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SWIFS - Swiss Infant Feeding Study 2024

National monitoring on infant feeding in the first year of life

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Table of content

List of figures **4**
List of tables **6**
1 Summary **9**
2 Introduction **13**
2.1 Swiss infant feeding monitoring surveys 13
2.1.1 Breastfeeding 13
2.1.2 Complementary feeding 14
2.1.3 Vitamins and minerals 15
2.1.4 Prevention and counselling 16
3 Methodology **17**
3.1 Study design and study sample 17
3.2 Online Survey 17
3.3 Definition and assessment of indicators on breastfeeding and infant feeding 20
3.4 Data management and cleaning 21
3.5 Data analysis 22
3.5.1 Analytic samples for breastfeeding and introduction of complementary foods 22
3.5.2 Statistical analyses 23
3.5.3 Comparison to earlier monitoring studies 24
4 Results **25**
4.1 Response rate 25
4.2 Sample characteristics 28
4.2.1 Socio-demographic characteristics of mothers and partners 28
4.2.2 Characteristics of infants 31
4.2.3 Parental/Carer health and health behaviours 32
4.2.4 Vaccination in pregnancy 37
4.2.5 Infant health 39
4.2.6 Work status of parents and maternity/paternity leave 42
4.2.7 Caring and support in daily life 43
4.3 Pregnancy, birth and puerperal 45
4.3.1 Pregnancy and birth 45
4.3.2 The puerperium 50
4.4 Infant feeding 1: breastfeeding 51
4.4.1 First attempt at breastfeeding 53
4.4.2 Advice on breastfeeding in puerperium 54

4.4.3 Breastfeeding and breastfeeding problems 55
4.4.4 Weaning 56
4.4.5 Breastfeeding and working 57
4.4.6 Multivariate analysis of factors on breastfeeding 61
4.4.7 Breastfeeding prevalence in comparison to earlier monitoring studies 65
4.4.8 Breastfeeding duration in comparison to earlier monitoring studies 69
4.4.9 Weighted breastfeeding prevalences 72
4.5 Infant feeding 2: complementary foods 73
4.5.1 Introduction of solids and foods and consistency with Swiss nutrition recommendations 74
4.5.2 Introduction of beverages 75
4.5.3 Multivariate analysis of factors on introducing complimentary foods 80
4.5.4 Allergy and complimentary foods 83
4.5.5 Introduction of complimentary foods in comparison to earlier monitoring studies 83
4.6 Prevention and advice 88
4.6.1 Prevention and advice in pregnancy 88
4.6.2 Advice on breastfeeding and other topics 92
4.6.3 Information and advice in digital media 95
4.6.4 Check-ups and preventive measures in the first year of life 98
4.7 Multiple births 100
5 Discussion 101
6 Conclusion and recommendations 111
7 List of literature 112
8 Appendix 119
8.1 Univariate analyses breastfeeding 119
8.2 Univariate analyses complementary feeding 124
8.3 Questionnaire SWIFS Survey 2024 128

List of figures

Figure 1: Infant feeding recommendations of pädiatrie schweiz, SSN and FSVO [28] 15
Figure 2: Graphical representation of the breastfeeding indicators 21
Figure 3: Study population: flow chart 25
Figure 4: Community of residence of invited mothers 26
Figure 5: Community of residence of participants (by postcode) 26
Figure 6: Regional distribution by infant age 2024 28
Figure 7: Proportion of smokers before, at the beginning, at the end and after pregnancy (N=1269) 34
Figure 8: Smoking cessation, if smoked during pregnancy (N=32) 34
Figure 9: Mothers' physical activity per week 36
Figure 10: Acute illness since birth 41
Figure 11: Women's assessment of support from their partner (N=1224*) 44
Figure 12: Women's assessment of support from their personal environment if required 45
Figure 13: Breastfeeding prevalence by age of infant in months (24-hours feeding protocol) 51
Figure 14: Breastfeeding by age (in weeks) -Kaplan-Meier curve 52
Figure 15: Duration of exclusive breastfeeding by age (in months) Kaplan Meier curve (retrospective) 53
Figure 16: Duration of full breastfeeding by age (in months) – Kaplan Meier curve (retrospective) 53
Figure 17: Breastfeeding difficulties in the beginning and later in everyday life 55
Figure 18: Duration of total breastfeeding by working status – Kaplan-Meier curve 60
Figure 19: Duration of full breastfeeding by working status – Kaplan-Meier curve 60
Figure 20: Percentage of breastfed infants up to 6 months in the 1994, 2003, 2014 and 2024 studies 66
Figure 21: Percentage of breastfed infants according to the 24-hour feeding protocol 2014 and 2024 67
Figure 22: Percentage of partially breastfed infants according to the 24-hour feeding protocol 2014 and 2024 67
Figure 23: Percentage of exclusively breastfed infants according to the 24-hour feeding protocol 2014 and 2024 68
Figure 24: Percentage of weaned infants according to the 24-hour feeding protocol 2014 and 2024 68
Figure 25: Total breastfeeding duration 2014 and 2024 in comparison – Kaplan Meier curve (retrospective) 70
Figure 26: Full breastfeeding duration 2014 and 2024 in comparison– Kaplan Meier curve (retrospective) ..70
Figure 27: Exclusive breastfeeding duration 2014 and 2024 in comparison– Kaplan Meier curve (retrospective) 71
Figure 28: Introduction of complementary foods (retrospective) 74
Figure 29: Consumption of various foods in the last 24 hours, by month of life (24h-feeding protocol) 75
Figure 30: Introduction of water (retrospective data) 76
Figure 31: Introduction of infant milk (retrospective data) 77
Figure 32: Introduction of cow milk (retrospective data) 77
Figure 33: Drinks in the last 24 hours, by month of life (24-hour feeding protocol) 78
Figure 34: Introduction of sweetened food and drinks (retrospective) 78
Figure 35: Introduction of complementary foods depending on allergic predisposition 83
Figure 36: Comparison of the timing of complementary food introduction by month of life in the 2003, 2014, and 2024 studies (retrospective data) 84
Figure 37: Consumption of various foods in the last 24 hours, by month of life (24-hour feeding protocol), 2024 86
Figure 38: Consumption of various foods in the last 24 hours, by month of life (24-hour feeding protocol), 2014 [9] 86
Figure 39: Consumption of various foods in the last 24 hours, by month of life (24-hour feeding protocol), 2003 [8] 87
Figure 40: Introduction of sweetened drinks and food by months of life in 2003, 2014 and 2024 (retrospective) 88
Figure 41: Starting time of the intake of folic acid in relation to pregnancy in women with and without planned pregnancies, N=1’212 91

Figure 42: Information about breastfeeding in relation to other topics 93
Figure 43: Introduction on breastfeeding techniques 94
Figure 44: Digital media used by mothers to inform about breastfeeding and introduction of complementary foods 95
Figure 45: Used websites for mothers/fathers/parents by language region....97
Figure 46: Vitamin D intake in the last 24 hours....99
Figure 47: Reported percent of any breastfeeding infants by country and age [50]. 103
Figure 48: Introduction of complementary foods in German- and Italian-speaking Switzerland vs. French-speaking Switzerland....125
Figure 49: Introduction of fish by region 126
Figure 50: Introduction of yogurt by region....126
Figure 51: Introduction of sweet foods and drinks by region....127

List of tables

Table 1: Overview of the topic blocks 2014 and 2024 19
Table 2: Breastfeeding monitoring and complementary feeding indicators and their recording 20
Table 3: Overview of population data used to calculate weights 24
Table 4: Regional distribution across three surveys 27
Table 5: Distribution of participation in the three regions 27
Table 6: Socio-demographic sample characteristics of mothers in comparison to SWIFS 2014, Survey 2003 and FSO-Statistics 2023....29
Table 7: Socio-demographic characteristics of partners 31
Table 8: Characteristic of infants in comparison to SWIFS 2014 and FSO statistics 32
Table 9: Pre-existing chronic diseases in mothers and diagnosis 33
Table 10: Pregnancy weight gain according to prepregnancy BMI....33
Table 11: Fatigue and physical activity of the mother at the time of the survey 35
Table 12: Alcohol consumption 36
Table 13: Self-reported advice on vaccination and vaccine-uptake with recommended maternal vaccines during pregnancy....37
Table 14: Vaccination status by season of pregnancy....38
Table 15: Reasons for receiving Influenza and Pertussis vaccines 38
Table 16: Reasons for not receiving Influenza[1] and Pertussis vaccines....39
Table 17: Health problems and diseases after birth and temporary disease since birth 40
Table 18: Medication in the last 24 hours....41
Table 19: Working status and working percentage of the mother before and after birth 42
Table 20: Duration of paid maternity leave....42
Table 21: Childcare in the case of mothers returning to work (multiple answers possible) 43
Table 22: Pregnancy complications, N=1’249 (multiple answers possible) 46
Table 23: Labour and birth related characteristics, N=1’269 47
Table 24: Measures to promote breastfeeding in hospital / birth center, N=1’269 49
Table 25: Support during the first days at home (multiple answer possible), N=1’269....50
Table 26: First attempt at breastfeeding....54
Table 27: Reasons for weaning in mothers who had breastfed their infant 57
Table 28: Requirements for breastfeeding at the workplace for working mothers (employed and self-employed)....58
Table 29: Factors influencing the duration of breastfeeding in working mothers - probability (HR) of weaning (univariate analyses) 59
Table 30: Factors influencing breastfeeding - hazard ratio of weaning, no longer fully or no longer exclusively breastfeeding (multivariate analysis)....63
Table 31: Swiss infant feeding studies since 1994 and study population 65
Table 32: Infant feeding at different ages: 24-hour feeding protocol 2014 and 2024 71
Table 33: Weighted breastfeeding prevalences 2024....72
Table 34: Weighted breastfeeding prevalences 2014....72
Table 35: Introduction of complementary foods by infant age group – retrospective data and 24-hour feeding protocol....73
Table 36: Average age at the introduction of complementary foods in months (retrospective)....74
Table 37: Introduction of fluids in weeks (retrospective data)....76
Table 38: Frequency of sweetened drinks and food in the last 24 hours (24-hour feeding protocol)....79
Table 39: Frequency of cereal porridge in the last 24 hours....79
Table 40: Home-made food (24-hour feeding protocol)....80
Table 41: Factors influencing the introduction of complementary foods: probability (HR) of introducing complementary foods* (multivariable analysis)....81
Table 42: Median age at the introduction of complementary feeding in months (retrospective data) 85
Table 43: Median age at the introduction of beverages in weeks (retrospective)....87
Table 44: Introduction of sweetened food and drinks – comparison 2024, 2014 and 2003 (retrospective) 87

