World Health Organization
REGIONAL OFFICE FOR Europe

THEMATIC PAPER 2

Schools and pre-schools promoting health and well-being for all children and adolescents

WORKING TOGETHER FOR BETTER HEALTH AND WELL-BEING

Promoting Intersectoral and Interagency Action for Health and Well-being in the WHO European Region

High-level Conference

7–8 December 2016, Paris, France

Address requests about publications of the WHO Regional Office for Europe to:
Publications
WHO Regional Office for Europe
UN City, Marmorvej 51
DK-2100 Copenhagen Ø, Denmark
Alternatively, complete an online request form for documentation, health information, or for permission to quote or translate, on the Regional Office website (http://www.euro.who.int/pubrequest).

CONTENTS

Page

Executive summary

This thematic paper on schools and pre-schools promoting health and well-being for all children and adolescents was produced to support and inform discussion at the high-level conference on Working Together for Better Health and Well-being: Promoting Intersectoral and Interagency Action for Health and Well-being in the WHO European Region, held in Paris, France on 7–8 December 2016.

It is well understood that education and the school or pre-school setting play an important role in the health and well-being of children and adolescents, as well as the wider community and teaching and school staff. Access to quality education for all children, regardless of background or situation, is essential for building healthy and resilient people and communities. This includes taking a differentiated approach to learning, as one size fits all does not allow for all children and adolescents to realize their potential.

The school and pre-school environment offers pathways to improving health outcomes, including, but not limited to: building individuals' capacity to access, understand and use information through improved health and social literacy (a means of empowerment); tackling stereotypes and gender inequalities; ensuring a safe, inclusive and accessible health-promoting school environment; providing access to child- and adolescent-friendly health services; facilitating the transition from education to work; ensuring teaching and school staff are supported and empowered to deliver health promoting programmes and settings; and reaching out to parents to build healthy and resilient local communities. The relationship between health and well-being and education is also captured in the Sustainable Development Goals (SDGs) related health (SDG 3, good health and well-being) and education (SDG 4, quality education).

This thematic paper is not an exhaustive review of the relationship between health and education, but touches on key areas addressed in the high-level conference in Paris.

Introduction

Education is one of many health determinants, and enrolment rates in primary education are high in many European countries. Educational settings – from preschool through secondary schools and beyond – substantially influence the health and well-being of children and adolescents. The relationship between the preschool and school setting and health and well-being is bidirectional: health promoting educational settings contribute to better health and well-being, and equally, better health contributes to improved educational performance. The task group report on early years, family and education for the review of social determinants and the health divide in the WHO European Region *(1)* concludes that the school setting can provide an essential base for a broad range of child and family services. A growing body of evidence shows the close relationship between health, physical and cognitive development, school participation and educational achievement *(2)*.

From an educational point of view, schools contribute to health by: creating the conditions for pupils' life-long achievement through the school environment; acquiring health competencies and promoting health literacy; and promoting resilience and relationship skills with the aim of empowering young and future generations to make healthy decisions throughout the life-course *(3)*. Intersectoral partnership and collaboration is needed for schools to fulfil their potential to play a key role in shaping children's health literacy, attitudes and behaviours, as well as their learning and health outcomes. A whole-school approach to health combines health education in the classroom with cooperation from the wider school community, including parents and families, to enhance levels of engagement and support children and adolescents to achieve better health and educational outcomes. An intersectoral approach helps all schools to make a difference in the health and well-being of all pupils, and teaching and non-teaching staff by strengthening the capacity of schools to promote health in the places that we live, learn and work. By 2013, nearly two in three countries (62%) had a formal health promoting school policy, in most cases as part of their education policies followed by inclusion in their public health policies, or a combination of education and health policies *(4)*. Prominent features of schools that are effective at promoting the health and well-being of their students include:

- developing and maintaining a democratic and participatory school community;
- exploring health issues within the context of students' lives and communities;
- utilizing strategies that adopt a whole-school approach rather than primarily a classroom learning approach;
- creating an excellent social environment that fosters open and honest relationships within the school community; and
- ensuring a consistency of approach across the school and between the school, home and wider community *(5)*.

One of the most important contextual matters for health promoting schools are inequalities in health and the impact these have on the lives of children, adolescents, their families and communities. The final report of the WHO Global Commission on the Social Determinants of Health *(6)* emphasizes the importance of making schools health-promoting places for children. Politicians at the highest level are called on to support initiatives surrounding health promoting

schools, with head-teachers and senior officers in social and health care visibly committed to reducing health inequalities to effect change *(7)*.

Investing in education is also investing in broader health within society. Labour economists have demonstrated that investing in education results in better jobs, higher earnings and lower unemployment rates. The social and economic costs to society of school failure are extremely high and take many different forms: slower rates of economic growth, the perpetuation of inequalities over generations, higher unemployment and lower social cohesion *(8)*.

To support schools promoting health and well-being for all children and adolescents, it is necessary to do the following.

