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BRIEF REPORT

Results From South Africa's 2014 Report Card on Physical Activity for Children and Youth

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***Background*:** There is current concern for the health and well-being of children and youth in South Africa, including habits of physical activity (PA) and sedentary behavior. The 2014 Healthy Active Kids South Africa Report Card evaluates the current activity status of children and youth. ***Methods*:** The Research Working Group was comprised of 23 experts in physical education, nutrition, sport science, public health and journalism. The search was based on a systematic review of peer-reviewed literature (previous 5 years), dissertations, and nonpeer-reviewed reports ('gray' literature) dealing with the PA and nutritional status of South African children and youth 6–18 years of age. Key indicators were identified and data extracted. Grades for each indicator were discussed and assigned. ***Results*:** Overall PA levels received a D grade, as roughly 50% or more of children and youth were not meeting recommended levels. Organized sports participation fared better with a C, and government policies were promising, receiving a B. Screen time and sedentary behavior were a major concern and received a grade of F. Under- and over-weight were highlighted, but overweight is on the rise and this indicator was assigned a D grade. Most of the other indicators in South Africa remained the same or became worse so that grades declined from C- to D. In particular, sedentary behavior, soft-drink and fast food consumption, and an ineffectual regulatory environment to control advertising to children were a concern. There is need to engage parents and communities for advocacy and social mobilization.

***Keywords*:** adolescents, physical education, food security, sugar-sweetened beverage consumption

Physical inactivity has been described as a global pandemic, with a worldwide prevalence of 35% and accounts for more deaths annually than those attributed to smoking.[1,2] Furthermore, obesity affects 500 million persons worldwide and is predicted to increase to 1 billion people by 2030.[3] In 2011, the United Nations High Level Summit on Noncommunicable Diseases (NCDs) recognized the need for global, regional and national strategies for the prevention and management of the problems inactivity and obesity.[4] Based on emerging trends of obesity in younger cohorts, it has been predicted that the current generation of children may experience a shorter life expectancy than their parents.[5] Therefore, the need for primary prevention of obesity and physical inactivity has become a greater imperative. In South Africa, nearly 7 out of every 10 adult women and 1 in every 3 men are either overweight or obese.[6] Nearly one-half of all adults are insufficiently active[7] and 1 in 3 adolescents watch more than 3 hours of television daily.[8] What is of particular concern is that the prevalence of overweight and obesity in adolescent boys has doubled while physical inactivity has risen measurably over a 6-year period, from 2002–2008.[8,9]

The Healthy Active Kids South Africa (HAKSA) Report Card 2014 builds on the foundation of previous report cards from 2007 and 2010,[10,11] and serves to highlight the current health status of South African children and youth, with particular reference to physical activity (PA), healthy eating and maintaining a healthy weight. These health behaviors and related indicators are considered, along with those factors which influence or shape the behaviors within the family and home, among friends and peers, in school and community settings, and as a result of the built environment, policy or legislation. The front cover of the 2014 HAKSA Report Card is presented as Figure 1. The aim of this brief communication is to summarize the results of the third in a series of Healthy Active Kids South Africa Report Cards based on a systematic review of the PA and nutritional status of children and youth in South Africa. The review was based on published, peer-reviewed literature within the previous 5 years, postgraduate theses and dissertations, and nonpeer-reviewed reports ('gray' literature; for example, government reports).

Methods

The Healthy Active Kids Report Card initiative was spearheaded by academics from the Medical Research Council/University of Cape Town Research Unit for Exercise Science and Sports Medicine, sponsored by national private health insurer, Discovery Health, in conjunction with not-for-profit Sports Science Institute of South Africa. The latter 2 organizations were primarily responsible for the dissemination of the HAKSA Report Cards. For the 2014 HAKSA Report Card, the Research Working Group (RWG) comprised 23 academics and/or experts in physical education (PE), nutrition,

