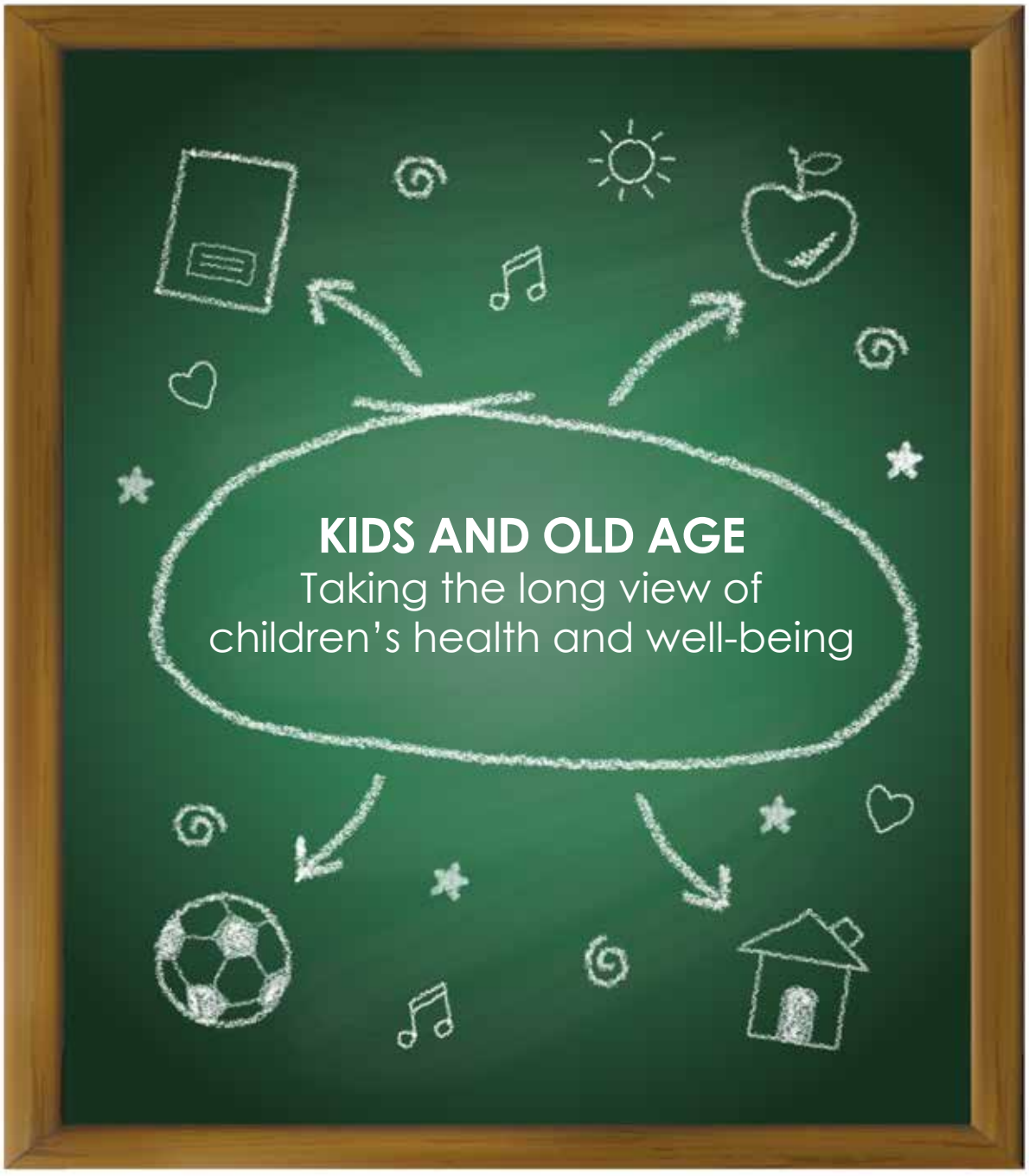
The Economist Intelligence Unit

A report by The Economist Intelligence Unit



KIDS AND OLD AGE

Taking the long view of children's health and well-being

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CONTENTS

2 **About this research**

5 **Executive summary**

8 **1. Are kids healthy?**

14 Box: Diabetes in Brazil: A losing battle

15 **2. Can schools cope?**

20 **3. Going beyond schools**

24 Box: School meals: A collective effort

25 **Conclusion: Integrated efforts**

26 **Appendices**

26 Appendix 1: Survey of parents – Full-sample results

34 Appendix 2: Survey of educators and public officials – Full-sample results

ABOUT THIS RESEARCH

Children tend to think of the last decades of life—when they think of such things at all—as a time of physical limitations rather than a time of active, vibrant and full participation in life. Yet as average longevity increases worldwide and medical progress enables longer healthy lives, a shift in that view is in order. Today's children stand to benefit from these trends when they reach old age—provided they are given the tools to protect their own health.

There is, however, reason to doubt that this message is reaching children in either developed or developing countries. To cite one example: obesity levels in children and adults are soaring, contributing to a fourfold surge in global diabetes rates since 1980, according to the World Health Organisation (WHO). This problem, found in middle-income as well as rich countries, can be addressed in part by instituting better diet and exercise habits early in life.

With this as background, The Economist Intelligence Unit, sponsored by Merck, undertook a study of five nations—representing both wealthy and middle-income countries—to determine the degree to which good health practices are being taught in schools and fostered in the home and in the community. Where relevant, the research also considers whether health education is being provided in the context of the long-term benefits—that is, with the aim of achieving longer healthy life years. The five countries surveyed are Germany, South Africa, India, Brazil and Saudi Arabia.

This study is based on three streams of research:

- Desk research to determine what is known about educating children to take a long-term view of their health
- Two online surveys, as follows:
  - 400 parents of primary school children (aged 5-16)
  - 101 educators and policymakers who have responsibility for educating school children on health matters

  The surveys were carried out in October and November 2016. They were conducted mainly online, with telephone follow-up where needed. The results of both surveys, including demographic profiles of respondents, are presented in the appendix to this report.

  The surveys asked respondents about the health and health practices of children in their care; whether current lifestyle habits point to future risks; and whether children understand the connection between current habits and future health. We also asked whether schools, the community and government are doing enough to promote good health practices; about the degree of contact between children and adults over the age of 65; and about concerns related to children's health.

The **parents'** survey sample is divided equally among the five countries, and is also equally divided between male and female respondents. Most of the respondents have 1-2 children; the exception is Saudi Arabia, where respondents have larger families. Most respondents cluster in the 31-45-year age range in all five countries. The children of the parents who responded to the survey are mainly aged 7-12. More than two-thirds of respondents have at least a university education, a higher proportion than in the larger populations; this weighting towards educated people is especially strong in Germany and South Africa.

The **educators and policymakers** survey is also equally divided among the five countries, with 21 respondents in South Africa and 20 respondents in each of the other four countries. Most of the respondents are school administrators or child development experts. All but two have either local- or regional-level responsibilities. The children in their care are fairly evenly divided along the age range 5-16, with slightly more emphasis on the lower end of this range.

- In-depth interviews

In November and December 2016 The Economist Intelligence Unit (EIU) conducted a programme of in-depth interviews with 18 experts. The EIU would like to thank the following interview participants, listed alphabetically, for their time and insights:

- Nancy Aburto, nutrition adviser, World Food Programme
- Ted Chaiban, director of programmes, United Nations Children's Fund (UNICEF)
- Tatiana Cunha, health specialist, Institute of Science & Technology, Federal University of São Paulo, Brazil
- Kevin Dadaczynski, senior researcher, Federal Centre for Health Education, Germany
- Lesley Drake, director, Partnership for Child Development, Imperial College London
- Sören Eichhorst, partner and western Europe leader, Healthcare Systems and Services, McKinsey
- Sebastian Gülde, spokesman, Ministry of Health, Germany
- Tania Holt, healthcare partner, McKinsey South Africa
- Benjamin Kuntz, health scientist, Robert Koch Institute, Germany
- Nana Taona Kuo, senior manager, health team, Every Woman Every Child (organisation affiliated with the United Nations)
- Tim Lobstein, head of policy, World Obesity Federation
- Luiz Eduardo Martins, researcher, Institute of Science & Technology, Federal University of São Paulo, Brazil

- Ali Mokdad, director of Middle Eastern Initiatives, Institute for Health Metrics and Evaluation; and co-author (with Saudi government) of Saudi Health Interview Survey
- Erasmus Morah, country director South Africa, Joint United Nations Programme on HIV/AIDS
- Satnam Singh, national manager of programmes, Smile Foundation, India
- Anada Soldo, deputy director, Department of Basic Education, South Africa
- Max Wrey, Saudi Arabia analyst, Alaco, UK
- Michael Yogman, fellow, American Academy of Paediatrics

The Economist Intelligence Unit bears sole responsibility for the content of this report. The findings and views expressed in the report do not necessarily reflect the views of the sponsor. Michael Kapoor, an independent business journalist, was the author of the report, and Aviva Freudmann, research director, EMEA Thought Leadership for The Economist Intelligence Unit, was the editor.

EXECUTIVE SUMMARY

1. **Today's children will be less healthy than today's adults over 65 when they reach that age**
    - In our survey, well over half of educators say that children will grow up to be less healthy than today's over-65s.
    - Both parents and educators consider children (and old people) to be generally healthy, but worry about children having sedentary lifestyles, being overweight and having unhygienic living conditions. All of these factors can hurt children's health later in life.
2. **Lifestyle-related problems are likely to contribute to chronic disease in later life and are already causing health problems among children**
    - Four-fifths (81%) of educators surveyed say that children run a high risk of being physically unfit later in life, and 57% say children risk developing chronic diseases such as diabetes.
    - They also worry about the impact of malnutrition, the risk of mental illnesses such as depression in later life, and the risk of future addiction to drugs or alcohol.
    - Close to one-third (32%) of parents surveyed whose children are not in good health report that at least one of their children already suffers from a chronic physical illness.
    - Despite expressing concern over their children's diet and sedentary lifestyles, few parents say their children are overweight, perhaps suggesting a limited awareness of the problems.
3. **Across the five countries surveyed, schools are targeting the main perceived problems, such as lack of exercise, but are ignoring mental health issues in children**
    - Most schools provide exercise classes and emphasise nutrition and hygiene education.
    - The importance of education for child health is widely recognised, with educators ranking teachers alongside parents as the most important sources of health education.
    - However, wider well-being issues, such as avoiding stress, are largely ignored, and neither parents nor educators report mental health problems as widespread among children. Evidence from Germany suggests that mental health problems, including anxiety and depression, rank alongside obesity as the major issues for child health, leading to physical and mental health problems in later life.

4. **Children are considered well informed about health and how their behaviour today will impact them later in life**
    - Across the five countries surveyed, a large majority of educators say that children understand how their current health habits will affect them in later life.
    - Children have regular contact with elderly people, but there is less emphasis in schools on promoting contact between old and young people, or on teaching the link between healthy practices today and health in old age.
    - Both parents and educators nonetheless believe strongly that teaching young people about good health practices benefits their health in the long term.
5. **There is little evidence that such school education programmes are managing to stem rising rates of obesity and mental disorders**
    - Outside of school, children in both rich and poor countries spend too much time on sedentary activities, such as watching television or playing computer games, our surveys show; more than half of South African parents report that this as a problem.
    - The surveys also show widespread concerns about children having poor nutrition and making poor nutritional choices.
    - As a result of lack of exercise and poor diet, obesity is rising across the world, and especially in middle-income countries such as Saudi Arabia and Brazil. In Germany, the number of overweight children has stabilised at a high level, but child obesity continues to rise.
    - In rich countries, mental health issues among children have increased rapidly; experts say that close to one-fifth of German children have possible symptoms, and doctors in the US report similar problems. However, this has only recently been identified, and our survey suggests little awareness of the scale of the problem: just 9% of parents surveyed say their children might show symptoms of mental health problems, suggesting they might not be detected or treated.
6. **Many of today's efforts centre on the formal school curriculum. To be more effective, however, health education should be more comprehensive and should target general lifestyle problems**
    - In our survey, only a small minority of parents say that community sports and health programmes are available for their children, with little effort to actively promote their use. In contrast, more than half of educators think such programmes are available.
    - Schools in all of the countries surveyed focus formal health education on exercise and avoiding substance abuse. However, few address related cultural and lifestyle problems.

