

# The South African 24-Hour Movement Guidelines for Birth to 5 Years: Results From the Stakeholder Consultation

Simone A. Tomaz, Anthony D. Okely, Alastair van Heerden, Khanya Vilakazi, Marie-Louise Samuels, and Catherine E. Draper

**Background:** In 2018, South Africa developed 24-hour movement behavior guidelines for children from birth to 5 years. This study reports on the stakeholder consultation as part of this development process. **Methods:** An online survey was completed by 197 participants; 9 focus groups (with parents/caregivers, early childhood development practitioners, and community health workers, total  $n = 70$ ) were conducted, and a meeting with stakeholders from government and nongovernment organizations ( $n = 15$ ) was held. **Results:** In the online survey, stakeholders overwhelmingly agreed with the guidelines (97.0%) and recognized the benefit of putting the guidelines into practice (88.8%). Most online survey respondents (88.3%) reported that the guidelines would benefit all South African children equally. Responses to open-ended questions in the online survey and focus group discussions revealed issues including safety and nutrition of children, perceived parental barriers to using the guidelines, and education. Training and provision of educational materials were identified from all stakeholders as key in the dissemination and implementation of the guidelines. **Conclusions:** The findings informed the development of the South African 24-hour movement behavior guidelines and revealed several important factors to address in the dissemination and implementation of the guidelines to ensure that they are applicable and equitable in South Africa.

**Keywords:** physical activity, screen time, sedentary, sleep

In recent years, there has been a shift toward the development of integrated movement guidelines for children's physical activity, sedentary behavior, and sleep ("movement behaviors"). With the importance of being able to develop guidelines in a timely and cost-effective manner, pragmatic approaches to evidence-based guideline development have been developed. One such approach is the GRADE-ADOLOPMENT approach,<sup>1</sup> which refers to the process of adopting, adapting, or de novo developing guidelines and allows guideline groups to capitalize on previous work when setting up new guidelines. This approach was used by the Australian guideline development group<sup>2</sup> to adapt the Canadian guidelines<sup>3</sup> when developing the Australian 24-hour movement guidelines for children 0–5 years of age. The South African guideline group used the grade-adolopment approach when adapting the Australian guidelines<sup>2</sup> for South Africa. The consensus panel for the South African guidelines met in April 2018 and comprised of stakeholders in the field of early childhood development (ECD), health care practitioners, and academic researchers.<sup>4</sup> The guidelines were launched in December 2018. According to the GRADE-ADOLOPMENT approach, a critical step in the guideline development process is to consult with relevant stakeholders to obtain their feedback on the draft guidelines. This step is critical, although it recognizes that guidelines per se are important, and they are only effective when implemented with fidelity.<sup>5,6</sup>

In the South African setting, this step is especially important, as despite being classified as an upper-middle-income country, South

Africa is one of the most unequal societies in the world. According to the World Bank, 18.9% of South Africa's population is living in poverty (by the definition of earning <\$1.90/day) and only 2.4% of South Africa's income share is shared by the poorest quintile of the population.<sup>7</sup> Health inequalities persist in South Africa, and the country contends with a quadruple burden of disease, including infectious diseases (eg, HIV/AIDS, tuberculosis), noncommunicable diseases (eg, hypertension, type 2 diabetes), perinatal and maternal conditions (eg, septicemia, diarrheal disease), and injuries (eg, motor vehicle accidents, homicide).<sup>8</sup> The double burden of overnutrition and undernutrition is present, with 27% of children aged 5 years and younger being stunted, as a result of chronic malnutrition<sup>9</sup>; whereas the prevalence of overweight/obesity among 2- to 5-year-olds children has been reported to be 22.9%.<sup>10</sup>

There are many causes of inequality within ECD services in South Africa, with impoverished communities facing adversities that result in the exclusion of children living in poverty from benefitting from adequate preschool education.<sup>11</sup> Qualitative research has found that parents and ECD practitioners perceive preschoolers from lower-income settings have greater barriers to being physically active, such as lack of access to safe environments and facilities.<sup>12</sup> Thus, engaging with stakeholders across different income settings prior to the development and dissemination of guidelines is essential to maximize the potential reach and uptake of the guidelines. The aim of this study was to obtain stakeholder feedback about the draft guidelines to gauge stakeholders' perceptions of the acceptability, feasibility, clarity, usefulness, and cost-effectiveness of the guidelines.

## Methods

Data collection for this study took place between June and August 2018. To ensure that all income groups were consulted, participation was stratified along this domain. A mixed methods approach

Tomaz and Draper are with the Division of Exercise Science and Sports Medicine, University of Cape Town, Cape Town, South Africa. Okely is with Early Start, Faculty of Social Sciences, University of Wollongong, Wollongong, NSW, Australia. van Heerden and Vilakazi are with Human Sciences Research Council, Durban, South Africa. van Heerden and Draper are also with South African MRC Developmental Pathways for Health Research Unit, University of the Witwatersrand, Johannesburg, South Africa. Samuels is with the Department of Basic Education, Pretoria, South Africa. Tomaz ([tmzsim@gmail.com](mailto:tmzsim@gmail.com)) is corresponding author.

was used in the stakeholder consultation process which included (1) an online survey, (2) focus groups (FGs), and (3) a meeting with national stakeholders.

## Ethical Considerations

This study adhered to the guidelines described in the Declaration of Helsinki ethical principles for medical research involving human subjects.<sup>13</sup> Written informed consent was obtained from all participants. FG participants were specifically requested to indicate their consent for the FG to be recorded, in addition to their written consent. Ethical approval for this study was obtained from the University of Cape Town human research ethics committee (342/2018).

## Online Survey

An online survey was created using the SurveyMonkey cloud-based software (SurveyMonkey, San Mateo, CA). The online survey was intended to target adults aged 18 years and older with access to Internet (most likely middle to high income). In South Africa, most of the population (93.6%) have access to mobile phones (this includes mobile phones that are not “smartphones”), but less than a quarter (22.8%) have means to connect to the Internet (through means of a mobile device, modem, 3G, WiFi, etc).<sup>14</sup> Thus, the potential reach of an online survey in South Africa was limited. The sample for the online survey was recruited via targeted snowball sampling, starting with distribution to members of the consensus panel, followed by distribution to known contacts in the field of ECD across South Africa. Other key stakeholders identified for the online survey included parents, caregivers, ECD practitioners, teachers, health professionals, social workers, lay health workers, and counselors. The number of people who received the online survey (via e-mail) is not known.

The online survey comprised of 3 sections (questions regarding the title, preamble, and guidelines, in that order) with a total of 34 targeted questions (see [Supplementary File 1](#) [available online]). The online survey was structured in such a way that once the participants had read and completed the questions about the title, they moved onto the next section (where they read the preamble and then answered related questions), and then the last section (where they read the content of the guidelines and then answered related questions). The online survey required 10 to 15 minutes to complete.

## Focus Groups

Focus groups were intended to target individuals from lower-income settings, who would likely not have access to the online survey. FGs were conducted in Cape Town (in the Western Cape), Sweetwaters (in KwaZulu-Natal), and Soweto (in Gauteng). These settings were selected to provide diversity in the sample. All settings were previously marginalized as a result of *Apartheid* and still face challenges due to high levels of poverty, poor service delivery and amenities, and inequities regarding health and education. As funding limitations prohibited consultation in all 9 provinces of South Africa, other factors that influenced the selection of these 3 provinces were feasibility as there were existing connections between selected consensus panel members and researchers in these settings.