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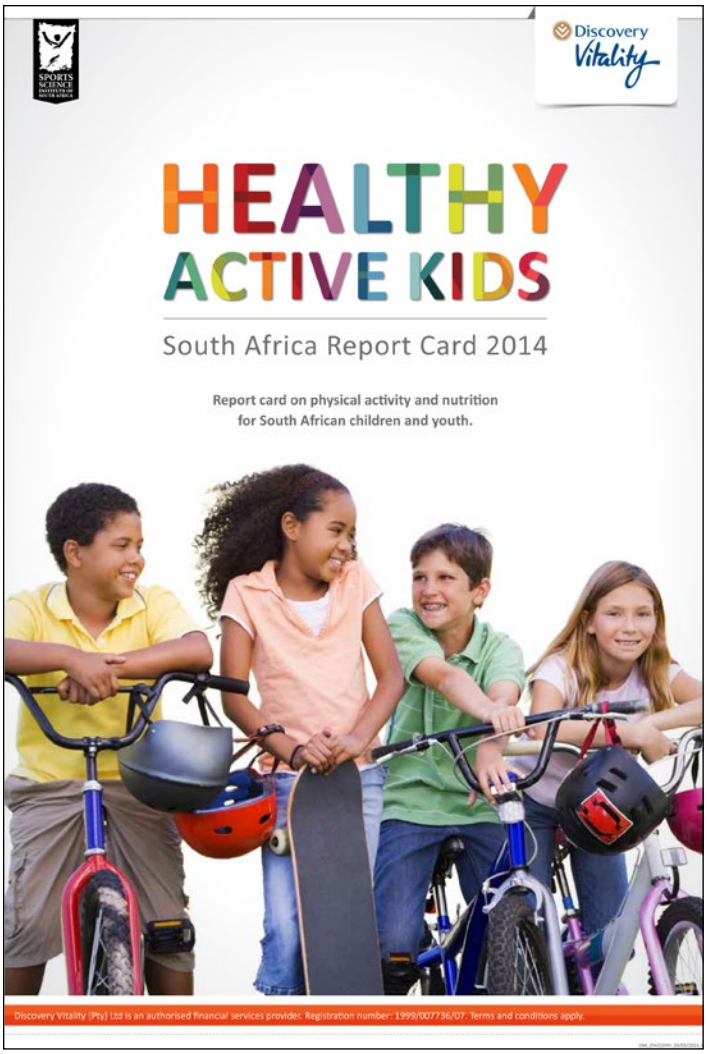

Figure 1 — Front cover of the 2014 South Africa Physical Activity Report Card.

sport science, public health, physical therapy, noncommunicable diseases, and journalism, along with representatives from the Medical Research Council of South Africa, private health insurers and 2 nonprofit organizations.

The initial literature search was conducted by the lead institution (MRC/UCT Research Unit for Exercise Science and Sports Medicine, Department of Human Biology, Faculty of Health Sciences, University of Cape Town) in attempt to collate the published evidence over the previous 5 years on PA, inactivity, nutrition and overweight in children and youth identified through comprehensive searches using the PubMed, Africa Journals Online, EBSCO Host and Africa Wide databases. Exclusion criteria were (1) review articles; (2) studies with subjects over 18 years; (3) studies done in other countries (not South Africa) and (4) studies that were not related to PA, nutrition, body image, the school environment, or any other factor related to PA and overweight in children.

The search yielded 753 titles, from which 245 were extracted for consideration. In addition, hand-searching was done by members of the RWG. A search was also conducted for related theses and dissertations within the last 5 years completed at South African tertiary academic institutions (and were available in pdf format). Preliminary data from peer-reviewed protocols, such as the International Study on Childhood Obesity, Lifestyle and the Environment (ISCOLE study),[12] were also included to provide additional context and support for other sources. A journalist on the RWG conducted a search for 'gray' literature concerning current policies on sugar-sweetened beverage consumption in South Africa, fast food intake, policies related to school 'tuck shops' (shops which sell sweets, snacks, beverages and even in some schools, hot food such as pies, hotdogs or sandwiches) and feeding schemes, as well as television (TV) viewing in South Africa.

