GBE KOMPAKT

ROBERT KOCH INSTITUT

Facts and Trends from Federal Health Reporting

Mental Health and Healthy Lifestyle

Key messages

- In the 2009 GEDA study, 8% of women and 5% of men reported that they had been diagnosed with depression in the last 12 months.
- Current mental distress was found in 13% of women and 8% of men.
- The mental health of people aged between 50 and 60 is impaired more often than that of other age groups.
- A higher socioeconomic status is associated with better mental health and a healthier lifestyle.
- A healthier lifestyle is related to fewer mental health impairments.

Mental health is an important prerequisite for individual quality of life, performance and socio-economic participation. It makes a decisive contribution to the humanity of a society and its socio-economic and economic success (Beddington et al. 2008). Accordingly, promoting the mental health of the population is an important priority of public health policy (Wahlbeck et al. 2010, WHO Europe 2008).

Mental health impairments are widespread and have considerable individual and societal consequences (WHO 2001). Depression is one of the most common mental illnesses and has far-reaching consequences (RKI 2010). It is a major cause of illness-related impairments in everyday life worldwide and is responsible for the third largest proportion of the total burden of disease in Western countries (Lopez et al. 2006).

Mental and physical health are closely connected and influence each other (Prince et al. 2007). For example, reciprocal associations are well documented between depression and cardiovascular disease (Charlson et al. 2011, Pan et al. 2011) and cardiometabolic risk factors such as diabetes and obesity (Luppino et al. 2010, Pan et al. 2010). This association can probably be partly explained by health-related behaviour. A healthy diet and regular physical activity are important protective factors not only against cardiovascular disease and its risk factors, but also for mental health (Teychenne et al. 2008, Jacka et al. 2010). Conversely, mental disorders are often associated with smoking, physical inactivity and an unhealthy diet (Prince et al. 2007).

The combined influence of several lifestyle factors – such as diet, smoking, physical activity and overweight – is increasingly being analysed in studies on the relationship between lifestyle and health. Such studies have revealed associations between the combined number of individual lifestyle factors and a variety of chronic diseases (Ford et al. 2009). However, up to now there has been little research on the relationship between a healthy lifestyle – as indicated by a combination of healthy lifestyle factors – and mental health (Harrington et al. 2010).

This issue therefore presents results of the 2009 »German Health Update« (GEDA) study on the relationship between mental health and a healthy lifestyle among adults in Germany (RKI 2011).

Mental health impairments more frequent in women

In the 2009 GEDA study 6% of respondents reported that they had been diagnosed with a depressive disorder in the previous 12 months. A total of 11% of respondents reported having experienced mental distress during the past four weeks. Women's mental health was impaired much more frequently than that

Volume 2, no. 7, 2011

of men. A diagnosis of depression was reported by 8 % of the women and 5 % of the men, current mental distress by 13 % of the women and 8 % of the men.

People aged between 50 and 60 particularly often affected

The prevalence of these two forms of mental health impairment varied markedly between different age groups (Figures 1 and 2). The highest 12-month prevalence of diagnosed depression was found in women (11 %) and men (9 %) aged between 50 and 60. In both sexes the prevalence was lowest in young adulthood, rose continuously with age and declined again after the age of 60.

German Health Update (GEDA)

Data holder:	Robert Koch Institute
Objectives:	To provide up-to-date data on health-related issues, to analyse temporal developments and trends
Survey method:	Computer-assisted telephone interviews (CATI)
Population:	Residential population of Germany aged 18 and over
Sample:	21,262 women und men
Cooperation rate:	51.2 %
Survey period:	July 2008 to June 2009

Women (15 %) and men (11 %) between 50 and 60 also suffered most frequently from current mental distress. In men, the changes in prevalence with age were similar to those seen with depression. In women, by contrast, levels of mental distress remained approximately constant throughout the age range from 18 to 59. Prevalence dropped from the 60th year, but to a lesser degree than in men.