Three FGs were conducted with parents/caregivers ( $n = 31$ ), 3 with ECD practitioners ( $n = 20$ , some of whom were also parents/caregivers of children in this age group), and 3 with community health workers (CHWs,  $n = 19$ ) in the public sector (details are

presented in [Supplementary Table 1](#) [available online]). For the purpose of this study, “CHWs” included lay health workers, lay counselors, and home visitors. FGs were conducted at a time and place convenient for participants and lasted between 21 and 101 minutes (the 21-min FG was cut short on request by the ECD center principal; all other FGs were over 48 min in length). Participants that incurred travel costs were reimbursed. In sites where English or Afrikaans was not the primary language, a fieldworker was present to translate where necessary. Where participants preferred to express themselves in their home language, they were encouraged to do so and the fieldworker provided an English translation to the facilitators as part of the discussion. From the authors’ previous experience with qualitative research in cross-cultural settings in South Africa, this approach has been found to be preferable in comparison with having FGs facilitated by a fieldworker fluent in the local language, as the fieldworker may not have the qualitative training to sufficiently probe the issues raised by FG participants.<sup>12</sup>

The FG discussions started with the FG facilitator explaining the guidelines per age category (babies, toddlers, and preschoolers) using simple posters with pictures and information to stimulate discussion. The simple posters are presented in [Supplementary Figure 1](#) (available online). Special care was taken to ensure that the guidelines were understood by all FG participants. Within each age category, guide questions were used to facilitate the discussion and covered the following topics:

- (1) perceptions of the guidelines;
- (2) agreement with and acceptability of the guidelines;
- (3) perceived challenges to meeting the guidelines;
- (4) feedback regarding specific terminology (including “energetic play”); and
- (5) requirements for the dissemination and implementation of the guidelines.

All FGs were audio-recorded, and where it was possible to have 2 FG facilitators (presented in [Table 1](#)), the second facilitator took notes. A pragmatic approach was taken to the transcription of FG discussions, as it was not deemed necessary to transcribe verbatim the facilitators’ explanations of the guidelines. Participants’ responses to the explanations of the guidelines were frequently closed (ie, yes/no); these responses were recorded and summarized. The remainder of the FG discussions was transcribed if the discussion was in English or Afrikaans. Sections in other languages that were translated in the FG by the fieldworker were not transcribed, but the fieldworkers’ translations to English were transcribed verbatim.

## National Stakeholder Meeting

Representatives from both national government and nongovernment organizations (NGOs) were brought together as part of the interdepartmental committee on ECD convened by the National Department of Basic Education. One hundred and eighteen national government and NGO representatives were invited to join the stakeholder meeting, of which 15 were in attendance. The attendees included representatives from the National Departments of Basic Education, Health, and Social Development, which are the national departments responsible for different aspects of ECD in South Africa. Invitees who were unable to attend the meeting were asked to complete the online survey. Individuals who indicated that they would attend were sent the draft preamble and guidelines in the week leading up to the meeting. The stakeholder consultation

**Table 1** Categorical Answers to Questions Relating to the Title, Preamble, and Guidelines From the Online Survey

|                                                                                                                                                                                                                | Participants who completed the survey (n = 197) and agreed with the statement—n (%) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Title                                                                                                                                                                                                          |                                                                                     |
| I understand the title “South African 24-hour Movement Guidelines for the Early Years”                                                                                                                         | 162 (82.2)                                                                          |
| Preamble                                                                                                                                                                                                       |                                                                                     |
| The preamble is clearly stated.                                                                                                                                                                                | 193 (98.0)                                                                          |
| The preamble provides a helpful introduction to the movement guidelines.                                                                                                                                       | 192 (97.5)                                                                          |
| Would you use or read the preamble before reading the movement guidelines?                                                                                                                                     | 169 (85.8)                                                                          |
| Movement guidelines                                                                                                                                                                                            |                                                                                     |
| The Movement Guidelines are clearly stated.                                                                                                                                                                    | 191 (97.0)                                                                          |
| To what extent do you agree with the Movement Guidelines?                                                                                                                                                      | 191 (97.0)                                                                          |
| How relevant do you feel these guidelines are for South African children aged 5 y and younger? <sup>a</sup>                                                                                                    | 196 (99.5)                                                                          |
| Do you agree that these movement guidelines are easy for children to meet or achieve?                                                                                                                          | 181 (91.9)                                                                          |
| In your work with children and/or as a caregiver of children, how often would you use the Movement Guidelines? <sup>b</sup>                                                                                    | 167 (84.8)                                                                          |
| How easy or difficult would you find using the Movement Guidelines? <sup>c</sup>                                                                                                                               | 175 (88.8)                                                                          |
| How useful do you think it is to have the integrated Movement Guidelines (physical activity, seated behavior, and sleep), rather than separate sets of guidelines for these 3 movement behaviors? <sup>d</sup> | 163 (82.7)                                                                          |
| The costs for you to use or for your organisation to implement the Movement Guidelines are likely to be small or negligible compared to not using the Guidelines.                                              | 143 (72.6)                                                                          |
| The benefits of putting the Movement Guidelines into practice with children in South Africa are likely to outweigh the costs.                                                                                  | 175 (88.8)                                                                          |
| Using the Movement Guidelines is likely to benefit all population groups equally, irrespective of gender, race, ethnicity, cultural background, or the socioeconomic status of the family.                     | 174 (88.3)                                                                          |

Note: Data presented as n (%) for those participants who “strongly agree” and “somewhat agree” with the question or statement, unless otherwise specified:

<sup>a</sup>The n (%) represents variables “somewhat relevant” and “very relevant” that appear on a 3-point Likert scale. <sup>b</sup>The n (%) represents variables “frequently” and “always” that appear on a 5-point Likert scale (from “never” to “always”). <sup>c</sup>The n (%) represents variables “somewhat easy” and “very easy” that appear on a 5-point Likert scale (from “very difficult” to “very easy”). <sup>d</sup>The n (%) represents variables “much more useful” and “more useful” that appear on a 5-point Likert scale (from “much less useful” to “much more useful”).

meeting took place after all FGs had been conducted, and roughly 1 week before the online survey was closed to further data collection. During the stakeholder meeting, the facilitators were able to report preliminary findings of the online survey and FGs about various terminologies in the title, preamble, and guidelines, such as the term “energetic play” and “sedentary behavior.” It is worth noting that as early as the consensus panel meeting (April 2018), it was suggested that the term “sedentary behavior” be replaced with “sitting” to improve translatability and to ensure understandability for both the nonacademic members of the consensus panel and in the broader South African context. This was confirmed in the stakeholder meeting.

The objectives of the meeting were to:

- (1) Inform the stakeholders about the background to the guidelines;
- (2) Inform the stakeholders about the process of guideline development, including a brief overview of the evidence on which guidelines were based;
- (3) Present the guidelines including the preamble;
- (4) Obtain input from the stakeholders regarding:
  - (i) How the guidelines could be used across a range of settings, and by various stakeholder groups,
  - (ii) How the guidelines should be disseminated to all stakeholder groups,

(iii) Specific aspects of guidelines, eg, appropriate wording; and

- (5) To gain support from stakeholders for the guidelines and the dissemination thereof.