- Saudi Arabia recognises that it has a big child obesity problem, but is not addressing cultural barriers to better practice, such as lack of opportunity for girls to exercise.
- South Africa has launched a successful campaign against high levels of HIV/AIDS infection centring on increased vaccination. However, there is no evidence of better education leading to reduced infection rates among high-risk groups, including adolescent girls.
- South Africa and India have relied on international aid donors to support the fight against malaria and HIV. However, there are no similar international aid programmes to tackle the surge in both countries in child obesity and child mental health problems.
- Access to health and education services can be patchy in India and Brazil; the rapid rise in child obesity is partly blamed on weak education and public-health services.
- School meals are an important part of child nutrition, but they can be too lightly regulated; even Germany has no mandatory nutrition requirements, and India is criticised for the low nutritional content of school meals.
- Germany is trying to develop a comprehensive plan to tackle child health problems at school and community level. This involves efforts to make kids more active during breaks and to train teachers to identify mental health problems at an early age. None of the middle-income countries surveyed has similar programmes.

1. ARE KIDS HEALTHY?

When asked about their children's health in a general way, parents surveyed for this research tend to have a positive view—as do educators responsible for teaching children about health. A strong majority (85%) of parents say their children's health is either "good" or "excellent". Among educators, 62% say the health of children in their care is either "good" or "excellent".

The general optimism extends to children's health practices. Across the five countries considered in this study—Germany, India, South Africa, Brazil and Saudi Arabia—parents say their children avoid harmful substances, participate in sports, practice good hygiene and eat healthy foods. Similarly, educators say children participate in programmes promoting exercise, good hygiene, healthy eating and avoidance of harmful substances. (Chart 1) (Chart 2)

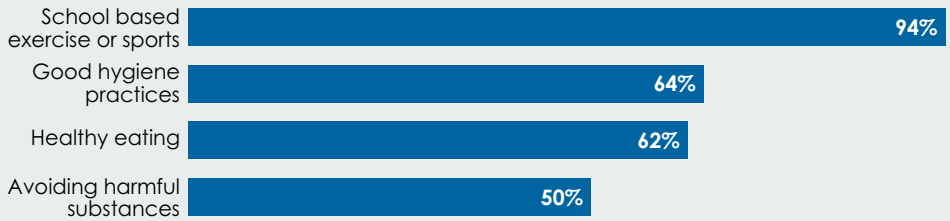
Chart 1: Health-minded-kids I

Thinking of your child/children, which of the following are currently part of their daily or weekly routine? Please select all that apply.
(% respondents)

Source: Economist Intelligence Unit, Parents' survey, Q9.

Chart 2: Health-minded-kids II

Thinking of the children in your community or district, in which of the following health-promoting activities do they participate?
Please select all that apply.
(% respondents)



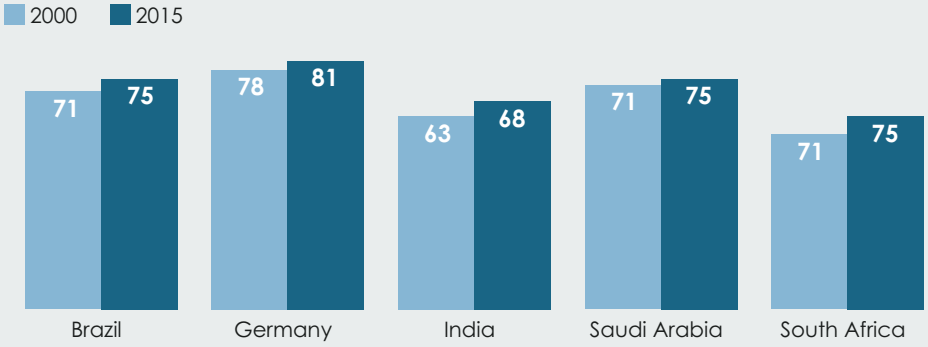
Source: Economist Intelligence Unit, Educators' survey, Q7.

The confidence is not entirely misplaced, as children have become healthier, in broad terms. The number of deaths of children under the age of five has more than halved since 1990, says Ted Chaiban, UNICEF's director of programmes. Child hunger, while not

eradicated, is increasingly confined to impoverished pockets in Sub-Saharan Africa and countries such as India and Brazil. Large-scale vaccination campaigns have helped to bring communicable diseases, from tuberculosis to malaria, under control. As a result, life expectancy has surged over the past 15 years in all the countries under review, according to the World Health Organisation (WHO). (Chart 3)

Chart 3: Living longer

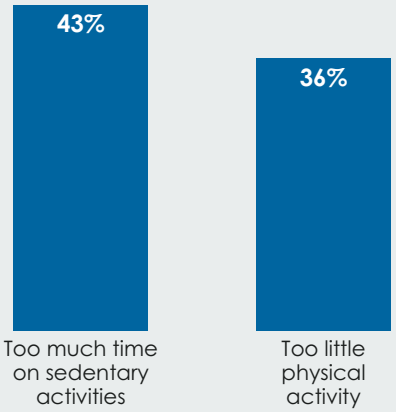
Life expectancy at birth
(years)



Source: World Health Organisation.

Chart 4: Too little movement

Which of the following, if any, apply to your child or children's current health or lifestyle? Please select all that apply.
(% respondents)



Source: Economist Intelligence Unit, Parents' survey, Q12.

Yet despite the broad optimism, there are notes of caution throughout the responses of parents and educators regarding certain aspects of children's health and lifestyle. For example, nearly one-third (32%) of surveyed parents whose children are not in good health say that at least one of their children suffers from a chronic physical illness; also, significant proportions of all surveyed parents say that their children are too inactive. (Chart 4)

Educators express similar concerns, with 32% saying too many children suffer from a chronic illness. Close to two-thirds of educators also say that children make "poor nutritional choices"; this proportion rises to three-quarters in Brazil and India, compared with little more than 50% in Germany. (Chart 5)

Chart 5: Worries about child health

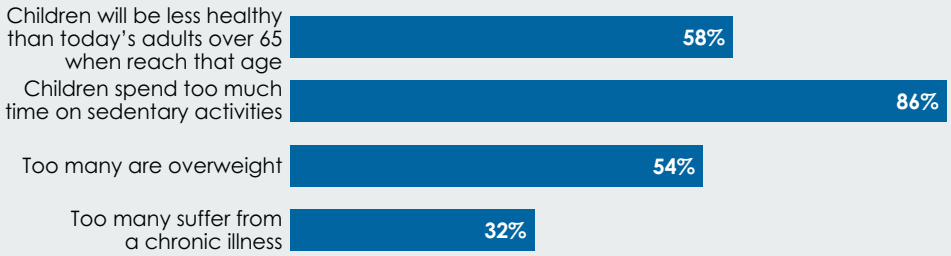
What are your main concerns, if any, regarding the health or lifestyle of children in your community or district? Please select all that apply.
(% respondents)

Source: Economist Intelligence Unit, Educators' survey, Q8.

Significantly, 58% of educators say that today's children will be less healthy than today's over-65s when they reach that age. (Chart 6)

Chart 6: Dim outlook

Please state the degree to which you agree or disagree with each of the following statements concerning children in your community or district.
(% respondents who agree strongly or agree somewhat)



Source: Economist Intelligence Unit, Educators' survey, Q9.

Looking ahead, educators see a range of problems affecting today's children when they reach their mid-sixties, including a general lack of fitness and developing a chronic disease. (Chart 7)

Chart 7: Dangers ahead

What problems, if any, do you see developing for today's children when they reach their mid-sixties? Please select all that apply.
(% respondents)

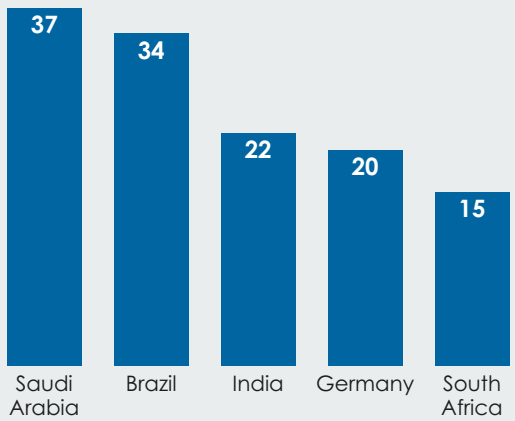
Source: Economist Intelligence Unit, Educators' survey, Q11.

Broader health data—both current and forecast—suggest that respondents have good reasons for these concerns. Data on the growth of diabetes, a disease largely related to lifestyle choices, show the trend. The global rate of diabetes has quadrupled since 1980, according to the WHO. It says that the number of diabetes sufferers worldwide surged from 108m in 1980 to 422m in 2014, with the prevalence rate among adults nearly doubling to 8.5% (from 4.7%) over the same period.

Diabetes is a problem in Germany, but it is an even bigger problem in all four of the less developed countries under review. As a percentage of the population, India already has more diabetes sufferers than Germany, for example. The World Diabetes Federation expects the number of diabetics in South-east Asia to surge from 78m (69m in India alone) today to 140m by 2040. (See box: Diabetes in Brazil: A losing battle).

The trend is similar for other lifestyle-related diseases. Globally, the number of deaths from cardiovascular disease increased by 41% between 1990 and 2013, according to the Institute for Health Metrics and Evaluation (IHME), an independent global health research centre at the University of Washington in Seattle. Further, child obesity rates are soaring, especially in middle-income countries. A recent survey by the European Society of Cardiology (ESC) found that the obesity rate for 10-15-year-old Brazilians rose from 6% in 1986 to 18% in 2016. In total, about one-third of Brazilian children are overweight, as are more than one-third of Saudi children and one-fifth of Indian children. In Germany, child obesity is rare (around 5%), but about one-fifth of children are overweight. (Chart 8)

Chart 8: Overweight – official view



Sources: Robert Koch Institute; World Health Organisation; national statistics.

According to Tim Lobstein, head of policy at the World Obesity Federation, the rise in the number of relatively affluent city dwellers is contributing to an explosion in obesity in middle-income countries, especially in children, as people exercise less and eat more non-nutritious food. This, in turn, is leading to a sharp increase in chronic diseases (such as diabetes and cardiovascular complaints) among adults, he says.

A look at individual countries shows how lifestyle problems contribute to disease. Ali Mokdad is the director of Middle Eastern Initiatives at the IHME , which produces the Saudi Health Interview Survey (of people aged 15 and above) in partnership with the Saudi government.[1] "Chronic illnesses are increasing in the Kingdom of Saudi Arabia,"

[1] http://www.healthdata.org/sites/default/files/files/Projects/KSA/Saudi-Health-Interview-Survey-Results.pdf

he says. In 2013 some 15% of men and 12% of women had diabetes, with 18% of men and 13% of women suffering from hypertension or high blood pressure. "This reflects unhealthy lifestyles, with high levels of smoking, obesity, poor diet and lack of exercise." Almost half of all women and one-quarter of men are physically inactive. Smoking levels are increasing, up from 12% among 25-65-year-olds in 2005 to 15% in 2013, and are especially high among men.

Dr Mokdad's comments are echoed by experts in other middle-income countries under review. Satnam Singh, national manager of programmes at the Smile Foundation, a community development charity in India, says that concern is growing over chronic diseases stemming from unhealthy lifestyles in urban areas and lack of awareness in rural areas, which is overtaking worries over the spread of infectious diseases such as malaria.