Overall, in both forms of mental health impairment examined, women were more often affected than men in all age groups. This sex difference was most pronounced in young and middle adult age up to 49 years.

Figure 1
Percentage of people diagnosed with depression in the last 12 months, by age and sex
Data basis: GEDA 2009

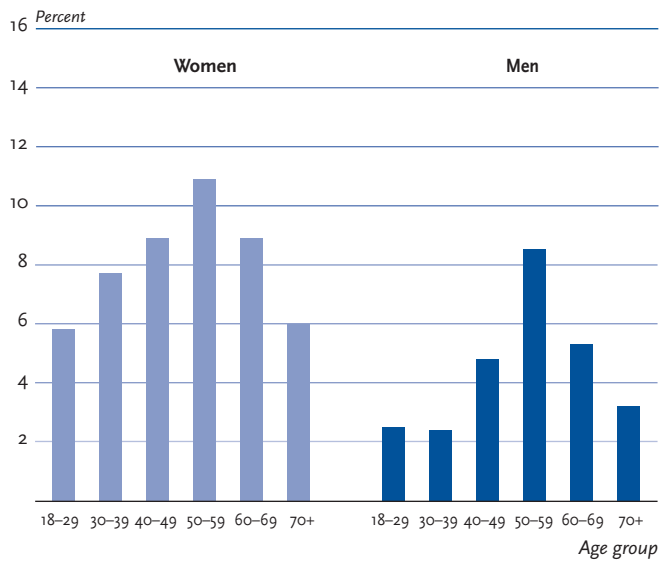
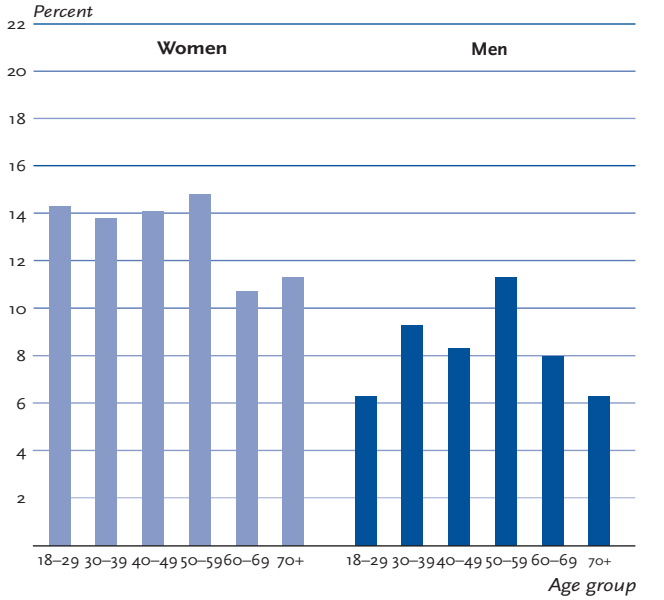


Figure 2
Percentage of people with current mental distress in the last four months, by age and sex
Data basis: GEDA 2009



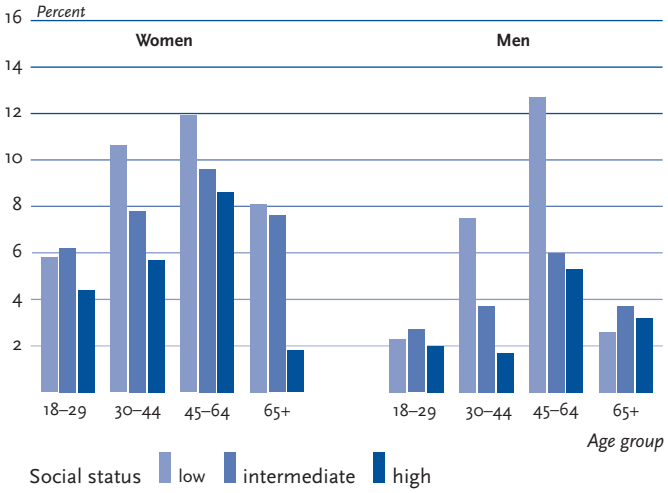
Mental health varies according to socio-economic status

Numerous international studies indicate that socio-economicly disadvantaged population groups are particularly vulnerable to mental disorders (WHO 2000, Lorant et al. 2003). In Germany the National Health Interview and Examination Survey 1998 showed that people with a low socio-economic status suffered from such mental disorders as depression, anxiety and substance-related disorders more frequently than people with a higher status (RKI 2005, Jacobi et al. 2004).

