

Table S1. SUNRISE Leadership Group

Investigator	Rationale for inclusion
Snr Professor Anthony Okely*	Represent Australia and New Zealand Region**; member of the Guideline Development Group for the WHO Global guidelines for physical activity, sedentary behaviour and sleep for children under the age of five.
Professor Mark Tremblay*	Represent Europe and North America Region** (North America section); member of the Guideline Development Group for the WHO Global guidelines for physical activity, sedentary behaviour and sleep for children under the age of five.
Professor John Reilly*	Represent Europe and North America Region** (Europe section); member of the Guideline Development Group for the WHO Global guidelines for physical activity, sedentary behaviour and sleep for children under the age of five.
Dr Bang Nguyen Pham	Represent Oceania Region**; provide expertise around community-based surveillance of NCD risk factors in children and families in this region.
A/Professor Guan Hongyan	Represent Eastern and South-Eastern Asia Region**; provide expertise in conducting movement behaviour research with children and families in this region.
A/Professor Catherine Draper	Represent Sub-Saharan Africa Region**; member of the Guideline Development Group for the WHO Global guidelines for physical activity, sedentary behaviour and sleep for children under the age of five; provide expertise in conducting movement behaviour research with children and families in this region.
Dr Asmaa El Hamdouchi	Represent Northern Africa and Western Asia Region**; provide expertise in conducting movement behaviour research with children and families in this region.
Ms Himangi Lubree	Represent Central and Southern Asia Region**; provide expertise around community-based surveillance of NCD risk factors in children and families in this region.
Dr Alex Florindo	Represent Latin America and Caribbean Region**, provide expertise around environmental factors and in conducting research with children and families in this region.
Professor Peter Katzmarzyk	Independent Advisor; PI on the ISCOLE Study, a 12-country study of movement behaviours in 9-11 year-old children, which included six LMICs.
Dr Thomas Suesse	Advise on survey methodology, sample size calculations, and statistical analyses
Dr Janette Green (until Jan 2020)	Advise on quality assurance aspects of the study
Observers	
Dr Juana Willumsen	WHO Representative, Geneva; involved in development of WHO Global guidelines for physical activity, sedentary behaviour and sleep for children under the age of five.

* Members of the Leadership Executive

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Table S2. ECEC Service Questionnaire

**THE SUNRISE STUDY
INTERNATIONAL STUDY OF 24-HOUR MOVEMENT BEHAVIOURS
IN THE EARLY YEARS
ECEC SERVICE QUESTIONNAIRE**

1.	Centre Name:	1a.	Centre number:

2.	Data collection start date:	3.	Data collection end date:
	____ / ____ / ____		____ / ____ / ____
4.	Sector:		
	o Urban o Rural		
5.	Total number of eligible children at the centre:		
		
6.	Number of eligible children at the centre that did consent to participate in the study		
		
7.	Did any children at this centre withdraw from the study after consenting?		
	o Yes o No		
7a.	How many children withdrew from this centre after consenting?	7b.	Why did they withdraw?

8.	Do the eligible children who are participating in the SUNRISE Study have a naptime in this centre?		
	o Yes o No		
8a.	What time does the nap start? (24hr time in hours and minutes)	8b.	What time does the nap end? (24hr time in hours and minutes)

9.	In which season are you collecting data in this centre?		
	<input type="radio"/> Spring <input type="radio"/> Summer <input type="radio"/> Autumn <input type="radio"/> Winter <input type="radio"/> Other (please specify).....		
10.	Were there any ActiGraphs lost in this centre? If no, please go to question 11	10a.	How many monitors were lost in this centre?
	<input type="radio"/> Yes <input type="radio"/> No	
10b.	What are the serial numbers of the lost UOW ActiGraphs in this centre?		
		
11.	In the past three days, have the eligible children who are participating in the SUNRISE Study:		
11a.	Not gone/been allowed to go/been taken outside to play at the because of (tick as many as appropriate)	11b.	Not got enough sleep during nap time because of (tick as many as appropriate)
	<input type="radio"/> Heat <input type="radio"/> Cold <input type="radio"/> Rain <input type="radio"/> Air pollution (dirty, smoky, smelly) <input type="radio"/> Noise <input type="radio"/> Other, please specify:		<input type="radio"/> Indoor noise <input type="radio"/> Outdoor noise (traffic/train/street noises) <input type="radio"/> Too hot <input type="radio"/> Too cold <input type="radio"/> Too much light coming in to the room <input type="radio"/> Other, please specify:
12.	What are the current COVID restrictions for the area where this centre is located?		
		
