Supplementary Online Content

This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Milestones utilized to define milestone developmental delay

Milestone	Method of evaluation	Pass
Recognizes familiar objects and pronounces them by name (Language-social)	The toddler is asked to name a variety of items or pictures that the examiner points to in the room while asking "What is it? What is it called?"	The toddler will name several items from the familiar environment, such as: clothing, furniture, games, fruits, animals and more. Mispronunciations are acceptable.
Understands actions and speech without gestures (Language-social)	The toddler is required to understand and perform actions asked by the examiner, literally without marking with a gesture or hint, with objects from the assessment kit. For example: Show me what do we drink with or give me the cup.	The toddler understands at least 3 actions such as: give, show, put. Understands at least one preposition such as - on, within.
Participates in a dialogue (Language -Social)	It is advisable to listen during the entire visit to the conversation that develops between the mother and the toddler. It should be monitored and seen whether a dialogue develops with the adults during the evaluation, whether the child expresses feelings and desires appropriately. Does he ask situation appropriate questions like: who? what? where?	The toddler initiates a verbal dialogue with the examiner or parent in a suitable situation, expresses his desires, responds to his interlocutor's response and able to share experiences from everyday life. Please note: Reverberating words without meaning or intention of communication will not be considered as speech aimed at communication purposes and requires further evaluation.
Runs well without falling (Motor)	If possible, performed during the visit at the station. The examiner should pay attention to the child's organization before performing the task. Multiple falls requires attention and reference	The toddler runs freely and confidently, stepping on each foot fully, while paying attention to obstacles in his path and his ability to bypass them without dropping them.
Climbs up and down the stairs without an adult's assistance (Motor)	If possible, performed during the visit at the station. The child should be encouraged to go up and down the stairs with a railing that he can hold under supervision.	The toddler goes up and down the stairs with the help of a railing, without the support of an adult.
Imitates horizontal, vertical and circle lines (Motor)	The toddler sits on a chair at a small table next to the parent. The examiner or the parent hands the child a sheet of paper and a pencil, shows him how to draw horizontal, vertical and circle lines.	The toddler imitates horizontal, vertical and circle lines.

eTable 2. Odds ratios (95% CI) for developmental outcomes in the full cohort

Outcome	Breastfeeding exposure	Odds Ratio (95% CI)	P-value
Any milestone delay	Exclusive 6 months	0.73 (0.71 to 0.76)	<.001
	Non-exclusive 6 months	0.86 (0.84 to 0.88)	<.001
	Less than 6 months	1 (Ref.)	
Motor milestone delay	Exclusive 6 months	0.85 (0.79 to 0.91)	<.001
	Non-exclusive 6 months	0.91 (0.86 to 0.96)	0.001
	Less than 6 months	1 (Ref.)	
Language social milestone delay	Exclusive 6 months	0.71 (0.69 to 0.73)	<.001
	Non-exclusive 6 months	0.85 (0.83 to 0.88)	<.001
	Less than 6 months	1 (Ref.)	
Any neurodevelopmental conditions	Exclusive 6 months	0.60 (0.57 to 0.63)	<.001
	Non-exclusive 6 months	0.75 (0.72 to 0.78)	<.001
	Less than 6 months	1 (Ref.)	
Motor neurodevelopmental conditions	Exclusive 6 months	1.01 (0.68 to 1.49)	0.96
	Non-exclusive 6 months	0.71 (0.50 to 1.01)	0.06
	Less than 6 months	1 (Ref.)	
Language social neurodevelopmental conditions	Exclusive 6 months	0.59 (0.56 to 0.62)	<.001
	Non-exclusive 6 months	0.75 (0.72 to 0.79)	<.001
	Less than 6 months	1 (Ref.)	
Undetermined neurodevelopmental conditions	Exclusive 6 months	0.68 (0.55 to 0.84)	<.001
	Non-exclusive 6 months	0.82 (0.69 to 0.96)	0.01
	Less than 6 months	1 (Ref.)	

eTable 3. Population characteristics before and after matching, by breastfeeding exposure

The matching was exact for categorical covariates (bio-social risk, multiple pregnancy, firstborn) and caliper for continuous covariates (gestational age, socioeconomic status, birth year).