The problems caused by poor diet and lack of exercise are being compounded by rising smoking rates, as more people have the money to buy tobacco. One recent study found that in India the number of male smokers rose by one-third between 2008 and 2015, to 108m.[2] In fact, the overall prevalence of smoking fell slightly over the period, with the increase explained by population growth, but the rate did increase very sharply among younger people—the number of smokers aged 14-29 increased fourfold over the period.

Some of the population-wide problems can be traced back to patterns developed during childhood, for example the lack of exercise and poor nutritional choices noted by our survey respondents. Certainly, the health indicators raise questions about whether children are sufficiently informed about basic health issues, such as the importance of exercise and the dangers of smoking. When viewed in the context of these health indicators, it is perhaps unsurprising that the educators in our survey believe that children will grow up to be less healthy than today's over-65s.

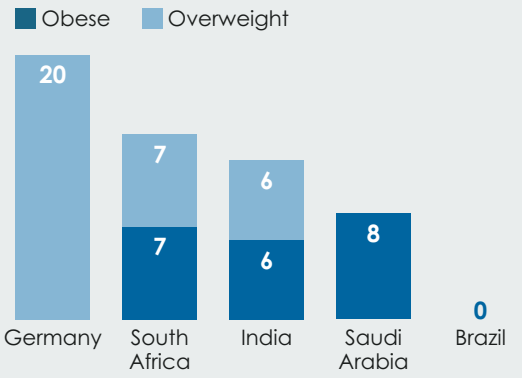
Considering the trends in the broader population, our survey respondents are surprisingly upbeat about their children. Just 6% of parents whose children are not in good health say that at least one of their children is overweight, and 5% of those parents say at least one of their children is dangerously overweight or obese. This optimism might reflect the fact that the parents in our survey are generally more affluent and better educated than the wider population, and those factors are correlated with better child health. Nonetheless, considering that an estimated one-third of children in Saudi Arabia and Brazil are overweight, the survey result is surprising—particularly in Brazil, where none of the parents whose children are not in good health say a child of theirs is either overweight or obese. (Chart 9)

Similarly, it may seem good news that overall, only 8% of parents whose children are not in good health say at least one of their children suffers from a mental illness. (The figure in individual countries is less cheerful: 20% of South African parents whose children are not in good health gave this response, as did 11% of Brazilian and 10% of German parents.) Yet this confidence may be misplaced, as mental health is emerging as one

[2] http://promotions.bmj.com/globalhealth/wp-content/uploads/sites/20/2016/02/bmjgh-2015-000005_Version_2.pdf

Chart 9: Overweight – parents' view

Which, if any, of the following statements currently applies to at least one of your children? Please select all that apply.
(% respondents whose children are not in good health; Results for: "is obese" and "is overweight" – broken down by country; overall sample result for respondents whose children are not in good health: overweight 6%; obese 5%)



Source: Economist Intelligence Unit, Parents' survey, Q11.

of the most widespread—and serious—problems in child health, with severe knock-on effects for adult health.

In Germany, an ongoing survey[3] of child and adolescent health by the government-linked Robert Koch Institute (RKI), which is responsible for disease control and prevention, found that close to one-fifth (20%) of children suffer from mental-health issues. "Mental health issues directly impact health in later life," says Benjamin Kuntz, a public-health specialist at RKI. He adds that mental health disturbances can contribute to physical problems such as heart disease and strokes, as well as to chronic mental illnesses such as depression in adulthood and to problems with work.

The parents in our survey seem only vaguely aware of mental health issues that could affect children in their countries, tending to say that their children are unaffected by such problems, just as they are unaffected by general problems related to being overweight. If the view of these parents is the result of a genuine lack of such issues for their own children—perhaps in turn the result of the parents' higher than average socioeconomic status—then well and good. If, however, parents underestimate or fail to perceive a problem facing their children, this could cloud their children's long-term health outlook. "The need is for early intervention," says Michael Yogman, a fellow at the American Academy of Paediatrics, referring to mental health as well as to general fitness.

If early intervention is crucial, then schools play a vital role both in keeping children healthy and in teaching them how to remain healthy in later life. The next chapter considers the role of schools in meeting this challenge.

[3] http://www.rki.de/EN/Content/Health_Monitoring/HealthSurveys/Kiggs/Kiggs_node.html

DIABETES IN BRAZIL: A LOSING BATTLE

Globally, much of the concern over lifestyle-related diseases centres on type 2 diabetes, which tends to hit overweight people who don't exercise in older age. That makes it tempting to overlook type 1 diabetes, the rarer but more extreme form of the disease that often strikes children. Fighting this disease requires early diagnosis and specialist treatment. Brazil offers a sobering example of a country failing to meet this challenge.

Luiz Eduardo Martins, a researcher at the Institute of Science & Technology at the Federal University of São Paulo, is developing a low-cost insulin pump for type 1 sufferers, essential for administering an accurate dosage of the drug. He says that Brazilian import duties on foreign-made pumps—the only ones currently available—push the price up to over US$4,000, with annual running costs almost as high. That puts the device out of the reach of most Brazilians who need it.

More broadly, the country is failing to diagnose and treat most of the estimated 30,000 Brazilians with type 1 diabetes. Together with type 2 sufferers, approximately 14m Brazilians have diabetes, according to the International Diabetes Federation, the fourth-highest number of any country in the world.

The government does not collect figures for diabetic children but has introduced a number of measures to control the problem. These include free medication, community exercise classes in some of the big cities, and a school-based educational programme about diabetes.

Professor Martins's colleague, the health specialist Tatiana Cunha, is not convinced. She says that Brazilians' diets remain poor, that exercise levels are modest ("schools only teach sport for two hours a week") and primary care is not equipped to spot diabetes early on. "Many diabetics are undiagnosed," she says.

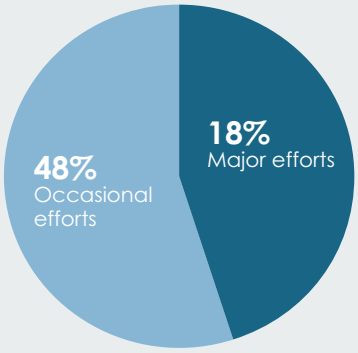
This problem is most acute in remote areas such as the Amazon, in a country where one-fifth of the population lives in poverty. Overall, Brazil's health and education systems already struggle to cope with the problem of diabetes. Extending the resources to reach the very poorest Brazilians will be a big challenge in a time of austerity.

2. CAN SCHOOLS COPE?

Many of the factors damaging adult health in the countries under study, from poor diet to smoking, involve habits and practices that can be shaped at an early age. Responsibility for shaping that behaviour belongs equally to parents and educators. Survey respondents tend to agree with this assessment. In our survey of educators, 63% say teachers have the most influence on imparting good health practices to children, and almost the same proportion (64%) say the same about parents.

Chart 10: Working hard

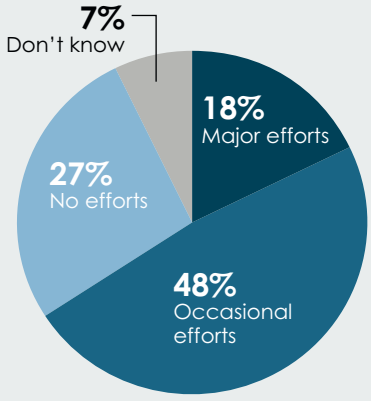
What degree of effort, if any, does your school or school district make to promote children's knowledge about the link between healthy practices and longer life? Please select one.
(% respondents)



Source: Economist Intelligence Unit, Educators' survey, Q16.

Chart 11: Hardly working

What degree of effort, if any, does your child's school make to promote children's knowledge about the link between healthy practices and a longer healthy life? Please select one.
(% respondents)



Source: Economist Intelligence Unit, Parents' survey, Q18.

Educators also say they make major efforts to meet that responsibility and ensure that children are aware of long-term health consequences of their habits today. (Chart 10)

Parents, on the other hand, are somewhat less convinced. Nearly half say schools make only occasional efforts in this area, and more than one-quarter say schools make no efforts. (Chart 11)

Parental scepticism about schools' efforts in this area is greatest in Brazil and Saudi Arabia, where one-third of parents (33% in Brazil, 35% in Saudi Arabia) say schools make "no efforts" in this area.

Educators, however, not only believe they are making great efforts, but that their efforts are succeeding. Educators surveyed say children in their districts are knowledgeable about the connection between healthy practices in childhood and healthy longevity, with rising levels of awareness as children get older. (Chart 12)

Chart 12: Savvy kids

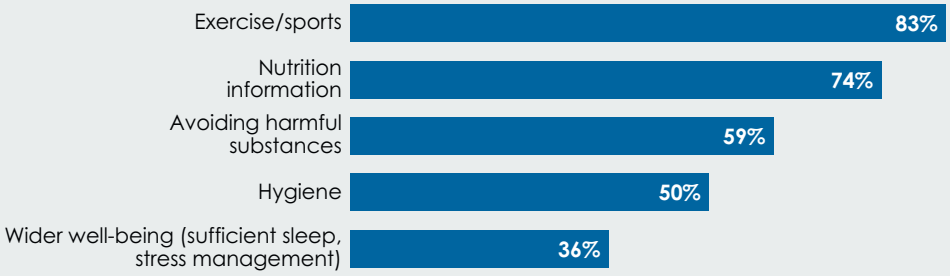
In your view, how knowledgeable are children in your community or district about how their current health habits will affect them later in life?
Please select one answer for each age group.
(% respondents; "very knowledgeable" or "somewhat knowledgeable")

Source: Economist Intelligence Unit, Educators' survey, Q10.

Concerning the specifics of what they are teaching, educators say courses focus on the basics: good nutrition, exercise/sports, and avoiding harmful substances. Exercise and sports programmes are at the top of the list, with 83% of educators surveyed saying their schools offer such courses. Interestingly, Saudi Arabia brought down the five-country average on this item: only 60% of educators there cited sports programmes, compared with 90% or nearly 90% in the other four countries. (Chart 13)

Chart 13: Teaching the basics

What type of courses or programmes, if any, does your school or school district provide to promote good health practices among children?
Please select all that apply.
(% respondents)



Source: Economist Intelligence Unit, Educators' survey, Q13.

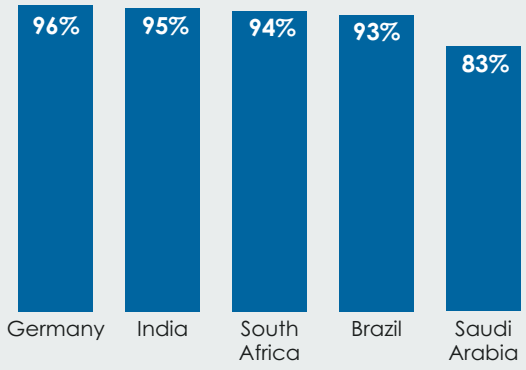
Parents surveyed for this report tend to share this view, saying that schools provide comprehensive education on basics such as exercise/sports (92%), hygiene (66%), nutrition (62%), and avoiding harmful substances (63%). Saudi parents tend to confirm the impression given by Saudi educators that sports/exercise plays a comparatively less important role there than in the other countries surveyed. (Chart 14)

While sports is high on the list of priorities of educators and parents for their children's health education, relatively little attention is paid to wider well-being concerns. Only about one-third (36%) say schools promote wider well-being practices, such as avoiding stress and getting enough sleep, with educators in Brazil, India and (especially) South

Chart 14: Focus on sports

What type of courses or programmes, if any, does your child's school provide to promote good health practices?

