women are covered compared with 80% of Roma men. **Availability of health insurance is a major determinant of access to healthcare systems and is explicitly listed in the 2013 Council Recommendation on effective Roma integration measures in the member states (CotEU 2013).** Insurance coverage is also included in the set of European Core Health Indicators (indicator 76).

EU-MIDIS II also asked respondents whether the respective national basic insurance scheme currently covered their health care expenses and whether they had any additional health insurance. (FRA 2016) The results show that 95%-98% of Roma in Spain, Portugal and Slovakia are covered either by the national basic health insurance scheme or additional insurance. In contrast, only 45% of Roma in Bulgaria and 54% of Roma in Romania indicated that this is the case. By comparison, according to the Organisation for Economic Cooperation and Development (OECD), health insurance coverage for the general population ranges from 94% to 100% in the Czech Republic, Hungary, Portugal, Slovakia and Spain; in Greece, 86% of the general population is covered by public or private health insurance.

With regard to accessing health care, the results of EPHA’s 2017 scoping survey show that in Romania 43.98% of Roma declared they have access to a medical facility/pharmacy while 56.02% declared the opposite. 67.9% had experienced negative attitudes in access to health services, mostly based on Roma ethnicity. According to respondents’ answers, 44.91% of women (wives or female relatives) went to hospital or had seen a doctor for a pregnancy check-up or examination. 26.39% of them talked with a doctor during their pregnancy and 40.12% were visited/supervised by a doctor/nurse/pediatrician or other person in the first month after the baby was born.
4.3. Prevalence of major infectious diseases

The studies that are available have, shown a higher rate of infectious diseases amongst Roma than the majority population since the mid-1990s. (Save the Children 2012).

In 2011, the European Centre for Disease Prevention and Control (ECDC) hosted a pan-European conference on communicable disease prevention among Roma, undertaking a data collection exercise from which a number of conclusions can be drawn. Roma are disproportionately affected by communicable diseases, linked to social determinants such as living conditions; health perceptions and behaviour; limited inclusion in prevention and immunization programmes, and entrenched discrimination. (ECDC 2011) Indeed, a higher prevalence of infectious diseases among Roma appears not only to be confined to specific countries but can be also observed in a number of Member States with larger Roma populations including France, Spain, Bulgaria and Romania. A 2011 study carried out in Barcelona amongst injecting drug users found that the highest prevalence of HIV infection and TB was within the Roma cohort within the study sample. (Mihailov 2011) Lim et al (2013) report an eight-year era of continuous measles transmission in Bulgaria, ending in 2009 which disproportionately affected the Roma community and which was characterised by an unusually high case-fatality rate and ratio of medical complications. The paper also noted that good maternal education, up-to-date child immunisation status and high household income lower the risk of complications like encephalitis or pneumonia. The paper reports the percentage of Roma measles cases compared with non-Roma and GDP. By region. Roma children were affected significantly more in all regions, but one (Ruse). In Dobrich all recorded cases were Roma. In the spring/summer of 2017, a measles epidemic was observed in Plovdiv region, Central Bulgaria, which affected mainly the Roma ethnic group. A total of 146 cases (44% female, 56% male) were registered, of which 48 cases of measles among young Roma were confirmed. Children under the age of 4 represent the highest number of cases (n = 73) and 16 cases under 6 months. (Levterovaa et al 2018)

4.4. Roma vaccination uptake

On the whole, data on immunisation uptake suggests that in general the Roma population is more likely to be below the level required for herd immunity than the non-Roma population. Levels of Roma immunisation uptake are not consistent across Member States. In Croatia, Hungary and the Czech Republic uptake levels amongst Roma are almost comparable to the general population. However, in others, including Bulgaria, France, Greece, Germany, Italy, Luxembourg, Poland, Romania, Slovakia and the UK, evidence (even if only anecdotal) suggests comparatively low levels. Notably this group of countries includes countries with the highest levels of migrant Roma.

A little over half of the Roma population in Slovakia have received some sort of vaccination, compared to up to 99% in the majority population. The fact that Roma are far behind the vaccination level of the majority
The worse the socioeconomic situation of a social group, the worse its health status is.
population is likely to be a result of more difficult access to general health services, and thus irregular contact with general and other health practitioners.

According to EPHA’s scoping survey in Romania, only 20% of the respondents declared they were informed by a doctor about the importance of immunization, with others receiving this information from a health or healthcare worker or health mediator. 17% of the respondents did not receive any explanation or information about the importance of immunization. However, more than half of the respondents replied that their children were vaccinated, with 1176 out of 1998 having been immunized. (EPHA 2017)

In response to a similar survey in the FYRO Macedonia, the participants confirmed that their children had been vaccinated with 253 out of 285 receiving immunizations. (EPHA 2017a)

5. Conclusion

The worse the socioeconomic situation of a social group, the worse its health status is. In fact, there are important inequalities, with the Roma population occupying the most disadvantaged position in Europe.

