

eAppendix 1. NRQ administration by study center, MOBI-Kids, France, Germany, Israel, Italy, Japan, and Spain.

Country	Method of NRQ Administration
France	For cases, the agreement or refusal (including the NRQ questionnaire) was generally obtained directly (face-to-face) by the medical team or interviewer. For controls, if the agreement or refusal (including the NRQ questionnaire) can be obtained by the medical team (rare), it was generally obtained by phone or by mail (including a reply-coupon and a postage paid envelope).
Germany	The procedure of administering the NRQ is identical for cases and hospital-based controls. The NRQ is part of the invitation package which is given to the potential participants by the doctors in the treating hospital. Non-participants then send the NRQ back to the national coordinating center in Munich (LMU) via mail or do not respond at all. Data protection policies prohibit that doctors pass any names or contact details of non-participants to LMU. Thus, there is no other way to approach non-participants.
Israel	NRQs were administered over the phone by research assistants who were involved in the project. Cases and controls were approached in a similar manner and contacted during different days and hour of the day.
Italy	NRQs were administered when the study subject or his/her parents refused participation but accepted to answer the NRQ. Mostly MOBI-Kids interviewers; occasionally and only for cases, when the first contact was with the physician in charge of the patient, the physician administered the NRQ. Over the phone for controls, mostly in person for cases. In a couple of circumstances, for very ill pediatric cases, the physicians recommended not to contact parents and the NRQs were not proposed.
Japan	The NRQ for patients was provided by the neuroradiologist/doctor who presented the study with a stamped envelope and then the non-participant mailed it back. The same method was used for cases and controls.
Spain	In the majority of subjects, interviewers administered the NRQ, both in person and over the phone. The same method was used for cases and controls. NRQs were answered by the subject, mother or father.

NRQ indicates non-respondent questionnaire.

eAppendix 2. Hypothetical scenarios of ever regular cellular telephone use among non-participants based on patterns of use reported among

		Observed phone use %		Assumed phone use (basis for assumption) %		Assumed phone use in target population %	Selection probability	
		Interviewed	Refusal with NRQ	Refusal without NRQ	Other non- participants			
Scenarios		P ₁	P ₂	P ₃	P ₄	P ₁₋₄	S ₁	S ₀
Controls	Fraction of subjects in each category W ₁ -W ₄	0.54	0.17	0.10	0.19	1.00		
R	Reference	85	85 (P ₁)	85 (P ₁)	85 (P ₁)	85	0.54	0.54
A	NRQ applies to refusers with NRQ, "unbiased" use in other nonparticipants	85	82	84 (m _w (P ₁₋₂))	84 (m _w (P ₁₋₂))	84	0.54	0.52
B	NRQ applies to all refusers, "unbiased" use in other nonparticipants	85	82	82 (P ₂)	84 (m _w (P ₁₋₃))	84	0.55	0.51
C	NRQ applies to all nonparticipants	85	82	82 (P ₂)	82 (P ₂)	84	0.55	0.49
D	NRQ applies to refusers with NRQ, 10% less use in other nonparticipants	85	82	77 (0.9*P ₁)	77 (0.9*P ₁)	82	0.56	0.45
E	NRQ applies to refusers with NRQ, 10% more use in other nonparticipants	85	82	94 (1.1*P ₁)	94 (1.1*P ₁)	87	0.53	0.62
Cases	Fraction of subjects in each category W ₁ -W ₄	0.72	0.08	0.05	0.15	1.00		
r	Reference	83	83 (P ₁)	83 (P ₁)	83 (P ₁)	83	0.72	0.72
a	NRQ applies to refusers with NRQ, "unbiased" use in other nonparticipants	83	80	83 (m _w (P ₁₋₂))	83 (m _w (P ₁₋₂))	83	0.72	0.71
b	NRQ applies to all refusers, "unbiased" use in other nonparticipants	83	80	80 (P ₂)	83 (m _w (P ₁₋₃))	83	0.72	0.70
c	NRQ applies to all nonparticipants	83	80	80 (P ₂)	80 (P ₂)	82	0.73	0.69
d	NRQ applies to refusers with NRQ, 10% less use in other nonparticipants	83	80	75 (0.9*P ₁)	75 (0.9*P ₁)	81	0.74	0.65
e	NRQ applies to refusers with NRQ, 10% more use in other nonparticipants	83	80	91 (1.1*P ₁)	91 (1.1*P ₁)	84	0.71	0.79

interviewed and NRQ respondents, MOBI-Kids.