(% saying "exercise/sports" – breakdown by country; sample average 92%)



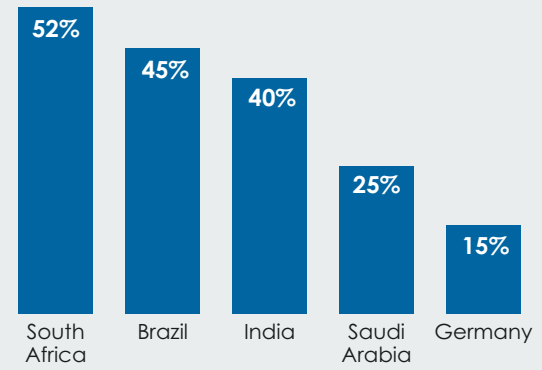
Source: Economist Intelligence Unit, Parents' survey, Q16.

Chart 15: Well-being: a lesser priority

What type of courses or programmes, if any, does your school or school district provide to promote good health practices among children?

Please select all that apply.

(% saying "promoting well-being" - By country; (Sample average 36%)



Source: Economist Intelligence Unit, Educators' survey, Q13.

Africa quite confident that such instruction has a place in their curriculums, in contrast to those in Germany. (Chart 15)

In many ways, schools' emphasis on the basics of sports and nutrition seems accurately to zero in on poor habits and practices that could damage health in later life. The focus on proper nutrition is important not only in view of rising child obesity levels, but also in view of the breadth of nutritional choices available to many children. "Most people have access to food although millions do not," says Dr. Nancy Aburto, a nutrition adviser to the World Food Programme. "The need now is to improve nutrition." In several of the countries under review, including Brazil and India, undernutrition can coincide with obesity. As well as the newly affluent city dwellers choosing non-nutritious foods, poor people tend to buy less expensive foods such as rice rather than healthier, but pricier, fresh produce.

Changing dietary patterns is a big challenge, says Dr Aburto. Among the solutions is changing agricultural policies and pricing to make less expensive, nutritious food more widely available. But making good food choices is also a matter of education, for both children and their parents. Children need to understand what foods contribute to their long-term health. Educators surveyed accept this view: they list nutritional information in schools as the focus of health-oriented courses they offer, second only to exercise. Equally, their focus on teaching children to avoid harmful substances—ranked third in that list—appears well founded, as alcohol consumption is on the rise in countries such as Brazil[4] and India.[5]

[4] http://www.who.int/substance_abuse/publications/global_alcohol_report/profiles/bra.pdf

[5] http://indianexpress.com/article/india/india-others/alcohol-consumption-rising-fast-in-india-oecd-report/

So far, policymakers have made little progress in curbing rising obesity and (in the developing countries) smoking levels. However, they have had more success in the fourth-ranked focus of school programmes identified by educators in our survey, namely hygiene. Unhygienic living conditions are a major problem in countries such as India, where the government has launched a large-scale campaign to encourage the use of toilets or latrines, for example. Education has a key role to play in promoting hygiene to control illnesses such as diarrhoea—a major killer of children as well as a major problem for adults. UNICEF says that the number of children dying from diarrhoeal disease globally fell from 1.2m per year in 2000 to about 760,000 per year in 2011, reflecting a better understanding of hygiene issues as well as government programmes to improve sanitation.

While focusing on these basics, however, schools tend to give scant attention to promoting mental health—an area that is emerging as a major problem in some developed countries. Dr Yogman of the American Academy of Paediatrics cites "behavioural problems" as second in importance only to obesity when asked about the major child health issues in the US. In Germany there is evidence that such problems are present as well. The RKI survey of child health found that 20% of German children are at risk of mental health problems, including depression--about the same proportion of children who are overweight. The risks of childhood mental health problems and of childhood overweight and obesity rise as socioeconomic level declines, the study found. Indeed, overweight and obesity in children can contribute to mental health problems and vice versa, notes Kevin Dadaczynski, senior researcher for the Federal Center for Health Education and for Leuphana University in Lueneburg, Germany.

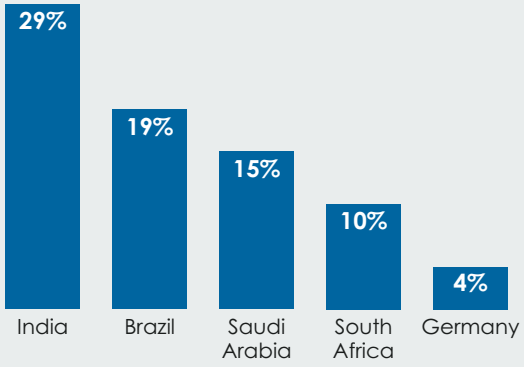
Even in Germany, progress on detecting and treating child mental illness is at an early stage, with the extent of the problem first identified in RKI surveys a little over a decade ago. Both Dr Dadaczynski and Dr Yogman say that such problems need to be identified—and dealt with—at an early age by psychologists and social workers intervening at family level and by school teachers trained to spot mental health issues in young children. "A child with depression is often the quiet, model student, which means that mental health problems are often overlooked," Dr Dadaczynski notes. More generally, schools should do more to promote children's general well-being as one way to prevent mental health issues from developing—for example, by focusing on stress management and the importance of sufficient sleep, and by creating a warm and supportive atmosphere.

Schools could also do more to promote contact between children and adults over 65, so that children can see and understand the ageing process—and perhaps take a longer-term view of their own health-related behaviour. In our survey, half of parents say their children have frequent contact with people aged 65 and over. However, only 15% of parents surveyed say that schools promote regular contact with adults over 65, and 14% say schools promote occasional contact.

Chart 16: Young and old

What type of programmes, if any, does your child's school provide to promote awareness of ageing and the elderly?

(% saying "regular contact" – by country; sample average 15%)



Source: Economist Intelligence Unit, Parents' survey, Q17.

The five countries surveyed differ markedly in this area. In India, where the extended family model is under threat from the migration of young people to the cities, 29% of parents say schools promote regular contact between young and old, compared with 4% of German parents who say that this is the case. (Chart 16)

Educators, on the other hand, tend to say that schools make at least occasional efforts to ensure contact between young and old (71%), and another 9% say such efforts are not needed because this contact occurs naturally. In India, 90% of educators surveyed say schools make at least occasional efforts in this area. In contrast, only 42% of educators say that schools encourage an understanding of the links between healthy habits in childhood and a healthy old age. (Only 30% of parents surveyed gave this response.)

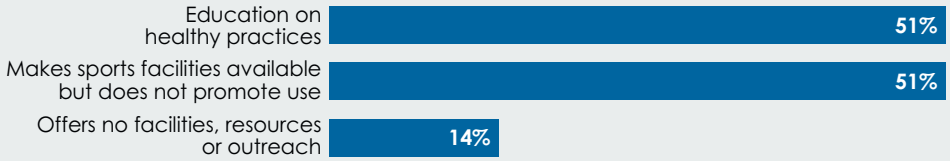
In sum, school curriculums focus on some important aspects of health education, helping children to understand the importance of exercise, good nutrition and proper hygiene, as well as avoiding harmful substances such as cigarettes, drugs or excessive alcohol. However, formal curriculums are more limited in other areas of importance to children's current and future health, such as practices contributing to broader well-being and awareness of the realities of the ageing process. Some of these topics, particularly those related to lifestyle, should be taught outside of school as well as in it. The next chapter considers the role that the wider community can play in teaching children about healthy practices and longevity, and how the efforts of parents, schools and communities can be co-ordinated.

3. GOING BEYOND SCHOOLS

While there are gaps in schools' approach to educating children about health, the larger problem may lie elsewhere: the failure to integrate efforts of families, schools, communities and policymakers in promoting healthier lifestyles among children. The surveys conducted for this study suggest that lifestyle problems begin and develop at home, with children combining sedentary lifestyles with poor diets—and in some instances acquiring smoking or drinking habits. Parents and communities could do more to counter such developments. Communities, for example, provide sports centres but do little to encourage their use. (Chart 17)

Chart 17: Non-school programmes

What types of non-school programmes, if any, are available in your community to teach children about healthy practices?
Please select all that apply.
(% respondents)



Source: Economist Intelligence Unit, Educators' survey, Q20.

Nor do high child obesity rates suggest that children are being taught to eat healthily outside of school—or even within it. "The school system is key [to improving children's diet]," says Lesley Drake, executive director of the Partnership for Child Development at Imperial College London, which develops school health and nutrition programmes in low- and middle-income countries. (See box: School meals: A collective effort.)

In many countries, official standards governing school meals are surprisingly lax. Germany and the UK have no mandatory nutritional requirements for such meals. In India, the government has tried to impose standards, but these are undermined by careless food preparation. "Meals are either so overcooked that they lack any nutritional value, or they are distributed raw," says Mr Singh of the Smile Foundation. He adds that community health workers are very lightly trained, leading to concerns over the quality of health advice available to families at community level.

The mixed performance on school meals arises from a deeper problem: under-resourced education systems, particularly in impoverished regions, leading to schools struggling to meet their primary educational tasks, let alone their responsibility to contribute to child health. The presence of under-resourced and weak schools means, in turn, that governments cannot rely exclusively on schools to promote health education.

An example is provided in South Africa, where schools might be expected to play an important role in stemming the HIV/AIDS epidemic but are not in a position to do so. The government of the president, Jacob Zuma, has focused its efforts on a large scale

treatment and prevention campaign. Erasmus Morah, country director for South Africa of the joint United Nations Programme on HIV/AIDS (UNAIDS), applauds that effort but says more remains to be done. Among the groups with high infection rates are adolescent girls and homosexual men; in both cases better sex education could teach them (and their partners) to avoid risk. The school system in South Africa is too stretched to provide this.

In other countries, resources may be present but cultural barriers prevent the use of school systems to promote health. For example, in Saudi Arabia "sex education is taboo", says Max Wrey, a Saudi Arabia analyst at Alaco, a consultancy.

Similarly, Saudi schools can do little to counter cultural and religious obstacles to healthy living. This is especially true for women, three-quarters of whom do little exercise and one-third of whom are obese, according to the IHME, which publishes the Saudi Health Interview Survey in partnership with the Saudi government. Saudi gyms must be segregated and female gyms must be registered as something else, such as a spa, making them more expensive. Women and girls are not allowed to cycle, and many other sports are taboo as well, at least in public.

Indeed, many national governments recognise the need to co-ordinate the actions of various departments to take on health education as well as public health issues, such as obesity and alcohol abuse. Anada Soldo, deputy director at the Department of Basic Education in South Africa, says that the government has launched a wide-ranging, integrated school health-policy initiative, involving "close collaboration between all role-players, with the Departments of Health, Basic Education and Social Development taking joint responsibility".

This initiative encompasses formal school curriculums as well as confronting barriers to education and dealing with the causes of illness and death among children. As part of the initiative, nurse-led health teams will work within schools, offering deworming tablets and sex education directly to pupils, for example. "Through ongoing health education, children will learn how their actions now could affect them in later life," says Ms Soldo. This initiative is part of a wider strategy to improve access to healthcare in South Africa, which is also working on a national health insurance scheme.

India is trying a co-ordinate its approach as well and has already set up a network of community health centres at village level. These offer basic healthcare advice and access to qualified physicians when necessary. Such moves have already helped to improve health outcomes for children and adults. Economist Intelligence Unit data show that the infant mortality rate has fallen from 48 per 1,000 births in 2011 to 41 in 2016, for example.

At the same time, India has launched co-ordinated campaigns to improve health, including child health. One initiative takes aim at obesity by, among other things, requiring regular assessment of school children's physical fitness. Another involves

investing heavily in improved sanitation. Some results are in evidence: the WHO says that 40% of Indians had access to good sanitation facilities, such as clean water supplies, by 2015, up from 17% in 1990.[6]

Saudi Arabia, for its part, is making a determined effort to curb obesity. The government has launched a national campaign involving 1,600 health professionals trained in obesity control working in 40 clinics to detect obesity early. The initiative also involves a detailed programme to promote healthier lifestyles, spanning everything from healthier eating to doing more exercise.