Table 45: Counselling topic during pregnancy check-ups (multiple answer possible), N=1’269 89
Table 46: Counselling in case of chronic disease, N=1’234 90
Table 47: Intake of folic acid and timepoint, N=1’212 90
Table 48: Univariate analyses: Factors associated with folic acid intake according to recommendation in 2024 and 2014.....92
Table 49: Sources of information on breastfeeding, N=1’269, multiple answers possible.....93
Table 50: Counselling and information with breastfeeding difficulties and satisfaction, N=800 94
Table 51: Frequency of digital media used to inform about breastfeeding and introduction of complementary foods 96
Table 52: 10 most frequently mentioned apps used to inform about breastfeeding and introduction of complementary foods 98
Table 53: Utilization of recommended precautionary and preventive measures 98
Table 54: Infant feeding for multiples by different age categories: 24 hours protocol 100
Table 55: Breastfeeding duration by age, nationality, education, income, employment, family factors (single parent, number of infants) and language region 119
Table 56: Breastfeeding duration by lifestyle and health factors of the mother 120
Table 57: Breastfeeding duration by birth factors 121
Table 58: Breastfeeding duration by infant-friendly hospital indicators.....122
Table 59: Breastfeeding duration by social support 123
Table 60: Introduction of complementary food by language region 124
Table 61: Univariate analyses: Introduction of complementary foods according to age, nationality, income, education, employment and family factors (N=1244).....127

Glossary

BFH	Baby Friendly Hospitals
BMI	Body mass index
ESPHGAN	European Society for Paediatric Gastroenterology, Hepatology and Nutrition
FSO	Swiss Federal Statistical Office
FSVO	Federal Food Safety and Veterinary Office
HR	Hazard Ratio
ICD	International Classification of Diseases
IQR	Interquartile Range
MFCS	Mothers' and Fathers' Counselling Service offices (in German: Mütter- und Väterberatung, MVB)
SD	Standard Deviation
SSN	Swiss Society for Nutrition (in German: Schweizerische Gesellschaft für Ernährung, SGE)
SSP	Swiss Society for Pediatrics (in German: Schweizerische Gesellschaft für Pädiatrie, SGP)
SWIFS	Swiss Infant Feeding Study
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization
95% CI	95% Confidence Interval

1 Summary

The Swiss Infant Feeding Study (SWIFS) 2024 report presents the results of the fourth infant nutrition monitoring survey conducted in Switzerland since 1993. A balanced diet in infancy contributes significantly to a healthy development. The Swiss Pediatric Society and the Swiss Society for Nutrition recommend exclusive breastfeeding during the first (4–)6 months of life. Complementary foods can be introduced gradually from the (5th to) 7th month [1,2]. Further, various preventive measures are recommended in pregnancy and infancy [3,4]. The focus of SWIFS 2024 lies on the prevalence and compliance of these recommendations and associated factors.

For reasons of comparability, SWIFS 2024 investigated the same breastfeeding and complementary feeding indicators and associated topics, and used similar analytical methods as in previous studies, while introducing new topics, such as digital information seeking, and methods where relevant. In 2024, for the first time, the study sample was based on a random sample of 4040 mothers with infants between 0 – 12 months of age, drawn from the Federal Office of Statistics (FSO) population registry sampling frame and invited via postal letter. Previous surveys had recruited and randomly selected mothers via the “Mothers’ and Fathers’ Counselling Service”. The FSO sample, however, did not contain 0-2 months-old infants for reasons related to the update of the population statistics. The invited sample of mothers was asked to fill in an online questionnaire. The response rate was 34%, which is lower than in previous surveys but considering the general decline in study response a good result.

On average, participants were 33,8 years old. 23.2% of mothers had a background of foreign residency, and 69.2% reported a higher education level. Compared to national data on female population with an infant/new-born, the study sample was a bit older, participants were more often Swiss and higher educated. Weighted analyses of breastfeeding prevalence and duration were calculated to adjust for these differences. 60% were first-time mothers and infants’ mean age was 7.4 months.

The SWIFS study data show a high degree of consistency between breastfeeding and complementary feeding practices and the current Swiss recommendations. Initial breastfeeding prevalence was high: 97% of mothers had breastfed their infant right after birth. Over 50% of infants were exclusively breastfed[1] for at least 17.4 weeks[1]. The median duration of total breastfeeding[1] could not be calculated given the relatively small number of weaned infants. However, 53% of the infants aged <10 months were still being breastfed. While the breastfeeding initiation rate did not differ much from 2014, the 24-hour feeding data show that today, infants are more likely to be exclusively breastfed during the first four months of life than in 2014 or 2003, while predominant breastfeeding[1] has become rare.

[1] *Exclusive breastfeeding*: the child receives only breast milk., *Total duration of breastfeeding:* the period during which the child received breast milk, regardless of additional liquids or foods. *Predominant breastfeeding*: breastfeeding while also giving water or tee

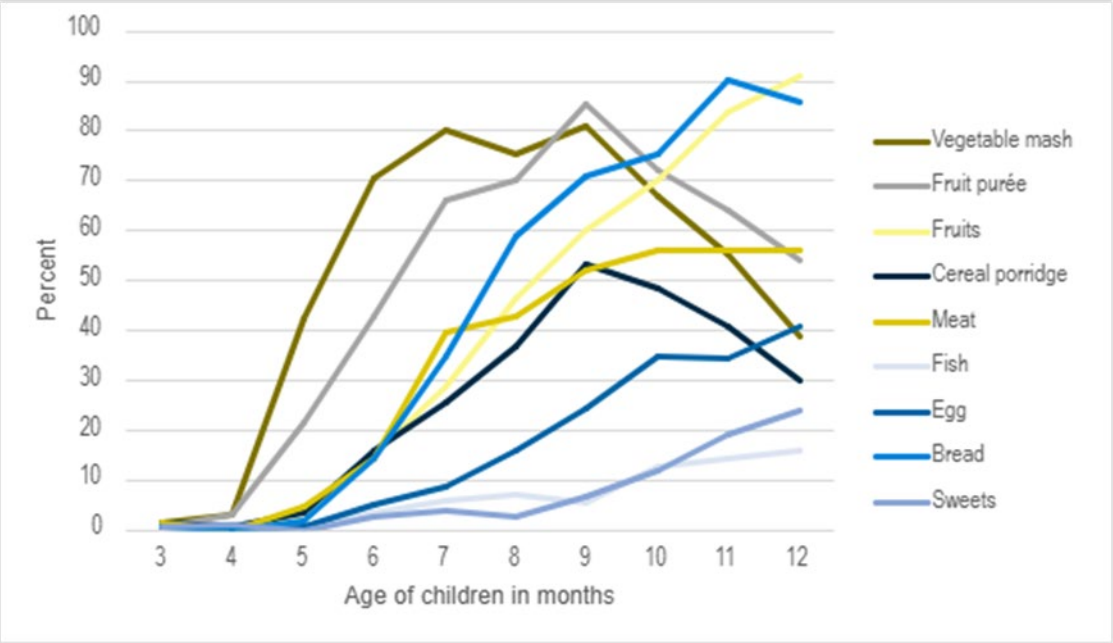
Infant feeding in the last 24 hours by age-groups (24-hour feeding protocol 2014 and 2024)

Age of infant	Exclusively breastfed		Fully breastfed		Breastfed at least once		Complementary food at least once	
	2014	2024	2014	2024	2014	2024	2014	2024
1-2 months	71%	-	74%	-	81%	-	0%	
3-4 months	62%	68%	68%	68%	78%	85%	2%	7%
5-6 months	26%	25%	27%	25%	63%	85%	66%	72%
7-10 months	0%	1%	1%	1%	39%	70%	98%	99%
>= 10 months	0%	0%	0%	0%	30%	53%	99%	100%

Most common reasons for secondary weaning were too little milk, infant being hungry, maternal exhaustion, next to incompatibility with one's job, which was the most frequently mentioned reason in working mothers.

Complementary foods, water, tea, or infant formula were introduced between the 5th and 7th month of life, as recommended by the Swiss Society of Pediatrics. Once the first complementary foods are introduced, a variety of other foods are introduced relatively quickly.

Consumption of various foods in the last 24 hours, by month of life (24h-feeding protocol)



The introduction of **complementary foods** showed a similar pattern and timing compared to 2014. Recommendations regarding specific foods, such as sweetened foods, cow's milk, or gluten, showed improved compliance. For example, at the age of 12 months, 25% of the infants had received sweetened drinks and food, far less than in 2014 (50%). 5% of children under 12 months received cow's milk, and most after the 6th month of life. Half of the infants received cereals by the age of 6 months, and compared to 2014 more infants received cereals containing gluten, as recommended.

Multivariate regression analyses indicate that maternal factors, such as income, attitude of partner, friends and family, are associated with higher and smoking and a BMI >30 with lower total breastfeeding duration. Among infant factors, high birth weight is associated with longer and health problems with shorter breastfeeding durations. Birth mode was not associated with breastfeeding duration. For complementary feeding, a higher educational degree of both parents and maternal return to work were associated with an earlier introduction of solid foods while German/Italian language region was associated with a later introduction. Maternal age or infants' sex no longer played a role neither for breastfeeding duration nor complementary feeding as compared to 2014.

SWIFS 2024 addressed the working environment, breastfeeding after returning to work, and the implementation of the Labor Law (ArGV 1). The article was revised in 2014, and since then, includes the remuneration of the time spent breastfeeding at work among other aspects. At the time of the study half of the mothers who had worked before birth had resumed working. Mothers going back to work discontinued full-breastfeeding earlier with a median full-breastfeeding duration of 17.4 weeks as compared to 21.8 in non-working mothers and introduced complementary foods earlier but within the recommended age span. However, in the multivariate analyses, total breastfeeding duration was not significantly different between working and non-working mothers. Compared to 2014, more mothers were informed about their rights as breastfeeding employees, of which only a third was informed by their employer. One in ten mothers reported not being informed about their rights. Similarly, the provision of suitable rooms for breastfeeding (56%) and the availability of refrigerators (84%) have improved. Among women who had returned to work, 77% of the women's employers regard expressing time as full work time and compensated the time spent breastfeeding/expressing milk at work (74% whole time, 3% half-time).

Overall, mothers rated their current health as good to very good. A quarter reported a pre-existing disease. A quarter of mothers were overweight and one in ten were obese before their pregnancy. Overweight and obese mothers gained more weight during pregnancy while underweight mothers gained less than recommended. About a third did not receive advice on alcohol, smoking, nutrition, medication or supplements during their pregnancy. However, the majority took folic acid before pregnancy (60%) or within the first 8 weeks of pregnancy (30%). Among women who had smoked prior to getting pregnant (13%) almost all quit early in their pregnancy. Almost all mothers who reported occasional to daily alcohol consumption prior to getting pregnant abstained from alcohol during pregnancy. Information on recommended vaccination was less often provided (in 27%). During pregnancy 70% received a Pertussis vaccination and 22% an Influenza vaccination.
A bit more than a quarter (28%) gave birth via Caesarean section. 40% of the participants had experienced pregnancy complications, 21% experienced complications during labor and almost a third reported some mental health problems after giving birth, of which 14% received therapy. Counselling on breastfeeding in the hospital was available to most mothers, different breastfeeding techniques were taught, and overall satisfaction with the counselling received was high. Similarly, in case of breastfeeding troubles at home, most women sought counselling and were satisfied with the help they received. Not quite half of the participants also used digital media to seek advice on infant feeding.