The stakeholder meeting was not audio-recorded, but comprehensive notes were taken by the 2 meeting facilitators (S.A.T. and C.E.D.). Following the stakeholder meeting, the notes were compared and synthesized.

## Data Analysis

Survey responses were captured in a secure online relational database that used the structured query language for data storage and manipulation. The data were then downloaded as a comma separated values (.csv) file in Microsoft Excel to a password-protected laptop. Descriptive statistics (frequencies) were generated for categorical data. Mean (SD) and interquartile ranges were calculated for continuous data (eg, ratings out of 10). All statistical analyses were conducted using Stata software (version 13; STATA Corp, College Station, TX) for Mac.

A thematic approach was used for the analysis of the FG discussions and stakeholder meetings, using both inductive and deductive approaches.<sup>15</sup> The FG discussion guide topics mentioned previously formed an initial framework for the analysis of the data; however, this framework evolved as a result of the issues that were raised in the FGs and the stakeholder meeting.

## Results

### Online Survey

The survey was uploaded and consent was obtained from 346 participants, although only 197 (56.9%) participants completed the entire survey. Of those who provided consent and completed the survey (n = 197), the majority of respondents were health professionals in private practice (n = 70, 35.5%), followed by participants who identified as “other” (n = 40, 20.3%), parents/primary caregivers (n = 22, 11.2%), individuals working in the ECD sector (as an employee of a crèche, playschool, or preschool, n = 19; 9.6%), researchers (n = 16, 8.1%), and health professionals in the public sector (n = 12, 6.1%). The participants who indicated “other” were largely kinderkineticists (pediatric exercise scientists or specialists, n = 19, 9.6% of all respondents). Ten (n = 10, 5.1%) government representatives and 2 ECD NGO representatives completed the survey. The majority of respondents reported working in Gauteng (n = 73, 37.1%) or the Western Cape (n = 61, 31.0%), although there were responses from all 9 South African provinces (ranging from n = 3 from the Northern Cape to n = 15 from KwaZulu-Natal). Eight participants from outside South Africa completed the survey and reported being from Australia (n = 4), Namibia, England, Portugal, and New Zealand (all n = 1). Although outside South Africa, these participants’ results were included.

There was a substantial drop-off of participants as the survey progressed. For the categorical question regarding the title, 297 participants answered. For the 3 categorical questions about the preamble, 251 participants answered. All participants who started the movement guidelines component of the survey completed the survey in its entirety. Categorical answers to questions relating to the title, preamble, and guidelines are presented in Table 1 for those who completed the survey.

Following the consensus panel meeting in April 2018, the decision was made to specifically explore the use of the term “energetic play,” given its use in the Canadian<sup>3</sup> and Australian<sup>2</sup> guidelines and the possibility that it may not translate well in the South African context. The online survey included 2 questions to address this. The results of these targeted questions, and other open-ended questions, are provided in Table 2.

### Focus Groups

For the FG data, 4 themes were ultimately identified: knowledge and awareness, positive perceptions of guidelines, barriers to meeting guidelines, and competing priorities.

**Knowledge and Awareness.** It was evident from the FGs that the movement behaviors, the times allocated to each behavior, and the benefits/harms of each behavior described in the guidelines were generally unfamiliar to the participants, and that there were many gaps in their knowledge. However, it was also clear that the knowledge and awareness differed depending on the FG target (ie, parents/caregivers vs ECD practitioners vs CHWs). In general, parents had more gaps in their knowledge and awareness than the ECD practitioners and CHWs who were FG participants. Table 3 summarizes the FG findings regarding knowledge and awareness of physical activity, sitting, and sleep for all age groups between parents/caregivers, ECD practitioners, and CHWs.

**Positive Perceptions of Guidelines.** Overall, the guidelines were perceived positively by FG participants who saw the value in having guidelines and in following the guidelines after receiving an explanation of their purpose. In general, participants did not contest

the times allocated to the physical activity guideline, although some parents/caregivers and ECD practitioners mentioned that children generally enjoy being physically active, although some toddlers and preschoolers were described as being “too active” and sometimes “hyperactive.”

They always want to play outside. —Parent, urban low-income setting

Similarly, the time allocated to the sleep guideline was not contested by participants, but many barriers were raised (results presented in the below section). The sitting (and screen time) guideline often generated the most discussion among participants around conflicting views of benefits and potential harms (Table 3) as well as barriers (results presented in the below section). However, after a thorough explanation from the FG facilitators and discussion among participants, they appeared to perceive the guidelines more positively.

So, I think these guidelines, for me, it’s perfect. —Home visitor, rural setting

**Barriers to Meeting Guidelines.** The FGs revealed several barriers to meeting the sitting (sedentary) behavior (referring to “strapping in” children), screen time, and sleep guidelines, according to participants. Barriers to children meeting physical activity guidelines were limited, according to participants, as children are seen to be sufficiently active already (reported above), even in settings where play equipment is limited and could be seen as a barrier.

The problem is the equipment, we don’t have enough in our ECDS, and the space . . . but they run around. —ECD practitioner, urban low-income setting

As presented in Table 4, barriers for sleep and screen time differed substantially between FG participants: ECD practitioners and CHWs very often saw parents (and factors within the homes) as barriers. Parents, however, reported a range of other barriers in the FG discussions.

**Competing Priorities.** In the FGs, parents/caregivers, ECD practitioners, and CHWs spoke about other challenges faced in their settings. These challenges were not always related to the guidelines per se, but were indicative of broader problems and additional barriers that extended far beyond those described in the previous section and provide insight into the context in which the guidelines would be disseminated. The 2 major challenges identified as competing priorities in the FG discussions were child safety in the home and community, and nutrition.

The issue of child safety in the home was mentioned in 2 ways. First, home visitors had spoken about children’s exposure to drugs, alcohol, and other forms of abuse in their homes:

But that is the challenge that we face as home visitors. Gangsterism, drugs, alcoholics, houses that is not right, abuse of women, abuse of husbands, abuse of children. —Home visitor, urban low-income setting

Some ECD practitioners had also disclosed similar challenges, some going as far as to make suggestions about how they would tackle the problem if they were in a position to do so:

She is saying that um, at some stages and intervals, she just wishes that she would have some sort of a boarding or lodging preschool so that these children wouldn’t have to go back to