The 2009 GEDA study also showed a clear link between mental health and socio-economic status, the latter being measured on the basis of information provided by the respondents on their education, income and occupational status.

Both diagnosed depression and current mental distress were reported most frequently by people with a low socio-economic status (Figures 3 and 4). Overall, this association is more pronounced for mental distress than for depression; it also varies according to age and sex. The differences are greatest among women and among people in midd-

Figure 3
Percentage of people diagnosed with depression in the last 12 months, by age and socio-economic status
Data basis: GEDA 2009



Measuring mental health

The first indicator measured the 12-month prevalence of diagnosed depression based on self-reports in reply to the following questions: »Has a doctor or psychotherapist ever diagnosed you as having depression or a depressive mood?« »Also over the last 12 months?«. This was not followed up by more detailed questions on symptoms of depression, so that undiagnosed cases of depression were not recorded, and a more precise estimate of the type and severity of the depression was not possible.
The second mental-health indicator determined the 4-week prevalence of mental distress. In this case a questionnaire was used to measure the person's health-related quality of life (Moriarty et al. 2003). The participants were asked about the number of days over the last four weeks in which their mental well-being was impaired. Current mental distress was defined as an impairment of mental well-being on at least 14 days during the previous four weeks.

le age. In a statistical analysis controlled for the effects of age and sex, people with a low socio-economic status had almost twice the odds of diagnosed depression than people with a high socio-economic status (OR=1.88; 95 % CI=1.51 to 2,35). The odds of current mental distress were about 2.6 times higher among people with a low socio-economic status than those with a high status (OR=2.63; 95 % CI=2.17-3.18).

Women's lifestyle healthier

Data from the 2009 GEDA study on five important healthy lifestyle factors were examined to shed some light on the relation between lifestyle and mental health. The consumption of five portions of fruit and vegetables a day was the lifestyle factor that was most rarely reported – by a total of 9 % of the participants (Figure 5).

By contrast, 44 % of the participants said they regularly did at least two hours of sport per week. 46 % of respondents reported a healthy weight, i. e. a body mass index

Figure 4
Percentage of people with mental distress in the last four months, by age, sex and socio-economic status
Data basis: GEDA 2009