Work together to ensure that all children and adolescents are in education

Every child has the right to education, and all children and adolescents in the European Region – including migrants, refugees and children with special needs –should have access to school and be learning. Primary education is particularly essential; it should be compulsory and free of charge, as all children need to develop basic skills for literacy and numeracy, which has positive benefits for health and well-being. Enrolment rates in compulsory education, including primary and lower-secondary school, are above 90% across much of the Region, but education systems continue to face critical challenges to being fair and inclusive in their design, practices and resourcing *(9)*, with millions of children and adolescents not receiving the education they should. In central and eastern Europe and the Commonwealth of Independent States, for example, 2.5 million children of basic school age and 1.6 million of pre-primary school age are regularly out of school *(10)*.

Close collaboration involving schools and local communities and the education, social and health sectors can help to reduce school failure and absenteeism and prevent child labour by ensuring children at risk of vulnerability stay in school. Strengthening links between school and home can, for example, support parents in helping their children to learn, respond well to diversity, support the successful inclusion of migrants and minorities within mainstream education, and help to meet equity targets, particularly those related to low school attainment and high rates of absenteeism *(9)*.

Take differentiated approaches to learning to give everyone an equal chance

The student population in the European Region is diverse, with a wide range of educational needs. At school level, differences in gender, culture, socioeconomic background, health and migrant status have to be taken into account to ensure all children and adolescents are able to participate fully. This means moving from a one-size-fits-all approach towards developing educational settings that support the differentiation of educational means, or teaching methodologies that adapt to the specific needs of pupil subgroups *(10)*. Differentiation is one of the determinants of teaching effectiveness *(11)* and its success depends largely on school and classroom organization.

Act urgently and together to stop our most vulnerable people from missing out on education

Children and adolescents who are out of school are often among the most vulnerable and hardest to reach *(12)*.While some miss out on education due to lack of school enrolment in the first place, others are enrolled in school but not learning *(13)*. Those in the latter group who are underperforming academically are at greater risk of absenteeism compared to their better-performing peers. Absenteeism is a phenomenon that spares no education system, and its financial, social and human costs are particularly high. The causes are multifactorial, and universal measures to improve learning in school should be combined with interventions targeted at children and families that focus on addressing the needs and circumstances of those at risk of marginalization and vulnerability *(14)*. The United Nations Educational, Scientific and Cultural Organization's global initiative on out-of-school children highlights five key strategies for addressing disparities in education – advance inclusive education, improve the monitoring of excluded and at-risk children, engage innovative strategies to reduce barriers, improve the quality of education, invest strongly in pre-primary education – all of which require intersectoral action.

Invest in health and social literacy for empowerment and resilience

Education empowers children by developing their ability to make decisions for themselves *(15)*. Participatory, action-oriented approaches to improving health and social literacy, including sexuality education are meant to empower families and build children and adolescents' personal, health and social resilience over the life-course *(16)*. Health and social literacy include a broad range of knowledge and competencies that enable the acquisition of knowledge and skills, contribute to learning personal, social and civic skills, develop critical thinking and self-awareness, and empower young and future generations to identify local sources of support and resources *(3).* Through these competencies, children and adolescents are empowered to understand themselves and their communities in a way that enables them to make sound decisions and act on factors that have an impact on their lives, leading towards better health and well-being across the life-course *(17)*. Evidence suggests that investment in health and social literacy programmes should also be aimed at parents *(17).*

Promote health, well-being and equity in a safe, inclusive and accessible school environment

Together, the health, education and social sectors can improve the health of children and adolescents by creating school settings that are safe, inclusive and accessible by empowering children and enabling them to succeed *(18).* To do this, schools must be physically safe and accessible, with good water, sanitation and hygiene, as well as adequate learning and play facilities *(19),* and learning environments must tackle issues such as bullying and violence, stigmatization and harmful stereotypes *(18)*. Participatory approaches, including reaching out to families and communities and developing community-wide endorsement for health-promoting school policies, is also important to ensure children gain civic skills and develop in a culturally sensitive manner, allowing them to thrive in their environments.

Schools are also key settings in which to promote sustainable healthy behaviour by providing nutritious food and safe drinking-water, restricting the availability of high-sugar beverages and raising awareness of the importance of healthy and sustainable lifestyle choices. Health and

education sectors should work together to advocate for, and support the adoption of, government policies to reduce food, alcohol and tobacco marketing targeting adolescents *(20)*.

These health and learning benefits can be further enhanced by effectively using health services in and around school settings and encouraging community-wide support for health-promoting school policies through a whole-of-school approach. This integrated approach has been shown to be especially effective in tackling the health and social effects of violence and bullying, which often produce lasting negative effects and are major risks to the health and well-being of young people across Europe *(20)*

Use pre-school and school settings to tackle noncommunicable diseases

Schools have emerged as important settings through which to promote health and prevent noncommunicable diseases *(21–24)*. Many behaviours associated with noncommunicable diseases (such as tobacco and alcohol use, and sedentary lifestyle) start early in life and carry into adulthood *(25–28)*. Activities associated with preventing noncommunicable diseases, such as physical activity *(29)* and nutrition *(30,31)*, also have positive links with cognitive development. Young people are vulnerable to marketing pressures *(32,33)*, and food and beverage marketers use a wide range of creative strategies to encourage young people to purchase products of low nutritional value *(34)*. Schools provide an important opportunity to support regulatory frameworks that restrict marketing and the availability of high-sugar beverages *(35)*.

