



Key messages

- ▶ The majority of children and adolescents in east and west Germany grow up healthy.
- ▶ The distribution of most health problems and risk factors does not differ between adolescents in east and west Germany.
- ▶ The requirements of prevention and health promotion in childhood and adolescence are the same in both east and west.
- ▶ Both in east and west Germany there is a close correlation between the health and social status of children and adolescents.
- ▶ In future, regional studies on the health of children and adolescents should focus on comparing the different federal states (Länder) and different regions within the Länder.

20 Years of German Unity: Are there still differences between east and west as regards the health of children and adolescents?

Since the reunification of Germany, living conditions in the former East Germany have gradually converged with those in the west. However, there are still differences in some areas, as indicated by the lower economic performance and higher rates of unemployment and poverty in the east (BMI 2010).

A similar appraisal can be made on the development of health over the last 20 years, as shown by the report »20 Years after the Fall of the Berlin Wall: How has Health in Germany Developed?«, which was published in November 2009 (RKI 2009) as part of Federal Health Reporting (GBE). According to this report, differences in life expectancy between east and west have decreased significantly since reunification. The situations in east and west Germany are also very similar in the meantime with regard to the spread of many diseases, risk factors and healthcare. However, certain differences between east and west have survived. This is the case, for example, with obesity levels, which remain higher among east German women and men. Another example is the consistently lower mortality rates from breast cancer – and the lower incidence of new cases – among women in eastern Germany.

The following study focuses on the health situation of children and adolescents who were born after German reunification. The amount of available data describing the health of children and adolescents was inadequate for a long time and has only improved significantly in the last few years. Observations must therefore concentrate on the current situation. Longer-term trends can only be traced on a few aspects of paediatric and adolescent health.

The majority of children and adolescents in east and west Germany grow up healthy

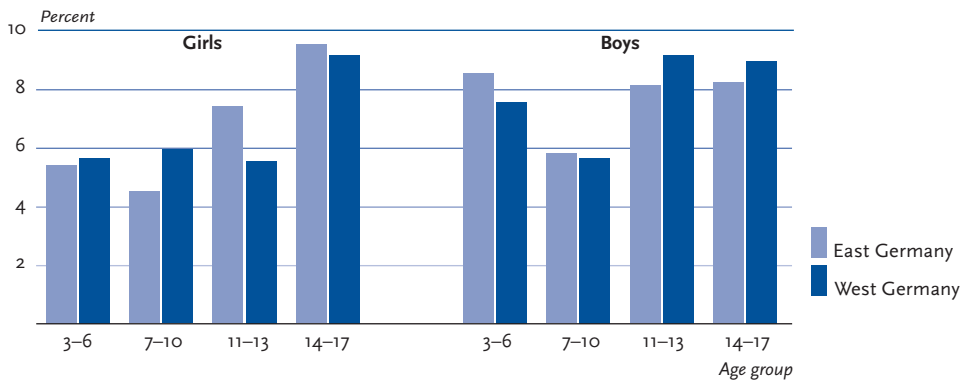
A topical description of the health of children and adolescents is possible based on data from the National Health Interview and Examination Survey for Children and Adolescents (KiGGS), which was conducted between 2003 and 2006 by the Robert Koch Institute (Kurth 2007) (www.kiggs.de). According to the KiGGS data, 93 % of children and adolescents aged up to 17 are in a very good or good general state of health. Only about 7 % of parents rated the health of their child as fair, poor or very poor. In this respect no significant differences can be observed between east and west Germany, even when distinctions are made between boys and girls and different age groups (Figure 1).

Colds and influenza are the most common acute illnesses in childhood and adolescence. 87 % of children and adolescents aged up to 17 in eastern Germany

Figure 1

Percentage of children and adolescents with a fair, poor or very poor general state of health

Data basis: KiGGS 2003–2006



and 88 % of their peers in west Germany had had a cold or a bout of influenza in the 12 months prior to the KiGGS survey.

Similarly, there are no significant differences between east and west with regard to other acute diseases relevant to childhood and adolescence, such as tonsillitis, acute bronchitis, croup, herpes infection, inflammations of the bladder and urinary tract, conjunctivitis and pneumonia. The only exceptions are (a) gastrointestinal infections and (b) inflammations of the middle ear, which occur more frequently among adolescents in the west than in the east – (a) 48 % (west) vs. 42 % (east), and (b) 11 % (west) vs. 9 % (east) respectively (Kamtsiuris et al. 2007).