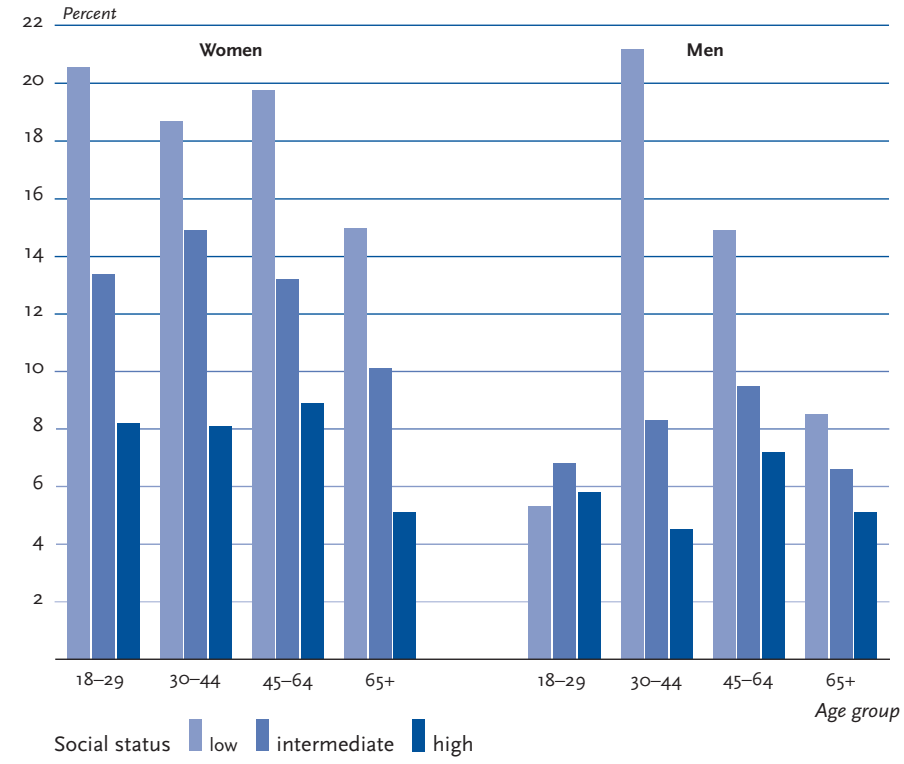
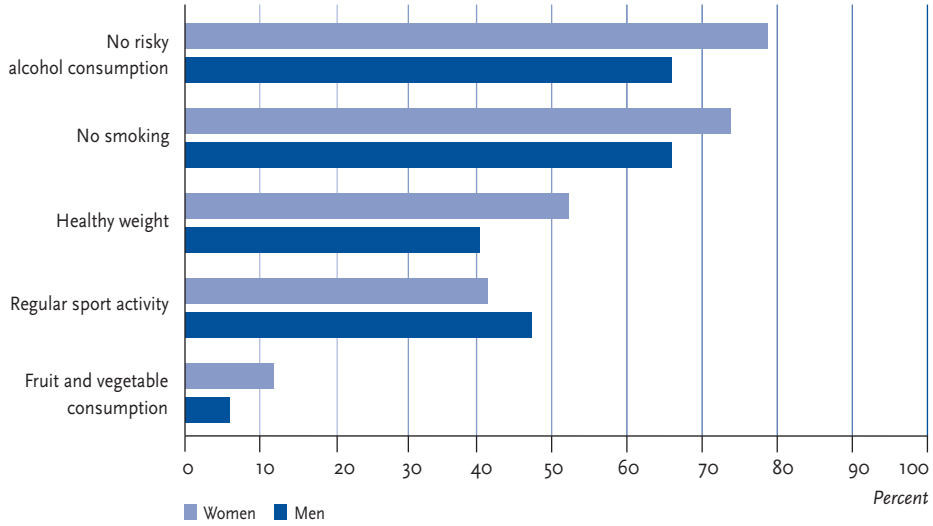


Figure 5
Percentage of women and men with healthy lifestyle factors
Data basis: GEDA 2009



(BMI) of between 18.5 to 25 kg/m². The largest percentage of participants (70 %) said they currently did not smoke, not even occasionally. 73 % of the respondents reported a moderate, non-hazardous level of alcohol consumption. Only in terms of participation in sports men's behaviour was healthier; all other healthy lifestyle factors were more often reported by women (Figure 5). The difference between the sexes was most evident when it came to fruit-and-vegetable consumption and a healthy body weight.

Measuring a healthy lifestyle

The study uses self-reports by interviewees on the following five lifestyle factors:

Fruit-and-vegetable consumption:	At least five portions of fruit and vegetables (including up to one glass of juice) a day
Sporting activity:	More than two hours of sporting activity a week, calculated from duration and frequency
Healthy weight:	Body mass index (BMI) between 18.5 and 25 kg/m², calculated from height and weight
Not smoking:	No daily or occasional smoking
No risky alcohol consumption:	Based on points from a standardized questionnaire (AUDIT-C) (Bush et al 1998): fewer than 5 from a possible of 12 points among men and fewer than 4 points among women.