**Table 2** Answers to Open-Ended Questions Relating to the Title, Preamble, and Guidelines From the Online Survey

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Energetic play</b></p> <p>The term “energetic play” has been used (to describe physically active play that is of a higher intensity, such as running and jumping and climbing) in the draft form of the <i>Movement Guidelines</i>. Of the following terms, which of the following do you feel describes this type of physical activity best?<sup>a</sup></p> <p>Please enter any suggestions you may have for an alternative term for “energetic play.”<sup>b</sup></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>Energetic play—80 (40.6%)<br/> Very active play—52 (26.4%)<br/> High energy play—59 (29.9%)<br/> Other—4 (2.0%)</p> <p>“Active play” (n = 5; of which n = 3 government representatives, n = 1 ECD practitioner, n = 1 health professional)<br/> “High-intensity play” (n = 4; of which n = 2 kinderkineticists, n = 1 researcher, n = 1 health professional)<br/> Other suggestions:<br/> “Educational play,” “gross motor play”/“gross motor development play,” and “rough and tumble play”</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <p><b>Movement guidelines</b></p> <p>On a scale of 1-10, how important are the Movement Guidelines to you? A score of 10 is extremely important, and a score of 1 is not important at all.<sup>c</sup></p> <p>Do you agree that these Movement Guidelines are easy for children to meet or achieve? Please provide a brief explanation in response to the previous question.<sup>b,d</sup></p> <p>In your work with children and/or as a caregiver of children, how often would you use the movement guidelines? Please provide a brief explanation in response to the previous question.<sup>b,d</sup></p> <p>The costs for you to use or for your organisation to implement the movement guidelines are likely to be small or negligible compared to not using the guidelines. Please provide a brief explanation in response to the previous question.<sup>b,d</sup></p> <p>The benefits of putting the movement guidelines into practice with children in South Africa are likely to outweigh the costs. Please briefly provide any explanation you would like to add for your response to the previous question.<sup>b,d</sup></p> | <p>9.0 (1.7)</p> <p>Somewhat agree. “I think in poorer communities who have single mothers and low income, children being restricted, as in tied to the caregiver’s back, is more common because of the lack of support. Children need attentive monitoring when doing their own thing, and often mother’s have a lot of things to attend to. Support for the mother may alleviate this and enable her to allow the children to play. Educating mothers on the value of movement is also essential.” —Health professional in private practice</p> <p>Somewhat agree. “‘energetic play’ can be difficult to achieve for children and families living in cramped conditions and unsafe neighbourhoods—I would like to see included somewhere in the guidelines some suggestions for ‘energetic play’ that can be achieved within these confines, ie, dancing.” —Parent of a child aged between 0 and 5 y and a researcher</p> <p>Somewhat agree. “At school or educational settings these guidelines can be easily implemented however at home, this is dependent on the parent/s commitment to stick to it. Because TV time is seen as a way out for parents to get a break from their children.” —ECD program coordinator</p> <p>Always. “In working with children on a day to day basis, this will be a great guideline to use when engaging with them and writing lessons for them. It will also be useful to distribute it to the children’s parents as well as to the school I’m working with. This will provide them with useful information that they might not have considered in their routines.” —Health professional in private practice</p> <p>Occasionally. “should be part of basic parenting skills in Road to Health booklets. Sort of selfdirective [<i>sic</i>] in well resourced settings. Might be problematic in low resource setting.” —Health professional in public sector</p> <p>Frequently. “I think once one has these guidelines at the forefront of ones mind, one will structure ones kids days accordingly and do the best one can to try to achieve that outlined in the guidelines. As a parent, having this sort of information is empowering and encouraging as one feels enabled to do the best one can to ensure the best start for ones kids.” —Parent of a child aged between 0 and 5 y</p> <p>Strongly agree. “For wealthy areas the guidelines are easy to follow up in the poorer communities the guidelines come at a greater cost.” —Health professional in private practice</p> <p>Strongly agree. “The guidelines assist in planning activities for children most of which can be done with minimal expense. Sleeping, running, playing outside should not cost anything. On the other hand, screentime would probably be more costly!” —Parent of a child aged between 0 and 5 y</p> <p>Strongly agree. “This goes directly to the provisioning of quality and that is priceless in relation to the future of this country.” —Employee of a crèche, playschool, or preschool</p> <p>Strongly agree. “I think from a public health and government/societal economic point of view the savings from decreases in the ill-health associated with the lack of such behaviours could be substantial.” —Health professional in the public sector</p> |

(continued)

Table 2 (continued)

|                                                                                                                                                                                                                                                                                    | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Using the movement guidelines is likely to benefit all population groups equally, irrespective of gender, race, ethnicity, cultural background, or the socioeconomic status of the family. Please provide a brief explanation in response to the previous question. <sup>b,d</sup> | Strongly agree. “But those living in poverty, and at higher risk, should be targeted as a matter of priority, with resources being allocated on a scale (ie, more support for those more in need, not a blanket provision regardless of need).” —Parent of a child aged between 0 and 5 y and a researcher<br>Neither agree nor disagree. “Technically, yes it should, but with the realities of our socio-economic divides in South Africa, the implementation varies and would need to be personalized for different population groups.” —Health professional in private practice |

Abbreviation: ECD, early childhood development.

<sup>a</sup>Data presented as n (%) for the term of choice. <sup>b</sup>Open-ended question, examples of quotes and suggestions are provided. <sup>c</sup>Data presented as mean (SD).

<sup>d</sup>A follow-up open-ended question for which the categorical answer is provided first; overall categorical results are presented in Table 1.

the environment which they call home. —Translator on behalf of ECD practitioner, rural setting

The second issue regarding child safety in the home was child discipline. Corporal punishment was reported by parents (ironically, some parents who were also home visitors) in several FGs:

But then my husband also gets very cross with them and he say “I’m going to bliksem you [beat you up]”! —Home visitor, urban low-income setting

I have a naughty corner . . . I do, for this one (indicates child). They sit, I tie them with a rope . . . I do that and it’s helped me a lot . . . it’s not abuse, it’s disciplining. —Parent, urban low-income setting

Regarding nutrition, parents and ECD practitioners in the FGs were particularly concerned with children’s exposure to poor quality food. For parents, the issue was very much linked to the child’s surroundings:

Once the child gets used to the sweets, and stuff and this 50 cent chips we buy, it’s like, it’s like a drug to them. —Parent, urban low-income setting

If you don’t buy it, the neighbor is going to buy it because their child eats it so okay go buy for the tjommie [buddy] also there. —Parent, urban low-income setting

The ECD practitioner participants were more inclined to believe that parents were responsible for young children’s poor nutrition:

The mummy, she doesn’t want her child to cry on her way to the ECD . . . for the lunches, there will be another stop for chips. Here at this center, I don’t take any kind of chips. I said “if you feed your child with chips, then you can do it at home.” Don’t come with the chips here. No sweets here, and then, but the other thing is the drinks. Some of them, they, they put fizzy drinks, some of them and then there is a drink but its still very sweet and uh, I try to be funny once and then I take this drinks, throw it in a bucket and the taste and the aftertaste from this drinks, it was very bad. Then I called a meeting with the parents. I said please, can’t we try to change the drinks, which is we are giving the children during the course of the day? . . . And I said why can’t we try to stop all together? —ECD practitioner, urban low-income setting

preamble and guideline document. Overall, the background and process of guideline development was well-received by the government and NGO representatives. A point was raised about the potential loss of “indigenous knowledge” in the review process. This point was addressed with the reassurance that the evidence upon which the guidelines were based was inclusive of both global and South African evidence. Concern was expressed about ownership of the guidelines, and who would be the custodians of the guidelines. It was clear that the guidelines were supported in principle by those who attended the meeting, but it was reinforced that other guidelines are typically released and owned by a specific government department (eg, the Road to Health book is a Department of Health initiative). The discussion around this point was sensitive, but it was made clear that the development of the South African 24-hour movement guidelines was a collaborative project with no affiliation to a single university or other institution, and that the intention was for the guidelines to remain this way.