	Pre-Matching, Children, No. (%)			Post-Matching, Children, No. (%)		
	Less than 6 months of breastfeeding	Breastfeeding for at least 6 months		Less than 6 months of breastfeeding	Breastfeeding for at least 6 months	
Characteristic, n (%)	N = 272,961	N = 297,571	SMD	N = 228,210	N=228,210	SMD
Breastfeeding months, Median (IQR)	1 (0-3)	12 (9-18)	2.79	1 (0-3)	12 (8-18)	2.24
Multiple pregnancy	9,612 (3.5)	4,366 (1.5)	0.13	3,842 (1.7)	3,866 (1.7)	<0.001
Gestational age group						
Moderate/Late preterm	12,709 (4.7)	7,933 (2.7)	0.11	7,933 (3.5)	7,933 (3.5)	<0.001
Term	260,252 (95)	289,638 (97)		220,277 (97)	220,277 (97)	
Gestational age, Median (IQR)	39 (38-40)	39 (38-40)	0.20	39 (38-40)	39 (38-40)	0.043
Small for gestational age	20,899 (7.7)	17,600 (5.9)	0.069	16,399 (7.2)	13,806 (6.0)	0.046
Firstborn	179,168 (66)	179,123 (60)	0.11	146,494 (64)	146,446 (64)	<0.001
Maternal Education			0.3			<0.001
Academic	77,253 (28)	101,094 (34)		72,553 (32)	72,587 (32)	
High School	89,581 (33)	63,206 (21)		61,604 (27)	61,536 (27)	
Tertiary Education	22,001 (8.1)	31,478 (11)		19,367 (8.5)	19,394 (8.5)	
Elementary	5,991 (2.2)	5,689 (1.9)		4,660 (2.0)	4,663 (2.0)	
Missing	78,135 (29)	96,104 (32)		70,026 (31)	70,030 (31)	
Ethnic group			0.089			0.057
Christian Arab	4,877 (1.8)	3,749 (1.3)		4,229 (1.9)	2,851 (1.2)	
Druse	6,177 (2.3)	5,504 (1.8)		4,970 (2.2)	4,922 (2.2)	
Jewish	153,066 (56)	168,623 (57)		124,390 (55)	123,310 (54)	
Muslim Arab	65,060 (24)	69,204 (23)		57,896 (25)	58,049 (25)	
Muslim Bedouin	4,534 (1.7)	2,974 (1.0)		2,903 (1.3)	2,799 (1.2)	

Characteristic, n (%)	Pre-Matching, Children, No. (%)			Post-Matching, Children, No. (%)		
	Less than 6 months of breastfeeding	Breastfeeding for at least 6 months		Less than 6 months of breastfeeding	Breastfeeding for at least 6 months	
	N = 272,961	N = 297,571	SMD	N = 228,210	N=228,210	SMD
Other	5,549 (2.0)	6,202 (2.1)		4,112 (1.8)	4,121 (1.8)	
Missing	33,698 (12)	41,315 (14)		29,710 (13)	32,158 (14)	
Sex			0.007			0.002
Female	132,771 (49)	145,808 (49)		111,532 (49)	111,272 (49)	
Male	140,190 (51)	151,763 (51)		116,678 (51)	116,938 (51)	
Maternal birth country			0.11			0.047
Israel	221,478 (81)	236,860 (80)		185,930 (81)	183,303 (80)	
Former Soviet Union	16,865 (6.2)	15,604 (5.2)		12,241 (5.4)	12,215 (5.4)	
Europe	3,960 (1.5)	4,442 (1.5)		3,428 (1.5)	3,242 (1.4)	
America	2,056 (0.8)	5,515 (1.9)		1,786 (0.8)	1,814 (0.8)	
Ethiopia	3,913 (1.4)	4,280 (1.4)		2,973 (1.3)	3,643 (1.6)	
Other	1,528 (0.6)	2,246 (0.8)		1,206 (0.5)	1,764 (0.8)	
Missing	23,161 (8.5)	28,624 (9.6)		20,646 (9.0)	22,229 (9.7)	
Maternal employment			0.047			0.034
Working	120,963 (44)	130,181 (44)		98,788 (43)	95,548 (42)	
Not Working	58,511 (21)	60,208 (20)		47,784 (21)	50,511 (22)	
Student	10,833 (4.0)	13,800 (4.6)		9,821 (4.3)	10,116 (4.4)	
Missing	82,654 (30)	93,382 (31)		71,817 (31)	72,035 (32)	
Socioeconomic status (1-10), Median (IQR)	5 (3, 6)	4 (3, 6)	0.10	5 (3, 6)	4 (3, 6)	0.056
Any comorbidity	61,042 (22)	55,851 (19)	0.089	48,668 (21)	43,002 (19)	0.062
Any bio-social risk	47,566 (17)	34,558 (12)	0.2	31,377 (14)	31,138 (14)	0.003
Any vision disorder	14,678 (5.4)	13,821 (4.6)	0.034	12,241 (5.4)	12,570 (5.5)	0.006
Marital status			0.11			0.034
Married	232,337 (85)	257,571 (87)		197,172 (86)	197,173 (86)	