Healthy lifestyle varies according to age, sex and socio-economic status

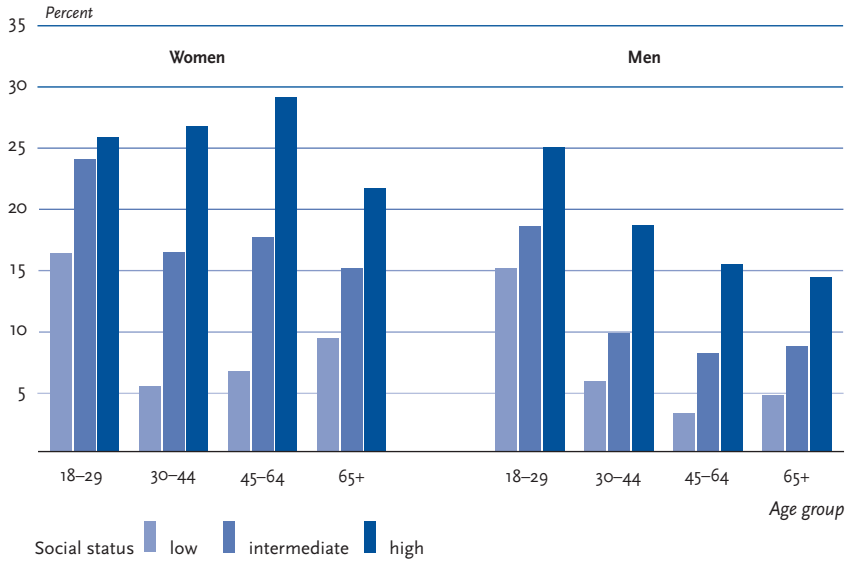
The above-mentioned lifestyle factors were considered in combination to represent a healthy lifestyle. It turned out that only 17 % of the women and 11 % of the men had at least four of the five lifestyle factors. Most people had two or three factors (69 % of the women and 63 % of the men). All five factors were reported about as rarely as none (2 % and 3 %).

A healthy lifestyle was also related to age and socio-economic status (Figure 6). The percentage of respondents with at least four healthy lifestyle factors declined with age: the figure for the 18 to 29 age group was 21 %, compared to only 10 % among those aged 70 and older. The decline in healthy lifestyles with age was slightly less pronounced among women (from 22 % to 14 %) than in men (from 19 % to 9 %).

Numerous international studies have clearly shown that a low socio-economic status is associated with less healthy behaviour. In Germany, health surveys of the Robert Koch Institute and other data sources have shown, for example, a higher percentage of smokers, less participation in sports, and a lower fruit and vegetable consumption among people with a low socio-economic status (RKI 2005, Rabenberg, Mensink 2011).

The data from the 2009 GEDA study indicate that a lifestyle with a combination of at least four healthy lifestyle factors is less frequent (8 %) among people with a low socio-economic status than among those with an intermediate (14 %) or high socio-economic status (21 %). This association applies to both sexes and all age groups (Figure 6). In women, the prevalence of a healthy lifestyle is more distinctly related to socio-economic status (high socio-economic status: 27 %, low: 9 %) than in men (high socio-economic status: 17 %, low: 7 %). It is also shown that

Figure 6
Percentage of women and men with at least four lifestyle factors, by age and socio-economic status
Data basis: GEDA 2009



the age effect is less pronounced in women with a high socio-economic status than in other subgroups.