Evidence suggests that school-based interventions may have a positive effect on students' levels of physical activity *(36–40)*, diet *(41–48)* and body mass index *(49–52)*. School-based physical activity interventions have shown particular promise for increasing activity among girls *(37,53)*, which is important as studies have shown a significant decline in physical activity for girls during early adolescence *(54)*. Schools may encourage physical activity for all students by encouraging active school transport, which has been shown to help students accumulate significantly more physical activity *(55)*, and giving schoolchildren access to facilities for physical activity during the school day (*56,57)* or providing opportunities after school *(36)*.

Schools are an important source of water in many countries where clean water is not easily accessible. Provision of water, sanitation and hygiene facilities are associated with positive outcomes, including increased enrolment in school *(58)*. Schools may encourage healthy behaviours through classroom teaching *(22,42,52,59–63)*, but it is also important to address environmental features. Ensuring provision of nutritious foods within schools helps to improve dietary intake *(43,46)* (including increased consumption of fruit and vegetables *(41,42,45,47,48)*) and address food poverty *(24,44)*.

Schools must adopt a comprehensive approach to preventing noncommunicable diseases, as outlined in the health promoting schools model *(22)* and the nutrition-friendly schools initiative *(35,64)*. Successful interventions include the involvement of parents *(22,26,38,62,65–69)* and communities *(70)*. Other important components of school-based noncommunicable disease prevention programmes include sustained engagement with staff and students *(71,72)* and the integration of capacity-building activities for staff *(22,49,71,73,74)*.

Ensure all pre-schools and schools promote water, sanitation and hygiene

Ensuring access to functioning and clean water, sanitation and hygiene (WASH) facilities is vital to promote children's health and well-being, address inequalities and contributing towards achieving Sustainable Development Goals 6 on ensuring availability and sustainable management of water and sanitation for all. Adequate WASH facilities and policies that promote regular fluid intake and voiding in pre-schools and schools also lower the risk of infectious diseases, bladder dysfunction, constipation and urinary tract infections. These are often observed among pupils in schools where restrictive school policies or toilet conditions lead to toilet avoidance *(75)*, which can lead girls to avoid attending school altogether.

The provision and promotion of safe water for drinking are important factors in increasing pupils' water intake, which has positive effects on learning performance and attention *(75)*. Healthy WASH behaviours have a positive impact on children's health and well-being, and start at the basic level with handwashing as a means of infection prevention. Hygiene interventions that promote regular handwashing and provide sufficient consumables (soap and handtowels) can increase pupils' school attendance and reduce absenteeism due to gastronomical or respiratory infections, consequently contributing to the reduction of inequalities *(75)*.

WASH within the school setting also has a crucial role in gender equity. Research on WASH in school settings in the European Region has shown that sanitary tools for adequate menstrual hygiene management must be accessible in all schools. Ensuring girls' well-being requires raising awareness of, and providing the means for, adequate menstrual hygiene management. This can be done through sex-separated, clean and accessible toilets that provide privacy, water, hygiene consumables such as toilet paper and soap, sanitary tools such as sanitary bags and pads, and bins. This is crucial for gender equity and to address absenteeism among adolescent girls *(76)*.

Provide and promote school-based, adolescent-friendly health services

School health services are the first point of contact with health systems for many adolescents. They are provided in the setting where most adolescents are situated, and are also accessible to families. They also overcome barriers to accessing health services as they are free at the point of use, provided in easy-access locations, and often do not require cumbersome appointment systems *(77)*.

Adolescent-friendly, culturally sensitive school health services can be effective *(78)*, especially for sexual and reproductive health *(79)*. They also promote improvements in obesity and physical activity *(80)*, support young people with chronic health conditions such as asthma or diabetes *(81,82)*, encourage smoking cessation *(83)*, and help to prevent and manage infectious disease through immunizations. School health services are often highly valued by pupils, parents and communities, and can provide links between schools and communities *(84,85)*. They also appear to reduce health disparities and attendance at secondary care facilities *(84)* and have the potential to reach underserved, low-income and high-risk populations *(85)*.

Take a community-wide participatory approach to health-promoting schools

The health promoting schools framework views the link between parents and the community as an important factor in school health promotion. Studies demonstrate the children tend to be more active when parents engage in physical activity and support their participation in sports and activities *(86)*. Parental and community support or resistance are also important factors in the implementation of comprehensive sexuality education for young people, both in and out of schools *(87)*.

On the other hand, children can instigate changes in their families and initiate discussions that lead to new behaviours *(88)*. Encouraging students to, for example, communicate with parents through homework assignments undertaken together with supporting written materials for parents has been found to increase child–parent discussions about health and improve parents' health behaviour *(89)*. Involving parents from the beginning of health-promoting activities not only empowers parents, staff and students, but also provides parents with a sense of ownership of the process and subsequent decisions and practices *(90)*. This is more likely to achieve sustainable health-promotion initiatives in schools, as feelings of disempowerment often lead to disengagement. Two-way interactions and communication between teachers and parents is considered central to effective school–parent partnerships *(91)*.