Once the initial search was completed, the RWG identified the key indicators and the broad categories under which the indicators would fall. For PA, the categories included: overall physical activity levels, organized sport participation, active play, active transportation, sedentary behaviors, family and peers, school, community and the built environment, and government. Nutrition indicators included: overweight and under-nutrition along with certain key behaviors such as fruit and vegetable intake, and policies and programs including school nutrition programs and tuck shops. Members of the RWG conducted quality reviews of the source documents using a modified Downs and Black checklist[13] where appropriate, and constructed evidence-tables to extract relevant information from those sources that were ultimately reviewed.

The RWG held a final, in-person meeting to set specific criteria on which to base their grades. 'Reach' referred to the extent to which the practice or program was accessible to all or most South African children; 'Impact' described the effectiveness of the practice, intervention or legislation; 'Adoption' referred to the extent to which the practice or intervention was implemented. Grades were assigned to each indicator ranging from an A, 80%–100%; B, 70%–79%; C, 60%–69%; D, 50%–59%; and F, < 50%, with NE referring to programs, policies, or other indicators that had not been fully evaluated, although may be promising. For example, an A grade reflected PA or nutrition behaviors, environments, and policies that placed children and youth at lowest risk for future noncommunicable diseases. It also denoted the best practice to promote health and prevent chronic disease and/or in multiple settings with excellent potential for reach, impact and/or adoption. In short, it reflected best practice, wide reach and impact, and lowest risk. Conversely, a D grade suggested PA or nutrition practices that were insufficient to adequately promote health and prevent chronic disease, which may have been due, in part, to lack of reach or adoption and impact. Grades were allocated by consensus, with individual members of the RWG taking a lead role in describing the evidence on which the proposed mark was based. In some instances, the proposed grade was influenced by comparison with the previous South Africa report cards (2007, 2010).

Results

The 2014 Healthy Active Kids South Africa Report Card is the third in a series of Healthy Active Kids South Africa Report Cards, following on from 2007 and 2010. Grades for each indicator are summarized in Table 1.

Physical Activity Indicators

Overall Physical Activity Levels. Since the 2010 HAKSA Report Card, there have been no new, nationally-representative studies that have incorporated either self-reported or objectively measured moderate-to-vigorous physical activity (MVPA). The grade D for overall levels of PA in children and youth was informed by a number

Table 1 Grades for Physical Activity and Nutrition Indicators in the Healthy Active Kids South Africa 2010 and 2014 Report Cards

Category	Indicator	2010 grades	2014 grades	Category	Indicator	2010 grades	2014 grades
Physical Activity Indicators	Overall Physical Activity Levels	D	D	Nutrition Indicators	Overweight	C-	D
	Organized Sport Participation	C	C		Under-nutrition	D-	C
	Physical Education	D	D		Fruit and vegetable intake	D	C-
	Active Play	–	NE		Fast Food	F	F-
	Active Transportation	C	C		School tuck shop, sugar beverage intake	D	D-
	Sedentary Behaviors	F	F		National School Nutrition Program	C	B
	Family and Peers	C	NE		Family and Peers	C-	C-
	School infrastructure, training & grounds	D	D		Advertising and media	F	F-
	Community and the Built Environment	D-	D		OVERALL GRADE	C-	D
	Government Strategies & Investments	B-	B				

Note. Grades were assigned to each indicator ranging from an A, 80–100%; B, 70–79%; C, 60–69%; D, 50–59%; and F, <50%, with NE referring to programmes, policies, or other indicators that had not been fully evaluated, although may be promising.