While most infants were healthy, a third had complications after birth and 7% were hospitalized. Regarding preventive check-ups, very few mothers (2%) reported that they had not attended the recommended preventive checkups for their child. 81% stated that their child was vaccinated according to the recommendations, and most also supplemented Vitamin D. 87% had supplemented their child within the last 24-hours.

Concluding, SWIFS 2024 shows a high compliance with recommendations on infant feeding and most preventive measures. The high duration of exclusive breastfeeding is worth highlighting, as well as the overall longer breastfeeding duration. The reduction of early introduction of sweetened foods is also noteworthy. On the other hand, SWIFS identified a few areas of concern and need for intensified counselling. Still, not all smoking women receive counselling on smoking during pregnancy, and chronic diseases especially mental health conditions, are not always addressed. The high pregnancy weight gain in overweight and obese mothers is a risk factor for mother and child's health. Lastly, although there is an

improvement compared to 2014, the information on breastfeeding mothers' rights and culture of breastfeeding in work environments merits further attention. Overall, SWIFS 2024 provides important data on infant nutrition and health of mother and child in Switzerland. For future surveys, it is recommended that the survey be extended to include infants up to 18 or even 24 months of age in order to consider the longer duration of breastfeeding and to improve knowledge about nutrition, other health-related behaviors and prevention in the under-two-year-olds.

2 Introduction

2.1 Swiss infant feeding monitoring surveys

The first months of an infant's life are characterized by rapid physical growth, the development of the nervous system, organs and psyche. To ensure a healthy start health professionals promote age-adapted nutrition, from breast-feeding to formula feeding and complementary feeding, and finally to family meals [5].

With the introduction of the "Baby Friendly Hospital Initiative" by the WHO and UNICEF in 1991 [6] and the implementation of the WHO decision to establish national committees to promote breastfeeding in all member countries by 1995, breastfeeding promotion gained more attention worldwide and monitoring of breast-feeding was introduced. In Switzerland, infant feeding is monitored. Three national surveys have been conducted, in 1994, 2003 and 2014. [7–9]. This report presents the results of the monitoring study 2024. Again, the main focus lies on breastfeeding, complementary feeding, vitamin and mineral intake of pregnant mother and infant, as well as prevention and counselling.

2.1.1 Breastfeeding

The WHO recommends exclusive breastfeeding for the first 6 months and the introduction of appropriate complementary feeding from 7 months of age, alongside continued breastfeeding until 2 years of age [10]. This recommendation is based on a systematic review by Kramer and Kakuma [11]. The WHO recommendations are primarily aimed at countries in which breast milk is a cost-effective and hygienically safe choice next to being an adequate nutrition for an infant [12]. In European countries, where these considerations play a less important role, the recommendation is more open and flexible taking into account that not all mothers wish or are able to follow the WHO recommendations, also acknowledging that the evidence for precise recommendations is scarce [13].The Swiss Society of Pediatrics strongly recommends exclusive breastfeeding in the first four months and points out that exclusive breastfeeding up to 6th months is a desirable goal. Further, breastfeeding should be continued alongside a stepwise introduction of complementary feeding starting as early as the 5th month of life [1,2]. This recommendation is also supported by the Swiss Society for Nutrition [14]. Numerous studies have examined the health effects of breastfeeding [13]. In developing countries in particular, children who are fully breastfed suffer less frequently from diarrhea and infectious diseases and have lower morbidity and mortality rates than children who are only partially breastfed or not breastfed at all. But even in industrialized nations, various short- and long-term positive effects for mother and child are known. Published systematic review articles indicate that there is good evidence for protective effects of breastfeeding, particularly for obesity, diabetes (type 1), infections (respiratory infections including middle ear infections and gastrointestinal infections), chronic intestinal inflammation in children and adolescents, childhood leukaemia, infant mortality, and blood pressure and cholesterol levels in adults [15]. Findings of a recent systematic review suggest that a longer duration of exclusive breastfeeding is associated with a lower risk of asthma in the 0-2 age group [15]. Regarding the health effects of breastfeeding for mothers, there is good evidence for a protective effect against type 2 diabetes and breast cancer [16]. This evidence seems to apply to exclusive breastfeeding and prolonged breastfeeding, or to a combination of the two. However, studies often have limitations: very few longitudinal studies have been performed to provide evidence of causality and recall of breast-feeding duration may be biased. Given the current evidence the question of the optimal duration of exclusive breastfeeding (4 vs. 6 months) is not certain [17].

The Swiss surveys yielded an increase in the prevalence of breastfeeding from 1983 to 2014. The mean duration of breastfeeding in Switzerland rose from 22 to 31 weeks between 1994 and 2003, and the mean duration of exclusive breastfeeding rose from 15 to 17 weeks. In 2003, 94% of infants were breastfed, 2% more than in 1994. While the survey in 2014 showed stabilized prevalences of 95% ever-breast-fed infants and 31 weeks median duration of breastfeeding [7,8].

The monitoring surveys further provide evidence of the importance of socio-cultural factors, structural and socio-demographic determinants, policies and practices for breastfeeding in Switzerland. In 2003, for example, the duration of breastfeeding and the timing of the introduction of solid foods varied with the age and nationality of the mother, the socio-economic status of the parents, the number of siblings and the mother's smoking status [8,18]. Both the 2003 and 2014 survey showed that infants born in hospitals with the “Baby Friendly” label were demonstrably breastfed longer than infants born in non-certified hospitals, and addressed breastfeeding and mode of birth in the context of increasing Caesarean sections [19–22]. The survey in 2014 asked about breast-feeding at work for the first time. Since mid-2014 the Revision of the Labor Act (Verordnung 1 zum Arbeitsgesetz; ArGV 1) [23] containing new provisions regarding compensation for breastfeeding mothers, it was the chance to collect “baseline data” prior to the implementation of the law. We can now compare the 2014 and 2024 data on breastfeeding at work.

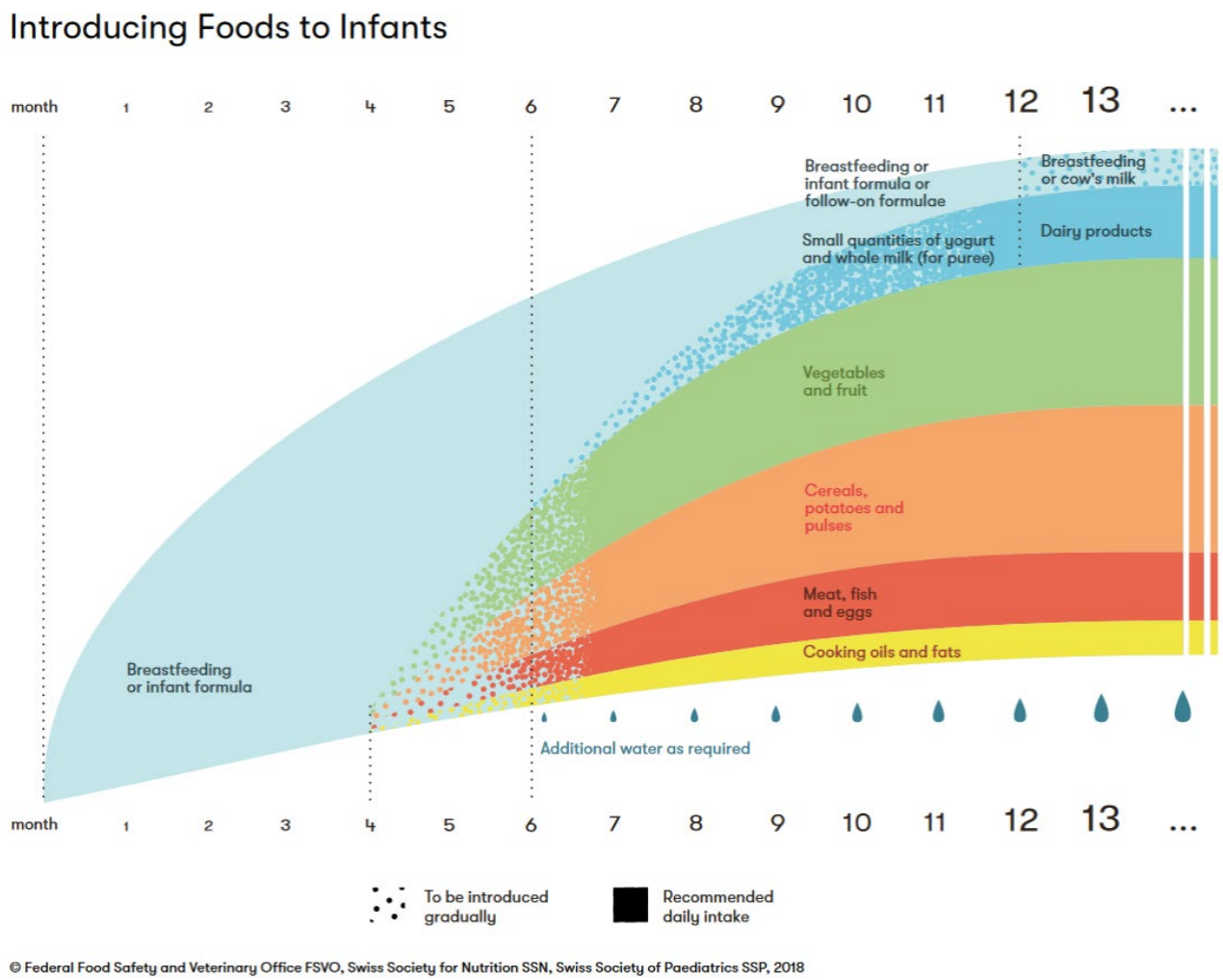
2.1.2 Complementary feeding

In contrast to the numerous surveys on breastfeeding, little attention has been paid until recently to the introduction of complementary feeding, the type of foods introduced, and the health effects of complementary feeding [13]. The lack of data is also reflected in the scientific debate surrounding the optimal timing of the introduction of solid foods and the different national and international recommendations regarding both the general timing of introduction and the timing of the introduction of specific foods such as cow's milk, eggs or fish [13]. According to the WHO, complementary feeding should be introduced alongside continued breastfeeding from the age of 7months [10]. The European Society for Paediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN) supports the WHO recommendation as a desirable goal, but adds that complementary feeding should not be introduced before 17 weeks (4 months) or after 26 weeks (6 months) [13]. Similarly, the Swiss Society for Nutrition (Schweizerische Gesellschaft für Ernährung, SGE) and the Swiss Society for Pediatrics (Schweizerische Gesellschaft für Pädiatrie, SGP) also state the 5th month as the first month of life from which infants can be fed complementary food (see Figure 1). The Swiss Breastfeeding Study from 2003 had examined the introduction of complementary food in infancy for the first time in Switzerland. The results showed that more than half of the infants had already been given solid food before the age of 6 months. 5% of the infants had even received solid food before the 5th month. However, 2014 only very few infants received complementary food before age 5 months.