	Pre-Matching, Children, No. (%)			Post-Matching, Children, No. (%)		
Characteristic, n (%)	Less than 6 months of breastfeeding	Breastfeeding for at least 6 months		Less than 6 months of breastfeeding	Breastfeeding for at least 6 months	
	N = 272,961	N = 297,571	SMD	N = 228,210	N=228,210	SMD
Non-married	17,907 (6.6)	12,151 (4.1)		10,926 (4.8)	9,596 (4.2)	
Missing	22,717 (8.3)	27,849 (9.4)		20,112 (8.8)	21,441 (9.4)	
Maternal age group, years			0.050			0.06
<=20	1,201 (0.4)	897 (0.3)		973 (0.4)	681 (0.3)	
21-40	237,801 (87)	256,022 (86)		199,543 (87)	195,473 (86)	
>40	24,633 (9.0)	28,080 (9.4)		19,280 (8.4)	22,197 (9.7)	
Missing	9,326 (3.4)	12,572 (4.2)		8,414 (3.7)	9,859 (4.3)	
Maternal age, years	29 (25-33)	29 (25-34)	0.048	29 (25-33)	29 (25-33)	0.056
Newborn Position			0.089			0.018
Head	226,670 (83)	254,913 (86)		192,685 (84)	191,749 (84)	
Breech	9,579 (3.5)	6,686 (2.2)		5,862 (2.6)	6,289 (2.8)	
Other	2,898 (1.1)	2,637 (0.9)		1,981 (0.9)	2,260 (1.0)	
Missing	33,814 (12)	33,335 (11)		27,682 (12)	27,912 (12)	
Birth type			0.2			0.001
Spontaneous	188,863 (69)	232,710 (78)		169,187 (74)	169,317 (74)	
Caesarean section	53,012 (19)	36,489 (12)		34,538 (15)	34,460 (15)	
Instrumental	15,965 (5.8)	14,726 (4.9)		12,260 (5.4)	12,242 (5.4)	
Missing	15,121 (5.5)	13,646 (4.6)		12,225 (5.4)	12,191 (5.3)	
EPDS score (postpartum screening scale)			0.069			0.034
<10	197,135 (72)	222,846 (75)		166,858 (73)	166,060 (73)	
10+	9,230 (3.4)	7,534 (2.5)		7,303 (3.2)	6,164 (2.7)	
(Missing)	66,596 (24)	67,191 (23)		54,049 (24)	55,986 (25)	
Birth year	2017 (2015, 2019)	2017 (2015, 2019)	0.007	2017 (2015, 2019)	2016 (2015, 2018)	0.2
Apgar 1 minute			0.032			0.011