of smaller, regional studies that included various self-report and objective measures of PA.[14–17] Self-reported MVPA was studied in high-school learners from both low and high income areas,[14] and noted that approximately 16% of boys reported low levels of MVPA while 39% of girls were insufficiently active. More recently, a survey of self-reported PA in rural boys and girls 11–12 and 14–15 years noted that boys were more active than girls.[16] Younger boys spent a median of 4 hours/week in MVPA compared with 1 hour in younger girls. These results can be contrasted to a recent study based on acclerometry in rural South African school children 7, 11, and 15 years of age.[17] Using the Evenson cut-points,[18] only 27% (7), 6.1% (2), and 0% (0) of participants in each age group were sufficiently active (60 min of MVPA per day), respectively. However, preliminary data from the ISCOLE study,[12] using the same cut-points in urban 10 year olds, found that 50% of students were sufficiently active. The widely variable results among studies should be noted; even the most optimistic forecast suggests that only 50% or less of children and youth are sufficiently active.

Organized Sports and School Sports Participation. A national survey conducted by the Department of Sports and Recreation South Africa in 2005 indicated that just over one-half of adolescents were participating in some form of organized sport.[19] More recently, however, some regional surveys showed that less than 50% of rural children and youth participated in sport.[20] Participation levels appeared to be higher in urban settings with one report indicating that 66% of urban children and youth participated in sport and recreation activities in their spare time.[21] In terms of school sport participation, preliminary data from a recent survey of more than 500 primary school children in the Western Cape Province (ISCOLE[12]) found that just over 54% played at least 1 team sport. There was a socioeconomic gradient with children from higher quintile schools more likely to participate than their peers from lower quintile schools. There were also gender differences with boys more likely to participate than girls (72% vs 43%). Generally, organized sports participation in South Africa shows some reach and was graded C.

Physical Education. There are no new, nationally-representative studies concerning PE in schools. However, recent study in rural youth 11–12 and 14–15 years of age showed that less than two-thirds of boys and girls participated in weekly PE classes, and that the median time spent in PE was about 30–40 minutes/wk.[16] Preliminary evidence from the ISCOLE study[12] in 10 year old urban school children found that overall, 34% of those surveyed did not have a PE class in the preceding week. However, there was a socioeconomic gradient with greater PE participation in higher income schools. As part of the 'Investments that work for Physical Activity' document, developed in conjunction with the Toronto Charter for Physical Activity, PE was identified as 1 of the 7 best investments to increase population levels of PA.[22] If PE is one of the 'best investments' for PA, then South Africa scores a D for implementation.

Active Play. Preliminary data from the ISCOLE study[12] found that most 9- to 11-year-olds, irrespective of socioeconomic status (SES), spent less than 1 hour playing outside before school. However, during and after school, most children spent at least 4 hours playing outdoors. Boys were more active than girls after school hours, while just over 50% of boys and girls were very active during the weekends. SES was also linked to sedentary time and active play. Lower SES at the maternal, household and community levels was significantly associated with more active play (approximately 1.5 hours per day), less sedentary time, and more walking for transport.[16] However, at this stage, there is insufficient, peer-reviewed evidence concerning active play, to provide a grade for the HAKSA 2014 Report Card.

Active Transportation. The recently published General Household Survey of 1500 households in the Western Cape reported that 68%

of school children and youth walked to school, while 9% traveled by private motor vehicle and 7% by taxi.[23] These findings were supported by preliminary data from the ISCOLE study[12] that 62% of students walked to school and that children from higher income areas were more likely to rely on motorized transport. However, there was concern over very real issues related to pedestrian safety. In a recent survey of fatal injuries among urban children in South Africa, pedestrian fatalities accounted for between 20%–50% of deaths among children 0–14 years of age in 6 large metropolitan areas of South Africa.[24] In summary, active transport was assigned a grade of C in HAKSA 2014 with a need to address safety and equity for school children and youth.