There are more marked east-west differences in the case of certain infectious diseases that predominantly occur in childhood. For example, whooping cough is three times more common among children and adolescents in western Germany (10 %) than in the east of the country (3 %). Similarly, the lifetime prevalences of measles and scarlet fever are higher in the west than in the east. Mumps and rubella, however, affect more children in east Germany than in the west. As far as vaccination-preventable diseases are concerned, only chickenpox shows no difference between east and west (Kamtsiuris et al. 2007).

As for the chronic diseases of childhood and adolescence, allergies are of particular importance given their prevalence and their far-reaching effects on the well-being and quality of life of those affected. Early studies indicate that allergic diseases among children and adults in eastern Germany used to be less widespread than in the west (BMG 2000). Over the last 20 years allergic diseases have spread markedly, and prevalences in east and west have largely converged. According to the results of the KiGGS study, no more differences between east and west are noticeable in the case of asthma, hay fever, neurodermatitis and allergic sensitization (Figure 2) (Schlaud et al. 2007).

Similarly, no differences between east and west Germany can be observed with regard to other, usually much less common chronic diseases in childhood and adolescence such as heart disease, anaemia, seizures (epileptic fits), thyroid disease, diabetes mellitus, spinal curvature (scoliosis) and migraine. Only obstructive bronchitis occurs more frequently in the west among children and adolescents up the age of 17 than in the east – 14 % compared to 10 % (Kamtsiuris et al. 2007).

Similar prevalence of psychological and behavioural problems among children and adolescents in east and west

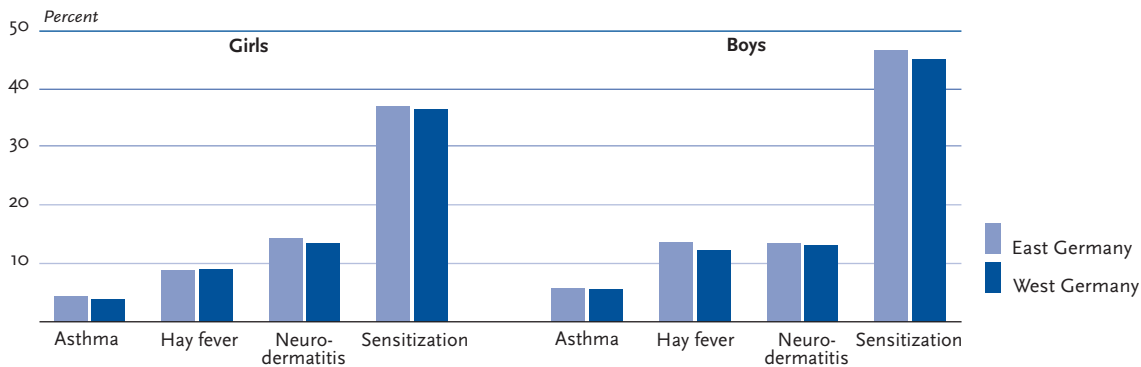
In recent years attention has been drawn to the growing importance of psychological and behavioural problems among children and adolescents. In the KiGGS study a questionnaire was used to identify psychological and behavioural problems. The questions related among other things to emotional, hyperactivity and behavioural problems, as well as to problems with peers.

Taking all these problem areas into account, about 5 % of 3- to 17-year-old girls and 9 % of boys of the same age can be described as having psychological and behavioural problems. A further 6 % of girls and 9 % of boys can be classified as borderline cases (Hölling et al. 2007). There is little statistical difference between children and adolescents in east and west in this regard (Figure 3).