Possible negative effects of introducing solid food too early include obesity in childhood and adolescence and associated metabolic diseases later in life. However, introducing complementary foods too late may have also have health effects as introducing them too early [24]. While breast milk remains an important nutrient source, it may not meet all nutritional needs after 6 months. A randomized controlled trial conducted in Iceland compared infants who received solid foods in addition to breast milk from the age of five months with infants who were exclusively breastfed for six months in terms of their iron status and growth at six months of age. The infants did not differ in terms of growth, but infants who had received complementary foods from 4 months of age had a better iron status than infants who had been exclusively breastfed for 6 months [25]. Allergy studies suggest that a late introduction of solid food may increase the risk of allergies [26] respectively, that food diversity in infancy has a protective effect regarding allergies [27]. Evidence shows that late introduction is defined differently depending on the foods, generally one can say late is after the six months of age [21].

The authors of these studies therefore recommend exposing infants to different foods at an early age as an active allergy prevention measure.

Figure 1: Infant feeding recommendations of pädiatrie schweiz, SSN and FSVO [28]



2.1.3 Vitamins and minerals

In addition to breastfeeding and the introduction of solid foods, supplementation with vitamin D is recommended during the first year of life to avoid deficiency symptoms. The Federal Food Safety and Veterinary Office (FSVO) recommends supplementation with 400 IU of vitamin D daily for infants during the first year of life and 600 IU of vitamin D daily between the ages of two and three years [29]. The Swiss Society of Pediatrics (SSP) recommends a daily intake of 300-500 IU vitamin D during the first year of life [30]. The data from the Swiss study of 2014 showed that in Switzerland, three-quarters of the infants in the study received vitamin D in the last 24 hours, significantly more often than in 2003. Vitamin D intake is again addressed in the current study. It is important to note that the SWIFS data provides no actual vitamin D level, for which a blood sample would have been necessary, only vitamin D substitution was reported.

During pregnancy, there is an increased need for vitamins and minerals (calcium, iron, zinc and iodine) as the fetus grows. It is therefore recommended that expectant mothers take additional vitamins and minerals. Taking 400 µg of folic acid in tablet form daily before conception and up to the 12th week of pregnancy also reduces the risk of neural tube defects [31]. Both vitamins and minerals and folic acid intake have been investigated in past surveys. In the current survey, the focus was put on Vitamin D and folic acid, while other vitamins than vitamin D were no longer addressed, as general vitamin substitution was very common and given the many different supplements not very informative.

2.1.4 Prevention and counselling

The Swiss health system offers pregnant women, infants and parents a wide range of preventive, counseling and care services, most of which are covered by the basic health insurance [3]. During pregnancy various topics should be addressed with expectant mothers, next to infant health and nutrition related topics also topics such as alcohol consumption, smoking during pregnancy, chronic diseases and medication or postpartum depression after birth. All previous surveys addressed the use and satisfaction with such services, mainly professional sources, such as midwives, gynecologists, satisfaction with information or counselling. In 2014, 18% of the participants had not received breast-feeding information prior to the birth of their infant, while after birth only 2% felt non-informed. With the increasing digitalization of society and the health system women/parents are confronted with an increasing number of digital information sources. The current survey thus, also asked about digital health information seeking. Further, the counselling on maternal health issues was extended. After birth preventive care in infancy, such as vaccinations or medical check-ups, is highly recommended [32] and thus addressed in the survey.

3 Methodology

3.1 Study design and study sample

The Swiss Infant Feeding Study (SWIFS) is a population-based, cross-sectional study in mothers of infants aged 0 -12 months. The study does not fall under the Swiss Human Research Law. The Swiss Ethics Committee of the canton of Zürich exempted the study from a full ethical review. The study sample was randomly drawn by the Swiss Federal Statistical Office (FSO) from the population registry sampling frame. The sample size and power calculation was based on breastfeeding prevalences obtained in the SWIFS study 2014 [9]. The FSO sample frame contains data (addresses, nationality, age etc.) from cantonal and communal population registers which are updated regularly [33]. The sample frame was updated by end of June 2024, which means that all new births registered in cantonal registries were included at this time point.

For SWIFS 2024, the FSO drew a random sample of 4040 mothers stratified by infant's age groups (0-3 months, 4-6 months, 7-9 months and 10-12 months old) and language region (German-, French- and Italian-speaking regions). As the FSO needs time to process the data of the population registers, we received the addresses by end of August 2024. At this timepoint, the newly registered born infants from June 2024 were already 3 months old. For this reason, we have no infants that are 0, 1 or 2 months old in our sample. Due to the response delay, the analytic sample also includes some older children up to 15 months of age. While they are not included in the breastfeeding or complementary food analyses, other analyses are based in the full analytic sample. For simplification's sake we use the term infant throughout the methods for our sample of children also when including children >12 months of age.

The sample mothers received a postal invitation letter to participate in an online survey. The letter also contained information on the scope and aims of the study as well as data protection measures (for instance, survey data were analyzed anonymously. Two reminders were sent to mothers not having filled out the online questionnaire until 05.12.2024 Afterwards the online survey was closed. Participation consent was asked on the first page of the online questionnaire after repeating the scope, aims and data protection measures again.

3.2 Online Survey

The online questionnaire was based on the 2014 questionnaire with the aim of data comparability across surveys and was only adapted or extended where necessary. Table 1 provides an overview of the topic blocks in the 2014 and 2024 questionnaires, including new topics.

Questions relevant to the monitoring of breastfeeding and the introduction of complementary foods were asked in the same way as in 2014. Compared to 2014, there were additions in the categories of infant information, birth and work. Regarding infant information, the question on the participant's relationship to the child (biological mother, non-biological mother, foster mother or adoptive mother) was added. The question about the father's attitude towards breastfeeding was changed to the attitude of the closest ones to capture current changes in the family structure. Regarding birth, a question about contraction medication given during birth was added. The questions on the working situation before and after birth were expanded with topics such as home-office. The survey also includes new topic categories: psychological stress/diseases of the mother, the use of digital media for information and advice on various topics, as well as questions on Influenza and Pertussis vaccinations during pregnancy (see questionnaire in the appendix).

Study data were collected and managed using REDCap electronic data capture tools (version 15.4.3) hosted at Zurich University of Applied Sciences [34]. The REDCap software allows for different quality options in the programming. Whenever possible, filter questions were introduced to reduce respondent burden. For example, if a mother never had difficulties with breastfeeding, she did not get detailed questions about breastfeeding difficulties. Wherever a number was requested the participant received a notification about the range allowed, if their entry was outside of the range, and was asked to correct the value. Further, with the

aim of reducing missing values, all questions except optional text answers were set as compulsory. Like this, participants received notifications on which questions they might have forgotten to fill out. For some questions, we introduced the option, that only certain combinations of answer categories were allowed, such that affirming and denying a statement at the same time was not possible.

The questionnaire was piloted in May 2024 on a sample of 31 mothers recruited through personal contacts and Mothers' and Fathers' Counselling Service offices (MFCS) in Zürich, Basel-Stadt and Leimental and tested for comprehensibility and acceptance. The feedback showed good results in terms of comprehensibility, coherence and acceptance. Any suggestions for improving comprehensibility were implemented.

Professional translators translated the questionnaire into French, Italian and English, which was then reviewed and corrected where necessary.

The questionnaire in English is appended to the report in Chapter 8.3.

Table 1: Overview of the topic blocks 2014 and 2024

2014	2024
Questions about the youngest child	Questions about the youngest child
	New: Relationship to the child (biological mother, non-biological mother)
Questions about pregnancy	Questions about pregnancy
Detailed questions about advice during pregnancy	Detailed questions about advice during pregnancy
	New: Questions about vaccinations during pregnancy (influenza, pertussis)
Complications during pregnancy	Complications during pregnancy
	New: Question about mental illnesses
	New: Use of digital media for information/advice on various topics (breastfeeding, complementary feeding)
Questions about birth	Questions about birth
	New: Question about receiving tocolytics
The first time after the birth	The first time after birth
	New: Questions about psychological stress after birth
Questions about breastfeeding	Questions about breastfeeding
Introduction of various beverages and foods	Introduction of various beverages and foods
Nutrition during the last 24 hours	Nutrition during the last 24 hours
Questions about the child’s health, health care and sleeping behavior	Questions about the child’s health, health care and sleeping behavior
Questions about the administration of vitamin D	Questions about the administration of vitamin D
Questions about the mother's health and lifestyle (e.g. physical activity)	Questions about the mother's health and lifestyle (e.g. physical activity)
Questions about support in everyday life	Questions about support in everyday life
Questions about the socio-economic and work situation	Questions about the socio-economic and work situation
	New: detailed questions about the work situation before and after birth

Table 2: Breastfeeding monitoring and complementary feeding indicators and their recording

Indicators	Definition	According to information provided in the 24h-nutrition protocol	According to retrospective questionnaire data
Breastfeeding	The infant receives breast milk, **possibly** also tea, water, infant milk or complementary food.	x	x
Partial breastfeeding	The infant receives breastmilk **and** complementary food or infant milk.	x	
Full breastfeeding	The infant receives breast milk and **possibly** also tea or water.	x	
Predominantly breastfeeding	The infant receives breast milk **and** tea or water.	x	
Exclusive breastfeeding	The infant receives only breastmilk.	x	x
Introduction of complementary food	The infant receives solid food (e.g. porridge or bread), and possibly liquids with nutritional value, which are given in addition to breast milk, infant milk or cow's milk.	x	x

3.3 Definition and assessment of indicators on breastfeeding and infant feeding

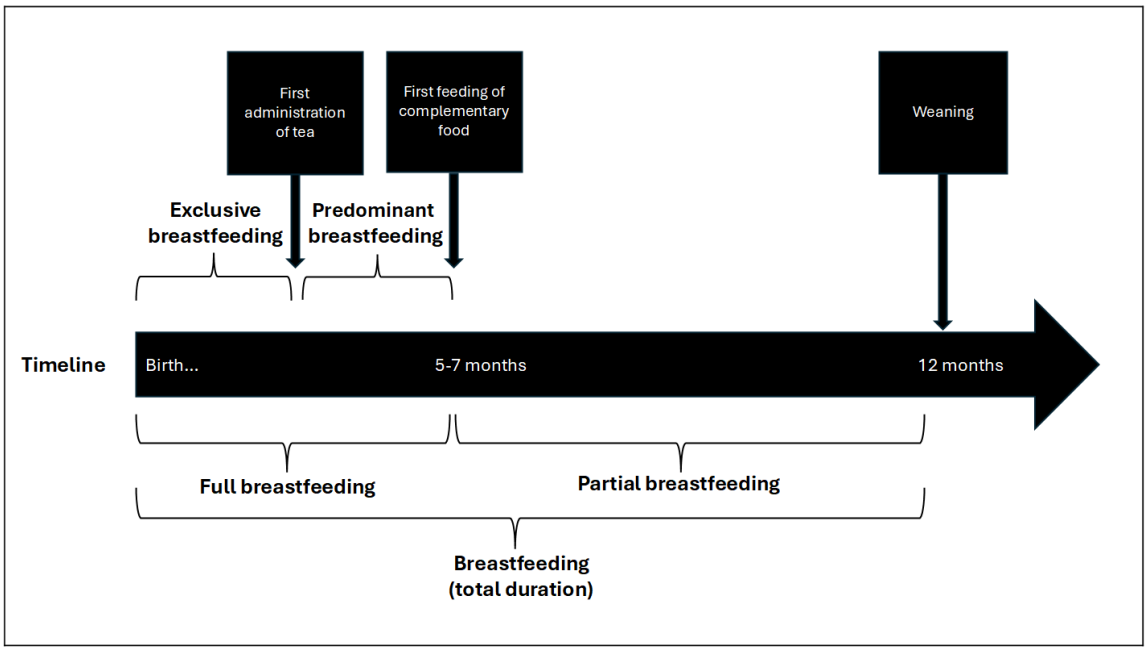
The WHO definitions [6] were used for the breastfeeding indicators. The WHO distinguishes between breastfeeding, partial, full, predominant and exclusive breastfeeding. While ‘breastfeeding’ is defined as any breast milk regardless of additional administration of other fluids or infant feeding, it is important for the other indicators, whether and which additional infant feeds or liquids are given (see Table 2). Full breastfeeding is the period in which the infant receives breast milk and possibly tea (no complementary food, no infant milk), while exclusive breastfeeding refers to the period in which the infant only receives breast milk. Full breastfeeding comprises exclusive breastfeeding and predominant breastfeeding. Finally, partially breastfed infants receive in addition to breastmilk complementary food or infant formula.