Sedentary Behaviors (Screen and Nonscreen). Based on the Survey of Time Use 2010,[25] children 10–17 years of age watched an average of nearly 3 hours of TV per day. Smaller regional studies showed similar trends with TV viewing increasing over weekends to more than 3.5 hours/day.[26] With rapid growth in internet use in South Africa,[27] 1 in 3 South Africans 15 years or older were using the internet. Use of social media has also grown, and in 2011, Mxit had 44 million registered user accounts in South Africa, one-quarter of whom were between the 13–17 years.[28] The nonscreen sedentary behavior indicator was new to the HAKSA Report Card and included all sedentary behaviors not related to screens; for example, school/study, socializing, transport and self-care. South Africa's Survey of Time Use 2010[25] reported on several of these sedentary behaviors: children and youth 10–19 years spent 365 minutes per day on learning activities (attendance at school, homework, attending work-related and nonformal courses and travel related to learning), 114 minutes on socializing and 67 minutes listening to the radio. South African children and youth spent a large proportion of their time in sedentary behavior, the most concerning of which is screen time. For this reason, the sedentary behavior indicator was assigned a grade of F.

Family and Peers—Infrastructure, Support, Parental/Peer Behaviors. Factors contributing to the success of any PA program are the interpersonal benefits of concern for/by team members and community members, as well as social benefits such as making friends.[29,30] Thus, support for PA from teachers, parents and friends has a positive effect on PA participation. With an average of 56% of children not having access to play equipment of some kind and approximately 57% not utilizing recreation facilities (preliminary data from ISCOLE[12]), the situation in South Africa was not conducive to PA. Furthermore, almost a third of the ISCOLE parents surveyed never watched their children participate in PA, 12% did not encourage their children to participate, 50% did not provide transport to activities, and 32% did not play any activity with their children. South African children are clearly not receiving sufficient familial support for PA. The RWG, however, chose not to assign a grade for this indicator until there are better measures in place for family and peer support.

School—Infrastructure, Policies, and Programs. The school environment itself is not always conducive to healthy lifestyles. In a study conducted in the Western Cape, 81% of school principals indicated that the sports facilities were inadequate and needed upgrading; moreover, educators indicated that lack of time (24%), finances (21%), facilities (14%), and human resources (12%) were the main barriers to health promotion activities within schools.[31] The school survey included only 100 schools, representatively sampled from the lower 3 quintiles. Further, public schools in the Western Cape province were generally more well-equipped than those in the other provinces. As a result, the school environment was given a grade of D.

Community and the Built Environment. There is a need to create enabling environments and opportunities that will promote a physically active lifestyle and develop life-long positive attitudes toward PA among children and youth.[14] One of the reasons why a large proportion of South African children and youth are not physically active was a lack of, or unsuitable sporting facilities/clubs in the area of residence or facilities were located too far from their homes.[19,23,32,33] In general, lack of resources was one of the primary reasons cited for not participating in sport.[16,19] For those who did participate in sport, the main reasons were because it was viewed as healthy and enjoyable, and that it kept them away from drugs, alcohol and/or crime-related activities. Improving facilities, however, was not enough; there also was a need for community engagement and to make areas safer.[33] Given these general conditions, communities and the built environment scored a D.

Government—Strategies, Policies, Investments. In 2011, the South African Department of Basic Education, and Sports and Recreation South Africa (SRSA) launched the Integrated School Sports Framework.[34] This Framework guides the delivery of School Sport in all schools by providing equipment and attire, capacity building of trainers and funding for hosting national school sport tournaments. The School Sport investment by SRSA is expected to increase at an average annual rate of nearly 18%, in the medium term. The increase is due to the emphasis that will be placed on supporting the delivery of sport programs to students and to continue empowering educators with the focus on 16 priority sporting codes.[35]

The Mass Participation Program in the Department of SRSA has as its primary aim to "create an enabling environment and provide support to increase the number of participants in sport and recreation in South Africa." In the SRSA Annual Report of 2011–2012, more than 11,000 of 27,000 schools were registered for the School Sport program. Further, a total of 5362 community sports hubs, schools, and clubs received sports equipment. To achieve the goals of the National Sport and Recreation Plan (NSRP), the National Treasury indicated that 15% of Municipal Infrastructure Grants in 2010 should be directed toward sport and recreation facilities. Given this change in level of government investment and commitment, this indicator was assigned a B.