There were substantial suggestions directed at the preamble. The suggestions and changes made are summarized in [Supplementary Table 2](#) (available online). There were no suggested changes to the specific recommendations within the guidelines, although a point was raised about evidence differentiating between active and passive screen time. This was followed by concerns directed at content developers (for children’s screen time material to be reduced to a maximum of 30 min per program) and broadcasters (for distributors of screen time to be aware of children’s screen time viewing patterns). It came to light that a popular time for child screen viewing is between 20:00 and 21:00, and so broadcasters need to be targeted specifically if the evidence suggests that screen time before bedtime is potentially detrimental to sleep. Suggested changes to the guidelines, including changes to wording, are presented in [Supplementary Table 3](#) (available online).

## Discussion

The aim of this study was to report on the findings from the stakeholder consultation for the development of the South African 24-hour movement guidelines. The findings of this study, specifically the online survey, are comparable with those reported in the Canadian<sup>3</sup> and Australian<sup>2</sup> online surveys. The South Africans that responded to the online survey were largely in agreement and in favor of the 24-hour movement guidelines, with agreement ranging between 82.2% and 99.5%. This is similar to the proportions reported in Canada (89.1%–98.1%)<sup>3</sup> and Australia (81.1%–96.6%),<sup>2</sup> and indicates that in terms of content of guidelines and relevance, and irrespective of country and setting, stakeholders agree that children aged between birth and 5 years (or birth to 4 y for Canada<sup>3</sup>) would benefit from 24-hour movement guidelines. Although neither the Canadian nor Australian study report the

## Stakeholder Meeting

There were 2 main themes identified during the stakeholder meeting: perceptions of the guidelines and suggestions for the

**Table 3 Summary of FG Findings Pertaining to Theme 1: Knowledge and Awareness**

|                         | Parents and caregivers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ECD practitioners                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | CHWs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical activity       | <p>Some parents reported that they had heard of tummy time, but no one had ever explained how much it was needed or why it was beneficial. After explaining the concept, parents reflected and showed understanding: "It's very good to lay the child also on his tummy because like, like you said before for the stretch out and makes the arm stronger, the necks gets stronger and it's the way they move and you can see the movement so you know there's nothing wrong with the child also, you see." —Parent, urban low-income setting</p> <p>Overall, parents and caregivers were aware of the benefits of their toddler and preschooler being physically active, although 1 parent expressed concern about whether their preschool child's level of physical activity was normal: "Is it normal for them to be so energetic? Like full of energy? Mine is busy from the morning to the night and whole day, non-stop. Really, really honest to God really, he makes me tired." —Parent, urban low-income setting</p>                                                                                                                                                                                                                                                                                                                                                                                        | <p>There was a general understanding of the benefits of tummy time in ECD practitioners: "In some way it's going to have a positive effect on the child, especially the laying on the stomach for 30 minutes. Because from there eventually they'll push up, they'll start crawling, you know from then crawling comes then eventually walking." —ECD practitioner, urban low-income setting</p> <p>The benefits of tummy time extended beyond just physical activity: "But medically, it's the right way. Babies should lay on their stomachs even when they are sleeping. Especially when they maybe may have a wind or something and they laying on their backs they can choke on that wind, you know." —ECD practitioner, urban low-income setting</p> <p>Some ECD practitioners said that the clinics always say that tummy time for babies is good, "but they never say time. We also get the information from the college." —ECD practitioner, urban low-income setting</p> <p>ECD practitioners were generally aware that toddlers and preschool children are generally very active: "... They always busy, fiddling, see where they can scratch in now, where they can climb up now. That's what they do, physical on this level. They are very active. Especially physically." —ECD practitioner, urban low-income setting</p> <p>Knowledge and awareness about screen time for babies, toddlers, and preschoolers were conflicted between ECD practitioners, both within and between FG sites: "It's developing their eye coordination, they coordinate with their eyes. What they see eventually it will come to their mind..." —ECD practitioner, urban low-income setting</p> <p>"She was saying that even the eyesight, a lay person's understanding is that if you are looking at the TV, all of the movements of the eyes definitely affect the infants at that age... In a good way [followed by some disagreement in the group]." —Translator on behalf of ECD practitioner, rural setting</p> <p>"I think this one [referring to the screen time guideline] is very important. You need to give out to people... 'cause we overdoing it, we don't know... they not aware of the harm, they just doing it." —ECD practitioner, rural setting</p> <p>"We were saying the TV is not right... if it's possible to come to our schools to call parents to understand these issues 'cause it's a big problem and I think they don't know any of it. And the children gets the right things only if they're in preschool." —ECD practitioner, rural setting</p> | <p>There was a general understanding of the benefits of tummy time in all CHW FGs: "So, [name] is saying that it is already something that they are teaching parents to do, to put their children on their tummies." —Translator on behalf of CHW, rural setting</p> <p>CHWs encourage parents not only to let their babies sleep on the tummy for many perceived medical benefits (such as development for premature babies, sleep length), but also to promote activity when the child wakes up from sleeping on their tummy: "So, she's saying it does help because the child becomes more active when they wake up... to look around." —Translator on behalf of CHW, rural setting</p> <p>However, there were concerns about whether parents understood tummy time: "I don't think parents understand always why it's important." —Home visitor, urban low-income setting</p> <p>In one of the settings, a home visitor expressed that how children (specifically babies and toddlers) move can indicate underlying developmental problems: "When you go to the parents, if the child using the bums [to move], maybe they can see there is something wrong." —Home visitor, rural setting</p> <p>Knowledge and awareness about screen time were generally good among CHWs: "It does affect their eyesight, it does affect their brain [negative]." —Home visitor, urban low-income setting</p> <p>"It's also important because, uh, this, this gadgets, and I say gadgets because, like everything that has to do with uh, screens, technology is not really good for the children [referring to babies]... some are too bright for their eyes." —Home visitor, rural setting</p> <p>For toddlers and preschoolers, there was a curiosity about screen content: "Does it have an impact, what is on the screen while they having the screen time? Like, like maybe you, you give them the screens but you playing the music and does it have an impact maybe if you give them screen time maybe you playing cartoons, uh, things that will be on their age." —Home visitor, rural setting</p> <p>There was concern about whether parents were aware of the guidelines: "Yes, they [parents] think like that, for my child can use a cell phone, they must be clever. They can go to games... so parents that is cleverness for them." —Home visitor, rural setting</p> <p>Knowledge regarding the strapping of children was also limited in CHWs, and there were some suggestions about how improving knowledge may be beneficial for CHWs and parents: "... It depends on the areas 'cause some would say no in our culture we do this and that, but I think, um, given information and making them aware of the dangers of, of having a baby while the baby is not sleeping... It's new information. They don't know about it, even us." —Home visitors, rural setting</p> |
| Sitting and screen time | <p>Knowledge and awareness about screen time for babies were conflicted between FG sites: "I think it's best that they don't watch TV at all, because that's where they learn swear words and biting..." —Parent, urban low-income setting</p> <p>"The colours is very important." —Parent, urban low-income setting</p> <p>The perceived benefits and risks of screen time in toddlers and preschoolers were further conflicted between parents from different FG sites, and even from the same site: "I'm saying for an infant it's not good, but when she's older or he is older, maybe two, it's good because he learns from the TV... he gets a lot of knowledge from the TV." —Parent, urban low-income setting</p> <p>"30 minutes should be the maximum for toddlers." —Parent, urban low-income setting</p> <p>Knowledge regarding strapping children up was poor, although it was very clear that parents and caregivers did not know that restraining a child was potentially detrimental, and expressed that it was done out of necessity: "Her grandchild is always on the back so she can actually finish all the house chores, without the child disturbing her. So, for them it has never been about strapping in a child because the child is asleep or awake, it's necessity. Keeping them in one place while they clean." —Translator on behalf of ECD practitioner, rural setting<sup>a</sup></p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