German Health Interview and Examination Survey for Children and Adolescents (KiGGS)

<i>Data holder:</i>	Robert Koch Institute
<i>Objectives:</i>	Description and analysis of the health situation of children and adolescents
<i>Survey methods:</i>	Written surveys and physical examination
<i>Population:</i>	0- to 17-year-old resident population in Germany
<i>Sample:</i>	17,641 girls and boys
<i>Response rate:</i>	66.6 %
<i>Survey period:</i>	May 2003–May 2006

Figure 2
Lifetime prevalences of atopic diseases and current prevalence of sensitization to at least one of the tested allergens among 3- to 17-year-old children and adolescents
 Data basis: KiGGS 2003–2006



To document hyperactivity problems, the KiGGS study also has recourse to parents' statements on a diagnosis of their child made by a medical doctor or psychologist. This information suggests that 2% of girls and 8% of boys aged between 3 and 17 have attention-deficit/hyperactivity disorder (ADHD), with no differences in figures between children and adolescents in east and west (Schlack, Hölling 2007).

Psychological and behavioural problems also include eating disorders, which have generated increased public interest in recent years. The KiGGS study used a screening instrument based on five questions aimed at adolescents aged 11 to 17 years; the aim was to look for evidence of eating disorders in general, and anorexia and bulimia in particular. The results suggested that 29% of girls and 15% of boys at this age might have an eating disorder (Hölling, Schlack, 2007). Again, no significant differences were found between adolescents in east and west Germany.

Few east-west differences with regard to nutrition and exercise

A balanced diet and regular physical exercise are essential to ensure that children and adolescents grow up healthy. The data from the KiGGS study and the additional module on nutrition (National Nutrition Survey, EsKiMo) indicate that

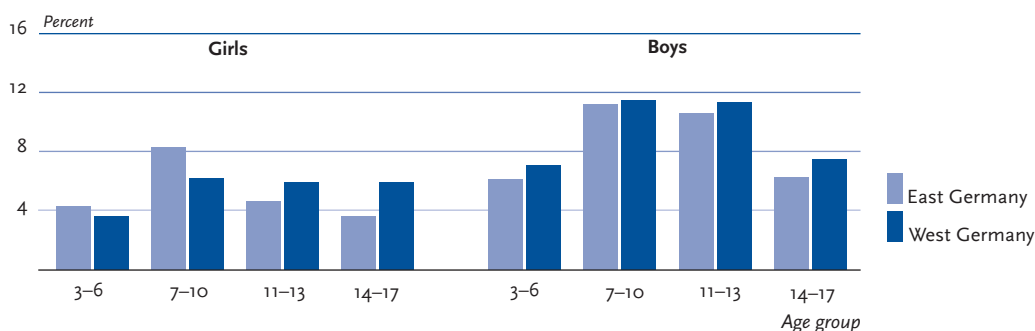
a large number of children and adolescents either do not, or only partly, meet current dietary recommendations.

Many foods that are classified as having great physiological value are consumed too seldom. This applies for example to fruit and vegetables, bread and cereals, milk and dairy products. By contrast, foods with a high energy density, a high fat and low nutrient content are consumed too frequently by many children and adolescents. This trend can be observed equally in both east and west Germany. Although there are regional differences relating to certain foodstuffs, this does not point to a healthier diet in either east or west (Mensink et al. 2007; RKI 2009).

The KiGGS study and the additional module on motor skills (MoMo) make a distinction between physical activity in everyday life, during leisure time, and sports activities in and outside sports clubs. The results suggest that many children and young people do not get enough exercise. For example, about a quarter of 3- to 10-year-olds do no sport at all. Differences between east and west are only noticeable in the case of club sport. While almost 60% of 3- to 10-year-olds in the west engage in sporting activities in a club at least once a week, only 40% of their peers in the east do so (Figure 4) (Lampert et al. 2007).

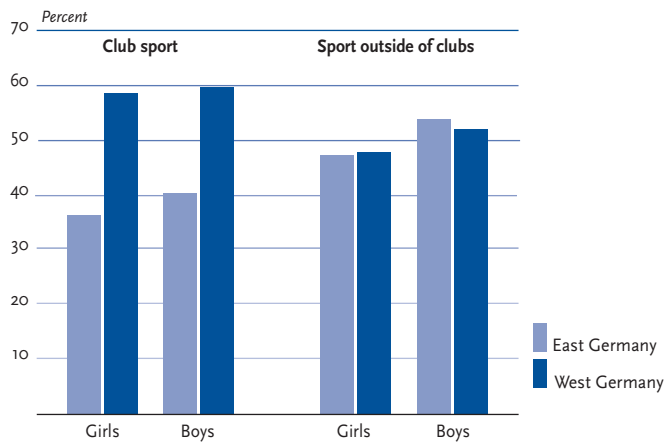
The incidence of overweight is closely related to nutrition and exercise. To determine the prevalence of overweight