Note: P₁ = cellular telephone use prevalence among all interviewed subjects (14 countries); P₂ = cellular telephone use prevalence among refusers who responded to the NRQ = 0.96*P₁ (Note: 0.96 = age-adjusted ratio of phone use % among NRQ:interviewed participants for cases and controls combined). Data from included study centers with NRQ data was applied to all centers; P₃ = cellular telephone use prevalence among refusers who did not respond to the NRQ; P₄ = cellular telephone use prevalence among other non-participants (i.e. those who were untraceable,

medical refusal, other); S_1 = probability of selection/participation among cellular telephone users = $(W_1 * P_1) / P_{1-4}$ (Note: P_{1-4} = weighted average of phone use % across all categories of observed and assumed phone use); S_0 = probability of selection/participation among cellular telephone non-users = $(W_1 * (1 - P_1)) / (1 - P_{1-4})$; $W_1 - W_4$ = proportion of subjects in each response category for all study centers combined from Table 1; from eFigure 1 the proportion of refusers with NRQ among centers that used the NRQ (W_2); m_w = weighted mean. NRQ indicates non-respondent questionnaire.

eAppendix 3. Hypothetical scenarios of time since start of use of 5+ years among non-participants based on patterns of use reported among

		Observed phone use %		Assumed phone use (basis for assumption) %		Assumed phone use in target population %	Selection probability	
		Interviewed	Refusal with NRQ	Refusal without NRQ	Other non- participants			
Scenarios		P ₁	P ₂	P ₃	P ₄	P ₁₋₄	S ₁	S ₀
Controls	Fraction of subjects in each category W ₁ -W ₄	0.54	0.17	0.10	0.19	1.00		
R	Reference	54	54 (P ₁)	54 (P ₁)	54 (P ₁)	54	0.54	0.54
A	NRQ applies to refusers with NRQ, "unbiased" use in other nonparticipants	54	44	52 (m _w (P ₁₋₂))	52 (m _w (P ₁₋₂))	52	0.57	0.51
B	NRQ applies to all refusers, "unbiased" use in other nonparticipants	54	44	44 (P ₂)	51 (m _w (P ₁₋₃))	51	0.58	0.50
C	NRQ applies to all nonparticipants	54	44	44 (P ₂)	44 (P ₂)	49	0.59	0.49
D	NRQ applies to refusers with NRQ, 30% less use in other nonparticipants	54	44	38 (0.7*P ₁)	38 (0.7*P ₁)	48	0.61	0.47
E	NRQ applies to refusers with NRQ, 10% more use in other nonparticipants	54	44	59 (1.1*P ₁)	59 (1.1*P ₁)	54	0.54	0.54
Cases	Fraction of subjects in each category W ₁ -W ₄	0.72	0.08	0.05	0.15	1.00		
r	Reference	51	51 (P ₁)	51 (P ₁)	51 (P ₁)	51	0.72	0.72
a	NRQ applies to refusers with NRQ, "unbiased" use in other nonparticipants	51	42	50 (m _w (P ₁₋₂))	50 (m _w (P ₁₋₂))	50	0.73	0.71
b	NRQ applies to all refusers, "unbiased" use in other nonparticipants	51	42	42 (P ₂)	50 (m _w (P ₁₋₃))	50	0.74	0.70
c	NRQ applies to all nonparticipants	51	42	42 (P ₂)	42 (P ₂)	48	0.76	0.68
d	NRQ applies to refusers with NRQ, 30% less use in other nonparticipants	51	42	36 (0.7*P ₁)	36 (0.7*P ₁)	47	0.78	0.67
e	NRQ applies to refusers with NRQ, 10% more use in other nonparticipants	51	42	56 (1.1*P ₁)	56 (1.1*P ₁)	51	0.72	0.72

interviewed and NRQ respondents, MOBI-Kids.