Address gender stereotypes and inequalities in school settings

Gender inequalities, discrimination, and stereotypes influence girls and boys' behaviour and practices and responses from the health, education and social sectors *(92)*. Gender stereotypes ascribe specific attributes, characteristics or roles to girls and boys, affecting their life expectations, opportunities and experiences in education, work, relationships, social status and health and well-being. Data from the 2014 Health Behaviour in School-aged Children survey show that girls of 13 report far higher rates of poor or fair health than boys across three measures – self-rated health, life satisfaction and multiple health complaints – that reflect the combined effects of age, sex, gender norms and values, and socioeconomic status. Forty-three per cent of 15-year-old girls in the survey were unsatisfied with their bodies – almost double the rate for boys in the same age category – and 26% reported being on a diet, even though only 13% were overweight (compared to 11% of boys being on a diet and 22% being overweight). Differences in physical activity levels between boys and girls suggest that opportunities to participate in physical activity may be gender-biased in favour of boys. Puberty, together with traditional gender norms about teenage girls and women not participating in organized physical activity, may act as a barrier *(18)*.

School settings, including pre-schools, and health services can reinforce – or challenge – gender stereotypes and inequalities. They are therefore important contexts for the construction of gender stereotypes through children's interactions with teachers and peers. Contributing factors in education practice include the curriculum, school reading materials, school organization and management, teacher attitudes, assessments, co-education and single-sex settings *(8)*.

Challenging gender stereotypes and inequalities early in school settings can lead to benefits in health outcomes and educational attainment. Girls, for example, remain more likely to drop out of secondary education due to early marriage and/or teenage pregnancy than boys. Women who were teenage mothers experience increased health risks, including being 30% more likely to die

prematurely from any cause, almost 60% more likely to commit suicide, and having an elevated risk of death from cervical and lung cancer *(93)*.

Gender-based and sexual violence start early in life. While family violence has a negative impact on boys and girls, there is worrying evidence from parts of the Region of adolescents justifying a husband beating his wife *(94)*. Schools are a common setting for early manifestations of gender-based violence and present a unique opportunity to prevent, detect and address all forms of. Changing children's and adolescents' attitudes underpinned by stereotypical views of masculine and feminine identities is an important entry point for action. A gender transformative approach will focus on empowering girls and engaging boys in a culture of masculinities that challenge violence and dominance.

Gender imbalance in the health, care and education workforces are striking, with an overwhelming majority of women in all three sectors. A transformative approach would reduce the care burden of women by not reinforcing the caring role of girls, while also engaging boys in caring activities. Gender stereotypes also influence educational and job segregation through the different choices of fields of study girls and boys make in secondary and tertiary education. The effect of gender bias in education, together with the loss of women from the workforce at various stages of their career trajectories, restricts women's access to better-paying jobs later in life, which leads to an even greater gender gap in pensions, exacerbating inequalities later in life *(18)*.