Figure 3
Psychological and behavioural problems of 3- to 17-year-old children and adolescents
 Data basis: KiGGS 2003–2006



among children and adolescents, body size and body weight were measured in the KiGGS study and the body mass index (BMI) calculated. The results show that 15 % of children and adolescents aged between 3 and 17 can be classified as overweight. This includes just over 6 % of adolescents who must be regarded as obese (Kurth, Schaffrath-Rosario 2007). There are no numerical differences between children and adolescents in east and west in this respect. The prevalence of obesity in girls is 6 % in the east and 7 % in the west. Among boys, 7 % are obese in the east and 6 % in the west. The results for children and adolescents should be seen against the background that the prevalence of obesity in adults is still higher the east than in the west (RKI 2009).

Figure 4
Percentage of children and adolescents who do sports at least once a week
Data basis: KiGGS 2003–2006



Tobacco, alcohol and drug use among adolescents in the east is slightly higher than in the west

The consumption of tobacco, alcohol and drugs constitutes another important sphere of activity for prophylaxis and health promotion targeting childhood and adolescence. Typical data on the prevalence and development of substance use among adolescents is provided regularly by the Federal

Centre for Health Education (www.bzga.de) (BZgA 2009a). This data shows that the proportion of 12- to 17-year-old male and female smokers rose during the 1990s (Figure 5). The increase was more pronounced in the east than in the west. In 2001 more boys smoked in eastern (31 %) than in western (26 %) Germany. There was a similarly pronounced difference between east and west among girls. Tobacco use among adolescents has been declining since then – more steadily in the west than the east. One striking factor is the renewed increase in the number of young female smokers in east Germany, especially in recent years, which runs counter to the general trend.

With regard to alcohol consumption, data from Federal Centre for Health Education (BZgA) shows that the percentage of 11- to 17-year-olds who consume alcoholic drinks at least once a week has fallen in recent years. The 2008 figures come to 23 % in the east compared to 17 % in the west. No east-west differences are observed, however, when it comes to binge drinking – defined as five or more alcoholic drinks consumed on one occasion – or to the total amount of pure alcohol consumed (BZgA 2009b).

Before 1989, the consumption of illegal drugs was far less common in the GDR than in West Germany. However, there was already a marked increase in the popularity of illegal drugs in eastern Germany shortly after the fall of the Berlin Wall. In the meantime, adolescents in the east have not only caught up with their peers in the west, but overtaken them. According to the BZgA figures for 2008, 15 % of east German and 9 % of west German adolescents aged 12-17 have consumed illegal drugs such as cannabis, ecstasy or amphetamines at some stage in their lives. The twelve-month prevalence is 11 % in the east and 7 % in the west.

Level of acceptance of preventive measures is now similar in east and west

Shortly after reunification, the degree to which the population made use of services in the field of prevention differed – in some cases considerably – between east and west. For example, the number of children who were vaccinated

Figure 5
Smokers as a percentage of the 12- to 17-year-old population, 1993–2008
Data basis: representative surveys by der BZgA 1993, 1997, 2001, 2003, 2004, 2005, 2007, 2008