12a.	If any restrictions, how has COVID-19 impacted the practices and activities that occur within the centre? (e.g., restricted play equipment,...)		
		

13.	Does the childcare centre provide any meals or snacks? (Please tick all that applies)
	<input type="checkbox"/> Breakfast <input type="checkbox"/> Lunch <input type="checkbox"/> Dinner <input type="checkbox"/> Snacks <input type="checkbox"/> None
14.	Does the childcare centre provide a cooked meal every day?
	<input type="checkbox"/> Yes <input type="checkbox"/> No
15.	Does the childcare centre have any rules about what food they can bring?
	<input type="checkbox"/> Yes <input type="checkbox"/> No
15a.	If Yes, what are the rules?
	<input type="checkbox"/> Not permitted to bring food to the childcare centre <input type="checkbox"/> Other rules (please specify): _____
16.	Any other relevant information/comments about this centre or any problems during data collection in this centre?

Please make a screenshot each day at the main outdoor playtime or at 12PM if there is not a scheduled playtime using the Plume app and upload them into REDCap

Table S3. Parent/Caregiver Questionnaire

**THE SUNRISE STUDY
INTERNATIONAL STUDY OF 24-HOUR MOVEMENT BEHAVIOURS
IN THE EARLY YEARS
PARENT/CAREGIVER QUESTIONNAIRE**

This questionnaire is to be administered/completed by the MAIN caregiver of the child who lives with them and is 3 or 4 years old at the time of interview. A separate questionnaire should be used for each eligible child.

MODULE OF CHILD AND CAREGIVER BACKGROUND			
1.	What is the date of birth of the child? (dd/mm/yyyy)	2.	If the child's date of birth is not known, how old is the child in years? (Age in completed year)
	_____/_____/_____	
3.	Parent/caregiver's relationship to the child participating in the study?		
	<input type="radio"/> Mother <input type="radio"/> Father <input type="radio"/> Grandmother <input type="radio"/> Grandfather <input type="radio"/> Legal Guardian <input type="radio"/> Other (please specify):		
4.	What is the sex of the child?	5.	What is the gender of the main caregiver?
	<input type="radio"/> Boy <input type="radio"/> Girl		<input type="radio"/> Male <input type="radio"/> Female <input type="radio"/> Other <input type="radio"/> Non specific
6.	What is your (parent/caregiver) date of birth? (dd/mm/yyyy)	7.	If you (parent/caregiver) do not know your date of birth, how old are you (in years)?
	_____/_____/_____	
8.	What is the highest level of parental/caregiver education completed by a member of your household?		
	<input type="radio"/> No formal schooling <input type="radio"/> Primary school <input type="radio"/> Secondary or high school <input type="radio"/> Vocational education <input type="radio"/> Tertiary education <input type="radio"/> Don't know/refused		
9.	What is your ethnic group/racial group/cultural subgroup/cultural background? Multiple answers possible.		
	<input type="radio"/> Asian <input type="radio"/> Aboriginal/Torres Strait Islander <input type="radio"/> Middle-Eastern <input type="radio"/> European <input type="radio"/> African <input type="radio"/> Other (please specify):		

CORE: SEDENTARY BEHAVIOUR, SCREEN TIME AND SLEEP	
The next questions ask about your child's movement behaviours. Please report the number of hours and minutes per day (for all the questions). E.g. 1 hour and 30 mins	
10.	In the past week, were there any days where the 3 to 4 year-old child who is participating in this study was restrained for more than one hour at a time in a stroller, car seat, or on back or a scooter/motorbike?
	<input type="radio"/> Yes <input type="radio"/> No
11.	Over a typical weekday , how much time does the child spend as a passenger in a motor vehicle (e.g. a car, bus, motorcycle)hrsmins
12.	Over a typical weekend day , how much time does this child spend as a passenger in a motor vehicle (e.g., a car, bus, motorcycle)hrsmins
13.	On a typical weekday , how much time does your child spend outside?hrsmins
14.	On a typical weekend day , how much time does your child spend outside?hrsmins
15a.	In the past three days, has the child: Gone outside the home to play (alone/with an adult/older child)?
	<input type="radio"/> Yes <input type="radio"/> No
15b.	<p>If Yes, where did the child go? (tick as many as appropriate)</p> <input type="radio"/> On the property (i.e. Garden/yard) <input type="radio"/> To a friend/relative's home <input type="radio"/> To a park/square or playground <input type="radio"/> To a swimming pool/creek/river/dam/waterhole/beach <input type="radio"/> To the street <input type="radio"/> To the bush/forest/nature environment <input type="radio"/> Any other not mentioned? (please specify)