Healthier lifestyle associated with better mental health

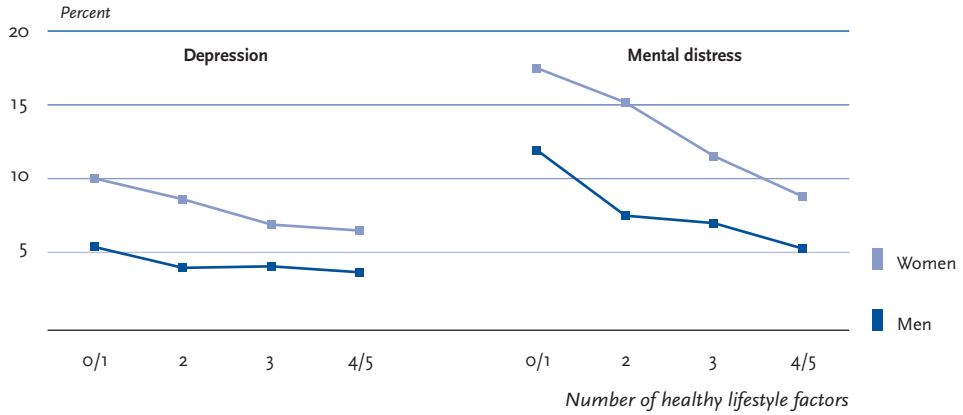
The data from the 2009 GEDA survey on these five healthy lifestyle factors make it possible to examine the relationship between a healthy lifestyle and mental health. It becomes clear that a higher number of healthy lifestyle factors is associated with lower prevalences of diagnosed depression and mental distress.

This correlation is similarly strong for both men and women (Figure 7). Compared to women with unhealthy lifestyles (0 to 1 lifestyle factors), the prevalence of depression falls from 10 % to 7 % among women with healthy lifestyles (4 to 5 lifestyle factors). In men with at least four lifestyle factors, the percentage with depression falls from 7 % to 4 %. Correspondingly, the prevalence of mental distress drops from 18 % to 9 % in women and from 12 % to 5 % in men with healthy lifestyles.

Discussion

Up-to-date information on the prevalence of mental health impairments in the population is an important basis for planning effective measures to promote mental health and prevent mental disorders. An evaluation of data from the 2009 GEDA study provides important clues on where such measures might be applied. It turns out that a comparatively large percentage of adults in Germany suffer from one of the two of the mental health impairments studied. In this context, women, the middle-aged and people with a

Figure 7
Percentage of women and men with impaired mental health (diagnosed depression, current mental distress), by number of healthy lifestyle factors and gender
Data basis: GEDA 2009



low socio-economic status can be identified as population groups that are affected particularly often. It is also shown that a healthier lifestyle is associated with fewer mental health impairments.

A comparison with other studies on the prevalence of depression in Germany is complicated by the use of different assessment instruments. In the Mental Health Modul of the National Health Interview and Examination Survey 1998, the 12-month prevalence of depression recorded in diagnostic interviews amounted to 11 % among women and 6 % among men aged 18 to 65 years (Jacobi et al. 2004). The slightly lower prevalence in the 2009 GEDA study might be due to undiagnosed depression not being recorded and to people who did not report their existing depression. Estimates on the prevalence of depression based on the 2009 GEDA study should therefore be regarded as conservative.

A comparison with the Robert Koch Institute's 2003 Telephone Health Survey is possible to some extent in the case of mental distress. Filling in a separate questionnaire on health-related quality of life, 11 % of the women and 6 % of the men said they had suffered from mental distress over the previous four weeks (Ellert et al. 2005).

Despite the use of different survey instruments and slight differences in prevalence, these studies showed similar sex effects, a comparable decline in depression and mental distress in older age, and a strong association with socio-economic status.

The low prevalence of a healthy lifestyle – as indicated by at least four of the five lifestyle factors asked about in the 2009 GEDA study – confirms the results of other studies. Comparably low prevalence rates for a similarly defined healthy lifestyle (17 % and 21 % respectively) were found by representative health surveys conducted in the USA (Reeves, Rafferty 2005) and Ireland (Harrington et al. 2010). In the European Prospective Investigation into Cancer and Nutrition (EPIC) study Potsdam (Ford et al. 2009), which was not representative of the German population, as few as 9 % of participants said they led a healthy lifestyle – as defined by not smoking, a BMI below 30 kg/m², regular physical activity and eating a lot of fruit and vegetables.