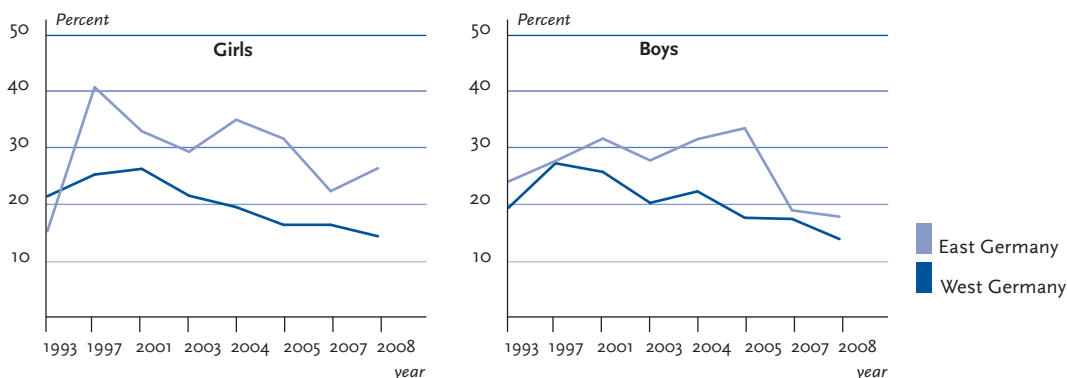
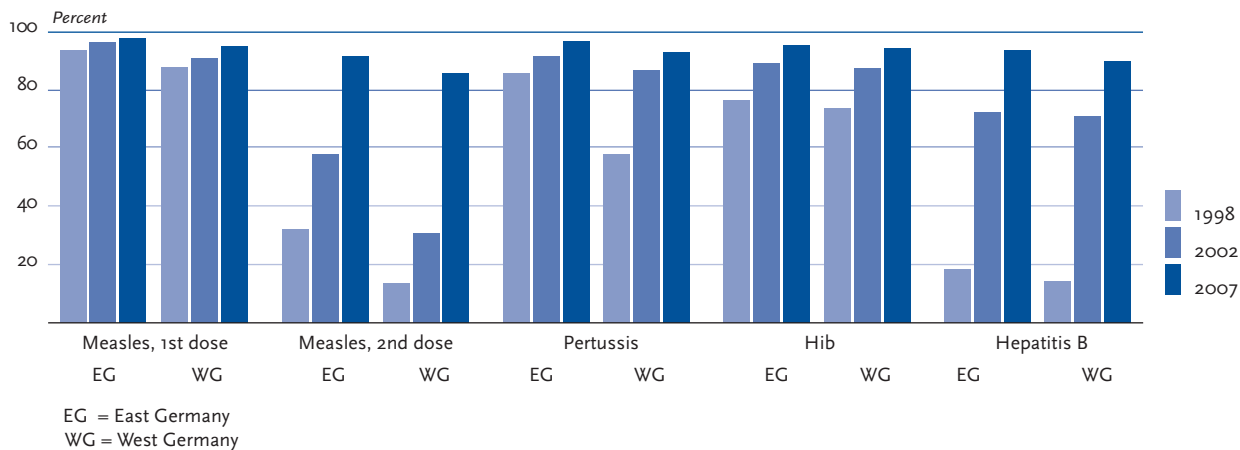


Figure 6
Development of vaccination rates among primary-school enrollers, 1998-2007
 Data basis: studies of primary-school enrollers 1998, 2002, 2007



was higher in the east than in the west. In this context it should be noted that in the GDR, unlike the former West Germany and whole of Germany today, vaccination was obligatory in some cases and was carried out by doctors in schools and kindergartens.

Even in the late 1990s, there were still marked differences in the level of vaccination coverage between east and west. Overall participation in immunizations has increased greatly since then. This also applies to vaccinations where there had been significant deficits for years, e. g. the second measles vaccination, and the vaccinations against pertussis and hepatitis B. At the same time, the east-west differences have gradually declined, so that, according to examinations performed which children first enrol for primary school, the number of vaccinated children and adolescents from east and west had largely converged by 2007 (Figure 6).

Apart from vaccinations, the disease-screening programme for children is one of the most important preventive measures for children and adolescents. The aim of these 'U-tests' is the early diagnosis of developmental deficits and health problems; they belong to the standard examinations covered by statutory health insurance. They have been in force in western Germany since 1971 and were introduced in the east after reunification.

It is therefore hardly surprising that the number of U-tests performed in the east was initially significantly lower than in the west. As late as 1997 the coverage of children in eastern Germany was still lagging behind significantly, at the latest after the U5 test. Participation rates have converged since then. By 2008 the data of the Central Research Institute of Ambulatory Health Care showed that there were only minor differences between east and west (Figure 7).