Complementary feeding is defined as any solid food (e.g. porridge or bread) as well as liquids with nutritional value that are given in addition to breast milk, infant milk or cow's milk. While according to the WHO the indicator for the introduction of complementary foods only applies to children from 6 months of age, the definition in this study is applied to all age groups.

Information on the nutrition was recorded on the one hand by means of a 24h feeding protocol on the other hand by retrospective questions. The 24-hour feeding protocol ensures a high validity of the data for the calculation of the current breastfeeding prevalence. This data allows also a comparison with the prevalence and duration of breastfeeding from the last surveys as well as with European and international (WHO) indicators. In addition, the frequency with which different foods are introduced in the different age phases can be analysed. The retrospective data are particularly relevant for the assessment of complementary foods, as the increasing diversity of foods in the first year of life diversity of foods would otherwise not be recorded.

Figure 2 below uses a timeline to illustrate the definition of the different breastfeeding phases.

Figure 2: Graphical representation of the breastfeeding indicators



The timeline is only for purposes of illustration and does not mean any time definition of the breastfeeding indicators.

3.4 Data management and cleaning

Once the data collection was terminated (05.12.2024), the data records (N=1363) were exported from RedCap into a STATA-15 file, the statistical software used for the statistical analyses. Prior to the analyses the data were cleaned, participants' eligibility and plausibility of data checked, and additional variables were created.

The following **exclusion criteria** were applied: Missing date of birth (N=21), missing answer of breastfeeding infant (N=44), incompleteness of the monitoring questions at the start of the 24-hour nutrition protocol (N=27) and at the end of the 24-hour nutrition protocol (N=3). Overall, 95 data records were excluded from the analysis, leaving 1269 eligible data sets. For specific analyses, further exclusion criteria were formulated and applied, see 3.5.1.

Other **missing data** were delt with differently. For example, missing nationality of mother could be inserted using the FSO sample information. Other missing data were delt with during the analyses.

Some decisions regarding the collapsing and use of specific data had to be taken, such as dealing with non-biological mother or non-biological father in the analysis. In 2024, there was a new option to complete the questionnaire as a non-biological mother. The wife or partner of the biological father, a foster mother or an adoptive mother were defined as a non-biological mother. Four of the participating women met these criteria. Due to the exclusion criteria, they were not observed further. On the other hand, there was a small number of non-biological fathers (N=4). Due to the small sample size, it was decided to not analyze them separately, but to include them in the category "partners".

Plausibility checks were performed in the statistical software STATA to detect missing or contradicting data. Whenever possible, lacking plausibility was corrected based on other data. For example, if a participant had ticked off the box "never breastfed", but reported breastfeeding in the 24-hour protocol, we corrected the record "never breastfed" to "breastfed". Missing retrospective data on complementary foods was corrected by inserting the age of the child in weeks and/or months provided the specific food group was mentioned the 24h feeding protocol.

Additional variables and categories were created. For example, the ‘physical activity’ variable required the computation of a score, which was formed according to the definition of the Swiss Health Survey [35]. With the number of days of physical activity and the duration of physical activity, the following categories were created: The ‘active’ group includes 'trained' individuals who work up a sweat at least three times a week through physical activity, 'regularly active' individuals who get a little out of breath for at least half an hour on at least 5 days a week and ‘irregular active’ individuals who get out of breath more than 150 min/week or have more than 2 sessions of intense physical activity a week. ‘Partly active’ people get a little out of breath for at least 30-149 min/week or on one day/week work up a sweat. ‘Inactive’ behavior is less than 30 minutes per week of moderate physical activity or less than one intense physical activity per week. Mothers were asked about their height, weight before and after pregnancy, and weight gain during pregnancy. The BMI was calculated for each time-point using the formula (body weight in kg) / (height in m)^2.

In other cases, answer categories were collapsed if a single category did not have enough answers to be analyzed separately.

At the end of the survey, mothers were given the opportunity to provide comments or suggestions. Due to the large number of responses, a decision was made to analyze them systematically. First, two researchers categorized the comments into overarching themes. Next, subcategories were developed within these themes. For the most frequently mentioned topics, dedicated subchapters were included in appropriate sections of the report, addressing similar themes to those raised by the mothers. Each topic was described, and the corresponding frequencies were provided. The mothers who provided comments had a mean age of 34.1 (SD=4.08); 57.7% were primiparous and 42.3 multiparous. Their infants had a mean age of 7.2 months (SD=3.14). Compared to the overall sample, these mothers were slightly older, more often multiparous, and had younger infants.

Mothers could provide answers to infant’s age for specific foods or breastfeeding in months and weeks. For younger infants weeks are used and for older infant months are more commonly used. However, for the analyses either weeks or months were needed. As in SWIFS 2014, months were transformed to weeks by dividing month with the factor 4.354. And weeks were transformed into months by multiplying weeks with 4.354. The age of the infant in days was calculated from the date of birth and the date of participation in the survey. Here, the calculation differed slightly to 2014: To calculate the age in weeks, the daily age of the infant was divided by 7 and for the age in months, the daily age was divided by 30.5. This results in a small discrepancy in the calculated weeks when comparing the studies.

3.5 Data analysis

3.5.1 Analytic samples for breastfeeding and introduction of complementary foods

The analysis samples for duration of breastfeeding and introduction of complementary foods differ in size.

For the analysis of the breastfeeding prevalences and the duration of breastfeeding we limited the sample to infants aged 0-12 months (exclusion if age >12 months: N=149). Further, data sets were excluded if information on duration of full, exclusive or total breastfeeding was missing (N=39). The analysis sample for the duration of breastfeeding thus comprises a total of **1081** data records. For the breastfeeding prevalences women who never had breastfed (N=41) were excluded, while they were included into the estimation of breastfeeding duration with 0.5 weeks (Stata does not accept 0 weeks).

For the analysis of the introduction of complementary foods all infants irrespective of age were included. However, data records were excluded if the following exclusion criteria applied: 24h feeding record and/or retrospective feeding record not completed (N=18), discrepancies between age of the child and age at the introduction of complementary food (N=7). The analysis sample for the introduction of complementary foods thus comprises a total of **1244** data records.

3.5.2 Statistical analyses

Descriptive analyses

After a descriptive analysis of the study population (the socio-demographic characteristics of the parents and infants as well as their health status and birth-specific characteristics), descriptive analyses were run for most outcomes and covariates.

Bivariate associations

For exploring bivariate associations between categorical variables, we used the Chi^2 test. This was done for the participation in pediatric check-ups and the use/realization of the recommended vaccinations in the first year of life. Analyses were run for income, mother's age, education level and nationality.

Analyses of main outcomes

The outcome variable *breastfeeding* was analyzed using different data. On the one hand, the breastfeeding **prevalence** was calculated on the basis of the 24 hours feeding protocol by differing any breastfeeding, partial breastfeeding, full and exclusive breastfeeding. Mothers that only temporally had fed infant formula, but exclusively breastfed in the 24 hours protocol, were regarded as exclusive breastfeeding according to the analysis of the previous monitoring's. On the other hand, the **duration** of the different breastfeeding indicators was estimated using retrospective data. To calculate the duration of full and exclusive breastfeeding we used the monthly/weekly age at which the mothers had introduced solids and complementary food. For the total breastfeeding duration, the timepoint of weaning specified by the mothers was taken. On the basis of before mentioned variables, the duration of the various forms of breastfeeding was estimated with Kaplan-Meier survival curves. For the outcome "total breastfeeding duration" the Kaplan-Meier estimates for P50% and P75% could not be computed due to a high number of censored events. Censured events correspond to mothers that were still breastfeeding at the timepoint of the study. In these cases, infant age in weeks is taken as censured event for the Kaplan Meier estimation [5]. Also due to censoring, **univariate analyses** of factors associated with total breastfeeding duration were run with cox proportional hazard models instead of Kaplan-Meier estimates, allowing for more precise estimations. Exploratory **multivariable analyses** to investigate factors associated with the total duration of breastfeeding and the duration of full and exclusive breastfeeding were analyzed using Cox regressions. The final model was based on the models used in 2003 and 2014 and marginally adapted. The factors analyzed in the final model were language region, socio-economic status, maternal lifestyle, child-related factors, factors of birth, the general conditions in the hospital environment and the father's attitude towards breastfeeding were also included. Additionally, to the analysis in 2014, the attitude of the mother towards breastfeeding and mother's counseling on breastfeeding were included. Both factors were deemed as important in recent literature [36].

For the outcome variable *complementary feeding*, the **prevalence per month of life** of infants who had already received any complementary food or specific foods such as vegetables or cereals was computed, as well as the **timepoint of introduction of different complementary foods.** The prevalences were analyzed using 24-hour feeding protocol data and the timepoint was determined with retrospective data (mothers' indication, at which week/month a complementary food was introduced). Group comparisons such as for example by language region were calculated using Kaplan-Meier survival analyses based on retrospective data. The statistical significance was calculated using the Chi^2 and Log Rank Test. The median (p50%) and the interquartile range (IQR, p25%, p75%) Kaplan-Meier estimates are reported. Exploratory multivariable analyses to investigate factors associated with the timepoint of introduction of complementary foods were analyzed using Cox regressions. The models were based on the models used in 2003 and 2014 and marginally adapted. The factors analyzed were language region, socio-economic status, maternal lifestyle, and child-related factors.

For all analyses, the significance level was set at 0.05. For all cox regressions, the proportional hazard assumption was tested with the Schoenfeld residuals test. If proportionality was not fulfilled, robust standard errors were used.