These national campaigns are not necessarily focused on children, although children do benefit from them. The challenge lies in integrating schools' health-education efforts with wider national health campaigns, and ensuring that children understand the link between health-promoting behaviour today and longer healthy lives when they reach adulthood.

Moreover, such programmes should involve families and community officials in addition to schools. Our surveys suggest that efforts at community level are uneven. The proportion of educators in India (75%) and Saudi Arabia (70%) who say communities offer health education programmes is far higher than the proportion of educators in South Africa (38%), Germany (35%) or Brazil (35%) who say so. Only about 30% of educators say their communities offer regular events promoting awareness among children of quality of life in old age.

Germany, for one, is starting to recognise this problem and is drawing up plans for co-ordinated, community-led action to tackle the lifestyle problems. Dr Dadaczynski at Germany's Federal Centre for Health Education says that his department is working on a detailed programme to address the child health issues--including the correlation of child health problems with low socio-economic level--identified in the health survey of the Robert Koch Institute. The initiative involves supporting networking of teachers and other professionals to find local solutions to child health problems.

"One key is to identify a local community leader" rather than relying on a central programme, Dr Dadaczynski says. He adds that "children need to be encouraged to exercise outside of organised school sport", for example by creating outdoor play spaces so that kids spend their breaks being energetic. This move should be replicated outside of schools by building playgrounds and the like where there are none available in the community.

With political will, rich countries can co-ordinate their various departments to achieve such objectives. Poorer countries face a more difficult task. Brazil, for example, has legislated to ensure free access to medication for anyone suffering from diabetes or high blood pressure. But Tatiana Cunha, a health specialist at the Federal University of São Paulo, says that primary healthcare is too stretched to deliver on such promises consistently, or to spot people at risk of diabetes. "Most people with type 2 diabetes are

[6] WHO/UNICEF Joint Monitoring Programme: www.wssinfo.org

undiagnosed," she says. A 2015 paper in the *Annals of Global Health*, entitled "Diabetes Care in Brazil", found that "among patients with type 1 diabetes, almost 90% fail to reach the target of glycemic control."[7]

To tackle problems on this level, governments need to do more than include health advice and education in school lessons. They need to ensure adequate resourcing for national programmes to be carried out at the local level, whether through family doctors, social workers or teachers. Limited resources in Brazil, India and South Africa raise questions about whether this is feasible. At stake is the ability to foster the kind of lifestyle choices that pay long-term dividends—and perhaps even stem the growth of chronic diseases—when today's children reach adulthood.

[7] http://www.sciencedirect.com/science/article/pii/S2214999615013077

SCHOOL MEALS: A COLLECTIVE EFFORT

School-meal programmes offer an example of potential co-operation between school officials and other levels of government, such as agricultural policymakers and health regulators, to establish healthy eating patterns at an early age. There are some signs of awareness of the importance of such programmes to children's current and future health, and a few promising examples of progress.

About 368m of the world's children receive school meals, including in countries such as India and South Africa, according to the Partnership for Child Development (PCD), a research and technical assistance group based at Imperial College London. Many of these programmes are used to improve child nutrition, according to the PCD's executive director, Lesley Drake. She points to Ghana, where school food is enhanced with specific nutrients missing in most children's diets, and Chile, where children are being taught to eat more healthily.

A successful programme relies on many elements, from sourcing healthy ingredients to planning balanced menus and ensuring that cooked foods retain their nutritional value. A key factor is using fresh local produce, says Dr Drake, who is also a member of the Faculty of Medicine at the School of Public Health at Imperial College London. Sourcing local ingredients has many advantages: children eat more healthily, school attendance increases, and family incomes rise as local farmers are guaranteed a market for their produce.

India has been an enthusiastic supporter of school meals as it battles malnutrition in poor areas as well as obesity in cities. However, implementation is patchy. Satnam Singh at the Smile Foundation, a non-governmental organisation, says that poor health training and improper cooking by local workers make the meals lose nutritional value.

Despite such problems, the idea of high-quality, balanced school meals is gaining traction worldwide, supported by international bodies such as the World Food Programme. "The number of people in absolute hunger has fallen," says Nancy Aburto, an adviser to the World Food Programme. "The problem now is nutrition, and finding a way for poorer people to have access to fresh, nutritious food. That involves everybody, from the agriculture to the education departments." School meals are a great medium for healthier eating, but ensuring that they are sufficiently healthy is a major task involving a variety of players.

CONCLUSION: INTEGRATED EFFORTS

Whether or not children understand the link between their actions now and their health later in life, one thing is clear: the current level of effort in homes, schools and communities is insufficient to stem a surge in lifestyle-related diseases in future. Levels of child obesity and mental illness are already too high and in many cases are rising. That points to a future of older adults suffering from a range of illnesses, from diabetes and cardiovascular disease to depression.

Avoiding this outcome will require co-operation among health systems, schools, parents and senior policymakers at national and regional levels. Children and their parents need to be made more aware of the link between their lifestyles and their health in later life. Our research suggests that schools are making some efforts in this area, but that relatively little is being done in the wider community and that efforts at all levels require better co-ordination.

This research points to a series of steps that should be taken to improve the outlook for children's health when they become adults:

- Promote greater awareness among children and families of the link between children's health and lifestyle practices today and their long-term health prospects
- Place greater focus on broader well-being issues, along with the current emphasis on the basics of nutrition, exercise, good hygiene and avoiding harmful substances
- Train teachers to be aware of the link between childhood health practices and healthy longevity, as well as the signs of possible mental health issues in children
- Co-ordinate different levels of government in delivering health-promoting programmes, such as those related to improving school meals
- Promote good health practices outside the formal school curriculum, for example by encouraging exercise during school breaks
- Involve the wider community in addressing any cultural barriers to fitness and health promotion.

APPENDICES

Appendix 1: Survey of parents – Full-sample results

Are you the parent of a child aged between 5 and 16 who attends school?
(% respondents)

In which country are you located? Please select one.
(% respondents)

How many members of your household (you, and those living with you) are aged 65 or older? Please select one.
(% respondents)

How many children between ages 5 to 16 live in your household? Please select one.
(% respondents)

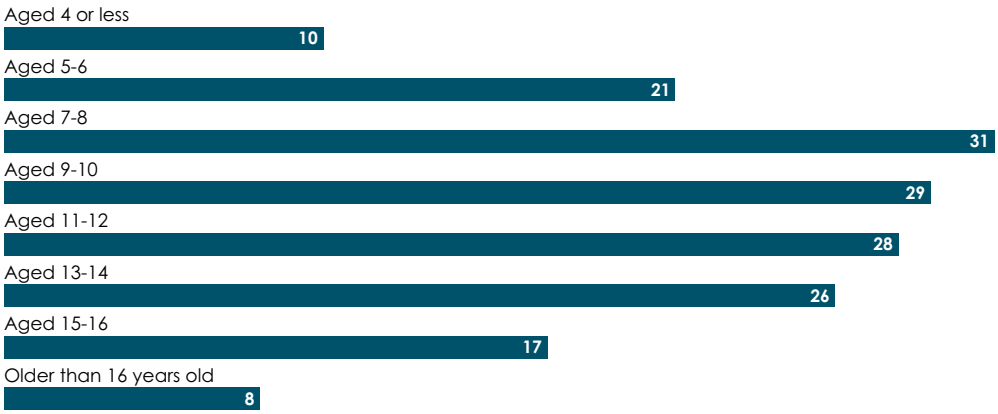
What is your gender?
(% respondents)

To which of the following age groups do you belong? Please select one.
(% respondents)

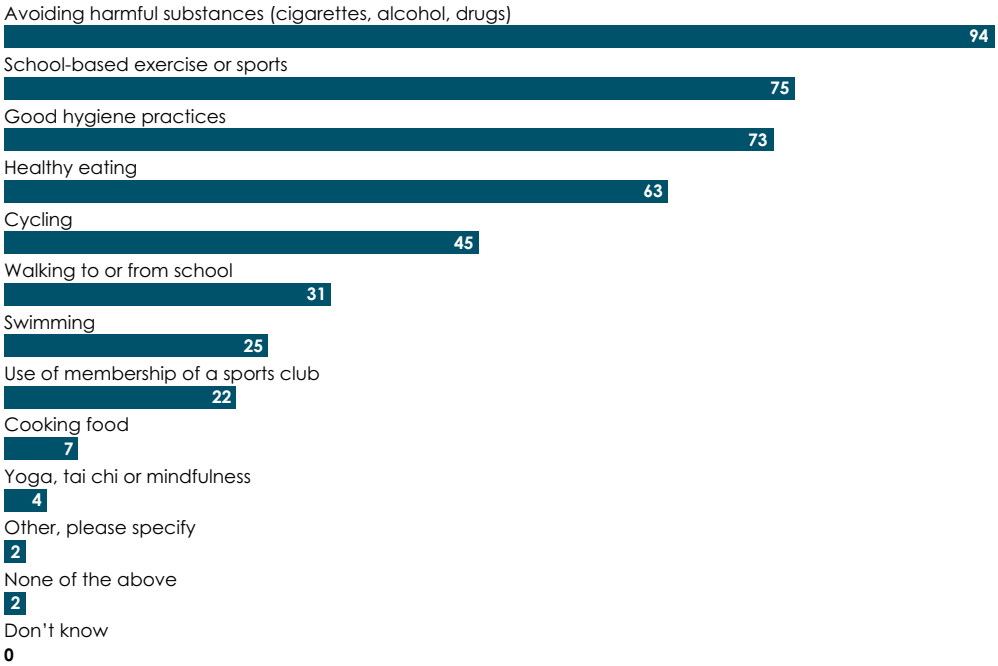
What is the highest level of education that you completed? Please select one.
(% respondents)

How would you describe your financial situation? Please select one.
(% respondents)

How old is your child/are your children currently? Please select all that apply.
(% respondents)

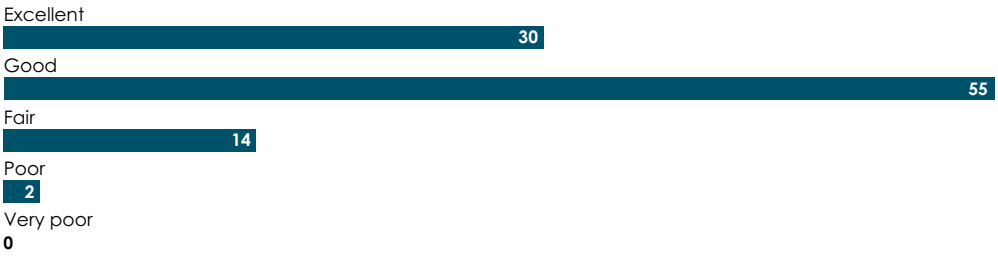


Thinking of your child/children, which of the following are currently part of their daily or weekly routine? Please select all that apply.
(% respondents)



Overall, how would you describe the current health of your child/children? Please select all that apply.