(continued)

Table 3 (continued)

|       | Parents and caregivers                                                                                                                                                                                                                                                                                                                                                                                                                                 | ECD practitioners                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | CHWs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sleep | <p>Across all settings, parents and caregivers were aware that babies, toddlers, and preschoolers needed sleep for growth and development, but did not know how much sleep was necessary for the different age groups.</p> <p>For babies in particular, parents were generally aware that sleeping was good for growth and development: "I think it's healthy for a child to sleep because they develop faster." —Parent, urban low-income setting</p> | <p>Across all settings, ECD practitioners were also aware that babies, toddlers, and preschoolers needed sleep for growth, but did not know how much sleep was necessary for the different age groups. The most common reason for children to sleep enough and well was that of growth: "I believe, in my opinion, babies that don't sleep, they won't grow." —ECD practitioner, urban low-income setting</p> <p>There was some concern raised about sleep and nap times in the home vs the crèche, and whether parents were aware of this:</p> <p>"So, like other parents, like in this sleeping part, they wouldn't understand what do you mean about 11 to 14 hours so you have to explain them, what does it really mean. Break it up. How long must nap here at the crèche? They sleep here for 2 hours." —ECD practitioner, urban low-income setting</p> | <p>As with the ECD practitioners, CHWs were aware of the benefits of babies, toddlers, and preschoolers getting enough sleep, but did not know how much sleep was necessary for the different age groups.</p> <p>As with ECD practitioners, CHWs were of the opinion that sleeping was essential for growth: "Die kind moet groei [<i>the child must grow</i>]." —Home visitor, urban low-income setting</p> <p>One home visitor mentioned that parents knew that children must sleep, and sometimes made use of medication to get babies to sleep more:</p> <p>"If they don't sleep enough time, they use the Panado's . . . [<i>paracetamol syrup</i>]." —Home visitor, rural setting</p> |

Abbreviations: CHWs, community health workers; ECD, early childhood development; FG, focus group.

<sup>a</sup>Where an ECD practitioner speaks as a parent or caregiver.

**Table 4 Summary of Focus Group Findings Pertaining to Theme 3: Barriers to Meeting Guidelines**

|                         | Parents and caregivers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ECD practitioners                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CHWs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sitting and screen time | <p>The most common barrier was that of the child being addicted to screens and to a certain extent, this being out of the parents' control:</p> <p>"They are so addicted to that thing. You see, my child sommer [jus] download on my tab, he downloads stuff." —Parent, urban low-income setting</p> <p>"I can't help it that my baby watches TV." —Parent, urban low-income setting</p> <p>Another common barrier was that young children take control of the screens in the house:</p> <p>"They have the remotes, they keep the remotes on the sofa like this and they change the channel once you go to the kitchen, they change it, you come back, they watching something else." —CHW, rural setting<sup>b</sup></p> <p>Parents also reported that an overall lack of knowledge about screen time was a barrier to their children for not meeting the guidelines:</p> <p>"I think it's because we—it's because of lack of knowledge, because I also do that. When I get home, just bring my child and put on the TV, then I'm busy with supper it's because we don't know how much time the child should be on the screens. That's the problem." —ECD practitioner, urban low-income setting<sup>a</sup></p> <p>It was, however, positive to note that some parents did plan on changing their child's behavior following the acquisition of knowledge about the screen time guideline:</p> <p>"I also then learned a lot because I didn't know your child have to only have only 1 hour for TV whole day, and I'm going to curb him now." —Parent, urban low-income setting</p> <p>The guidelines that speak to sitting time (or time being restrained) were largely around babies being strapped to parent's or caregiver's backs. A major barrier to children not being restrained for more than 1 h at a time was parents or caregivers needing to get things done:</p> <p>"I don't know but mostly in black people, you, you'll carry the baby maybe until you clean the whole house . . . Maybe 2 hours, 3 hours not to disturb you." —ECD practitioner, rural setting<sup>a</sup></p> | <p>ECD practitioners perceived the parents to being barriers to meeting screen time guidelines. The most commonly cited reason was that parents are likely to not know that screens are potentially harmful, or how to pacify their child otherwise: "Maybe some of the parents are using the screening because they don't know how to make them—to stop the baby from crying, so they think that is the only way to stop the baby from crying." —ECD practitioner, urban low-income setting</p> <p>For preschool children specifically, a barrier was that of parents perceiving preschool children to be independent: ". . . most parents is saying that at this child is old, they can fend for themselves." —Translator on behalf of ECD practitioner, rural setting</p> <p>". . . the parents are not gonna be there, so what they usually do is they just open the TV, put food and they leave for work and come back and the child will wake up, eat what's there, watch TV, fall asleep, watch TV again, until the parents comes back home." —Translator on behalf of ECD practitioner, rural setting</p> <p>A less commonly reported barrier from ECD practitioners was that of community safety:</p> <p>". . . Sometimes now, because of the crime, a lot of crime today, and then the parents, they prefer to keep them inside the house, playing around they get bored or they do something wrong, and then she will say 'go and watch the TV', and then the child will just be in front of the TV. Some of them, they even play with their mommy's cell." —ECD practitioner, urban low-income setting</p> | <p>Much like ECD practitioners, CHWs perceived the parents to being barriers to young children meeting screen time guidelines, due to lack of knowledge of potential harms. "That's why I say, if you can explain or we can explain [screen time], whichever way we want to do it. Just to explain to [parents] why. And then they get the bigger picture . . . because at the end of the day it's going to benefit them." —Home visitor, urban low-income setting</p> <p>"Sometimes when we go into the houses, if I go in, then the child is sitting at the big screen, you know, and I also told some of the moms 'kids can't sit whole day like this'. They sommer [jus] fall asleep in front of the TV and stuff like that. And the mommy's in her own world, she's too busy on whatsapp whole day and while the kid is on, busy with the screen there's no connection with the mommy then because one of the mommies already told me if they stand up in the morning then she just sort the child out and if she put on the TV she know all the cartoons are there. She sommer [jus] give the remote for the child. That is what they do in these lives of today." —Home visitor, urban low-income setting</p> <p>CHWs felt that parents feel powerless in managing their child's screen time: "So, the parents say 'what can I do?' . . . they want to watch cartoons." —Translator on behalf of CHW, rural setting</p> <p>CHWs also reported that children tend to have control of the remote in households: "I've got my cousins' grandchild, yes. He likes the TV. He, he even holds the, the remote control. If he goes outside, when he, when he watches the Disney, eh, Popeye [cartoons], if he goes outside and he comes back you change the channel, he says 'what happened, what happened?' and then he grabs the, the, the remote and open the, the, the Popeyes, Disney. He knows all the channels. He's between 24 and 36 months." —Home visitor, rural setting</p> <p>A barrier reported by CHWs to children not being restrained for more than 1 h at a time was parents not being aware of the potential harms: ". . . It depends on the areas 'cause some would say 'no in our culture we do this and that', but I think, um, giving them information and making them aware of the dangers of, of having a baby while the baby is not sleeping . . . They don't know about it, even us." —Home visitor, rural setting</p> <p>CHWs also reported parental barriers to children engaging in healthier sitting activities: "I think they don't have enough time for that [reading books or stories to their children] because they are coming from work late." —CHW, rural setting</p> |

