

Supplementary Material

Table S1. Sun exposure of preschool children.

survey	2010/2011 N = 4579		2018/2019 N = 4009	
	n	(%)	n	(%)
child's average outdoor stay on weekdays between 10am and 5pm during summer**				
<i>missing</i>	150	(3.3)	121	(3.0)
<i>less than 30 minutes</i>	46	(1.0)	43	(1.1)
<i>30 min to 1 hour</i>	178	(3.9)	205	(5.1)
<i>1- below 2 hours</i>	840	(18.3)	838	(20.9)
<i>2 - below 4 hours</i>	2227	(48.6)	1909	(47.6)
<i>4 hours or more</i>	1138	(24.9)	893	(22.3)
child's average outdoor stay on weekends between 10am and 5pm during summer*				
<i>missing</i>	227	(5.0)	254	(6.3)
<i>less than 30 minutes</i>	20	(0.4)	23	(0.6)
<i>30 min to 1 hour</i>	60	(1.3)	70	(1.7)
<i>1- below 2 hours</i>	263	(5.7)	309	(7.7)
<i>2 - below 4 hours</i>	1296	(28.3)	1277	(31.9)
<i>4 hours or more</i>	2713	(59.2)	2076	(51.8)
number of child's visits to open-air swimming pools/lakes during summer*				
<i>missing</i>	113	(2.5)	69	(1.7)
<i>never</i>	200	(4.4)	157	(3.9)
<i>1-5 times</i>	1229	(26.8)	909	(22.7)
<i>6-10 times</i>	1349	(29.5)	1072	(26.7)
<i>11-20 times</i>	948	(20.7)	1007	(25.1)
<i>more than 20 times</i>	732	(16.0)	779	(19.4)
<i>pool at home</i>	8	(0.2)	16	(0.4)
<i>up to 20 times</i>	3526	(77.0)	2988	(74.5)
<i>more than 20 times</i>	732	(16.0)	779	(19.4)
child's outdoor stay on sunny days at noon (11 am - 3 pm) at other places				
<i>missing</i>	4579	(100.0)	411	(10.3)
<i>no, never</i>	.	.	222	(5.5)
<i>yes, rare</i>	.	.	768	(19.2)
<i>yes, sometimes</i>	.	.	1698	(42.4)
<i>yes, often</i>	.	.	836	(20.9)
<i>yes, always</i>	.	.	74	(1.8)
child's outdoor stay on sunny days at noon (11 am - 3 pm) at preschool				
<i>missing</i>	4579	(100.0)	290	(7.2)
<i>no, never</i>	.	.	332	(8.3)
<i>yes, rare</i>	.	.	648	(16.2)
<i>yes, sometimes</i>	.	.	1360	(33.9)

Table S1 continues

Table S1. Sun exposure of preschool children. (continued)

survey	2010/2011 N = 4579		2018/2019 N = 4009	
	n	(%)	n	(%)
yes, often	.	.	1147	(28.6)
yes, always	.	.	232	(5.8)
child's lifetime number of sunburns*	n	(%)	n	(%)
missing	224	(4.9)	192	(4.8)
0	3635	(79.4)	3340	(83.3)
1	391	(8.5)	306	(7.6)
2	222	(4.8)	121	(3.0)
more than 2	107	(2.3)	50	(1.2)
average lifetime number of sunburns	0,27	sunburn	0,18	sunburn
child's lifetime number of sunburns with blisters***	n	(%)	n	(%)
missing	229	(5.0)	358	(8.9)
0	4328	(94.5)	3640	(90.8)
1	19	(0.4)	11	(0.3)
2	3	(0.1)	.	.
average lifetime number of sunburns with blisters	0,01	sunburn	0,00	sunburn
categorized age of the child at first sunburn*	n	(%)	n	(%)
missing	129	(2.8)	108	(2.7)
no sunburn	3635	(79.4)	3340	(83.3)
younger than 3	143	(3.1)	100	(2.5)
3 or older	672	(14.7)	461	(11.5)
average age at first sunburn	3,60	years	3,69	years

*The difference between survey 2010/11 and survey 2018/19 is significant (p < 0.0001)

**The difference between survey 2010/11 and survey 2018/19 is significant (p < 0.0003)

***The difference between survey 2010/11 and survey 2018/19 is not significant (p = 0.1739)

Table S2. Parental sun protection behavior.

survey	2010/2011 N = 4579		2018/2019 N = 4009	
	n	(%)	n	(%)
sunscreen	<i>parents protect their children with sunscreen on sunny days*</i>			
missing	58	-1.3	31	-0.8
never	42	-0.9	51	-1.3
rare	117	-2.6	66	-1.6
sometimes	336	-7.3	229	-5.7
often	1050	-22.9	816	-20.4
always	2976	-65	2816	-70.2
inadequate (never-sometimes)	495	-10.8	346	-8.6
adequate (often-always)	4026	-87.9	3632	-90.6
<i>sun protection factor (SPF) of the sunscreen, which is commonly used at home*</i>	495	-10.8	346	-8.6
missing	331	-7.2	209	-5.2
SPF 6 - 10	77	-1.7	33	-0.8
SPF 15 - 25	1069	-23.3	281	-7
SPF 30 - 50	2466	-53.9	2015	-50.3
SPF 50+	636	-13.9	1471	-36.7
inadequate (LSF 6-10)	77	-1.7	33	-0.8