(% respondents)

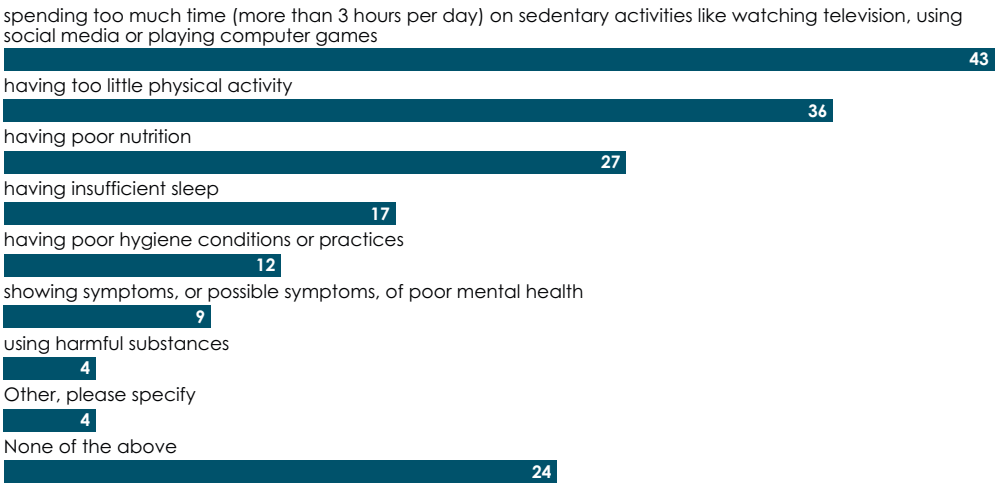


Which, if any, of the following statements currently applies to at least one of your children? Please select all that apply.

(% of respondents saying "fair", "poor", or "very poor" in previous question)

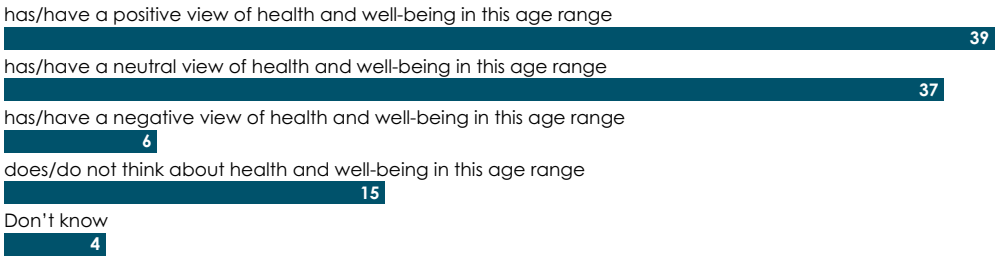
Which of the following, if any, currently apply to your child or children's current health or lifestyle? Please select all that apply. *I am concerned about my child/children:*

(% respondents)



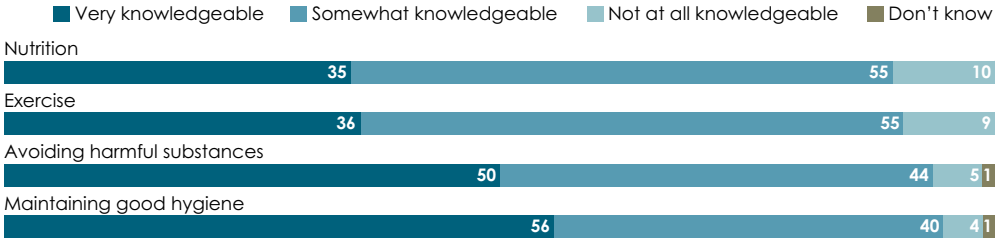
How does/do your child/your children view the health and well-being of people over age 65? Please select one answer.

(% respondents)



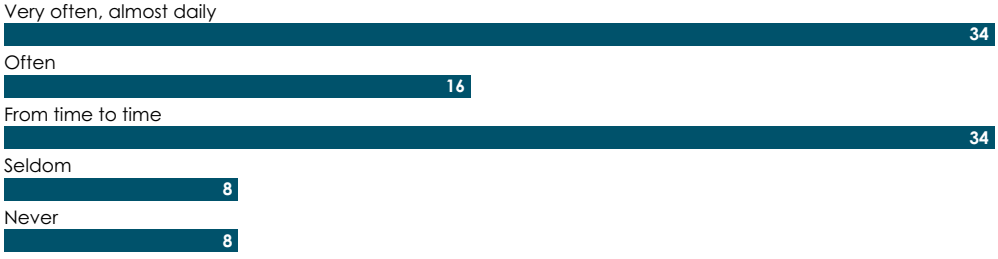
In your view, how knowledgeable is your child/are your children about how their current health habits (nutrition, exercise, avoiding harmful substances, maintaining good hygiene) may affect them later in life? Please select one answer in each row.

(% respondents)



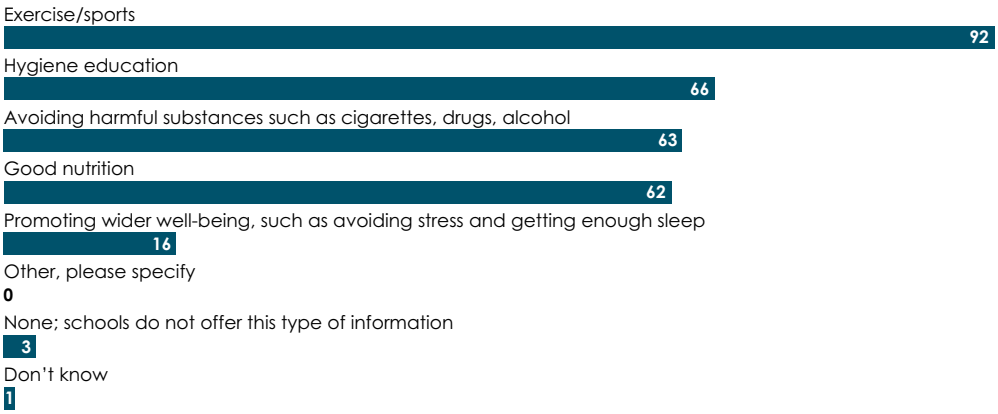
How often does/do your child/your children have contact with people age 65 and up? Please select one answer.

(% respondents)



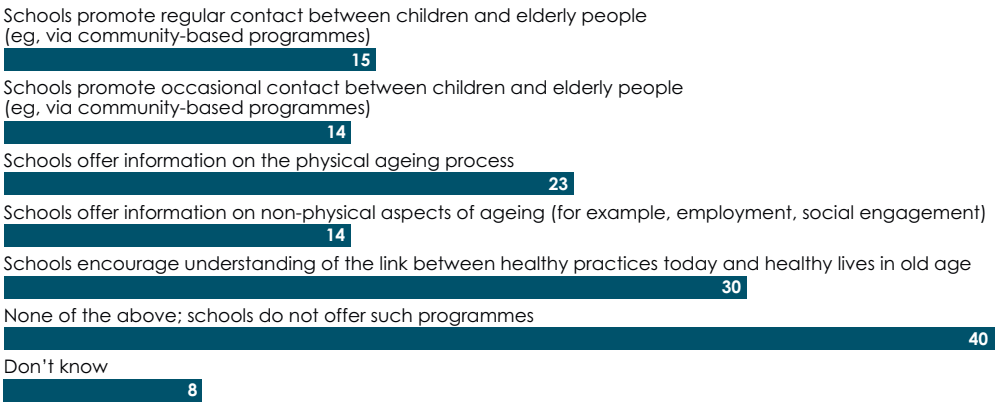
What type of courses or programmes, if any, does your child's school provide to promote good health practices? Please select all that apply.

(% respondents)



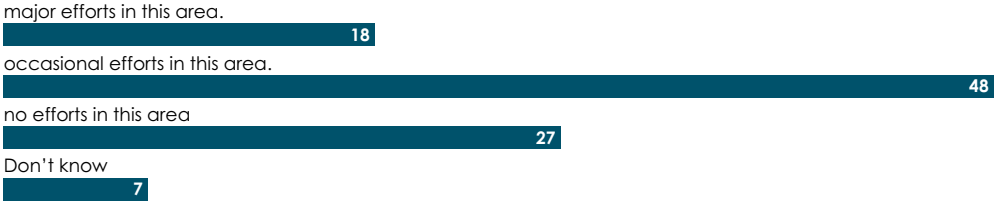
What type of programmes if any, does your child's school provide to promote awareness of ageing and the elderly? Please select all that apply.

(% respondents)



What degree of effort, if any, does your child's school make to promote children's knowledge about the link between healthy practices and a longer healthy life? Please select one. *My child's/children's school(s) make*

(% respondents)

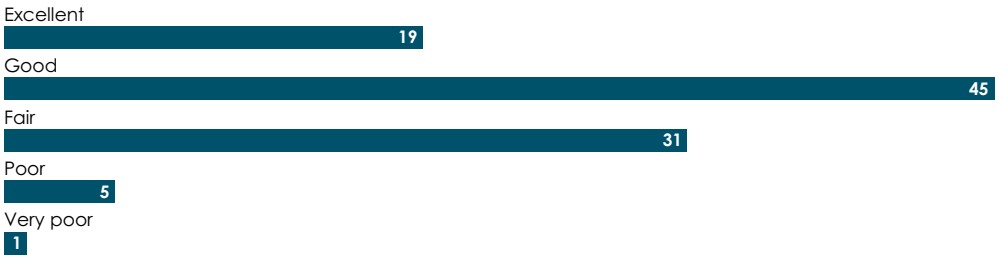


In your opinion, what is the long-term health effect of teaching young children about good health practices? Please select one answer.

(% respondents)

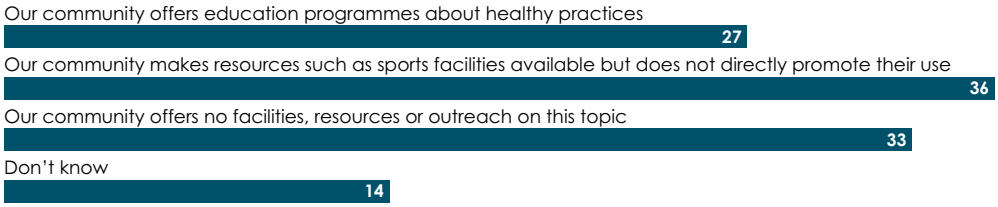
In general, how good is the health of adults age 65 and over in your community? Please select one answer.

(% respondents)

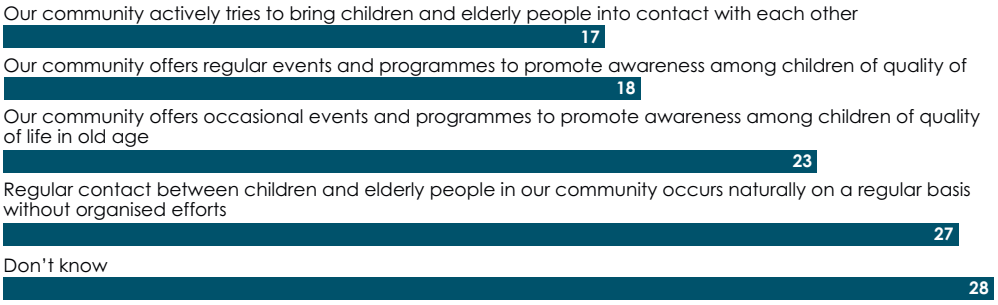


What types of non-school programmes, if any, are available in your community to teach children about healthy practices? Please select all that apply.