Note: P₁ = prevalence of time since start of use 5+ years among all interviewed subjects (14 countries); P₂ = prevalence of time since start of use 5+ years among refusers who responded to the NRQ = 0.82*P₁ (Note: 0.82 = age-adjusted ratio of time since start of use 5+ years % among NRQ:interviewed participants for cases and controls combined). Data from included study centers with NRQ data was applied to all centers; P₃ = prevalence of time since start of use 5+ years among refusers who did not respond to the NRQ; P₄ = prevalence of time since start of use 5+ years

among other non-participants (i.e. those who were untraceable, medical refusal, other); S_1 = probability of selection/participation among time since start of use of 5+ years = $(W_1 * P_1) / P_{1-4}$ (Note: P_{1-4} = weighted average of phone use % across all categories of observed and assumed phone use); S_0 = probability of selection/participation among time since start of use of < 5 years = $(W_1 * (1 - P_1)) / (1 - P_{1-4})$; $W_1 - W_4$ = proportion of subjects in each response category for all study centers combined from Table 1; from eFigure 1 the proportion of refusers with NRQ among centers that used the NRQ (W_2); m_w = weighted mean. Where a range was reported (for year of start of use) the mid-point was used. NRQ indicates non-respondent questionnaire.

eAppendix 4. Distribution of demographic characteristics of interviewed participants and NRQ respondents, MOBI-Kids, France, Germany, Israel, Italy, Japan, and Spain.

	Controls		Cases	
	Interviewed n (%)	NRQ n (%)	Interviewed n (%)	NRQ n (%)
Sex				
Male	829 (55)	280 (56)	377 (55)	50 (65)
Female	672 (45)	217 (43)	306 (45)	24 (31)
Missing	0 (0)	1 (0)	0 (0)	3 (4)
Total	1,501 (100)	498 (100)	683 (100)	77 (100)
Age Group (Years)				
10-14	519 (35)	138 (28)	256 (37)	26 (34)
15-19	532 (35)	165 (33)	230 (34)	23 (30)
20-24	442 (29)	185 (37)	197 (29)	22 (29)
Missing	8 (1)	10 (0)	0 (0)	6 (8)
Total	1,501 (100)	498 (100)	683 (100)	77 (100)
Maternal Education				
High school or less	546 (36)	208 (42)	325 (48)	29 (38)
Medium level technical/professional school or university/post-graduate	776 (52)	205 (41)	325 (48)	30 (39)
Other	8 (1)	24 (5)	1 (0)	1 (1)
Missing	171 (11)	61 (12)	32 (5)	17 (22)
Total	1,501 (100)	498 (100)	683 (100)	77 (100)
Country				
France	186 (12)	83 (17)	102 (15)	13 (17)
Germany	135 (9)	35 (7)	84 (12)	25 (32)
Israel	192 (13)	96 (19)	99 (15)	12 (16)
Italy	342 (23)	103 (21)	160 (23)	13 (17)
Japan	224 (15)	34 (7)	30 (4)	3 (4)
Spain	422 (28)	147 (29)	208 (31)	11 (14)
Total	1,501 (100)	498 (100)	683 (100)	77 (100)
Respondent				
Index	1,041 (69)	185 (37)	379 (55)	16 (21)
Index + parent(s)	383 (26)	-	213 (31)	-
Parent(s)	53 (4)	180 (36)	75 (11)	22 (29)
Other	7 (0)	12 (2)	12 (2)	15 (19)
Missing	17 (1)	121 (24)	4 (1)	24 (31)
Total	1,501 (100)	498 (100)	683 (100)	77 (100)

For respondent type, the category index + parent(s) was not captured as part of the NRQ. NRQ indicates non-respondent questionnaire.

eAppendix 5. Multivariable associations of interviewed status (vs all non-participants) with demographic and cellular telephone use characteristics, MOBI-Kids, France, Germany, Israel, Italy, Japan, and Spain.