Health prospects are dependent on social status in both east and west

Many studies indicate that the health prospects of children and adolescents are closely related to their family's social

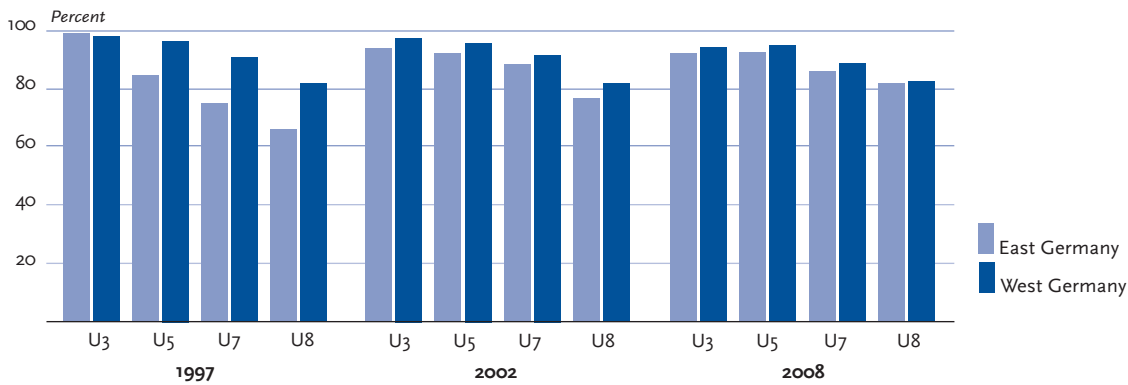
status (Richter 2005, RKI 2010). According to the results of the KiGGS study, which measured social status by the level of education, the parents' occupational status and the household's net income, these differences can be observed in almost all areas of health development relating to childhood and adolescence.

Children and adolescents from low-status families are more likely than their peers from better-off families to have a poor general state of health; they have more psychological and behavioural problems, do less sport, and are more often overweight or even obese. Even before and shortly after birth, developmental differences can be identified to the disadvantage of children from lower-status groups, e. g. as a result of mothers who smoke during pregnancy and lactation (RKI 2010). In view of these findings and knowledge of the long-term effects on health development, it can be assumed that at least some of the status-specific health differences seen in adulthood are already established in childhood (Lampert 2010).

The application of selected health indicators shows that there is a strong connection between social status and health prospects in both east and west Germany (Table 1). In eastern Germany the risk of low-social-status girls and boys having a fair-to-very-poor general state of health is higher than that of their peers from the high-status group by a factor of 3.5 (girls) and 2.0 (boys) respectively. In terms of psychological and behavioural problems and obesity, adolescents from low-status families are at an even greater disadvantage. The same patterns apply to children and adolescents from western Germany. Among girls it is striking that the correlation between social status and health indicators is more pronounced in the east than in the west of the country. Among boys, this only applies to psychological and behavioural problems. In terms of overall health status and obesity, the status-specific differences are somewhat more pronounced in the west than in the east.

Figure 7
Estimated utilization of U3, U5, U7 und U8, 1997 – 2008

Data basis: Central Research Institute of Ambulatory Health Care in Germany 1997, 2002 and 2008



Conclusion

The results presented indicate only minor differences in the health situation of children and adolescents in east and west Germany. This applies also – and especially – to aspects of paediatric and adolescent health that are currently at the focus of preventive and health-promotion measures, e. g. nutrition, exercise, overweight and obesity, as well as psychological and behavioural problems.

In general it can be assumed that health prospects in eastern Germany have improved in the course of the unification process and have converged with those in the west. In individual cases, however, the decline in east-west differences is likely to be due to less favourable developments in eastern Germany. One example is the way young people in the east have been »catching up« when it comes to smoking and illicit drug use; another example is the disproportionate increase in allergic diseases.

The fact that there are only slight differences between the health situations of children and adolescents in east and west Germany should not blind us to the problems and needs that exist in both parts of Germany. These include the proliferation of psychological and behavioural problems, as well as overweight and obesity. Adolescents in both east and west also have considerable deficits in the

fields of nutrition and physical exercise – which require specific approaches for prevention and health promotion in childhood and adolescence.

Furthermore, the report mentioned at the beginning – »20 Years after the Fall of the Berlin Wall: How has Health in Germany Developed?« – points out that there are real regional differences in health. These cannot be defined as east-west differences, but as differences between the individual federal states (Länder) and in particular between individual regions within the Länder. These differences often have social causes, i. e. the worst health prospects are to be found in the states and regions with the worst living conditions. Information on this also comes from health reporting at the regional and local level, e. g. on higher overall and infant mortality in socially underprivileged regions and municipalities (Gesundheitsamt Bremen 2006, SenGUV 2009).