	survey	2010/2011 N = 4579		2018/2019 N = 4009		
		n	(%)	n	(%)	
	<i>adequate (>= LSF 15)</i>	4171	-91.1	3767	-94	
	<i>sun protection factor (SPF) of the sunscreen, which is commonly used on holiday*</i>	113	(2.5)	69	(1.7)	
	<i>missing</i>	696	-15.2	398	-9.9	
	<i>SPF 6 - 10</i>	28	-0.6	15	-0.4	
	<i>SPF 15 - 25</i>	394	-8.6	86	-2.1	
	<i>SPF 30 - 50</i>	2285	-49.9	1460	-36.4	
	<i>SPF 50+</i>	1176	-25.7	2050	-51.1	
	<i>inadequate (LSF 6-10)</i>	28	-0.6	15	-0.4	
	<i>adequate (>= LSF 15)</i>	3855	-84.2	3596	-89.7	
<i>physical barriers</i>	<i>time period between parental application of sunscreen and exposure*</i>	732	(16.0)	779	(19.4)	
	<i>missing</i>	113	-2.5	140	-3.5	
	<i>not at all</i>	59	-1.3	17	-0.4	
	<i>just before</i>	1153	-25.2	1090	-27.2	
	<i>about 15 minutes before</i>	2084	-45.5	2031	-50.7	
	<i>at least 30 minutes before</i>	1170	-25.6	731	-18.2	
	<i>inadequate (not at all, just before)</i>	1212	-27.1	1107	-28.6	
	<i>adequate (at least 15 min. before)</i>	3254	-72.9	731	-71.4	
	<i>adequate (often-always)</i>	3752	-81.9	3511	-87.6	
	<i>child wears hat on sunny days*</i>					
		<i>missing</i>	68	-1.5	51	-1.3
		<i>never</i>	52	-1.1	31	-0.8
		<i>rare</i>	208	-4.5	102	-2.5
		<i>sometimes</i>	499	-10.9	314	-7.8
		<i>often</i>	1586	-34.6	1251	-31.2
		<i>always</i>	2166	-47.3	2260	-56.4
		<i>inadequate (never-sometimes)</i>	759	-16.6	447	-11.1
		<i>adequate (often-always)</i>	3752	-81.9	3511	-87.6
	<i>child wears clothes on sunny days***</i>					
		<i>missing</i>	96	-2.1	94	-2.3
		<i>never</i>	59	-1.3	56	-1.4
		<i>rare</i>	178	-3.9	145	-3.6
		<i>sometimes</i>	670	-14.6	539	-13.4
		<i>often</i>	2046	-44.7	1776	-44.3
		<i>always</i>	1530	-33.4	1399	-34.9
		<i>inadequate (never-sometimes)</i>	907	-19.8	740	-18.5
		<i>adequate (often-always)</i>	3576	-78.1	3175	-79.2
	<i>child wears sunglasses on sunny days*</i>					
		<i>missing</i>	90	-2	86	-2.1
		<i>never</i>	764	-16.7	450	-11.2
		<i>rare</i>	1185	-25.9	915	-22.8
		<i>sometimes</i>	1632	-35.6	1570	-39.2
		<i>often</i>	756	-16.5	810	-20.2
	<i>always</i>	152	-3.3	178	-4.4	
	<i>inadequate (never-sometimes)</i>	3581	-78.2	2935	-73.2	
	<i>adequate (often-always)</i>	908	-19.8	988	-24.6	

Table S2 continues

Table S2. Parental sun protection behavior. (continued)

	survey	2010/2011 N = 4579		2018/2019 N = 4009	
		n	(%)	n	(%)
UVI	<i>parents align sun protection to actual UVI information on sunny days*</i>				
	<i>missing</i>	166	-3.6	114	-2.8
	<i>yes</i>	340	-7.4	472	-11.8
	<i>no</i>	2915	-63.7	3021	-75.4
	<i>do not know the UV-index</i>	1158	-25.3	402	-10

*The difference between survey 2010/11 and survey 2018/19 is significant (p < 0.0001)

***The difference between survey 2010/11 and survey 2018/19 is not significant (p = 0.3823)

Table S3. Sun protection measures at preschool.

survey 2010/2011 N = 4579 survey 2018/2019 N = 4009		<i>missing</i>		<i>yes</i>		<i>no</i>		<i>do not know</i>	
		n	(%)	n	(%)	n	(%)	n	(%)
	2010/2011	184	(4.0)	4110	(89.8)	285	(6.2)	.	.
	2018/2019	557	(13.9)	3316	(82.7)	136	(3.4)	.	.
	2010/2011	110	(2.4)	4396	(96.0)	73	(1.6)	.	.
	2018/2019	310	(7.7)	3659	(91.3)	40	(1.0)	.	.
	2018/2019							.	.
		310	(7.7)	3211	(80.1)	488	(12.2)	.	.
		310	(7.7)	1384	(34.5)	2315	(57.7)	.	.
		310	(7.7)	2391	(59.6)	1308	(32.6)	.	.
		310	(7.7)	642	(16.0)	3057	(76.3)	.	.
		310	(7.7)	548	(13.7)	3151	(78.6)	.	.
	2018/2019	296	(7.4)	2731	(68.1)	211	(5.3)	771	(19.2)
	2018/2019	368	(9.2)	196	(4.9)	2018	(50.3)	1427	(35.6)
	2018/2019	394	(9.8)	280	(7.0)	1540	(38.4)	1795	(44.8)
	2018/2019	359	(9.0)	2038	(50.8)	936	(23.3)	676	(16.9)

*The difference between survey 2010/11 and survey 2018/19 is significant (p < 0.0001)

**The difference between survey 2010/11 and survey 2018/19 is significant (p < 0.0335)