	n	Scenario A OR (95% CI)	n	Scenario B OR (95% CI)	n	Scenario C OR (95% CI)
Intercept	3,596	2.94 (1.82-4.74)	3,596	3.33 (2.07-5.37)	3,596	3.50 (2.18-5.62)
Age (Years)	3,596	0.95 (0.92-0.97)	3,596	0.94 (0.91-0.96)	3,596	0.93 (0.90-0.95)
Case Status	912	2.74 (1.49-5.04)	912	2.13 (1.18-3.85)	912	2.84 (1.53-5.28)
Time Since Start of Use (Years)/ Average Length of Calls (Min/Week)						
Never Regular Use	532	Ref.	544	Ref.	554	Ref.
1-4/<60	776	1.22 (0.93-1.59)	772	1.24 (0.95-1.62)	769	1.42 (1.09-1.85)
1-4/60+	327	0.87 (0.62-1.21)	349	0.79 (0.57-1.10)	382	0.77 (0.56-1.05)
5+/<60	780	1.51 (1.12-2.03)	749	1.91 (1.41-2.58)	707	2.59 (1.90-3.53)
5+/60+	1,181	1.41 (1.05-1.89)	1,182	1.48 (1.10-1.98)	1,184	1.78 (1.33-2.39)
Case Status*Time Since Start of Use (Years)/Average Length of Calls (Min/Week)						
Case Status: 1-4/<60	200	0.89 (0.50-1.60)	194	1.34 (0.76-2.37)	199	0.86 (0.49-1.53)
Case Status: 1-4/60+	73	0.96 (0.46-2.03)	76	1.26 (0.62-2.56)	80	0.87 (0.43-1.75)
Case Status: 5+/<60	215	1.31 (0.72-2.37)	219	1.37 (0.78-2.42)	206	1.24 (0.67-2.29)
Case Status: 5+/60+	275	0.74 (0.43-1.26)	263	1.11 (0.66-1.88)	275	0.72 (0.43-1.23)

Note: A total of 237 interviewed or NRQ participants with missing data were excluded from analysis. Time since start of use (years)/average length of calls (min/week) was imputed (by age group) Scenario A: for both refusers without a NRQ and other non-participants according to the weighted mean of responses among interviewed participants and refusers with a NRQ; Scenario B: for refusers without a NRQ according to the NRQ distribution and for other non-participants according to the weighted mean of responses among interviewed participants and refusers with and without a NRQ; Scenario C: for both refusers without a NRQ and other non-participants according to the NRQ distribution. See also eAppendix 2 and 3. Where a range was reported (for both year of start of use and average length of calls) the mid-point was used. ORs (95%

CI) based on mixed effects logistic regression models with a random country intercept and case status variable. The random effects variance for the intercept was 0.14, 0.14, and 0.13 and for case status 0.26, 0.26, and 0.29 for scenarios A, B, and C respectively. The AIC for scenarios A, B, and C was 4,567.5, 4,545.2, and 4,498.5 respectively. Average length of calls represents average length of time spent making and receiving calls in the last three months during which they were using their phone. NRQ indicates non-respondent questionnaire, OR indicates odds ratio, CI indicates confidence interval.

eAppendix 6. Distribution of standardized IPSWs for all interviewed study participants based on multivariable models (eAppendix 5), MOBI-Kids.

	Mean	SD	Min	P25	P50	P75	Max
Controls							
Scenario A	1.09	0.11	0.89	1.01	1.07	1.16	1.71
Scenario B	1.09	0.14	0.81	0.99	1.06	1.17	1.94
Scenario C	1.09	0.19	0.75	0.96	1.05	1.17	2.31
Cases							
Scenario A	0.80	0.10	0.60	0.73	0.79	0.86	1.26
Scenario B	0.80	0.10	0.60	0.73	0.80	0.85	1.21
Scenario C	0.80	0.12	0.58	0.72	0.79	0.87	1.41