Weighted analyses

We obtained population weights for several sociodemographic characteristics of the mothers, which have been shown to be significantly associated with earlier weaning. The analyses for the duration of total, full and exclusive breastfeeding were run again to see if the results change. Table 3 lists the population data that were used to calculate the weights.

Table 3: Overview of population data used to calculate weights

Survey variable	Population variable	Source
Highest completed education of mother	Highest completed education of mother with infant aged 0-12 months old	FSO structural survey 2023 [37]. Data requested from FSO.
Mother currently smoking	Smoking in pregnancy	Addiction monitoring in Switzerland 2012-2016 [38]
Single mother status	Single parent households (as percentage of all household)	FSO structural survey 2023 ’[39]
Nationality: Swiss, Europe, Outside Europe	Permanent foreign resident population by nationality	FSO STATPOP2023 [40]

The weights were determined as follows:

Weight = (Population Proportion) / (Sample Proportion)

For the combined weighting, we used multiplication of the different weights [41].

3.5.3 Comparison to earlier monitoring studies

Data for total breastfeeding duration were available from the monitoring’s in 1994, 2003 and 2014 and data from 2003 and 2014 were available for the different forms of breastfeeding and the time of introduction of complementary foods. The prevalence per monthly infant age was graphically represented for the breastfeeding indicators. The timepoints of introduction of complementary foods were compared using the median and the quartiles, 25% percentile and 75% percentile, and the significance was determined using the log-rank test. The duration of the different forms of breastfeeding and the timing of the introduction of complementary foods were compared using Cox regression analysis, corrected for the age of the mother, education of the parents, language region and gender of the child. This allowed differences in the two study populations from 2003 and 2014 to be taken into account. The significance level was set at p=0.05.

4 Results

4.1 Response rate

We received 4060 addresses from the FSO. Twenty addresses were excluded from the study sample as they were single parent households with the name and address of the father of the infant only. In our invitation letter, we explicitly addressed the mother/foster mother or adoptive mother of the infant.

The first invitation was sent to 4040 mothers on September 9th, 2024. As a first reminder 3'394 mothers, who did not yet participate or only partially filled out the questionnaire, were sent a reminder postcard on 30th of September. A second reminder postcard was sent to 2'978 mothers on 7th of November. The online survey was closed on 5th December.

From the three invitation and reminder mailings, that were sent to participants, 140 letters came back because the addresses were no longer correct.

1363 mothers filled the questionnaire out. Based on the 3990 letters with correct addresses, the response rate was 34.2% (Figure 3). 94 mothers had to be excluded due to data quality issues (see chapter 3.4). Therefore, the basic analysis sample contains 1269 cases.

Figure 3: Study population: flow chart

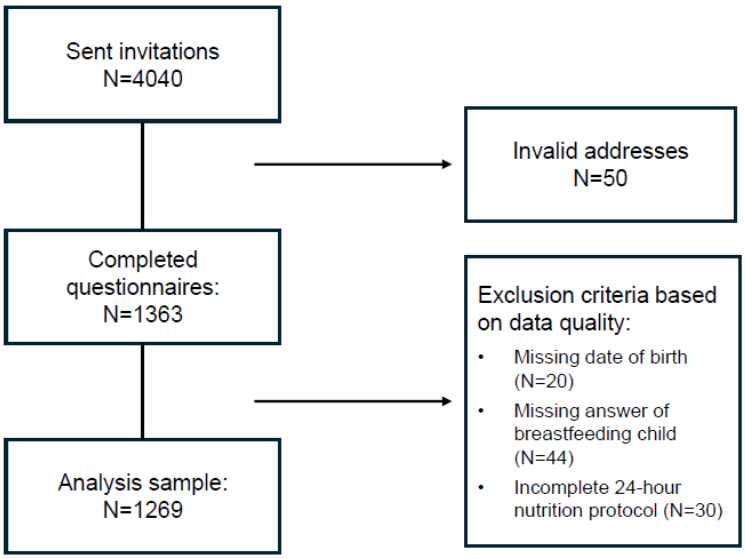


Figure 4 displays the community of residence of all invited mothers, while Figure 5 shows the community of residence of the participating mothers. The darker the community is, the more persons have been invited or participated in this community. Generally, all regions of Switzerland are

represented by the participating mothers. Compared to the number of invited mothers, participating mothers took less part in the cantons of Vaud, Fribourg/Berne and the cantons of central Switzerland.

Figure 4: Community of residence of invited mothers

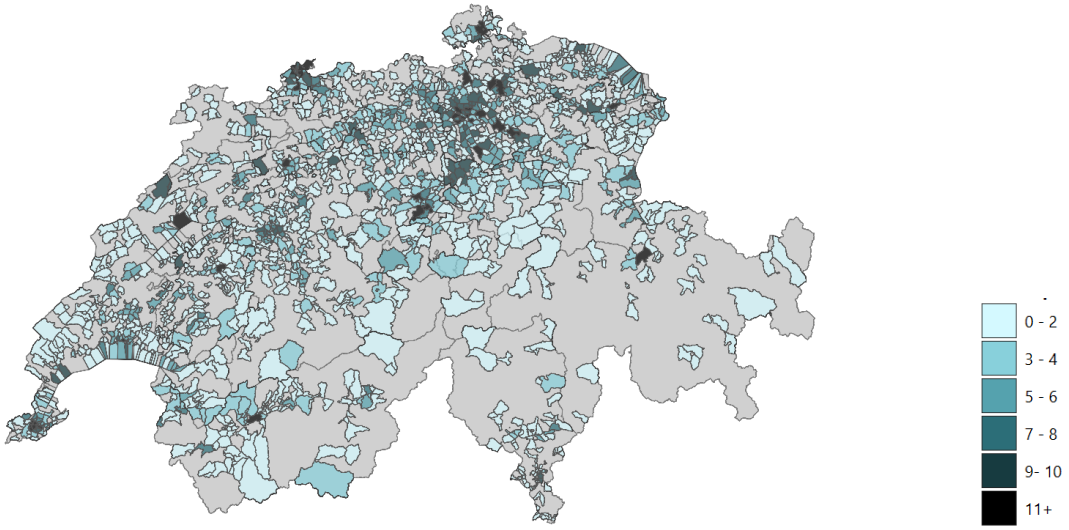
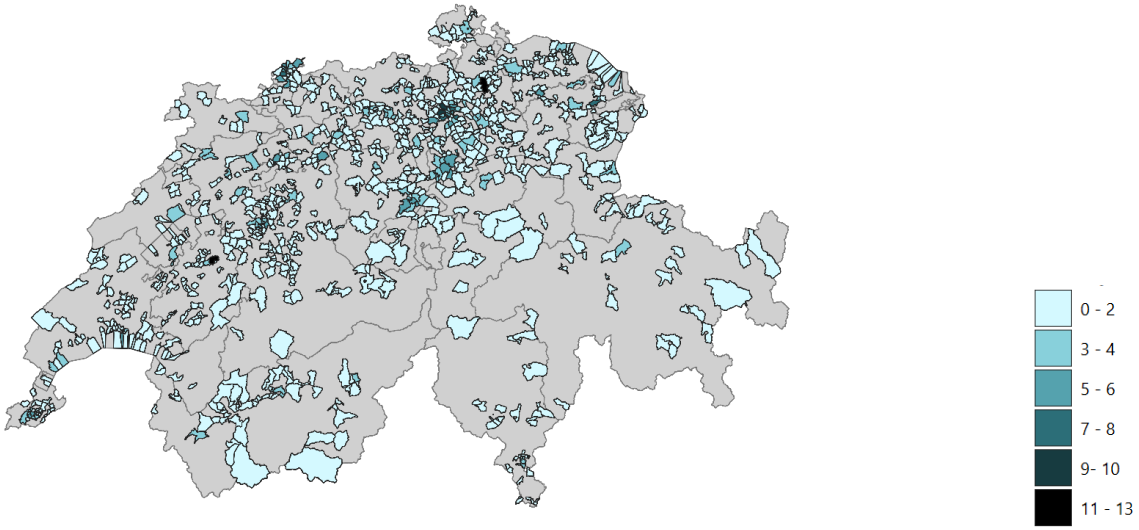


Figure 5: Community of residence of participants (by postcode)



The regional distribution from the random sample is displayed in Table 4, based on the number of births per language region in 2023, and the regional response. Compared to 2014, there is a lower proportion from the Italian-speaking region.

Table 4: Regional distribution across three surveys

	SWIFS 2024		SWIFS 2014		Survey 2003	
	N=1269		N=1535		N=2889	
	N	%	N	%	N	%
D	989	77.9	1137	74.1	1958	67.8
F	240	18.9	310	20.2	645	22.3
I	40	3.2	88	5.7	286	9.9

D= German-speaking Switzerland; F=French-speaking Switzerland; I=Italian-speaking Switzerland

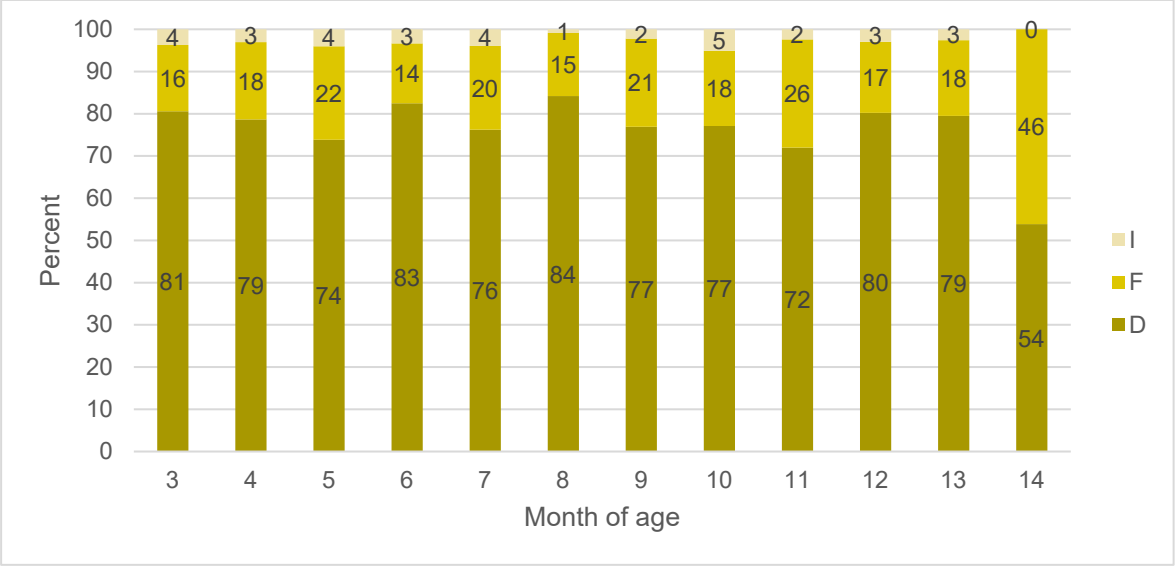
Table 5 shows across the three regions a steady distribution with a total participation of 34%, while SWIFS 2014 shows differences of the distribution between the regions.