That a healthy lifestyle is associated with fewer mental health impairments has been shown by other studies. For example, in the Irish health study Survey of Lifestyle, Attitudes and Nutrition (SLAN) a healthy lifestyle was also defined by a combination of four healthy lifestyle factors (Harrington et al. 2010). The prevalence of depressive symptoms among people with none of the four factors was 2.7-times higher than among people with all four factors. Conversely, an analysis of the US Behavioural Risk Factor Surveillance System (BRFSS) found that the prevalence of a lifestyle with all four healthy lifestyle factors was approximately one third lower among people with current mental distress (McGuire et al. 2007). Other studies have described reciprocal associations between mental health and a variety of individual health-related behaviours (Prince et al. 2007, Luppino et al. 2010, Teychenne et al. 2008, Jacka et al. 2010).

The association described here between a healthier lifestyle and better mental health reveals some important points of reference for developing measures both to promote mental health and to encourage a healthy lifestyle. Since the survey was unable to clarify the direction of the association (because of its cross-sectional nature), it remains unclear whether a less healthy lifestyle is a cause or a consequence of mental health impairment. The available literature, however, suggests a reciprocal connection. Irrespective of this, however, the common presence of unhealthy lifestyle and increased mental health impairment suggests that both areas should be taken into account when counselling people.

For health-promotion measures, this means that aspects of health-related behaviour should be integrated into the prevention and aftercare of mental disorders and, conversely, that aspects of mental health should be taken into account when promoting a healthy lifestyle. For example, the National Action Plan IN FORM – implementation of which has been ongoing in Germany since 2008 – is already emphasizing the positive impact of a healthy lifestyle on mental health in order to motivate changes in behaviour (IN FORM 2011).

Dr. Markus Busch, Dr. Ulfert Hapke, Dr. Gert B. M. Mensink
Robert Koch Institute
Department of Epidemiology and Health Reporting

Bibliography

Beddington J, Cooper CL, Field J et al. (2008) The mental wealth of nations. Nature 455: 1057–1060

Bush K, Kivlahan DR, McDonell MB et al. (1998) The AUDIT Alcohol Consumption Questions (AUDIT-C): an effective brief screening test for problem drinking. Arch Intern Med 158(16): 1789–1795

Charlson F, Stapelberg N, Baxter A et al. (2011) Should global burden of disease estimates include depression as a risk factor for coronary heart disease? BMC Medicine 9: 47

Ellert U, Lampert T, Ravens-Sieberer U (2005) Messung der gesundheitsbezogenen Lebensqualität mit dem SF-8. Eine Normstichprobe für Deutschland. Bundesgesundheitsbl – Gesundheitsforsch – Gesundheitsschutz 48: 1330–1337

Ford ES, Bergmann MM, Kroger J et al. (2009) Healthy living is the best revenge: findings from the European Prospective Investigation Into Cancer and Nutrition-Potsdam study. Arch Intern Med 169: 1355–1362

Harrington J, Perry IJ, Lutomski J et al. (2010) Living longer and feeling better: healthy lifestyle, self-rated health, obesity and depression in Ireland. Eur J Public Health 20: 91–95

IN FORM (2011) IN FORM - Deutschlands Initiative für gesunde Ernährung und mehr Bewegung. http://www.in-form.de (last revised: 30.09.2011)

Jacka FN, Pasco JA, Mykletun A et al. (2010) Association of western and traditional diets with depression and anxiety in women. Am J Psychiatry 167: 305–311

Jacobi F, Wittchen HU, Holting C et al. (2004) Prevalence, co-morbidity and correlates of mental disorders in the general population: results from the German Health Interview and Examination Survey (GHS). Psychol Med 34: 597–611

Lopez AD, Mathers CD, Ezzati M et al. (2006) Global and regional burden of disease and risk factors, 2001: systematic analysis of population health data. Lancet 367: 1747–1757

Lorant V, Deliège D, Eaton W et al. (2003) Socioeconomic inequalities in depression: A meta-analysis. Am J Epidemiol 157(2): 98–112