References

1. Bruun Jensen B, Dyson A, Eisenstadt N, Melhuish E. Early years, family and education task group: report. Copenhagen: WHO Regional Office for Europe; 2013.
2. Huang KY, Cheng S, Theise R. School contexts as social determinants of child health: current practices and implications for future public health practice. Public Health Rep. 2013;128(Suppl. 3):21–8.
3. Jourdan D. Health education in schools: the challenge of teacher training. Saint-Denis: Inpes, Coll. Santé en Action; 2011 (https://www.aber.ac.uk/en/media/departmental/sell/pdf/wellbeinghealth/Health-education-in-schools.pdf, accessed 19 November 2016).
4. SHE. Schools for Health in Europe [website]. Utrecht: CBO; 2016 (http://www.schools-for-health.eu/she-network, accessed 19 November 2016).
5. St Leger L, Young I, Blanchard C, Perry M. Promoting health in schools. From evidence to action. Saint Denis Cedex: European Union for Health Promotion and Education; 2009 (http://www.healthscotland.com/documents/4038.aspx, accessed 19 November 2016).
6. Closing the gap in a generation. Health equity through action on the social determinants of health. Final report of the Commission on Social Determinants of Health. Geneva: World Health Organization; 2008 (http://www.who.int/social_determinants/final_report/csdh_finalreport_2008.pdf, accessed 19 November 2016).
7. Barnekow V, Brun Jensen B, Currie C, Dyson A, Eisenstadt N, Melhuish E, editors. Improving the lives of children and young people: case studies from Europe. Volume 1. Early years. Copenhagen: WHO Regional Office for Europe; 2013 (http://www.euro.who.int/en/publications/abstracts/improving-the-lives-of-children-and-young-people-case-studies-from-europe.-volume-1.-early-years, accessed 19 November 2016).
8. Overcoming schools failure: policies that work. Paris: Organisation for Economic Co-operation and Development; 2010 (https://www.oecd.org/edu/school/45171670.pdf, accessed 19 November 2016).
9. Field S, Kuczera MK, Pont B. No more failures. Ten steps to equity in education. Paris: Organisation for Economic Co-operation and Development; 2007 (https://www.oecd.org/education/school/45179151.pdf, accessed 19 November 2016).
10. Scheerens J. Review of school and instructional effectiveness research. Paris: United Nations Educational, Scientific and Cultural Organization; 2004 (http://unesdoc.unesco.org/images/0014/001466/146695e.pdf, accessed 19 November 2016).
11. Fullan M. Leading in a culture of change. San Francisco (CA): Jossey Bass; 2001.
12. Education equity now! A regional analysis of the situation of out of school children in central and eastern Europe and the Commonwealth of Independent States. Geneva: United Nations Children's Fund; 2014 (http://www.uis.unesco.org/Education/Documents/ceecis-oosci-report-2013.pdf, accessed 19 November 2016).
13. PISA 2009 results: overcoming social background. Equity in learning opportunities and outcomes, what students know and can do. Student performance in reading, mathematics and science. Paris: Organisation for Economic Co-operation and Development; 2010 (https://www.oecd.org/pisa/pisaproducts/48852584.pdf, accessed 19 November 2016).
14. Agir contre le décrochage scolaire : alliance éducative et approche pédagogique repensée. Paris: Inspection Générale de l'Éducation Nationale, Inspection Générale de l'Administration de l'Éducation Nationale et de la Recherche; 2013 (http://cache.media.education.gouv.fr/file/2013/64/9/2013-059-rapport-Agir-contre-le-decrochage-scolaire_278649.pdf, accessed 19 November 2016) (in French).
15. Meirieu P. Le choix d'eduquer. Paris: ESF Éditeur; 1999 (in French).
16. Kickbusch I, Pelikan JM, Apfel F, Tsouros AD, editors. Health literacy: the solid facts. Copenhagen: WHO Regional Office for Europe; 2013 (http://www.euro.who.int/__data/assets/pdf_file/0008/190655/e96854.pdf, accessed 19 November 2016).
17. Paakkari L, Paakkari O. Health literacy as a learning outcome in schools. Health Educ J. 2012;112(2):133–52.
18. Inchley J, Currie D, Young T, Samdal O, Torsheim T, Augustson L et al., editors. Growing up unequal: gender and socioeconomic differences in young people's health and well-being. Health

Behaviour in School-aged Children (HBSC) study: international report from the 2013/2014 survey. Copenhagen: WHO Regional Office for Europe; 2016 (Health Policy for Children and Adolescents, No. 7; http://www.euro.who.int/en/publications/abstracts/growing-up-unequal-gender-and-socioeconomic-differences-in-young-peoples-health-and-well-being.-health-behaviour-in-school-aged-children-hbsc-study-international-report-from-the-20132014-survey, accessed 19 November 2016).
19. Coote A, Boyce T. Task group on sustainability and community. Final report. Copenhagen: WHO Regional Office for Europe; 2012.
20. Health 2020: a European policy framework supporting action across government and society for health and well-being. Copenhagen: WHO Regional Office for Europe; 2012 (EUR/RC62/9; http://www.euro.who.int/en/who-we-are/governance/regional-committeefor-europe/sixty-second-session/working-documents/eurrc629-health-2020-a-europeanpolicy-framework-supporting-action-across-government-and-society-for-health-and-wellbeing, accessed 19 November 2016).
21. Young I. Health promotion in schools – a historical perspective. Promot Educ. 2005;12(3–4):112–7.
22. Busch V, de Leeuw JRJ, de Harder A, Schrijvers AJP. Changing multiple adolescent health behaviors through school- based interventions: a review of the literature. J Sch Health 2013;83(7):514–23.
23. Khambalia A, Dickinson S, Hardy L, Gill T, Baur L. A synthesis of existing systematic reviews and meta- analyses of school- based behavioural interventions for controlling and preventing obesity. Obes Rev. 2012;13(3):214–33.
24. Wang D, Stewart D. The implementation and effectiveness of school-based nutrition promotion programmes using a health-promoting schools approach: a systematic review. Public Health Nutr. 2013;16(06):1082–100.
25. Donovan E. Literature review PDHPE. A report for the NSW Board of Studies. Sydney: Board of Studies NSW; 2002 (http://www.ibrarian.net/navon/paper/Literature_Review_PDHPE.pdf?paperid=2477280, accessed 19 November 2016).
26. Lobstein T, Swinburn B. Health promotion to prevent obesity. Global perspectives on health promotion effectiveness. In: McQueen D, Jones C, editors. Global perspectives on health promotion effectiveness. New York (NY): Springer Science & Business Media; 2007:125–50.
27. Sawyer SM, Afifi RA, Bearinger LH, Blakemore S-J, Dick B, Ezeh AC et al. Adolescence: a foundation for future health. Lancet 2012;379(9826):1630–40.
28. Beaglehole R, Bonita R, Horton R, Adams C, Alleyne G, Asaria P et al. Priority actions for the non-communicable disease crisis. Lancet 2011;377(9775):1438–47.
29. Pollatschek J, O'Hagan F. An investigation of the psycho-physical influences of a quality daily physical education programme. Health Educ Res. 1989;4(3):341–50.
30. Bryan J, Osendarp S, Hughes D, Calvaresi E, Baghurst K, van Klinken J-W. Nutrients for cognitive development in school-aged children. Nutr Rev. 2004;62(8):295–306.
31. Sridhar D. Linkages between nutrition, ill-health and education. Paris: United Nations Educational, Scientific and Cultural Organization; 2008 (http://unesdoc.unesco.org/images/0017/001780/178022e.pdf, accessed 19 November 2016).
32. Hawkes C. Regulating and litigating in the public interest: regulating food marketing to young people worldwide: trends and policy drivers. Am J Public Health 2007;97(11):1962–73.
33. Story M, French S. Food advertising and marketing directed at children and adolescents in the US. Int J Behav Nutr Phys Act. 2004;1:3.
34. Cairns G, Angus K, Hastings G, Caraher M. Systematic reviews of the evidence on the nature, extent and effects of food marketing to children. A retrospective summary. Appetite 2013;62:209–15.
35. Nutrition-friendly schools initiative (NFSI) In: Nutrition [website]. Geneva: World Health Organization; 2012(http://www.who.int/nutrition/topics/nutrition_friendly_schools_initiative/en/, accessed 19 November 2016).
36. Beets MW, Beighle A, Erwin HE, Huberty JL. After-school program impact on physical activity and fitness: a meta-analysis. Am J Prev Med. 2009;36(6):527–37.