15c.	In the past three days, has the child: Not gone/been allowed to go/been taken outside to play because of (tick as many as appropriate)	
	<input type="checkbox"/> Heat <input type="checkbox"/> Noise or crowding <input type="checkbox"/> Cold <input type="checkbox"/> Garbage/rubbish <input type="checkbox"/> Rain <input type="checkbox"/> Social unrest <input type="checkbox"/> Air pollution (dirty, smoky, smelly) <input type="checkbox"/> Dangers such as crime/kidnapping <input type="checkbox"/> Water pollution <input type="checkbox"/> Dangers such as traffic <input type="checkbox"/> Any other not mentioned? (please specify) <input type="checkbox"/> Not relevant	
16.	On a 24-hour period in the past week , how much time did the 3 to 4 year-old child who is participating in this study spend using any electronic screen device such as a smart phone, tablet, video game, or watch television or movies, videos on the internet while they were sitting or lying down? Please record this as accurately as you can to the nearest minutehrsmins
17.	How often do you use an electronic screen device to educate this child?	
	<input type="checkbox"/> Never <input type="checkbox"/> Less than once a week <input type="checkbox"/> Once a week <input type="checkbox"/> Most days <input type="checkbox"/> Every day <input type="checkbox"/> Don't know	
18.	How often do you use an electronic screen device to calm down this child when he/she is upset?	
	<input type="checkbox"/> Never <input type="checkbox"/> Less than once a week <input type="checkbox"/> Once a week <input type="checkbox"/> Most days <input type="checkbox"/> Every day <input type="checkbox"/> Don't know	
19.	How often do you use an electronic screen device to keep this child busy while you get things done?	
	<input type="checkbox"/> Never <input type="checkbox"/> Less than once a week <input type="checkbox"/> Once a week <input type="checkbox"/> Most days <input type="checkbox"/> Every day <input type="checkbox"/> Don't know	
20.	How often do you use a smartphone to make calls, text messages, check email, watch a video during meals with the child?	
	<input type="checkbox"/> Never <input type="checkbox"/> Less than once a week <input type="checkbox"/> Once a week <input type="checkbox"/> Most days <input type="checkbox"/> Every day <input type="checkbox"/> Don't know	
21.	How often do you use a smartphone to make calls, text messages, check email, watch a video during playtime with the child?	

	<input type="radio"/> Never <input type="radio"/> Less than once a week <input type="radio"/> Once a week <input type="radio"/> Most days <input type="radio"/> Every day <input type="radio"/> Don't know		
22.	How often do you use a smartphone to make calls, text messages, check email, watch a video during travel time with the child?		
	<input type="radio"/> Never <input type="radio"/> Less than once a week <input type="radio"/> Once a week <input type="radio"/> Most days <input type="radio"/> Every day <input type="radio"/> Don't know		
23.	How often do you use a smartphone to make calls, text messages, check email, watch a video while going for walks with the child?		
	<input type="radio"/> Never <input type="radio"/> Less than once a week <input type="radio"/> Once a week <input type="radio"/> Most days <input type="radio"/> Every day <input type="radio"/> Don't know		
24.	How often do you use a smartphone to make calls, text messages, check email, watch a video during bedtime routine with the child?		
	<input type="radio"/> Never <input type="radio"/> Less than once a week <input type="radio"/> Once a week <input type="radio"/> Most days <input type="radio"/> Every day <input type="radio"/> Don't know		
25a.	Does the child use electronic screen devices (e.g. TV, video game, computer, tablet or smartphone) in the 2 hours before bedtime on a daily basis? If no, go to question 26		
	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Don't know		
25b.	If Yes , how close to bedtime does the child usually use these devices?		
	<input type="radio"/> Closer than 30 minutes before bedtime <input type="radio"/> 30 mins to less than 1 hour before bedtime <input type="radio"/> Between 1 and 2 hours before bedtime		
26.	Does the child have electronic screen devices in the room where he/she sleeps (e.g. TV, video game, computer, tablet or smartphone)?		
	<input type="radio"/> Yes <input type="radio"/> No		
27.	How many hours of sleep does this child get in a typical 24-hours day (including naps)?hrsmins	
28a.	Does your child nap? If yes, go to 28b	28b.	If yes , what time does your child nap?
	<input type="radio"/> Yes <input type="radio"/> No	Begin time:	
		End time:	
29a.	Does the child have a consistent bedtime?	29b.	Does this child have a consistent wake-up time?