Characteristic, n (%)	Pre-Matching, Children, No. (%)			Post-Matching, Children, No. (%)		
	Less than 6 months of breastfeeding	Breastfeeding for at least 6 months		Less than 6 months of breastfeeding	Breastfeeding for at least 6 months	
	N = 272,961	N = 297,571	SMD	N = 228,210	N=228,210	SMD
0-3	264,695 (97)	289,695 (97)		221,734 (97)	222,059 (97)	
4-6	1,128 (0.4)	980 (0.3)		836 (0.4)	857 (0.4)	
7-10	3,907 (1.4)	3,304 (1.1)		2,911 (1.3)	2,772 (1.2)	
Missing	3,238 (1.2)	3,585 (1.2)		2,736 (1.2)	2,515 (1.1)	
Apgar 5 minutes			0.007			0.014
0-3	267,219 (98)	291,307 (98)		223,404 (98)	223,653 (98)	
4-6	443 (0.2)	500 (0.2)		358 (0.2)	431 (0.2)	
7-10	415 (0.2)	376 (0.1)		304 (0.1)	315 (0.1)	
Missing	4,891 (1.8)	5,381 (1.8)		4,151 (1.8)	3,804 (1.7)	

eTable 4. Population characteristics, siblings' analysis

Characteristic, n (%)	Median (IQR)		SMD
	Sibling with less than 6 months of breastfeeding	Sibling with breastfeeding for at least 6 months	
	N = 37,704	N = 37,704	
Breastfeeding duration, months	2 (0 to 4)	10 (7 to 14)	1.76
Multiple pregnancy	812 (2.3)	442 (1.3)	0.08
Gestational age, weeks	39 (38 to 40)	39 (38 to 40)	0.06
Small for gestational age	2,954 (7.9)	2,453 (6.5)	0.05
Firstborn, n (%)	17,994 (48)	15,231 (40)	0.15
Sex			0.004
Female	18,560 (49)	18,640 (49)	
Male	19,144 (51)	19,064 (51)	
Maternal age, years	28 (24 to 32)	28 (24 to 32)	0.04
Newborn Position			0.12
Head	30,806 (82)	32,349 (86)	
Breech	903 (2.4)	812 (2.2)	
Other	338 (0.9)	341 (0.9)	
Missing	5,567 (15)	4,202 (11)	
Birth type			0.16
Spontaneous	28,082 (74)	29,762 (79)	
Caesarean section	4,855 (13)	4,649 (12)	
Instrumental	1,851 (4.9)	1,704 (4.5)	
Missing	2,916 (7.7)	1,589 (4.2)	
Birth year	2017 (2015-2018)	2017 (2015-2019)	0.1
Apgar 1 minute			0.07
0-3	219 (0.6)	155 (0.4)	
4-6	484 (1.3)	439 (1.2)	

Characteristic, n (%)	Median (IQR)		SMD
	Sibling with less than 6 months of breastfeeding N = 37,704	Sibling with breastfeeding for at least 6 months N = 37,704	
7-10	36110 (96)	36538 (97)	
Missing	891 (2.4)	572 (1.5)	
Apgar 5 minutes			0.06
0-3	124 (0.3)	94 (0.2)	
4-6	67 (0.2)	70 (0.2)	
7-10	36,366 (96)	36,724 (97)	
Missing	1,147 (3.0)	816 (2.2)	

eFigure 1. Study population flow chart

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┌─────────────────────────────────────────────────────────────────┐
│         709,181 children born between Jan 2014-Dec 2020           │
│                                                                   │
│           with developmental evaluation at 2-3 years old          │
└─────────────────────────────────────────────────────────────────┘
                                │
                                ▼
┌─────────────────────────────────────────────────────────────────┐
│               690,358 after 35 weeks of gestation or more         │
└─────────────────────────────────────────────────────────────────┘
                                │
                                ▼
┌─────────────────────────────────────────────────────────────────┐
│           628,226 after excluding severe medical conditions       │
└─────────────────────────────────────────────────────────────────┘
                                │
                                ▼
┌─────────────────────────────────────────────────────────────────┐
│       570,532 with full data availability on potential confounders│
└─────────────────────────────────────────────────────────────────┘
          │                                          │
          ▼                                          ▼
┌───────────────────────┐                ┌───────────────────────┐
│       272,961         │                │       297,571         │
│ Less than 6 months or │                │ Breastfeeding>=6 months│
│   no breastfeeding    │                │                       │
└───────────────────────┘                └───────────────────────┘
                                             │
                                             ├─┤ 173,587 Non-exclusive │
                                             │
                                             └─┤ 123,984    Exclusive  │