Note: A total of 10 interviewed controls were excluded here due to missing information on age (n = 2,799).
 IPSW indicates inverse probability of selection weight.

eAppendix 7. Multivariable associations of interviewed status (vs all non-participants) with demographic and cellular telephone use characteristics (time since start of use), MOBI-Kids, France, Germany, Israel, Italy, Japan, and Spain.

	n	Scenario A OR (95% CI)	n	Scenario B OR (95% CI)	n	Scenario C OR (95% CI)
Intercept	3,623	3.34 (2.05-5.45)	3,623	4.05 (2.48-6.60)	3,623	4.52 (2.78-7.37)
Age (Years)	3,623	0.94 (0.91-0.96)	3,623	0.92 (0.90-0.94)	3,623	0.91 (0.89-0.93)
Case Status	918	2.68 (1.44-4.97)	918	2.08 (1.16-3.76)	918	2.76 (1.49-5.11)
Time Since Start of Use (Years)						
Never Regular Use	532	Ref.	544	Ref.	554	Ref.
1-4	1,117	1.08 (0.84-1.38)	1,135	1.06 (0.83-1.37)	1,165	1.15 (0.90-1.48)
5-9	1,356	1.41 (1.07-1.86)	1,335	1.65 (1.25-2.18)	1,305	2.08 (1.58-2.75)
10+	618	1.81 (1.27-2.56)	609	2.03 (1.43-2.87)	599	2.80 (1.97-3.97)
Case Status*Time Since Start of Use (Years)						
Case Status: 1-4	275	0.92 (0.54-1.59)	272	1.33 (0.79-2.24)	281	0.89 (0.52-1.51)
Case Status: 5-9	341	1.18 (0.69-2.00)	348	1.33 (0.80-2.20)	339	1.08 (0.64-1.83)
Case Status: 10+	153	0.53 (0.29-0.97)	138	0.97 (0.53-1.77)	146	0.56 (0.31-1.02)

Note: A total of 210 interviewed or NRQ participants with missing data were excluded from analysis. Time since start of use (years) was imputed (by age group) Scenario A: for both refusers without a NRQ and other non-participants according to the weighted mean of responses among interviewed participants and refusers with a NRQ; Scenario B: for refusers without a NRQ according to the NRQ distribution and for other non-participants according to the weighted mean of responses among interviewed participants and refusers with and without a NRQ; Scenario C: for both refusers without a NRQ and other non-participants according to the NRQ distribution. See also eAppendix 2 and 3. Where a range was reported (for year of start of use) the mid-point was used. ORs (95% CIs) based on mixed effects logistic regression models with a random country intercept and case status variable. The random effects variance for the intercept was 0.14 for scenarios A-C and for case status was 0.28 for scenario A, 0.26 for scenario B, and 0.29 for scenario C. The AIC for scenarios A, B, and C was 4,617.2, 4,608.7, and 4,581.1 respectively. NRQ indicates non-respondent questionnaire, OR indicates odds ratio, CI indicates confidence interval.

eAppendix 8. Distribution of standardized IPSWs for all interviewed study participants based on multivariable models (eAppendix 7), MOBI-Kids.

	Mean	SD	Min	P25	P50	P75	Max
Controls							
Scenario A	1.09	0.10	0.83	1.02	1.07	1.14	1.64
Scenario B	1.09	0.12	0.79	1.01	1.07	1.15	1.86
Scenario C	1.09	0.15	0.73	0.99	1.06	1.15	2.16
Cases							
Scenario A	0.80	0.11	0.60	0.73	0.80	0.85	1.39
Scenario B	0.80	0.10	0.60	0.72	0.80	0.85	1.21
Scenario C	0.80	0.11	0.58	0.72	0.79	0.86	1.34