Luppino FS, de Wit LM, Bouvy PF et al. (2010) Overweight, obesity, and depression: a systematic review and meta-analysis of longitudinal studies. ArchGenPsychiatry 67: 220–229

McGuire LC, Strine TW, Okoro CA et al. (2007) Modifiable characteristics of a healthy lifestyle in U.S. older adults with or without frequent mental distress: 2003 Behavioral Risk Factor Surveillance System. Am J Geriatr Psychiatry 15: 754–761

Moriarty D, Zack M, Kobau R (2003) The Centers for Disease Control and Prevention's Healthy Days Measures - Population tracking of perceived physical and mental health over time. Health Qual Life Outcomes 1: 37

Pan A, Lucas M, Sun Q et al. (2010) Bidirectional association between depression and type 2 diabetes Mellitus in Women. Arch Intern Med 170: 1884–1891

Pan A, Sun Q, Okereke OI et al. (2011) Depression and risk of stroke morbidity and mortality. a meta-analysis and systematic review. JAMA 306: 1241–1249

Prince M, Patel V, Saxena S et al. (2007) No health without mental health. Lancet 370: 859–877

Rabenberg M, Mensink GBM (2011) Fruit and vegetable consumption today. Published by Robert Koch Institute Berlin. GBE kompakt 2(6) http://www.rki.de/gbe-kompakt (last revised: 30.09.2011)

Reeves MJ, Rafferty AP (2005) Healthy lifestyle characteristics among adults in the United States, 2000. Arch Intern Med 165: 854–857

RKI – Robert Koch-Institut (Hrsg) (2005) Armut, soziale Ungleichheit und Gesundheit. Beiträge zur Gesundheitsberichterstattung des Bundes, RKI, Berlin http://www.rki.de/gbe (last revised: 30.09.2011)

RKI – Robert Koch-Institut (Hrsg) (2010) Depressive Erkrankungen. Gesundheitsberichterstattung des Bundes. Heft 51. RKI, Berlin http://www.rki.de/gbe (last revised: 30.09.2011)

RKI – Robert Koch-Institut (Hrsg) (2011) Daten und Fakten: Ergebnisse der Studie »Gesundheit in Deutschland aktuell 2009«. Beiträge zur Gesundheitsberichterstattung des Bundes. RKI, Berlin http://www.rki.de/gbe (last revised: 30.09.2011)

Teychenne M, Ball K, Salmon J (2008) Physical activity and likelihood of depression in adults: a review. Prev Med 46: 397–411

Wahlbeck K, Braddick F, Gabilondo A et al. (2010) Europäischer Pakt für psychische Gesundheit und Wohlbefinden. Collating forces to put mental health on the EU political agenda. Die Psychiatrie 7: 74–80

WHO – World Health Organization International Consortium in Psychiatric Epidemiology (2000) Cross-national comparisons of the prevalences and correlates of mental disorders. Bull World Health Organ 78: 413–426

WHO – World Health Organization (Hrsg) (2001) The World Health Report 2001 – Mental Health: New Understanding, New Hope. WHO, Geneva

WHO Europe – World Health Organization Europe (eds) (2008) Policies and practices for mental health in Europe – meeting the challenges. WHO Regional Office for Europe, Copenhagen

GBE kompakt

Published by
Robert Koch Institute
Nordufer 20
13353 Berlin

Editorial staff
Martina Rabenberg, Dr. Livia Ryl
Robert Koch Institute
Department of Epidemiology and Health Reporting
General-Pape-Straße 62
12101 Berlin
Tel.: 030-18754-3400
E-Mail: gbe@rki.de
http://www.rki.de/gbe

How to quote the title
Busch M, Hapke U, Mensink GBM (2011)
Mental health and healthy lifestyle.
Published by Robert Koch Institute Berlin,
GBE kompakt 2(7)
http://www.rki.de/gbe-kompakt (last revised: 07.11.2011)

ISSN 2191-4974

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