(continued)

Table 4 (continued)

|       | Parents and caregivers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ECD practitioners                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | CHWs                                                                                                                                               |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Sleep | <p>Parents reported that toddlers and preschoolers' refusal to sleep were seen as major barriers to meeting sleep guidelines: "Myne sê nie 'I'm tired' nie [<i>my child never says 'I'm tired'</i>]." —Parent, urban low-income setting</p> <p>"Her grandchild just says it straight up, 'No. I'm not, I'm not sleepy.'" —Translator on behalf of CHW, rural setting</p> <p>There were parents in all settings who reported preventing their child from napping (and potentially preventing them from meeting the sleep guideline):</p> <p>"To be honest, with my baby, she's 2 years old, I actually don't let her sleep during the day. That's the reason why, I want her to be very tired that time that I can do proper cleaning. When she's awake I cannot do it and she then wants to hang on me . . ." —Home visitor, urban low-income setting<sup>b</sup></p> <p>In some instances, others were blamed for children getting enough sleep:</p> <p>"So gogo [<i>grandmother</i>] is saying that she stays with the grandchild, the son, and because the father is not around now, she has the authority to send the child to bed at half past seven. But when the father is there, the father of the child, the child always go sits with the father up until late watching TV." —Translator on behalf of ECD practitioner, rural setting<sup>a</sup></p> <p>"Me and my husband, we have one set of rules for our children. Then again, the grandparents, they have another set of rules. So, every time when we clap say 'look here, it's now come-in time, you must come inside'. Then the grandparents say 'Nee wag, hulle is hier by ons' [<i>No wait, they are here with us</i>]." —Home visitor, urban low-income setting<sup>b</sup></p> | <p>The most common barrier to sleep mentioned by ECD practitioners was screen time:</p> <p>"They watching too much TV, and they are very active at that age . . ." —ECD practitioner, urban low-income setting</p> <p>Another barrier reported by ECD practitioners was the perception that parents lacked a household routine:</p> <p>"I think if parents had a programme at home like we have a programme at the creches it would be much better. We tell them now it is eating time, you sit there eat their breakfast . . . if they followed routines I think like we have this problem with them not concentrating. Now you see like, maybe on weekends, they let them, they let them go and play. They don't say 'now's your nap time, come and nap' if he says 'I don't want to I'm not at the crèche' then it's my way, not mummy's way. 'If I don't want to sleep, mummy can't make me sleep.'" —ECD practitioner, urban low-income setting</p> <p>ECD practitioners also expressed general concern about household situations that are not conducive to young children getting enough sleep:</p> <p>"Ok, so she is telling me a story about this child that at home they have a shebeen [<i>illegal drinking establishment</i>] so the child hardly sleeps, and so at 8 . . . when they giving out the first meal of the day, the child is very sleepy . . . Monday is the worst." —Translator on behalf of ECD practitioner, rural setting</p> | <p>The barriers discussed by CHWs with regard to sleep tended to refer to their own home situations, and are reported elsewhere in this table.</p> |

Abbreviations: CHWs, community health workers; ECD, early childhood development.

<sup>a</sup>An ECD practitioner speaks as a parent or caregiver. <sup>b</sup>A CHW speaks as a parent or caregiver.

qualitative findings in as great a detail as reported in this study, the findings from the online survey and FGs were consistent. This too was evident in South Africa, where consistencies were also found between the online survey, FGs, and the stakeholder meeting.

A key finding that is unique to the South African context in comparison with the Canadian and Australian stakeholder consultations was the issue of competing interests such as child safety and overwhelming inequalities across South Africa, which were mentioned in the FGs. Irrespective of how stakeholders were consulted (online survey, FG, or in the stakeholder meeting), South Africans remain mindful and sensitive to challenges in lower-income settings and raised these issues persistently, and sometimes unsolicited, in the FGs. The challenges reported in this study are not new and have been reported previously,<sup>16</sup> where children play in and are exposed to environments that are not perceived to be safe by parents,<sup>17</sup> and stark inequalities exist among ECD facilities depending on income setting.<sup>11</sup> Stakeholders consistently acknowledged that for guideline development and dissemination there is no feasible “one-size-fits-all” approach, suggesting that developing and disseminating guidelines for use in low- and middle-income countries like South Africa needs to address specific challenges. It was encouraging to find that despite numerous challenges, stakeholders were positive about the content of the guidelines and responded well to the attainment of knowledge, highlighting that in the South African context—dissemination of guidelines is not just about telling people what needs to be done in terms of movement behaviors (volume, frequency, etc). Dissemination of guidelines needs to be seen as a way to distribute valuable knowledge about the importance of the movement behaviors to get “buy-in.” Provision of knowledge was consistently seen as the best way to help parents, caregivers, ECD practitioners, and CHWs overcome perceived barriers to children meeting guidelines.

There were several differences between stakeholders (and between the online survey, FGs, and stakeholder meetings) that need to be considered when targeting the guidelines for dissemination. Beyond the clear differences in knowledge and awareness between different stakeholders, it was clear from the perspectives of the ECD practitioners, CHWs (reported in FGs) and the attendees of the stakeholder meeting that movement behaviors start in the home, although this sentiment is not always shared by the parents, who tend to have certain expectations of ECD practitioners<sup>11</sup> and CHWs, as well as numerous challenges and barriers. Although this study and others<sup>12,18</sup> have shown that physical activity is not a problem in young children in South Africa, sleep<sup>19</sup> and especially screen time in the home are problematic, irrespective of setting.<sup>12,18</sup> Thus, reaching parents and caregivers should arguably be the priority, followed by reaching those who work with parents and caregivers, such as CHWs. Although it is absolutely important to get the messages to ECD centers, there is a limit to what they can do to influence movement behaviors within the home, and there is no evidence to suggest that reaching parents through ECD centers in low-income settings will be particularly successful.

It was interesting to note that the sleep guidelines were not contested, and that suboptimal sleeping arrangements (such as cosleeping—sometimes with several others—out of necessity, and the presence of televisions in the bedroom) were not reported as major barriers to meeting the sleep component of the 24-hour movement guidelines. It was encouraging to report that stakeholders perceived sleep as an important behavior for the health and development of their child, even though getting children to sleep enough at night (particularly preschoolers) was reported as a

challenge. Objectively measured sleep in a limited sample from Soweto supports this: 62.3% of preschoolers met the sleep guideline, although when only nighttime sleep was considered, 20.4% of the sample slept for more than 10 hours per night, indicating a reliance on daytime napping to meet sleep guidelines.<sup>19</sup> Future research should be conducted to establish whether knowledge and positive perceptions of the sleep component of the guidelines can elicit positive changes in behavior or change in how parents manage their child’s sleep.