<input type="radio"/> Never <input type="radio"/> Less than once a week <input type="radio"/> Once a week <input type="radio"/> Most days <input type="radio"/> Every day <input type="radio"/> Don't know

FOOD SOURCES

35a.	Do you ever give your child money to buy food?
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<input type="radio"/> Yes <input type="radio"/> No
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35b.	If Yes, on how many days per week? _____ days
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36a.	Does your child take any food to the childcare centre?
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<input type="radio"/> Yes <input type="radio"/> No
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36b.	If Yes, which meal(s) do they typically take with them and on how many days per week?
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	Once a week	Twice a week	3 times a week	4 times a week	5 or more times a week	No
Breakfast	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lunch	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dinner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Snacks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

37.	Does your child have any special dietary requirements/restrictions (e.g. dairy-free food, gluten-free food)?
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<input type="radio"/> Yes <input type="radio"/> No
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37a.	If Yes, please specify _____
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DIETARY DIVERSITY¹

38.	Did your child eat any of the following types of food yesterday, during the day or night?
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	Yes	No	Don't know
Grains, roots and tubers (e.g. Bread, cereals, noodles, pasta, potatoes, rice)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Legumes and nuts (e.g. Beans, peas, lentils, walnuts, or seeds)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dairy/milk products (e.g. Cheese, curd, custard, ice-cream, kefir, milk and yogurt. Exception of butter and sour cream)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fresh foods (e.g. meat, fish, poultry and liver/organ meats)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Eggs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Vitamin-A rich fruits and vegetables (e.g. green leafy vegetables, yellow and orange inside vegetables and orange non-citrus fruits)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Other fruits and vegetables (e.g. Apple, banana, orange, pear)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
EATING BEHAVIOURS AT HOME				
39.	How often is the TV or an electronic screen device on during meal or snack time?			
	<input type="radio"/> Never <input type="radio"/> Rarely <input type="radio"/> Once a week <input type="radio"/> Most days <input type="radio"/> Every day <input type="radio"/> Don't know			
40.	How often do you sit with your child during meals?			
	<input type="radio"/> Never <input type="radio"/> Rarely <input type="radio"/> Once a week <input type="radio"/> Most days <input type="radio"/> Every day <input type="radio"/> Don't know			
41.	How often do all of the family sit together during a main meal?			
	<input type="radio"/> Never <input type="radio"/> Rarely <input type="radio"/> Once a week <input type="radio"/> Most days <input type="radio"/> Every day <input type="radio"/> Don't know			
42.	How often does your child eat or drink different foods and beverages to you during meal and snack times?			
	<input type="radio"/> Never <input type="radio"/> Rarely <input type="radio"/> Once a week <input type="radio"/> Most days <input type="radio"/> Every day <input type="radio"/> Don't know			
43.	How often does your child have snacks like chips, biscuits, cakes, candies, chocolate, pastries, and sweets between meals?			
	<input type="radio"/> Never <input type="radio"/> Rarely <input type="radio"/> Once a week <input type="radio"/> Most days <input type="radio"/> Every day <input type="radio"/> Don't know			
44.	How often does your child drink sugary drinks (e.g. Cordials, flavoured milk, fruit juice, soda, soft drink)?			
	<input type="radio"/> Never <input type="radio"/> Rarely <input type="radio"/> Once a week <input type="radio"/> Most days <input type="radio"/> Every day <input type="radio"/> Don't know			
FOOD INSECURITY				
45a.	Does your household ever run out of money to buy food?			
	<input type="radio"/> Yes <input type="radio"/> No			
45b.	Do you ever cut the size of meals or skip meals because there is not enough money for food?			
	<input type="radio"/> Yes <input type="radio"/> No			
45c.	Do you go to bed hungry because there is not enough money to buy food?			
	<input type="radio"/> Yes <input type="radio"/> No			