          ┌───────────────────────┐    ┌───────────────────────┐
          │       228,210         │    │        37,704         │
          │     Matched pairs     │    │    Pairs of siblings  │
          └───────────────────────┘    └───────────────────────┘
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eFigure 2. Histogram of breastfeeding duration (months)
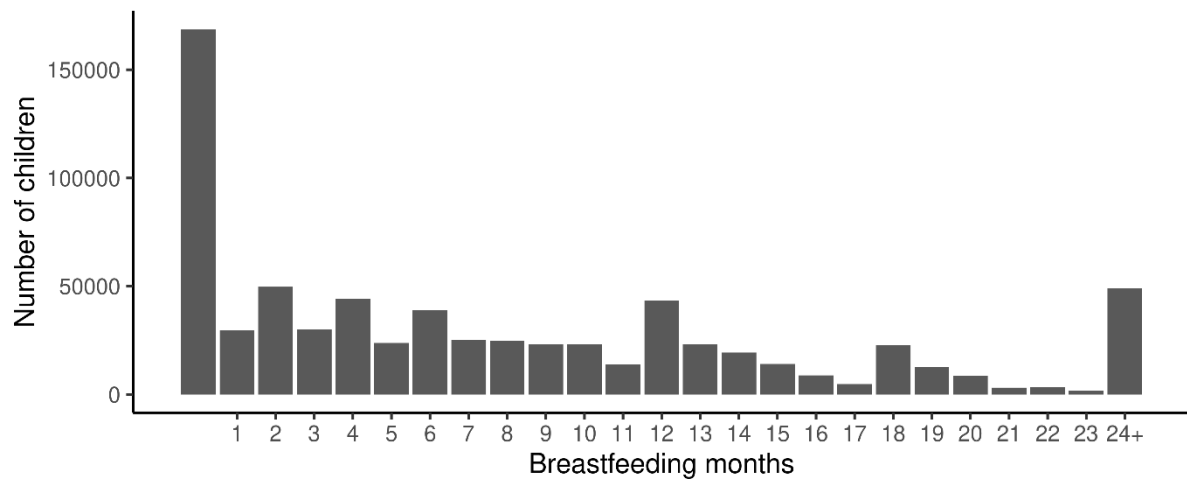
eFigure 3. Restricted cubic spline for the absolute probability of developmental outcomes as a function of breastfeeding duration

Figure 3.a Overall delay/neurodevelopmental condition
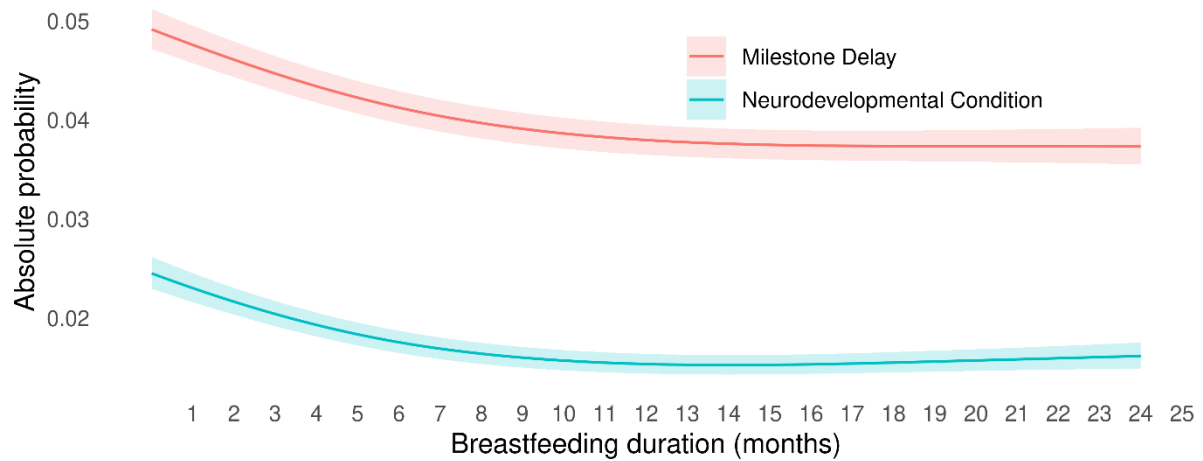