Table 5: Distribution of participation in the three regions

	SWIFS 2024		SWIFS 2014	
	N	%	N	%
Invitation	4040		4147	
Response	1363	33.7	1648	39.7
D	1054	34.7	1175	41.1
F	267	35.9	371	34.2
I	42	33.8	102	51.0

Figure 6 shows a relatively constant regional distribution of infants per month of age over the first 3 - 12 months, with a distribution of participating infants between 7-13% (N=91-164) per month. The regional distribution per month of age is on average 78% (72%-84%) for German-speaking Switzerland, 19% (14%-26%) for French-speaking Switzerland and 3% (1%-5%) for Italian-speaking Switzerland. The number of participating infants is significantly lower at the age of 13 and 14 months (1-3%). There is also a clearly different regional distribution at the age of 14 months (N=13): no infant from Italian-speaking Switzerland is recorded, while infants of French-speaking Switzerland are highly represented (46%) compared to 54% of German-speaking Switzerland.

Figure 6: Regional distribution by infant age 2024



4.2 Sample characteristics

4.2.1 Socio-demographic characteristics of mothers and partners

On average, the 1269 mothers in our study were 33,8 years old (Table 6). Compared to the birth statistics 2023 the age group 20-29 years is underrepresented (14.3% vs. 26.8%), while the age group 30-39 years is overrepresented (77.7% vs. 68.0%, source: FSO 2023). Primiparas (first-time mothers) were on average 1 year younger (33.0 years) than multipara (34.3 years). Primiparas participating in the study were on average older than the comparison group in Switzerland (33.0 vs. 31.3 years, source: FSO 2023).

Table 6 shows all socio-demographic characteristics compared to the SWIFS 2014, the infant feeding survey 2003 and the birth registry 2023. Compared to the 2014 survey, the SWIFS 2024 participants are on average around one year older, the proportion of mothers under 30 is lower and the proportion of mothers aged 30-39 years is higher. The proportion of first-time mothers is also higher at 60.2% compared to 54.5% in the 2014 study.

23.2% of mothers with background of foreign resident population took part in SWIFS 2024. Their proportion is therefore lower than that of foreigner women living in Switzerland or the proportion of foreigner women who gave birth in 2023 (29.9%). This result is nevertheless pleasing because the questionnaire was only available in four languages - German, French, Italian and English - and therefore required knowledge of these languages. Compared to 2014, the proportion of female foreigner is similar (23.2% vs. 22.9%). The composition of nationalities has also changed slightly compared to 2014. Whereas in 2014 more women from the outside Europe took part in the study, in 2024 more women from Europe are represented in the study (Table 6), particularly from Germany (6.2%), Italy (2.9%), France (1.7%) and Portugal (1.7%). Around 18% of mothers and 13% of fathers with Swiss nationality stated that they had a second nationality, mostly a European nationality (83% of mothers and 82% of partners).

Compared to the 2014 study, mothers with a higher social status regarding household income and education are more strongly represented in 2024. Participating mothers are even better educated in 2024: 69% have a higher education level (compared to 54% in 2014), while the proportion of mothers without a school-leaving qualification or having completed compulsory schooling is low at 4%. The

household income is comparable with the 2014 data, but the category “monthly household income >9000 CHF” is higher than in 2014 (40% vs. 26%) (Table 6). The generally high level of education and income is also present among SWIFS participants and their partners with a foreign background. The majority have a higher education level (mothers 70%, partners 64%) and 77% state a monthly net household income of over 6,000 CHF.

Table 6: Socio-demographic sample characteristics of mothers in comparison to SWIFS 2014, Survey 2003 and FSO-Statistics 2023

	SWIFS 2024		**SWIFS 2014**	**Survey 2003**	**FSO 2023***
	Mean value	SD	Mean value	Mean value	Mean value
Age of mother (N=1269)	33.8	4.1	32.9	32	32.8***
Age of primipara	33.0	3.9	31.9	31	31.3
Age of multipara	34.3	4.1			
Quantity					
	N	%	%	%	%
Age groups (N=1269)					
<20 years	-	-	0.1	0.5	0.3
20-29 years	181	14.3	20.6	26.8	24.0
30-39 years	986	77.7	73.2	68.5	68.0
>39	102	8.0	6.2	4.3	0.1
Parity (N=1217)					
1	732	60.2	54.5	53	48.5
2 and more	485	39.9	45.5		51.5
Nationality (N=1269)					
Switzerland	975	76.8	77.1	80	70.1
Europe	260	20.5	19.3	16	
Outside Europe	34	2.7	3.6	4	
Native language					
German	°	°	65.5	62	
French	°	°	16.1	15	
Italian	°	°	6.3	10	
Others	°	°	12.2	13	
Marital status (N=1216)					
Married	871	71.6	80.5	89	72.2
Divorced	13	1.1	16.6		
Single	325	26.7	6.3		
Registered partnership	7	0.6	-		
Others			2.9		
Family households (N=1269)					
Couples with child	1170	92.2	90.4		83.0**
Single parent households with child	84	6.6	8.0		17.0**
Other households					

Table 6 continued	SWIFS 2024		SWIFS 2014	Survey 2003	FSO 2023*
	N	%	%	%	%
School or training establishment (N=1217)					
No school-leaving certificate	9	0.7	0.7	3.3	5.1++
Compulsory schooling	41	3.4	3.3	°°	
Apprenticeship or Matura	327	26.9	42.1	°°	31.4+
Higer education level	840	69.2	53.9	27.8	63.5+
Monthly income of household in CHF (N=1212)					
<4500	53	4.4	7.8	°°	
4500-<6000	188	15.5	25.4	°°	
6000-<9000	488	40.3	40.9	°°	
>9000	483	39.9	25.9	°°	

* Source : FSO: https://www.bfs.admin.ch/bfs/en/home/statistics/population/births-deaths/births.html

** Source : FSO: https://www.bfs.admin.ch/bfs/de/home/statistiken/bevoelkerung/familien/haushalte.html

*** Source : FSO: https://www.bfs.admin.ch/bfs/de/home/statistiken/bevoelkerung/geburten-todesfaelle/geburten.assetdetail.35687844.html

° Native language not recorded in 2024

°°Comparability limited due changed query categories

+ FSO – Structural Survey 2025. Highest completed education of new mothers with a child not older than 12 months Survey [42].

++Summarizing category: Without post-compulsory education

Table 7 shows the socio-demographic characteristics of the partners. The proportion of foreign partners is slightly higher (25%) than of mothers (23%). 21% are from a European country, particularly from Germany (5.3%), from Italy (3.2%), from France (2.6%) and from Portugal (1.8%). The level of education of partners is also high. The proportion of partners with a higher education level is with a proportion of 64% higher than in 2014 survey (58%). While the proportion of partners without a school-leaving qualification or having completed compulsory schooling is low at 5%. These results are comparable with 2014 survey.

Table 7: Socio-demographic characteristics of partners

		SWIFS 2024	SWIFS 2014
Nationality (N=1124)	N	%	%
Switzerland	845	75.2	74.6
Europe	242	21.5	21.2
Outside Europe	37	3.3	4.1
School or training establishment (N=1121)			
No school-leaving certificate	9	0.8	1.5
Compulsory schooling	51	4.55	4.7
Apprenticeship or Matura	346	30.87	36.4
Higher education level	715	63.78	57.5

4.2.2 Characteristics of infants

Table 8 shows the age and birth characteristics of SWIFS 2024 infants. Infants were in the average 7.4 months old (range 3-14 months). Due to the recruitment process, only infants aged 3 months and older could be included. The distribution between girls and boys in the study sample corresponds to the distribution in Switzerland in 2023, with a small prevalence of male infants. The mean birth weight of 3326 g of newborns corresponds to the national mean birth weight in 2023. 5% of the infants weighed less than 2500 g at birth.

In comparison with 2014, 2003 and the birth registry 2023 the proportion of premature births (<259 days) (5.8%) corresponds to the birth registry 2023, while the proportion of late births (>294 days) is higher (2.8% vs. 0.7%). The rate of premature births was higher in 2003 and 2014 (9%). The gestational age of the infants (277 days) and the rate of term births (91%) are comparable with the data from the survey in 2003 and 2014.

Table 8: Characteristic of infants in comparison to SWIFS 2014 and FSO statistics

		SWIFS 2024		SWIFS 2014	Survey 2003	FSO 2023*
		Mean value	SD	Mean value	Mean value	
Age (N=1269)		7.42	3.1	7.8	6.3	
		(3-14 month)		(0-15 month)	(0-12 month)	
	Quantity					
Gender (N=1269)		N	%	%	%	
female		631	49.7	48.8	50.4	
male		638	50.3	51.2	49.5	
		Mean value	SD	Mean value	Mean value	
Birth weight (N=1248)		3326.15	526.04	3314	3310	3306
	Quantity					
		N	%			
<2500g		57	4.6	5.1	6	5.9
2500-4500g		1177	94.3	94.3	93	93.2
>4500g		14	1.1	0.6	1	0.7
		Mean value	SD	Mean value	Mean value	
Gestational age (N=1172)		277.15	11.0	276	275	
	Quantity					
		N	%	%	%	
Premature birth (<259 days)		73	5.8	8.9	9	5.3
Term birth		1146	91.4	89.9	89	93.2
Late birth (>294 days)		35	2.8	1.3	2	0.7

Source : FSO: https://www.bfs.admin.ch/bfs/en/home/statistics/population/births-deaths/births.html

Health of newborns:
https://www.bfs.admin.ch/bfs/de/home/statistiken/gesundheit/gesundheitszustand/gesundheit-neugeborenen.html

4.2.3 Parental/Carer health and health behaviours

At the time of the survey, the participating mothers rated their current state of health as predominantly positive, 87% of mothers were doing very well and well. Only 10% described their state of health as average and 0.6% of the mothers were poor to very poor. Around 3% did not provide any information about their current state of health.

With regard to the mother's health and health behavior, questions were asked about different time periods. Firstly, before the pregnancy (pre-existing chronic illnesses), secondly health indicators that may change during pregnancy (weight, smoking status), and thirdly, questions on current health indicators (self-assessed health, physical activity). Furthermore, questions were asked about dietary habits, mental health after birth, and vaccination during pregnancy. The health of the partners was not surveyed.

Pre-existing chronic illnesses of mothers

26% (N=332) of the mothers had pre-existing chronic illnesses. Table 9 describes how frequently various illnesses were mentioned (multiple answers were possible) and whether they had been diagnosed by a doctor.

Table 9: Pre-existing chronic diseases in mothers and diagnosis

N=332	N	Percentage	Thereof medically diagnosed
Allergies	168	34.6%	60.1%
Asthma	94	16.0%	71.3%
A mental illness	81	13.3%	74.1%
Neurodermatitis	73	10.8%	72.6%
High blood pressure	36	6.0%	63.9%
Diabetes	23	3.3%	73.9%
Other*	73	14.8%	61.6%

*Among other diseases, hypothyroidism and various immunological diseases were mentioned most frequently.