Available data consistently show higher rates of illness and mortality among Roma than in majority populations. Indeed, Roma communities’ health is significantly worse than that of the majority population of any country in which they live. Roma populations have on average a life expectancy between 5-20 years shorter and face high infant mortality rates, two or three times higher than of the general population. A wide range of socio-economic and environmental determinants of health, including discrimination, poverty, segregation in education, unemployment, isolation and marginalization, differences in the quality of healthcare, vaccination uptake, negatively affect the Roma population, resulting in poor Roma health. 80% of Roma and their children live with an income below the respective national at risk-of-poverty threshold, half of Roma between 6-24 years of age do not attend school and in all EU Member States that collect statistics on Roma employment, unemployment rates of Roma are higher than non-Roma. A considerable number of Roma feel that pollution, and other environmental problems – such as smoke, dust and unpleasant smells or polluted water, especially in segregated and isolated communities have implications for their health.

The Roma have made up a significant proportion of Europe’s population for a millennium but have thus far been restricted from integrating effectively into society. This community is subjected to widespread discrimination and their needs are often neglected by governments. It is now clear that for a high level of population health, it is not enough to ensure that the majority of population is living well and that by neglecting the most vulnerable in society it is in fact the whole population that suffers. The wide gap that exists in all indicators of socio-economic development and health between Roma and non-Roma across Europe should be reduced as a priority through targeted interventions, but in order to achieve this there is a need
for a more qualitative and up to date detailed research of the underlying causes of these inequalities. Societies that are inclusive of all their citizens, enabling them to participate fully in social, economic and cultural life will be healthier than those in which people are faced with insecurity, exclusion and deprivation.

Unfortunately, Roma are caught in a vicious circle that they did not create and did not want. EU Member States should no longer neglect the health of the Roma population because good health is a precondition for wellbeing and social inclusion.
## Table 1. Gap between Roma and non-Roma life expectancy per country

Source: European Commission

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>ESTIMATED ROMA LIFE EXPECTANCY COMPARED TO NON-ROMA</th>
<th>SOURCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Estimated but not quantified</td>
<td>WIFO working paper</td>
</tr>
<tr>
<td>Belgium</td>
<td>Estimated but not quantified</td>
<td>Cijfers pric Limburg 2009, HIVA, Kwantitatieve bevraging van de maatschappelijke en economische positie van woonwagenbewoners, 2010, Vlaams Strategisch Plan voor woonwagenbewoners</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>-10 years</td>
<td>National Health Strategy for Disadvantaged Persons Belonging to Ethnic Minorities</td>
</tr>
<tr>
<td>Croatia</td>
<td>-10 years</td>
<td>Government Office for Human Rights and Rights of National Minorities, Croatia</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-5 to -10 years</td>
<td>Council of Europe estimate</td>
</tr>
<tr>
<td>Finland</td>
<td>Estimated but not quantified</td>
<td>Ministry of Social Affairs and Health, The proposal of the working group for a national policy on Roma — working group report (2009)</td>
</tr>
<tr>
<td>Hungary</td>
<td>-9 years</td>
<td>The Roma population’s state of health survey Eduinvest (2009)</td>
</tr>
<tr>
<td>Ireland</td>
<td>-5 to -10 years</td>
<td>All Ireland Traveller Health Study (2010)</td>
</tr>
<tr>
<td>Italy</td>
<td>-20 years</td>
<td>Promoting the Social Inclusion of Roma CEPS, (2011)</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>-12 years</td>
<td>Dokters van de Wereld (2010) Roma and Sinti op weg... naar een beter welzijn</td>
</tr>
<tr>
<td>Poland</td>
<td>Estimated but not quantified</td>
<td>Poland National Roma Integration Strategy</td>
</tr>
<tr>
<td>COUNTRY</td>
<td>ROMA MEN</td>
<td>ROMA WOMEN</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------</td>
<td>------------</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>64</td>
<td>70</td>
</tr>
<tr>
<td>Hungary</td>
<td>59</td>
<td>58</td>
</tr>
<tr>
<td>Slovakia</td>
<td>54</td>
<td>58</td>
</tr>
<tr>
<td>Romania</td>
<td>60</td>
<td>64</td>
</tr>
</tbody>
</table>