37. Brown T, Summerbell C. Systematic review of school- based interventions that focus on changing dietary intake and physical activity levels to prevent childhood obesity: an update to the obesity guidance produced by the National Institute for Health and Clinical Excellence. Obes Rev. 2009;10(1):110–41.
38. Van Sluijs EM, McMinn AM, Griffin SJ. Effectiveness of interventions to promote physical activity in children and adolescents: systematic review of controlled trials. Brit Med J. 2007;335(7622):703.
39. Demetriou Y, Höner O. Physical activity interventions in the school setting: a systematic review. Psychol Sport and Exerc. 2012;13(2):186–96.
40. Robertson-Wilson JE, Dargavel MD, Bryden PJ, Giles-Corti B. Physical activity policies and legislation in schools: a systematic review. Am J Prev Med. 2012;43(6):643–9.
41. de Sa J, Lock K. Will European agricultural policy for school fruit and vegetables improve public health? A review of school fruit and vegetable programmes. Eur J Public Health 2008;18(6):558–68.
42. Evans CE, Christian MS, Cleghorn CL, Greenwood DC, Cade JE. Systematic review and meta-analysis of school-based interventions to improve daily fruit and vegetable intake in children aged 5 to 12 years. Am J Clin Nutr. 2012;96(4):889–901.
43. Jaime PC, Lock K. Do school based food and nutrition policies improve diet and reduce obesity? Prev Med. 2009;48(1):45–53.
44. Jomaa LH, McDonnell E, Probart C. School feeding programs in developing countries: impacts on children's health and educational outcomes. Nutr Rev. 2011;69(2):83–98.
45. Knai C, Pomerleau J, Lock K, McKee M. Getting children to eat more fruit and vegetables: a systematic review. Prev Med. 2006;42(2):85–95.
46. McArthur DB. Heart healthy eating behaviors of children following a school-based intervention: a meta-analysis. Issues Compr Pediatr Nurs. 1998;21(1):35–48.
47. Robinson-O'Brien R, Story M, Heim S. Impact of garden-based youth nutrition intervention programs: a review. J Am Diet Assoc. 2009;109(2):273–80.
48. Silveira JA, Taddei JA, Guerra PH, Nobre MR. Effectiveness of school-based nutrition education interventions to prevent and reduce excessive weight gain in children and adolescents: a systematic review. J Pediatr (Rio J) 2011;87(5):382–92.
49. Katz D, O'Connell M, Njike VY, Yeh M, Nawaz H. Strategies for the prevention and control of obesity in the school setting: systematic review and meta-analysis. Int J Obes. 2008;32(12):1780–9.
50. Sbruzzi G, Eibel B, Barbiero SM, Petkowicz RO, Ribeiro RA, Cesa CC et al. Educational interventions in childhood obesity: a systematic review with meta-analysis of randomized clinical trials. Prev Med. 2013;56(5):254–64.
51. Sobol- Goldberg S, Rabinowitz J, Gross R. School- based obesity prevention programs: a meta-analysis of randomized controlled trials. Obesity 2013;21(12):2422–8.
52. Waters E, de Silva-Sanigorski A, Hall BJ, Brown T, Campbell KJ, Gao Y et al. Interventions for preventing obesity in children. Cochrane Database Syst Rev. 2011;12(00).
53. Pearson N, Braithwaite R, Biddle SJ. The effectiveness of interventions to increase physical activity among adolescent girls: a meta-analysis. Acad Pediatr. 2015;15(1):9–18.
54. Dumith SC, Gigante DP, Domingues MR, Kohl HW. Physical activity change during adolescence: a systematic review and a pooled analysis. Int J Epidemiol. 2011;40(3):685–98.
55. Faulkner GE, Buliung RN, Flora PK, Fusco C. Active school transport, physical activity levels and body weight of children and youth: a systematic review. Prev Med. 2009;48(1):3–8.
56. Ridgers ND, Salmon J, Parrish A-M, Stanley RM, Okely AD. Physical activity during school recess: a systematic review. Am J Prev Med. 2012;43(3):320–8.
57. De Bourdeaudhuij I, Van Cauwenberghe E, Spittaels H, Oppert JM, Rostami C, Brug J et al. School- based interventions promoting both physical activity and healthy eating in Europe: a systematic review within the HOPE project. Obes Rev. 2011;12(3):205–16.
58. Birdthistle I, Dickson K, Freeman M, Javidi L. What impact does the provision of separate toilets for girls at schools have on their primary and secondary school enrolment, attendance and completion? A systematic review of the evidence. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London; 2011 (https://assets.publishing.service.gov.uk/media/57a08abaed915d3cfd0008e0/Birdthistle_et_al_2011.pdf, accessed 19 November 2016).