46.	Comments: _____ _____ _____ _____ _____
47.	Date survey was completed: DD/MM/YYYY ____/____/____

Supplementary Table S4. Ethics approval details for SUNRISE study sample

Country	Committee Name	Approval No.
Australia	The University of Wollongong and Illawarra and Shoalhaven Local Health District Social Sciences Human Research Ethics Committee	2018/044
Bangladesh	Biomedical Research Foundation, Bangladesh	Ref. no: BRF/ERB/2019/003
Brazil	Ethical Committee of School of Arts, Sciences and Humanities at the University of Sao Paulo, Brazil	85331318.0.0000.5390
Canada	Children's Hospital of Eastern Ontario (CHEO) Research Ethics Board	REB Protocol No: 18/19X. Romeo File No: 20180098
China	Capital Institute of Pediatrics	SHERLL2018001
Finland	University of Helsinki Ethical review board in humanities and social and behavioral sciences.	9/2020
Hong Kong	The Joint Chinese University of Hong Kong – New Territories East Cluster Clinical Research Ethics Committee, and The Survey and Behavioural Research Ethics Committee.	CREC Ref. no.: 2018.563
India	KEM Hospital Research Centre Ethics Committee.	Ref: KEMHRC/RVM/EC/g52. KEMHRC ID No. 1924
Indonesia	The Centre of Research and Community Service at the Indonesia University of Education.	560/UN40.D/PP/2018
Japan	J. F. Oberlin University Ethics Committee	18013
Japan	Ethics Committee of the Tokyo Kasei Gakuin University	Ethic No. 3EC No.14
Korea Republic	Korea Institute of Child Care and Education, Institutional Review Board	KICCE-2018-05
Malawi	University of Malawi Research Ethics Committee (UNIMAREC)	P.05/21/65
Malaysia	Research Ethics Committee, The National University of Malaysia	UKM PPI/111/8/JEP-2019-137
Mongolia	Ministry of Health Medical Ethics Review Committee	No. 138
Morocco	Comité D'éthique et de Recherche Biomédicale (CERB)	NA
Nigeria	Lagos University Teaching Hospital Health Research Ethics Committee (LUTHHREC)	ADM/DCST/HREC/APP/3722
Pakistan	National Bioethics Committee (NBC) Pakistan	4-87/NBC-435/19/1492
PNG	Papua New Guinea Institute of Medical Research -The IMR Institutional Review Board	IRB number: 1803
Russia	Tver State Medical University of the Ministry of Health of Russian Federation	#8
Scotland	School Ethics Committee, University of Strathclyde	Application Number: 04/10/10/18
Singapore	Research Integrity and Ehtics Office, NTU Institutional Review Board.	IRB-2019-08-026 . Reg. No. 200604393R
South Africa	University of the Witwatersrand, Johannesburg, Human Research Ethics Committee (Medical)	Clearance Certificate No. M180490 (R14/49)
Spain	Comité Coordinador de Ética de la Investigación Biomédica de Andalucía.	NA
Sri Lanka	Ethics Review Committee, Faculty of Medicine, University of Colombo	Protocol Bo. EC-18-048
Sweden	The Swedish Ethical Review Authority	Dnr 2020-05471 / Dnr 2018/346-31
The Netherlands	The Medical Ethics Review Committee of VU University Medical Center.	2020.408
USA-Augusta	Augusta University Institutional Review Board - Augusta University IRB Committee B – Social and Behavioral	1719225-2
USA-PBRC	Pennington Biomedical Research Center (LSU)	IRB FWA 00006218 (#PBRC 2017-040)
Vietnam	Pham Ngoc Thach University of Medicine, Committee of Biomedical Research Ethics	Number: 09/HDDD
Zimbabwe	Joint Research Committee for the University of Zimbabwe, College of Health Sciences and Parirenyatwa Group of Hospitals	JREC Ref: 204/18