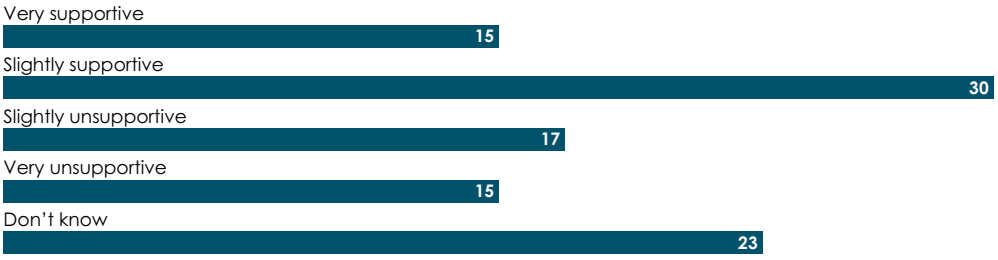
(% respondents)



What types of non-school programmes, if any, are available in your community to teach children about ageing? Please select all that apply.
(% respondents)



In general, how supportive do you believe your national government is of efforts to teach children good health practices? Please select one.
(% respondents)

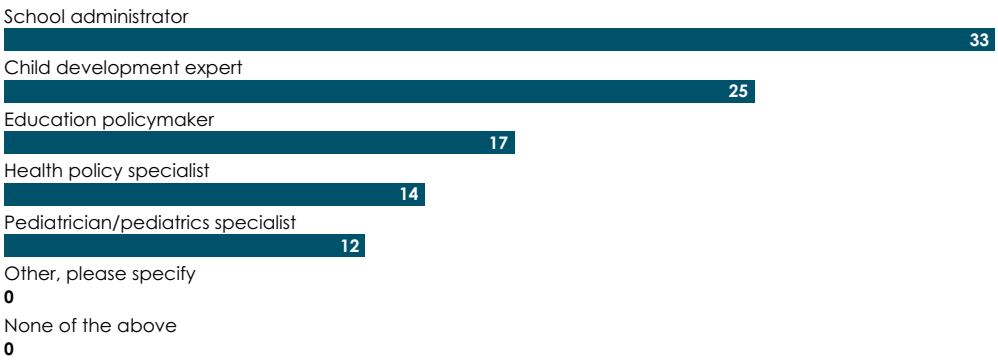


Appendix 2: Survey of educators and public officials – Full-sample results

Do you have responsibility for educating school children (age 5-16) on matters related to health?
(% respondents)

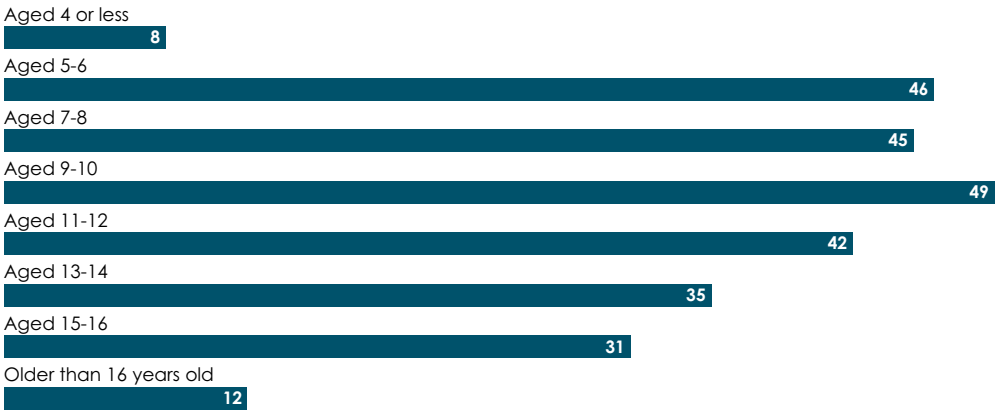
In which country are you located? Please select one.
(% respondents)

Which of the following most closely describes your job? Please select one.
(% respondents)



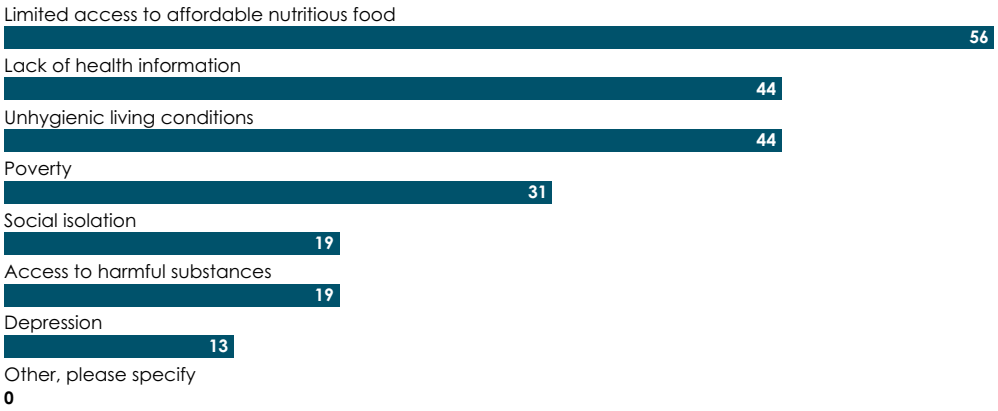
What is the scope of your role or job? Please select one.
(% respondents)

Concerning your efforts to educate children (age 5-16) on matters related the health, what age group is your main focus? Please select all that apply.
(% respondents)

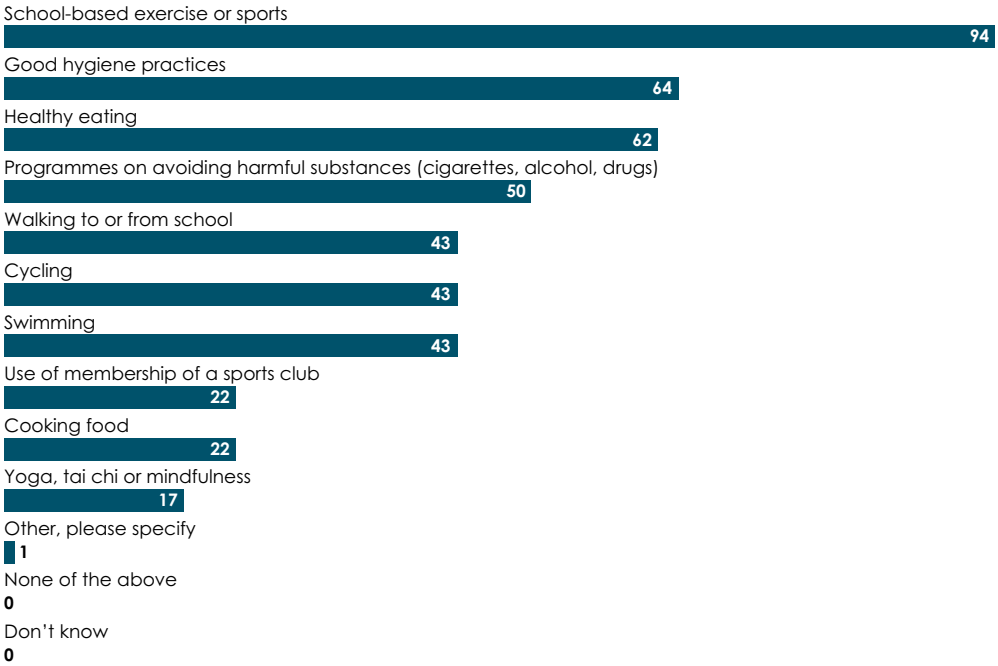


In general, how would you describe the current health status of children in your community or district? Please select one.
(% respondents)

In your view, what are the biggest problems for children facing bad health? Please select all that apply.
(% of respondents saying "poor", or "very poor" in previous question)

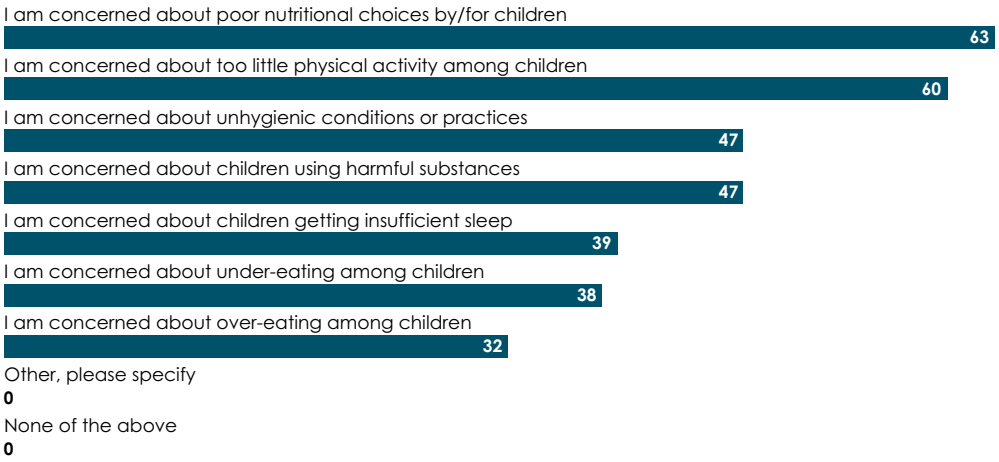


Thinking of the children in your community or district, in which of the following health-promoting activities do they participate? Please select all that apply.
(% respondents)



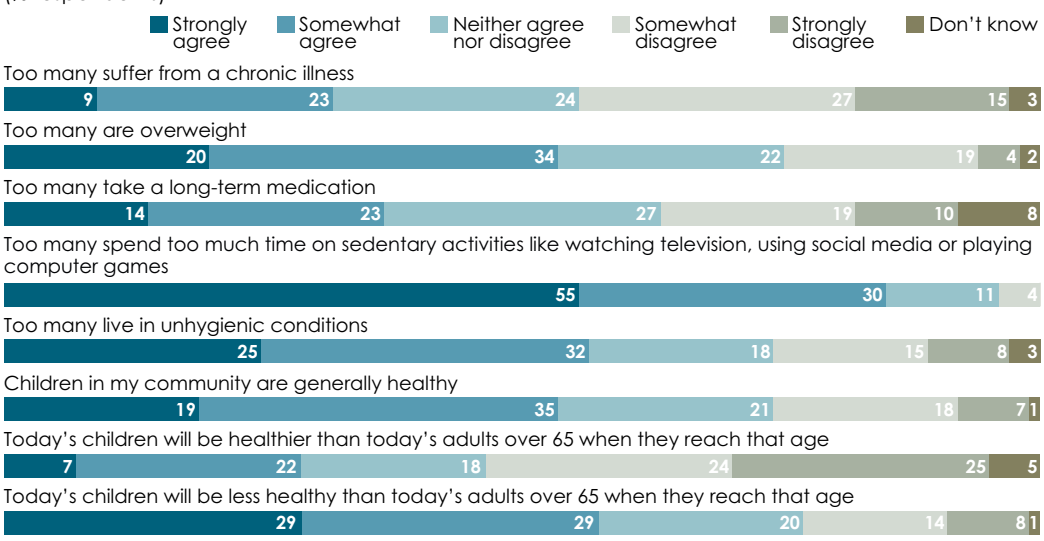
What are your main concerns, if any, regarding the health or lifestyle of children in your community or district? Please select all that apply.

(% respondents)

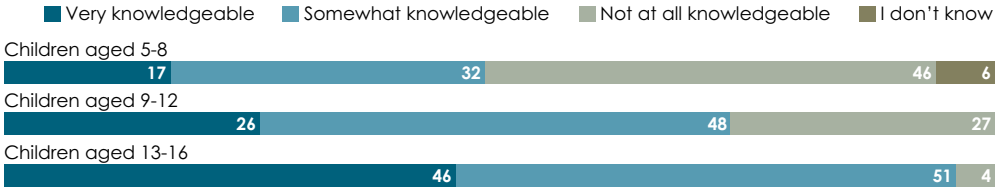


Please state the degree to which you agree or disagree with each of the following statements concerning children in your community or district.