59. Langford R, Bonell CP, Jones HE, Pouliou T, Murphy SM, Waters E et al. The WHO health promoting school framework for improving the health and well- being of students and their academic achievement. Chichester: Cochrane Collaboration, John Wiley & Sons, Ltd. 2014 (http://www.cochrane.org/CD008958/BEHAV_the-who-health-promoting-school-framework-for-improving-the-health-and-well-being-of-students-and-their-academic-achievement, accessed 19 November 2016).
60. Lavelle H, Mackay D, Pell J. Systematic review and meta-analysis of school-based interventions to reduce body mass index. J Public Health 2012;34(3):360–9.
61. Lonsdale C, Rosenkranz RR, Peralta LR, Bennie A, Fahey P, Lubans DR. A systematic review and meta-analysis of interventions designed to increase moderate-to-vigorous physical activity in school physical education lessons. Prev Med. 2013;56(2):152–61.
62. Williams AJ, Henley WE, Williams CA, Hurst AJ, Logan S, Wyatt KM. Systematic review and meta-analysis of the association between childhood overweight and obesity and primary school diet and physical activity policies. Int J Behav Nutr Phys Act. 2013;10(1):1.
63. Verstraeten R, Roberfroid D, Lachat C, Leroy JL, Holdsworth M, Maes L et al. Effectiveness of preventive school-based obesity interventions in low-and middle-income countries: a systematic review. Am J Clin Nutr. 2012;96(2):415–38.
64. Delisle HF, Receveur O, Agueh V, Nishida C. Pilot project of the Nutrition-Friendly School Initiative (NFSI) in Ouagadougou, Burkina Faso and Cotonou, Benin, in West Africa. Glob Health Promot. 2013;20(1):39–49.
65. Hingle MD, O'Connor TM, Dave JM, Baranowski T. Parental involvement in interventions to improve child dietary intake: a systematic review. Prev Med. 2010;51(2):103–11.
66. Niemeier BS, Hektner JM, Enger KB. Parent participation in weight-related health interventions for children and adolescents: a systematic review and meta-analysis. Prev Med. 2012;55(1):3–13.
67. Nixon C, Moore H, Douthwaite W, Gibson E, Vogele C, Kreichauf S et al. Identifying effective behavioural models and behaviour change strategies underpinning preschool- and school- based obesity prevention interventions aimed at 4–6- year- olds: a systematic review. Obes Rev. 2012;13(Suppl. 1):106–17.
68. Perry CL, Luepker RV, Murray DM, Kurth C, Mullis R, Crockett S et al. Parent involvement with children's health promotion: the Minnesota home team. Am J Public Health 1988;78(9):1156–60.
69. Stevens CJ. Obesity prevention interventions for middle school- age children of ethnic minority: a review of the literature. J Spec Pediatr Nurs. 2010;15(3):233–43.
70. Krishnaswami J, Martinson M, Wakimoto P, Anglemeyer A. Community-engaged interventions on diet, activity, and weight outcomes in US schools: a systematic review. Am J Prev Med. 2012;43(1):81–91.
71. Campbell K, Waters E, O'Meara S, Summerbell C. Interventions for preventing obesity in childhood. A systematic review. Obes Rev. 2001;2(3):149–57.
72. Lister-Sharp D, Chapman S, Stewart-Brown S, Sowden A. Health promoting schools and health promotion in schools: two systematic reviews. Health Technol Assess. 1998;3(22):1–207.
73. Stewart-Brown S. What is the evidence on school health promotion in improving school health or preventing disease and specifically what is the effectiveness of the health promoting schools approach? Copenhagen: WHO Regional Office for Europe; 2006 (http://www.euro.who.int/__data/assets/pdf_file/0007/74653/E88185.pdf, accessed 19 November 2016).
74. Lynagh M, Knight J, Schofield MJ, Paras L. Lessons learned from the Hunter Region health promoting schools project in New South Wales, Australia. J Sch Health 1999;69(6):227.
75. Grossi V, Klimschak E, Rechenburg A, Shinee E, Schmoll O. The situation of water, sanitation and hygiene in schools in the pan-European region. Copenhagen: WHO Regional Office for Europe; 2016 (http://www.euro.who.int/en/publications/abstracts/situation-of-water,-sanitation-and-hygiene-in-schools-in-the-pan-european-region-the-2016, accessed 19 November 2016).
76. Van Maanen P, Shinee E, Grossi V, Vargha M, Gabriadze N, Schmoll O. Prioritizing pupils' education, health and well-being. Water and sanitation and hygiene in schools in the pan-European region. Copenhagen: WHO Regional Office for Europe; 2016