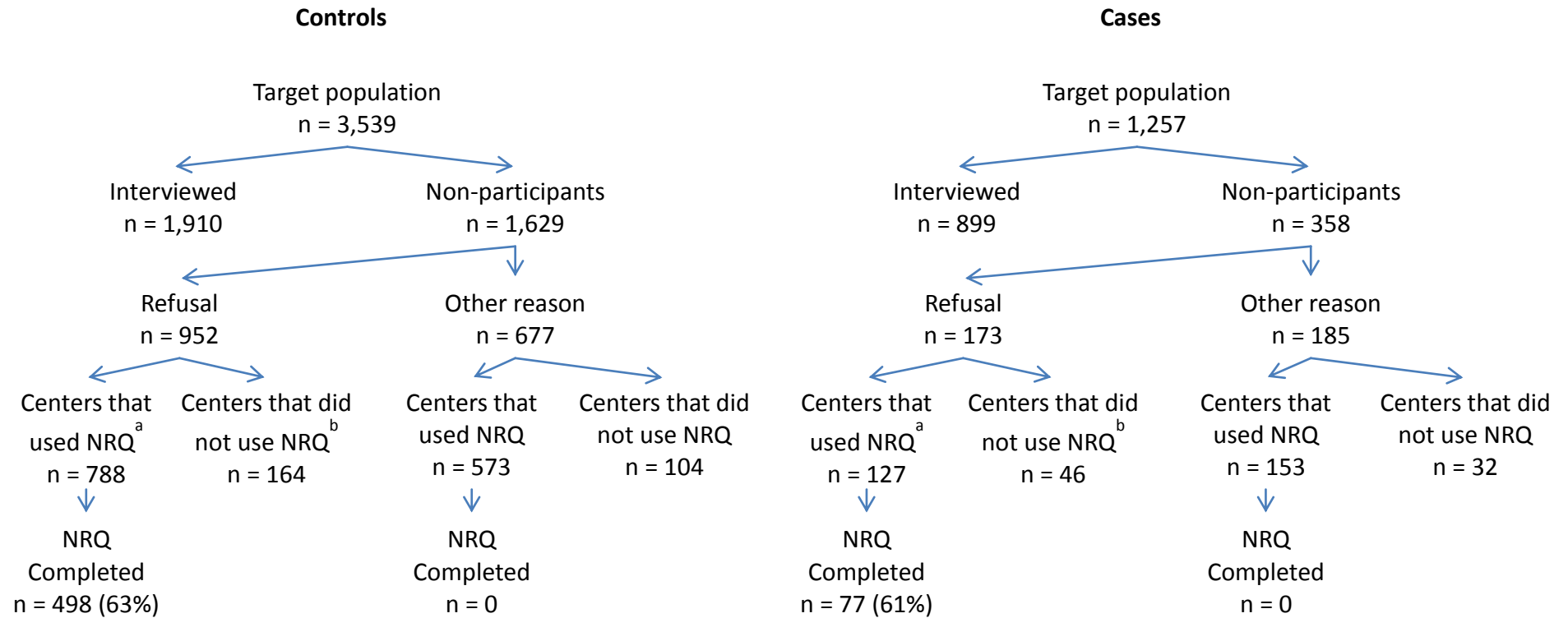
Note: A total of 10 interviewed controls were excluded here due to missing information on age (n = 2,799).
 IPSW indicates inverse probability of selection weight.

eAppendix 9. Sensitivity analysis of selected selection ORs for cellular telephone use by usage scenarios Aa, Bb, and Cc, applying the same scenario to both cases and controls, according to time since start of use (years), MOBI-Kids.

Time Since Start of Use (Years)	Scenario (Control, Case)		
	Aa	Bb	Cc
1+	0.96	0.95	0.94
2+	0.97	0.96	0.96
3+	0.95	0.93	0.93
4+	0.93	0.91	0.90
5+	0.94	0.92	0.92
6+	0.96	0.94	0.94
7+	0.96	0.95	0.94
8+	0.98	0.97	0.97
9+	0.98	0.97	0.97
10+	0.99	0.99	0.99

OR indicates odds ratio.

eFigure 1: Interviewed and NRQ respondents, MOBI-Kids.



^a France, Germany, Israel, Italy, Japan, Spain

^b Australia, Austria, Canada, Greece, India, Korea, Netherlands, New Zealand

NRQ indicates non-respondent questionnaire.