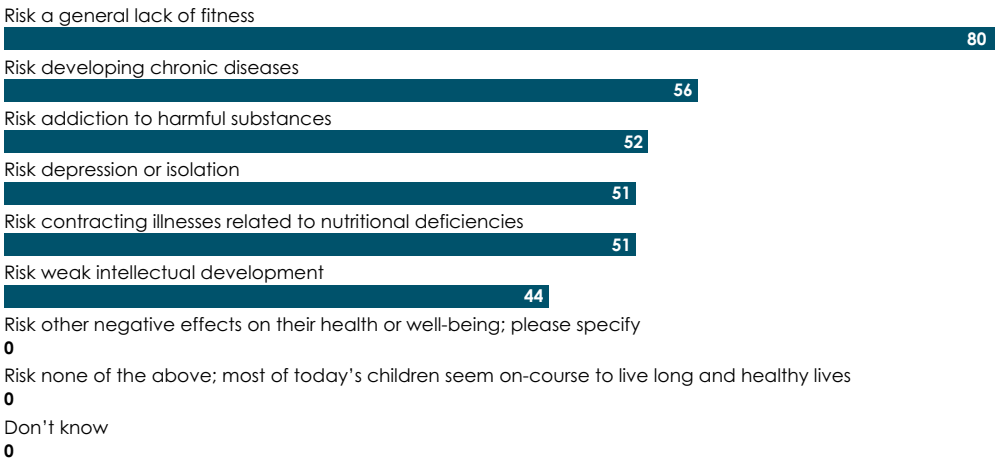
(% respondents)



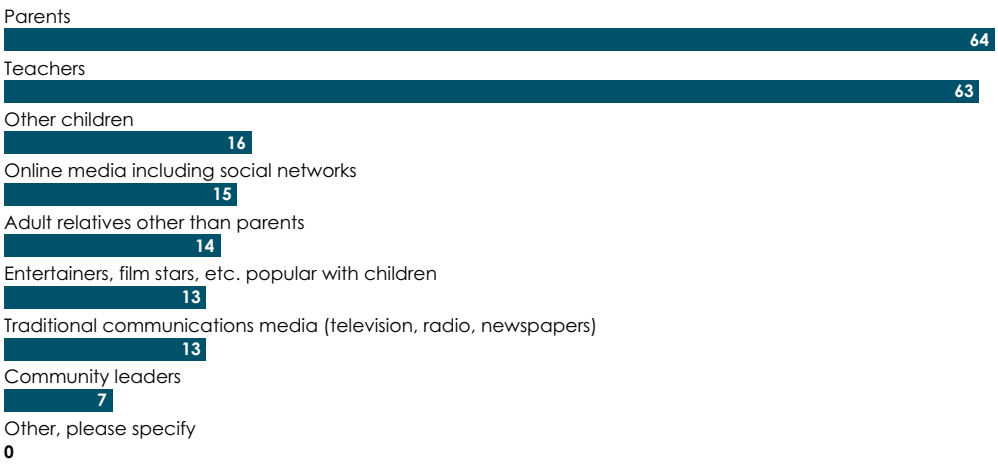
In your view, how knowledgeable are children in your community or district about how their current health habits (nutrition, exercise, avoiding harmful substances) will affect them later in life? Please select one answer for each row.
(% respondents)



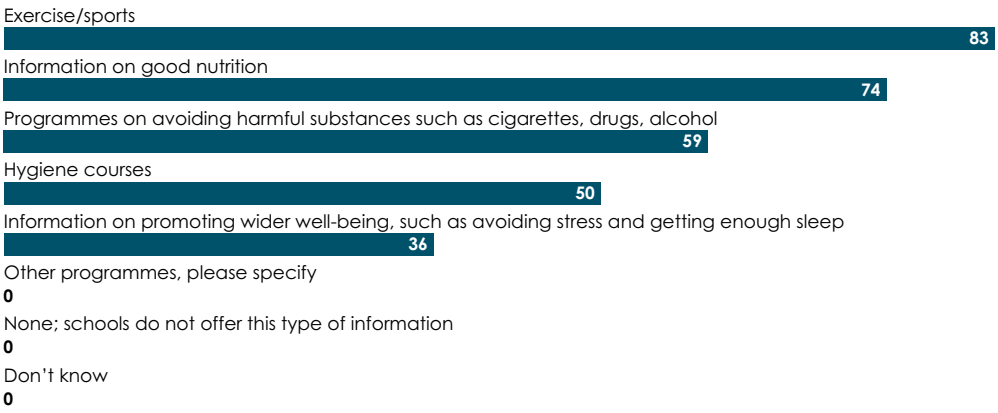
What problems, if any, do you see developing for today's children when they reach their mid-sixties? Please select all that apply.
(% respondents)



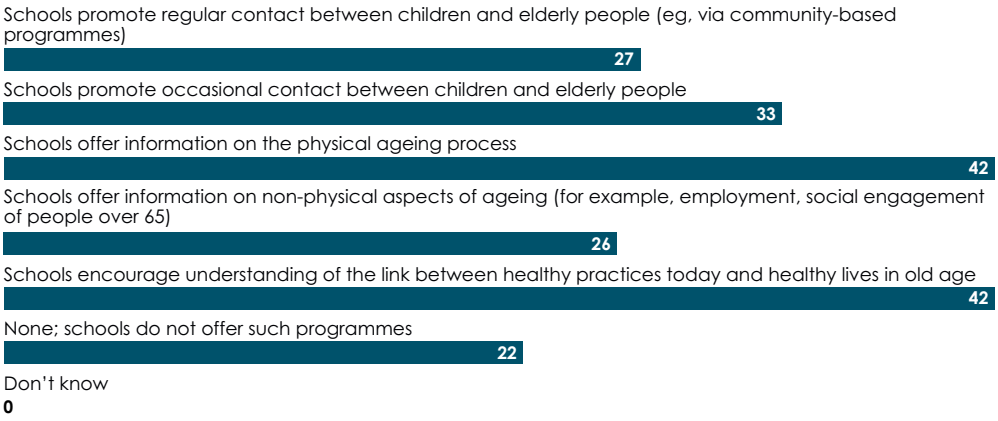
In your view, which of the following individuals or groups has the most influence on teaching children about healthy living? Please select the top two.
(% respondents)



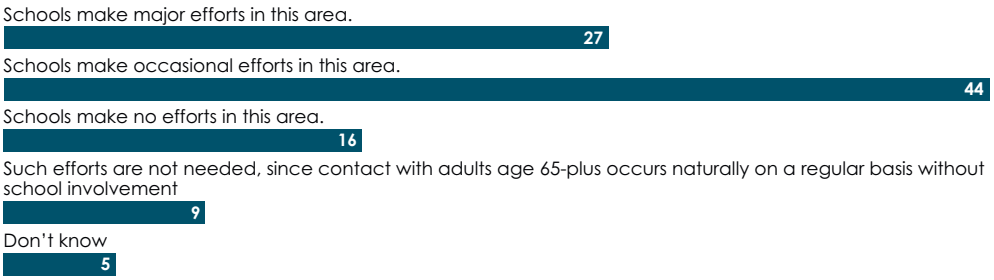
What type of courses or programmes, if any, does your school or school district provide to promote good health practices among children?
Please select all that apply
(% respondents)



What type of programmes if any, does your school or school district provide to promote awareness of ageing and the elderly? Please select all that apply.
(% respondents)

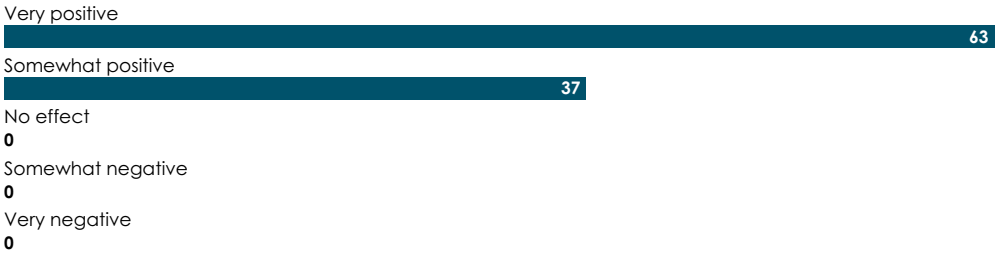


What efforts, if any, does your school or school district make to bring children into contact with people age 65-plus to improve the children's understanding of life in later years? Please select one answer.
(% respondents)

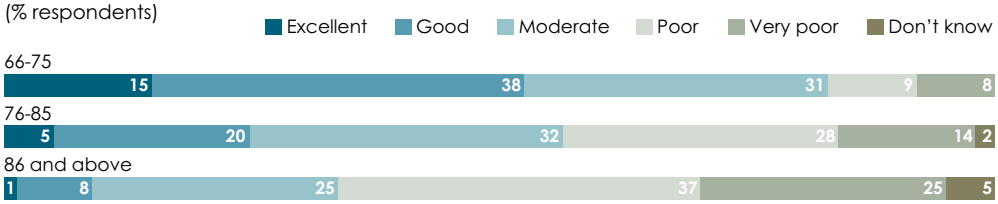


What degree of effort, if any, does your school or school district make to promote children's knowledge about the link between healthy practices and longer life?
Please select one. *Schools make*
(% respondents)

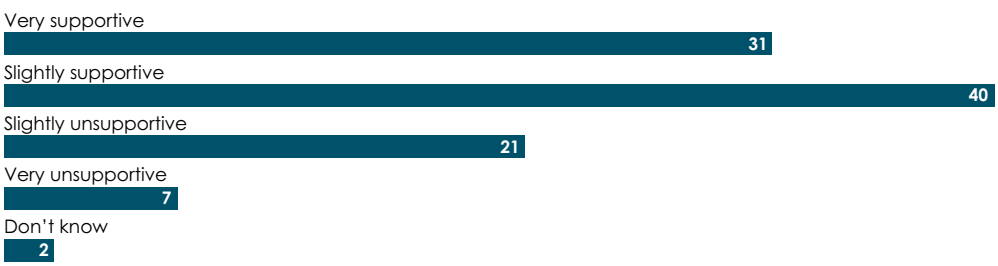
What is your view of the long-term health effect of teaching young children about good health practices? Please select one answer.
(% respondents)



In general, how good is the health of adults over age 65 in your community?
Please select one answer in each row.
(% respondents)

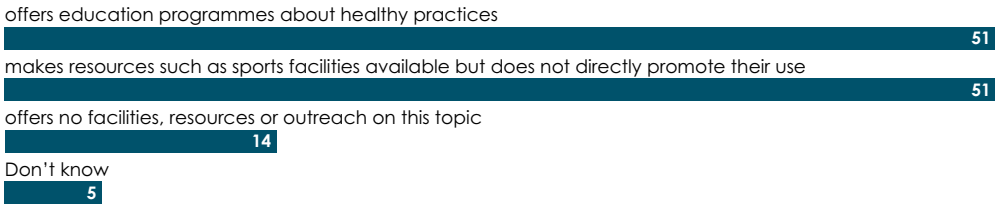


In general, how supportive is your national government of efforts to teach children good health practices? Please select one.
(% respondents)



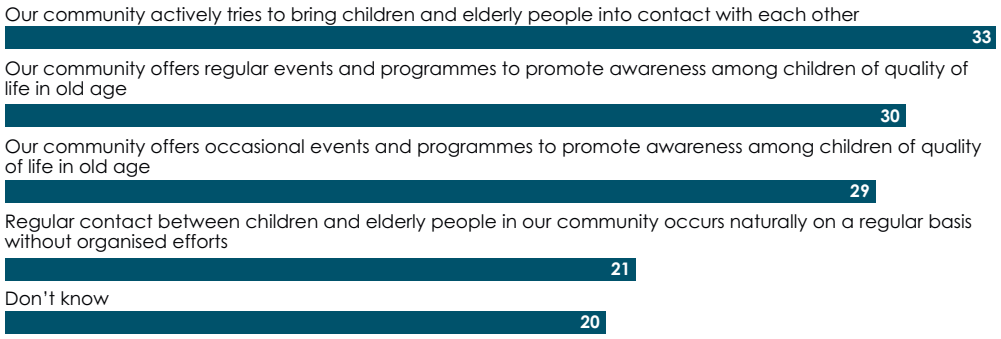
What types of non-school programmes, if any, are available in your community to teach children about healthy practices? Please select all that apply. *Our Community*

(% respondents)



What types of non-school programmes, if any, are available in your community to teach children about ageing? Please select all that apply.

(% respondents)



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