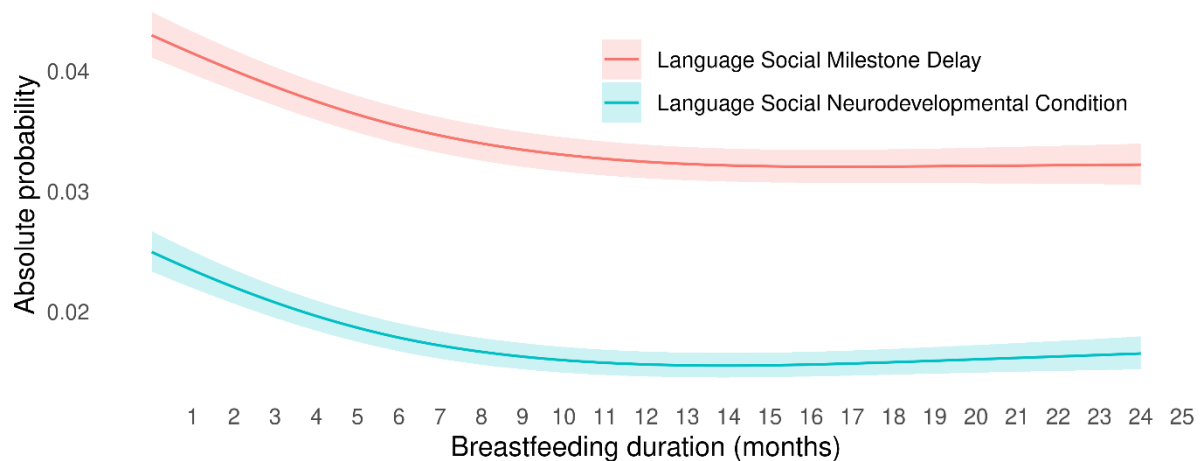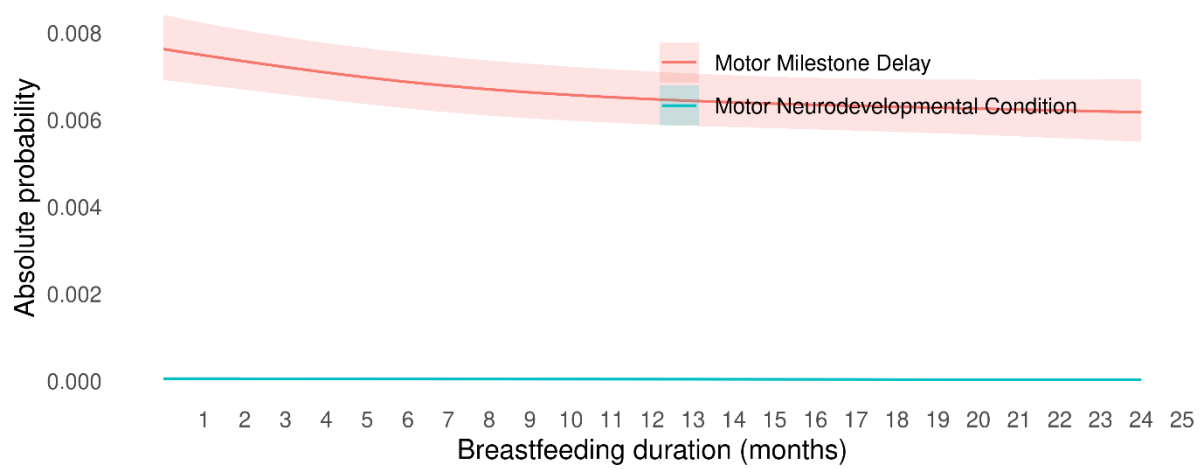Figure 3.b Language social delay/ neurodevelopmental condition

Figure 3.c Motor delay/ neurodevelopmental condition

Absolute probability of developmental outcomes by exposure to breastfeeding duration, calculated using the mode value of maternal, birth and infant-related factors. Shading indicates 95% CIs.