*Table 2. Estimated life expectancy gap between Roma men and women*

Source: European Commission
Table 3. Early childhood indicators from Serbia (2010)
Source: Mihailov, D., The Health Situation of Roma Communities (2011)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>National Population</th>
<th>Roma Settlements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant mortality rate (IMR)</td>
<td>7 / 1000</td>
<td>14 / 1000</td>
</tr>
<tr>
<td>Child mortality rate before 5th birthday</td>
<td>8 / 1000</td>
<td>15 / 1000</td>
</tr>
<tr>
<td>Low birth weight infants – 2,500 grams</td>
<td>4.8 %</td>
<td>10.2 %</td>
</tr>
<tr>
<td>Underweight prevalence-weight for age (-2SD) in children 0–59 months</td>
<td>1.6 %</td>
<td>6.6 %</td>
</tr>
<tr>
<td>Stunting prevalence-height for age (-2SD) in children 0–59 months</td>
<td>6.6 %</td>
<td>23.6 %</td>
</tr>
<tr>
<td>Suspected pneumonia</td>
<td>5 %</td>
<td>18 %</td>
</tr>
<tr>
<td>Received all vaccinations (18–29 months)</td>
<td>58.5 %</td>
<td>26.6 %</td>
</tr>
<tr>
<td>Immunization rate</td>
<td>87.0 %</td>
<td>63.0 %</td>
</tr>
<tr>
<td>Children with at least one disability</td>
<td>11.0 %</td>
<td>23.0 %</td>
</tr>
<tr>
<td>Child appears mentally slow</td>
<td>1.3 %</td>
<td>4.6 %</td>
</tr>
</tbody>
</table>

Table 4. Pre-school net enrolment rates (%)
Source: Mihailov, D., The Health Situation of Roma Communities (2011)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Roma girls</td>
<td>38</td>
<td>19</td>
<td>14</td>
<td>71</td>
</tr>
<tr>
<td>Roma boys</td>
<td>42</td>
<td>25</td>
<td>20</td>
<td>61</td>
</tr>
<tr>
<td>Roma average</td>
<td>40</td>
<td>22</td>
<td>18</td>
<td>66</td>
</tr>
</tbody>
</table>
Table 5. Characterization of the indoor environment and hazards in the examined houses in Slovakia and Romania
Source: Mihailov, D., The Health Situation of Roma Communities (2011)

<table>
<thead>
<tr>
<th>Country</th>
<th>Slovakia (n=19)</th>
<th>Romania (n=11)</th>
<th>Total (n=30)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Persons in household (median)</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Time spend inside</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Half a day</td>
<td>18</td>
<td>95</td>
<td>7</td>
<td>64</td>
</tr>
<tr>
<td>The whole day</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>36</td>
</tr>
<tr>
<td>Indoor air quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humid air</td>
<td>6</td>
<td>32</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>Dry air</td>
<td>9</td>
<td>47</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Dusty</td>
<td>9</td>
<td>47</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Primary heating and cooking fuel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local wood heating</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>100</td>
</tr>
<tr>
<td>Wood + waste heating</td>
<td>19</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Secondary appliance for heating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas furnace</td>
<td>8</td>
<td>42</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Secondary appliance for cooking</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas furnace</td>
<td>7</td>
<td>37</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Stove for solid fuel</td>
<td>12</td>
<td>63</td>
<td>11</td>
<td>100</td>
</tr>
<tr>
<td>Draft problems</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>45</td>
</tr>
<tr>
<td>Often</td>
<td>5</td>
<td>26</td>
<td>3</td>
<td>27</td>
</tr>
</tbody>
</table>

National average (2009-2010) 75 79 72 88
<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>74</th>
<th>3</th>
<th>27</th>
<th>17</th>
<th>57</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Open windows for ventilation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>11</td>
<td>58</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>37</td>
</tr>
<tr>
<td>Once a week</td>
<td>5</td>
<td>26</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Every day</td>
<td>3</td>
<td>16</td>
<td>4</td>
<td>36</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>More than once a week</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>64</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Smoking in household</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Frequently</td>
<td>8</td>
<td>42</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>Smoking in bedrooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>2</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Frequently</td>
<td>8</td>
<td>42</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>No. of cigarettes smoked inside</td>
<td>9</td>
<td>47</td>
<td>11</td>
<td>100</td>
<td>20</td>
<td>67</td>
</tr>
<tr>
<td>(median)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pets, rodents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Mice</td>
<td>16</td>
<td>84</td>
<td>5</td>
<td>45</td>
<td>21</td>
<td>70</td>
</tr>
<tr>
<td>Rats</td>
<td>18</td>
<td>95</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>60</td>
</tr>
<tr>
<td>Dog inside</td>
<td>10</td>
<td>53</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>33</td>
</tr>
<tr>
<td>n.s. – non-significant</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<0.01
REFERENCE LIST

(EPHA 2011)


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