(http://www.euro.who.int/__data/assets/pdf_file/0007/321838/Prioritizing-pupils-education-health-well-being-en.pdf, accessed 95 November 2016).
77. Clayton S, Chin T, Blackburn S, Echeverria C.Different setting, different care: integrating prevention and clinical care in school-based health centers. Am J Public Health 2010;100(9):1592–96.
78. Guttu M, Engelke MK, Swanson M. Does the school nurse-to-student ratio make a difference? J Sch Health 2004;74(1):6–9.
79. Denny S, Robinson E, Lawler C, Bagshaw S, Farrant B, Bell F et al. Association between availability and quality of health services in schools and reproductive health outcomes among students: a multilevel observational study. Am J Public Health 2012;102(10):e14–20.
80. Wright K, Giger JN, Norris K, Suro Z. Impact of a nurse-directed, coordinated school health program to enhance physical activity behaviors and reduce body mass index among minority children: a parallel-group, randomized control trial. Int J Nurs Stud. 2013;50(6):727–37.
81. Levy M, Heffner B, Stewart T, Beeman G. The efficacy of asthma case management in an urban school district in reducing school absences and hospitalizations for asthma. J Sch Health 2006;76(6):320–4.
82. Taras H, Wright S, Brennan J, Campana J, Lofgren R. Impact of school nurse case management on students with asthma. J S Health 2004;74(6):213–9.
83. Pbert L, Druker S, DiFranza JR, Gorak D, Reed G, Magner R et al. Effectiveness of a school nurse-delivered smoking-cessation intervention for adolescents. Pediatrics 2011;128(5):926–36.
84. Mason-Jones AJ, Crisp C, Momberg M, Koech J, De Koker P, Mathews C. A systematic review of the role of school-based healthcare in adolescent sexual, reproductive, and mental health. Syst Rev. 2012;1:49.
85. National Research Council, Institute of Medicine of the National Academies. Adolescent health services: missing opportunities. Washington (DC): National Academies Press; 2009.
86. Tinsley BJ. How children learn to be healthy Cambridge: Cambridge University Press; 2003.
87. Emerging evidence, lessons and practice in comprehensive sexuality education. A global review 2015. Paris: UNESCO; 2015 (http://www.unfpa.org/publications/emerging-evidence-lessons-and-practice-comprehensive-sexuality-education-global-review, accessed 19 November 2016).
88. Hopkins K. Family communication: a catalyst for socially desired behaviours. PRism 2005;3(2):1–15.
89. Evans D, Clark NM, Levison MJ, Levin B, Mellins RB. Can children teach their parents about asthma? Health Educ Behav. 2001;28(4):500–11.
90. Rowling L, Samdal O. Filling the black box of implementation for health-promoting schools. Health Educ. 2011;111(5):347–62.
91. Christenson SL, Sheridan SM. School and families: creating essential connections for learning. New York (NY): Guilford Press; 2001.
92. Borrell C, Vives-Cases C, Domínguez-Berjón MF, Álvarez-Dardet C. Gender inequalities in science: Gaceta Sanitaria takes a step forward. Gac Sanit. 2015;29(3):161–3.
93. Webb RT MC, Abel KM. Teenage motherhood and risk of premature death: long-term follow-up in the ONS Longitudinal Study. Psychol Med. 2011;41(9):1867–77.
94. The state of the world's children 2015. Reimagine the future. New York (NY): United Nations Children's Fund; 2015 (http://sowc2015.unicef.org/, accessed 19 November 2016).

The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

Member States

Albania
Andorra
Armenia
Austria
Azerbaijan
Belarus
Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Georgia
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Luxembourg
Malta
Monaco
Montenegro
Netherlands
Norway
Poland
Portugal
Republic of Moldova
Romania
Russian Federation
San Marino
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Tajikistan
The former Yugoslav Republic of Macedonia
Turkey
Turkmenistan
Ukraine
United Kingdom
Uzbekistan

World Health Organization
Regional Office for Europe
UN City, Marmorvej 51, DK-2100 Copenhagen ø, Denmark
Tel.: +45 45 33 70 00 Fax: +45 45 33 70 01 E-mail: contact@euro.who.int
Web site: www.euro.who.int