Nutritional Indicators

Overweight and Obesity. The 2013 South African National Health and Nutrition Examination Survey (SANHANES-1)[6] reported a high prevalence of overweight and obesity among children and adolescents, particularly from urban areas, and among girls (9% and 27% in 15- to 17-year-old boys and girls, respectively, and 10% and 23% in boys and girls 10–14 years, respectively). These trends were supported by findings from other national[9,36] and regional studies.[37,38] Moreover, levels of overweight and obesity have also been increasing.[9,36,39] The grade for this indicator was thus reduced from a C- in 2010 to a D in 2014.

Under-Nutrition. The prevalence of under-nutrition has decreased, and as a result, the grade was changed from a D in 2010 to a C in 2014. However, under-nutrition continues to coexist with over-nutrition, and is more of a concern in rural areas and among boys. Previous work[40] and recent data from SANHANES[6] found under-nutrition to be most prevalent in rural areas, with up to 23% of boys from informal rural areas being growth stunted, and more boys than girls being wasted and underweight. Some national studies have reported a decrease in the prevalence of stunting[39] and wasting.[40]

The prevalence of under-nutrition among South African children is much lower than in other Sub-Saharan countries, but it is still unacceptably high. An "explosive combination" of early stunting and adolescent obesity is also a concern.[41]

Fruit and Vegetable Intake. The 2010 score was based on national surveys of both younger and older age groups of children. More recently, SANHANES-1[6] indicated that 15- to 24-year-olds had a mean fruit and vegetable score of 3.68 which suggested moderate intake. Other smaller regional studies in younger age groups support this observation to varying degrees.[43,44,46] Many children were now receiving fruit and vegetables through the National Schools Nutrition Program (NSNP).[42] This was made possible by an increase in the average meal cost allowance per student per day since the last report card and the addition of a guideline to allow for fresh vegetables or fruit to be served daily. Although the implementation of this aspect of the NSNP has also not been evaluated, delivery of the potential effect should be reflected in the score, which was changed from a D in 2010 to a C- in 2014.

Fast Food Intake. At a national level, the frequency of fast food consumption has increased. One large-scale annual consumer survey found that the number of South Africans who said that they purchased from fast food outlets in the preceding 4 weeks increased from 57% to 65% of the population between 2007–2011.[45] Similarly, in regional surveys of urban adolescents, fast food consumption appeared to be rapidly increasing since the 2010 report card, where a survey found that over two-thirds of adolescents consumed fast foods at least 3 times per week.[43] There appeared to be no improvement in fast food consumption since 2010, and it in fact seems to have worsened (although not based on national data). The grade for this indicator was thus moved to an F-.

School Tuck Shops, Snacking Behaviors, and Sugar-Sweetened Beverage Intake. It is a concern that the recent SANHANES-1[6] found that 51% of children surveyed did not take a lunchbox to school. Similar findings were noted in specific settings.[43,44,46] Children gave various reasons for not bringing a lunchbox to school, with more than 1 in 4 children not having food at home to put into the lunchbox.[9] Of those who did, only a small proportion included fruit.[46]

There appeared to be no change in tuck shop practices since 2010, and children still made use of tuck shops at their schools, even in settings that have limited resources.[43,46,47] Most tuck shops sell largely unhealthy items, such as sweets, crisps, chocolate and sweetened beverages, with few offering healthy snack options or fruit.[12,48] Of interest, students who purchased from tuck shops were more likely to have a higher BMI.[47]

Intake of sugar also appeared to be increasing steadily across South Africa with children and adolescents typically consuming 50 g and 100 g of sugar per day, respectively.[49] Sweetened cool drinks continued to contribute to high sugar intake, and about 2 in 3 students purchased sugar sweetened beverages at least twice a week.[43]

On the basis of these findings, the grade for school tuck shops, snacking behaviors and sugar-sweetened beverage intake was reduced from a D in 2010 to a D- in 2014.