The conclusion to be drawn from this for health reporting is that looking at the health situation of children, adolescents and adults from an east-west perspective is too limited in the meantime. It seems more urgent to analyse the links between social status and health situation, taking into consideration regional differences in living conditions and health prospects which can only be understood

Table 1

Risk of a fair-to-very-poor general health status, psychological and behavioural problems, and obesity among 3- to 17-year-old children and adolescents in the low-status group compared to the high-status group: age-adjusted odds ratio with 95% confidence intervals

Data basis: KiGGS 2003–2006

	Girls		Boys	
	East Germany	West Germany	East Germany	West Germany
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
General health status (fair to poor)	3.45 (1.86–6.41)	2.07 (1.50–2.85)	1.99 (1.04–3.80)	2.59 (1.73–3.86)
Psychological and behavioural problems	5.71 (3.18–10.27)	3.25 (2.39–4.41)	5.88 (2.94–11.78)	4.61 (2.93–7.27)
Obesity	4.17 (2.17–8.02)	2.20 (1.58–3.06)	3.33 (1.92–5.77)	4.95 (3.36–7.29)

by examining small regions and neighbourhoods. The correlation between people's social and health situation has already been comprehensively documented by the KiGGS study and numerous other studies (RKI 2010; RKI, BZgA 2008). By continuing the KiGGS study as a cohort study in the context of the RKI's health monitoring, it will be possible in the longer term to complement these findings by longitudinal analysis (Kurth et al. 2008). The amount and quality of data available are not equally good everywhere for socio-spatial studies of the health prospects of children and adolescents. A reliable picture can only be obtained by means of an integrated analysis of the results of health reporting at the federal, Land and municipal level.

Dr. Thomas Lampert
Robert Koch Institute,
Department of Epidemiology and Health Reporting

Bibliography

- BMI - Bundesministerium des Inneren (2010) Jahresbericht der Bundesregierung zum Stand der Deutschen Einheit. BMI, Berlin
<http://www.bmi.bund.de>
- BMG - Bundesministerium für Gesundheit (2000) Gesundheit in den neuen Ländern. Stand, Probleme und Perspektiven nach 10 Jahren Deutscher Einheit. BMG, Bonn
- BZgA - Bundeszentrale für gesundheitliche Aufklärung (2009a) Die Drogenaffinität Jugendlicher in der Bundesrepublik Deutschland 2008. Verbreitung des Tabakkonsums bei Jugendlichen und jungen Erwachsenen. BZgA, Köln
- BZgA - Bundeszentrale für gesundheitliche Aufklärung (2009b) Die Drogenaffinität Jugendlicher in der Bundesrepublik Deutschland 2008. Verbreitung des Alkoholkonsums bei Jugendlichen und jungen Erwachsenen. BZgA, Köln
- Gesundheitsamt Freie Hansestadt Bremen (2006) Die Auswirkungen sozialer Polarisierung. Zur Entwicklung der Lebenserwartung und Sterblichkeit in ausgewählten Bremer Wohngebieten. Gesundheitsamt Freie Hansestadt Bremen, Bremen
<http://www.gesundheitsamt.bremen.de>
- Hölling H, Erhart M, Ravens-Sieberer U et al. (2007) Verhaltensauffälligkeiten bei Kindern und Jugendlichen. Erste Ergebnisse aus dem Kinder- und Jugendgesundheitsurvey (KiGGS). Bundesgesundheitsbl-Gesundheitsforsch-Gesundheitsschutz 50(5/6): 784-793
- Hölling H, Schlack R (2007) Essstörungen im Kindes- und Jugendalter. Erste Ergebnisse aus dem Kinder- und Jugendgesundheitsurvey (KiGGS). Bundesgesundheitsbl-Gesundheitsforsch-Gesundheitsschutz 50(5/6): 794-799
- Kamtsiuris P, Atzpodien K, Ellert U et al. (2007) Prävalenz somatischer Erkrankungen bei Kindern und Jugendlichen. Ergebnisse des Kinder- und Jugendgesundheitsurveys (KiGGS). Bundesgesundheitsbl-Gesundheitsforsch-Gesundheitsschutz 50(5/6): 686-700
- Kurth B-M (2007) Der Kinder- und Jugendgesundheitsurveys (KiGGS): Ein Überblick über Planung, Durchführung und Ergebnisse unter Berücksichtigung von Aspekten eines Qualitätsmanagements. Bundesgesundheitsbl-Gesundheitsforsch-Gesundheitsschutz 50(5/6): 533-546
- Kurth B-M, Schaffrath-Rosario A (2007) Die Verbreitung von Übergewicht und Adipositas bei Kindern und Jugendlichen in Deutschland. Bundesgesundheitsbl-Gesundheitsforsch-Gesundheitsschutz 50(5/6): 736-743
- Lampert T, Mensink GBM, Romahn N et al. (2007) Körperlich-sportliche Aktivität von Kindern und Jugendlichen in Deutschland. Ergebnisse des Kinder- und Jugendgesundheitsurveys (KiGGS). Bundesgesundheitsbl-Gesundheitsforsch-Gesundheitsschutz 50(5/6): 686-700
- Lampert T (2010) Frühe Weichenstellung. Zur Bedeutung der Kindheit und Jugend für die Gesundheit im späteren Leben. Bundesgesundheitsbl-Gesundheitsforsch-Gesundheitsschutz 53(5): 486-497
- Mensink GBM, Bauch A, Vohmann C et al. (2007) EsKiMo – Das Ernährungsmodul im Kinder und Jugendgesundheitsurvey (KiGGS). Bundesgesundheitsbl-Gesundheitsforsch-Gesundheitsschutz 50(5/6): 902-908
- Richter M (2005) Gesundheit und Gesundheitsverhalten im Jugendalter. Der Einfluss sozialer Ungleichheit. VS Verlag für Sozialwissenschaften, Wiesbaden