## Strengths and Limitations

This study made use of more than 1 approach to consult stakeholders and was effective in capturing the perceptions and opinions of stakeholders across different income settings. Although FGs were only conducted in 3 different provinces, the online survey had representation from all 9 South African provinces, and the stakeholder meeting had attendees who were national representatives. The authors acknowledge the limitation of having 1 FG that was shorter and less representative than the rest of the FGs for ECD practitioners. However, a similar cohort was captured in a larger FG that had run to completion. The methods used to collect and analyze the qualitative data can be viewed as a limitation, although the methods used have been successful in similar contexts in South Africa. However, it is possible that some of the detail of participants’ responses in the FGs may have been lost in this adapted translation process. The low representation of males in the sample could be considered a limitation. Similar to other countries, in South Africa, the vast majority of ECD practitioners and primary caregivers of young children are females, and the sample is, therefore, reflective of the local reality with respect to the caregiving of young children in South Africa. Another potential limitation is the sample bias for the online survey, given that it was distributed through the networks of those involved in developing the guidelines. It is possible that those who chose to complete the online survey may have been more familiar with the topic of movement behaviors and may have been more positive regarding these recommendations. In an attempt to counteract this potential bias, the consensus panel attempted to distribute the survey as widely as possible, and efforts were made to ensure that a range of stakeholders were reached in the interviews and FGs, especially those who may have been less likely to complete the online survey and potentially less partial to the guidelines.

## Conclusions

Stakeholders were positive about the guidelines, and the stakeholder consultation provided meaningful evidence to inform the guidelines dissemination strategy. However, it is necessary to consider the real impact that 24-hour movement guidelines will have on the well-being of children from birth to 5 years in the South African context, considering the inequality in South Africa, competing priorities (such as crime and safety), and the overwhelming challenges already faced by parents and caregivers, ECD practitioners, and CHWs.

## Acknowledgments

The authors wish to thank all participants who took the time to complete the online survey, participated in the FGs, and attended the stakeholder meeting. The authors are grateful to Ms Karabo Setlhafuno for her

assistance with data collection in Soweto and to the community-based organizations and Human Sciences Research Council who assisted with the recruitment of participants for FGs. Finally, the authors would like to acknowledge the members of the consensus panel for their assistance with distributing the online survey. The project was funded by the Laureus Sport for Good Foundation.

## References

- Schünemann HJ, Wiercioch W, Brozek J, et al. GRADE Evidence to Decision (EtD) frameworks for adoption, adaptation, and de novo development of trustworthy recommendations: GRADE-ADOLOPMENT. *J Clin Epidemiol*. 2017;81:101–110. doi:10.1016/j.jclinepi.2016.09.009
- Okely AD, Ghersi D, Hesketh KD, et al. A collaborative approach to adopting/adapting guidelines—The Australian 24-Hour Movement Guidelines for the early years (Birth to 5 years): an integration of physical activity, sedentary behavior, and sleep. *BMC Public Health*. 2017;17(S5):370. doi:10.1186/s12889-017-4867-6
- Tremblay MS, Chaput J-P, Adamo KB, et al. Canadian 24-hour movement guidelines for the early years (0–4 years): an integration of physical activity, sedentary behaviour, and sleep. *BMC Public Health*. 2017;17(S5):15. doi:10.1186/s12889-017-4859-6
- Draper CE, Tomaz SA, Biersteker L, et al. The South African 24-hour movement guidelines for birth to 5 years: an integration of physical activity, sitting behavior, screen time, and sleep. 2020;17(1):109–119. doi:10.1123/jpah.2019-0187.
- Brouwers MC, Kho ME, Browman GP, et al. AGREE II: advancing guideline development, reporting, and evaluation in health care. *Prev Med*. 2010;51(5):421–424. PubMed ID: 20728466 doi:10.1016/j.pmed.2010.08.005
- Schünemann HJ, Wiercioch W, Etzeandia I, et al. Guidelines 2.0: systematic development of a comprehensive checklist for a successful guideline enterprise. *CMAJ*. 2014;186(3):E123–E142. doi:10.1503/cmaj.131237
- The World Bank. *Country Profile: South Africa*. The World Bank; 2019. [https://databank.worldbank.org/data/views/reports/reportwidget.aspx?Report\\_Name=CountryProfile&Id=b450fd57&tbar=y&dd=y&inf=n&zm=n&country=ZAF](https://databank.worldbank.org/data/views/reports/reportwidget.aspx?Report_Name=CountryProfile&Id=b450fd57&tbar=y&dd=y&inf=n&zm=n&country=ZAF). Accessed April 2, 2019.
- Pillay-van Wyk V, Msemburi W, Laubscher R, et al. Mortality trends and differentials in South Africa from 1997 to 2012: second National Burden of Disease Study. *Lancet Glob Health*. 2016;4(9):e642–e653. PubMed ID: 27539806 doi:10.1016/S2214-109X(16)30113-9
- National Department of Health, Statistics South Africa. *South African Demographic and Health Survey 2016*. Pretoria, South Africa and Rockville, MD, USA: Statistics South Africa; 2017. <https://www.statssa.gov.za/publications/Report%2003-00-09/Report%2003-00-092016.pdf>. Accessed May 2, 2018.
- Shisana O, Labadarios D, Rehle T, et al. *South African National Health and Nutrition Examination Survey (SANHANES-1)*. Cape Town, South Africa: HSRC Press; 2013. [http://www.hsrc.ac.za/uploads/pageNews/72/SANHANES-launch%20edition%20\(online%20version\).pdf](http://www.hsrc.ac.za/uploads/pageNews/72/SANHANES-launch%20edition%20(online%20version).pdf). Accessed January 21, 2015.
- Aubrey C. Sources of inequality in South African early child development services. *S Afr J Childhood Educ*. 2017;7(1):9. doi:10.4102/sajce.v7i1.450
- Draper CE, Tomaz SA, Stone M, et al. Developing intervention strategies to optimise body composition in early childhood in South Africa. *Biomed Res Int*. 2017;2017(1):5283457, 13 pages. doi:10.1155/2017/5283457
- World Medical Association. World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. *JAMA*. 2013;310(20):2191–2194. doi:10.1001/jama.2013.281053
- Statistics South Africa. *Living Conditions of Households in South Africa*. Pretoria, South Africa: Statistics South Africa; 2017. <http://www.statssa.gov.za/publications/P0310/P03102014.pdf>. Accessed January 3, 2019.
- Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2):77–101. doi:10.1191/1478088706qp063oa
- Draper CE, Tomaz SA, Basset SH, et al. Results from the Healthy Active Kids South Africa 2018 report card. *S Afr J Child Health*. 2009;13(3):130–136. doi:10.7196/SAJCH.2019.v13.i3.1640
- Bartie M, Dunnell A, Kaplan J, et al. The play experiences of preschool children from a low-socio-economic rural community in Worcester, South Africa. *Occup Ther Int*. 2016;23(2):91–102. PubMed ID: 26348391 doi:10.1002/oti.1404
- Prioreschi A, Brage S, Hesketh KD, et al. Describing objectively measured physical activity levels, patterns, and correlates in a cross sectional sample of infants and toddlers from South Africa. *Int J Behav Nutr Phys Act*. 2017;14(1):176. PubMed ID: 29273035 doi:10.1186/s12966-017-0633-5
- Tomaz SA, Prioreschi A, Watson ED, et al. Body mass index, physical activity, sedentary behaviour, sleep and gross motor skill proficiency in preschool children from a low- to middle-income, urban setting. *J Phys Act Health*. 2019;16(7):525–532. PubMed ID: 31154894 doi:10.1123/jpah.2018-0133