National School Nutrition Program. The score contained in the 2010 card reflected that 7 million (of 12 million) public school students benefited from the NSNP.[42] In the 2012–2013 financial year, this number increased to more than 9 million students in both primary and secondary schools.[39] Although the reach has been extended, there is insufficient evaluation of impact. It is clear from the Department of Education annual report and other studies that the program has experienced some challenges. Nevertheless, a grade higher than B was not warranted until more complete results of monitoring and evaluation are available.

Family/Peer/Social Networks. Peer influences on food choices and dietary practices exist. Some evidence suggested that friends often shared foods when at school and after school, and pooled their money for joint food purchases.[50] Limited evidence also suggested that parents or caregivers are a factor influencing dietary behaviors of their children. Although some parents encouraged their children to make healthy purchases, for example, 37% of parents advised their children to purchase of fruit at school and 23% advised the purchase healthy foods, 24% of parents were not aware of the types of foods their children purchased at school.[44] The grade thus remained a C.

Advertising and Media. At present, South Africa has no statutory regulation of food marketing to children. Although certain provisions have been made in draft legislation that specifically prohibit "advertising of foods not regarded as part of a healthy diet and healthy lifestyle to children under the age of 16," to date, no regulations concerning marketing to children have been published.[51] Furthermore, despite an industry self-regulatory pledge on the marketing of food stuffs to children in 2009, a recent content analysis of more than 1500 television advertisements, found that 44% were related to food items and 50% of the food advertising occurred during 'family viewing time'.[52] The most commonly advertised items included: desserts and sweets, fast foods, hot beverages, starchy foods, and sweetened drinks. Although draft legislation and industry self-regulation were in place, there was a failure of implementation. For these reasons, the grade assignment was a D.

Limitations

For all indicators, there appeared to be isolated areas of research conducted predominantly at regional levels with limited collaboration. Few large-scale studies have been conducted and a degree of study repetition with conflicting findings existed. In many instances, no conclusive evidence could be found. Consequently, there is a need for a solid evidence base and a set of research priorities for each of the indicators.

Intervention research aimed at reducing sedentary behavior in children and youth, particularly nonscreen based sedentary time (spent sitting at school) in addition to screen-based sedentary behavior should be undertaken. Similarly, intervention research aimed at increasing levels of PA within these age groups and within different communities is another needed area of research. Active transport represents an arena for potential health benefits among children and youth, but there is, at present, insufficient evidence to support this, particularly in the context of unsafe environments.

Future research targeting strategies to improve the nutritional quality of usual eating habits of children and youth is essential. Attention needs to be directed at the link between childhood nutrition and immediate as well as long-term health consequences so that political commitment to support an action agenda can be secured.

Conclusion

Since the 2010 HAKSA report card, there have been a number of innovative interventions by the government to improve access to better school-based nutrition and exercise opportunities among South African children and youth. In particular, the National Sport and Recreation Plan (NSRP) has ramped-up quickly and is starting to have a real world impact in terms of the number of students

able to be more active at school. Government has also worked to diversify diet in school nutrition schemes with more children getting a piece of fruit as part of their daily diet. In addition, fewer children are going to bed hungry and food security nationally has improved somewhat.

Unfortunately there is little evidence for any other advances since 2010. Overall, schools (both public and private), parents, large food and drink companies, and civil society more generally are not doing nearly enough to help children and youth eat a more diverse and healthy diet or exercise more. Instead, children and youth are progressively spending more time in front of screens large and small, and average fast food and soft drink consumption in the population as a whole is increasing at alarming rates. Few school tuck shops have made any positive changes to their menus. Measured obesity rates in South Africa are up across the usual divides of class, gender, race and age, in ways not dissimilar (and in some way worse) to the rest of the world. Urban girls are at particular risk.

Based on a thorough review of the available evidence, almost all indicators of PA and eating patterns in children and youth either remained the same or worsened between 2010–2014. Overall, South Africa has moved from a C- in 2010 to a D grade in terms of getting children physically active and eating healthily. The time has come for engaging parents and communities for advocacy and social mobilization.

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