- RKI - Robert Koch-Institut (2009) 20 Jahre nach dem Fall der Mauer: Wie hat sich die Gesundheit in Deutschland entwickelt? Beiträge zur Gesundheitsberichterstattung des Bundes. RKI, Berlin
<http://www.rki.de/gbe>
- RKI - Robert Koch-Institut (2010) Gesundheitliche Ungleichheit bei Kindern und Jugendlichen in Deutschland. Beiträge zur Gesundheitsberichterstattung des Bundes. RKI, Berlin
<http://www.rki.de/gbe>
- RKI - Robert Koch-Institut, Bundeszentrale für gesundheitliche Aufklärung (2008) Erkennen – Bewerten – Handeln: Zur Gesundheit von Kindern und Jugendlichen in Deutschland. RKI, Berlin
<http://www.rki.de/gbe>
- Schlack R, Hölling H, Kurth B-M et al. (2007) Die Prävalenz der Aufmerksamkeitsdefizit-/Hyperaktivitätsstörung (ADHS) bei Kindern und Jugendlichen in Deutschland. Erste Ergebnisse aus dem Kinder- und Jugendgesundheitsurvey (KiGGS). Bundesgesundheitsbl–Gesundheitsforsch–Gesundheitsschutz 50 (5/6): 827–835
- Schlaud M, Atzpodien K, Thierfelder W (2007) Allergische Erkrankungen. Ergebnisse aus dem Kinder- und Jugendgesundheitsurveys (KiGGS). Bundesgesundheitsbl–Gesundheitsforsch–Gesundheitsschutz 50(5/6): 701–710
- SenGUV - Senatsverwaltung für Gesundheit, Umwelt und Verbraucherschutz (2009) Gesundheitsberichterstattung Berlin – Basisbericht 2008. Daten des Gesundheits- und Sozialwesens. SenGUV, Berlin
<http://www.berlin.de/sen>

GBE kompakt

Published by

Robert Koch Institute
Nordufer 20
13353 Berlin

Editorial staff

Dr. Livia Ryl
Robert Koch Institute
Department of Epidemiology and Health Reporting
General-Pape-Straße 62
12101 Berlin
Tel.: 030-18 754-3400
Email: gbe@rki.de
www.rki.de/gbe

How to quote the title

Lampert T (2010)
20 Years of German Unity:
Are there still differences between east and west as regards
the health of children and adolescents?
Published by Robert Koch Institute Berlin
GBE kompakt 3/2010
www.rki.de/gbe-kompakt (last revised: 22 Oct. 2010)

ISSN 2191-4974

The Robert Koch Institute is a federal institute
within the portfolio of the Federal Ministry of Health