Weight gain of mother in pregnancy

Table 10 shows the weight gain during pregnancy by BMI category before pregnancy. Weight gain was in line with recommendations for normal-weight women [BMI 18.5 – 25.9] [43]. Women with a BMI below 18.5 had gained around 1kg too little weight. Overweight and obese women gained around 3kg too much weight.

Of the 787 mothers who had given birth at least 6 months previously, 19% had regained their pre-pregnancy weight while 58% had a higher BMI and 22% a lower BMI.

Table 10: Pregnancy weight gain according to prepregnancy BMI

Pre-pregnancy BMI N=1122	N	%	Recommended weight gain*	Average weight gain	Standard deviation (minimum, maximum
Normal-weight (18.5–24.9 kg/m^2)	679	60.5	11.5 - 16 kg	13.1	4.3 (2-30)
Underweight (< 18.5 kg/m^2)	38	3.4	12.5 - 18 kg	11.7	3.6 (6-20)
Overweight (25.0–29.9 kg/m^2)	286	25.5	7 - 11.5 kg	14.4	6.2 (2-37)
Obese (≥ 30.0 kg/m^2)	119	10.6	5 - 9 kg	12.6	7.0 (0-30)

*according to recommendations FSVO [2] und Siega-Riz et al. [44].

Smoking of mother (before, during and after pregnancy)

Participants were asked about their smoking status before, during and after pregnancy. Before they became pregnant, 12.8% (N=162) of the mothers had smoked (Figure 7). 80% of the participants, who had ever smoked, had already stopped smoking at some point before pregnancy. At the beginning of pregnancy N=32 were still smoking. At the end of the pregnancy N=3 of these were still smoking.

Figure 7: Proportion of smokers before, at the beginning, at the end and after pregnancy (N=1269)

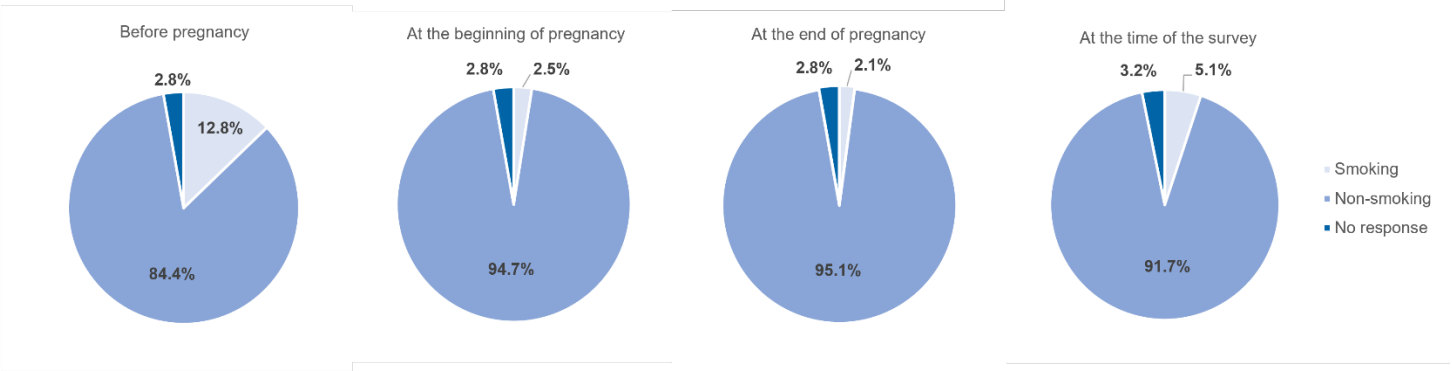
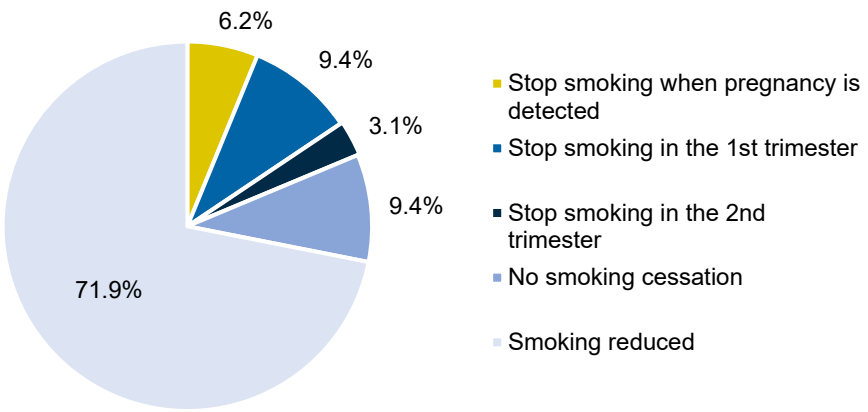


Figure 8: Smoking cessation, if smoked during pregnancy (N=32)



The mothers who were still smoking during pregnancy (N=32) were asked if and when they had stopped. The pie chart (Figure 8) describes the different points in time. 15% stopped smoking when the pregnancy was detected or in the first trimester, 3% later. 72% reduced smoking during the pregnancy and 9% have not quit smoking.

At the time of the survey 5.1% of the participants smoked. Breastfeeding mothers are advised to refrain from smoking. Breastfeeding mothers smoked less frequently (3% vs. 11%) than mothers who had already stopped breastfeeding.

Fatigue

Many mothers reported fatigue: 48% were often to very often tired and 36% were sometimes tired. 13% never or rarely felt tired (Table 11).

Physical activity

To evaluate physical activity after birth, participants were asked about the type, number of days and duration of their physical activity. The results show that half of the participants are regularly active. They get out of breath for at least 150 minutes per week or work up a sweat for more than 75 minutes per week. In contrast, 20% were active for less than 30 minutes per week and are therefore classified

as inactive. Table 11 shows the physical activity categories corresponding to the indicators of the Swiss Health Survey [35]. For definition of categories, see chapter 3.4, “Data management and cleaning”.

Table 11: Fatigue and physical activity of the mother at the time of the survey

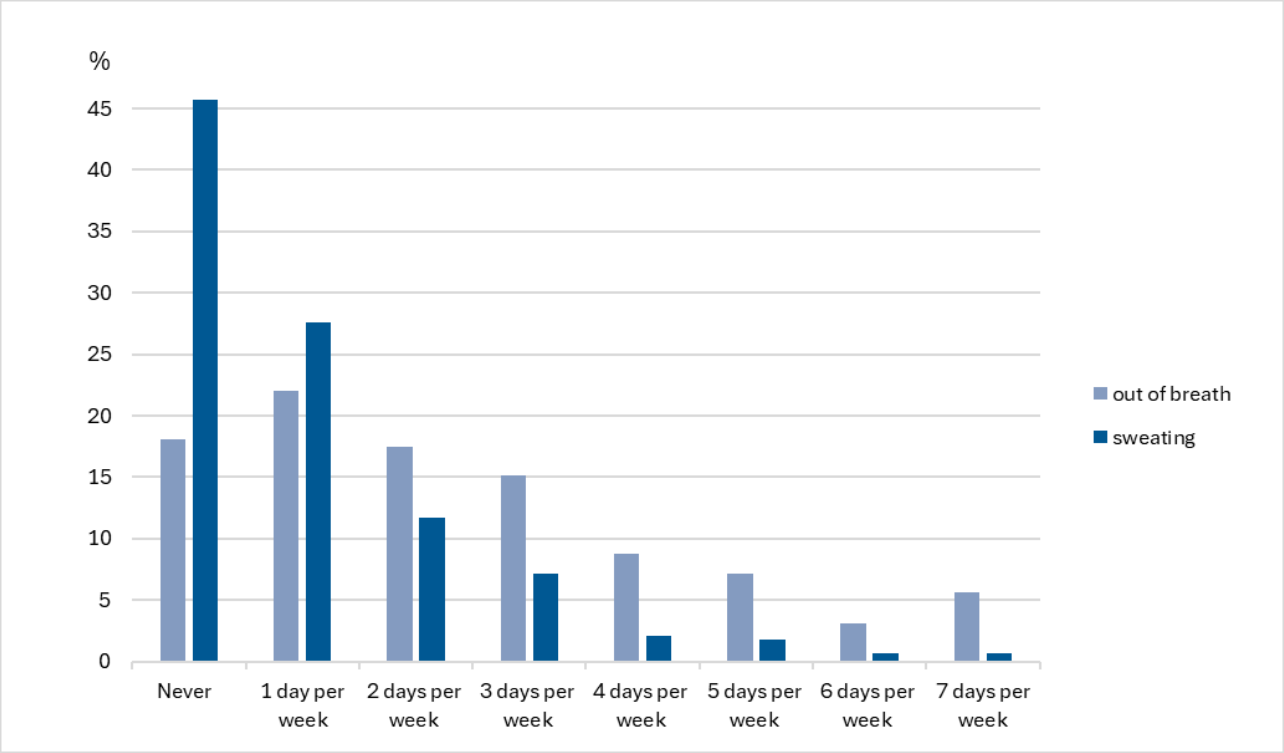
N=1269	N	%
Feeling of fatigue		
Never	24	1.9
Rarely	146	11.5
Sometimes	458	36.1
Often	377	29.7
Very often	229	18.1
Not specified	35	2.8
Physical activity*		
Get out of breath		
Active	536	42.2
Partly active	442	34.8
Inactive	258	20.3
Not specified	33	2.6
Work up a sweat		
Active	305	23.1
Partly active	350	24.0
Inactive	580	39.8
Not specified	34	2.7

*The categories correspond to the indicators of the same named in the Swiss Health Survey.

Figure 9 shows the number of days per week on which the mothers were physically active. 80% of mothers reported getting a little out of breath at least once a week as part of a physical activity, e.g. brisk running, gardening, mother-baby infant gymnastics, postnatal exercises (16% never, 4% not specified). On such ‘active’ days, the mothers were active for a median of 60 minutes (IQR 30;90).

Physical activities with sweating episodes, e.g. running or cycling, were reported by 53% of mothers at least once a week with a median duration of 30 minutes (IQR 0;60). 42% were not active enough to break a sweat on any day and 5% did not answer the question.

Figure 9: Mothers' physical activity per week



Dietary habits of mothers

40% of mothers stated that they paid particular attention to their diet over the last month. 17% of all mothers made sure to eat organic food as much as possible and 7% stated other diets, such as 'dairy free', 'high protein diet', 'low sugar', 'lots of vegetables' and others. Special diets such as vegetarianism (7%) and veganism (2%), on the other hand, were less mentioned. Allergen-free diets were also rarely reported (2%), regardless of current breastfeeding (currently breastfeeding mothers 2.2% vs. non-breastfeeding mothers 2.1%). 24% of mothers stated that they drank little or no alcohol during the last month. Breastfeeding mothers reported this more frequently than non-breastfeeding mothers (83% vs. 59%).

Irrespective of pregnancy mothers were also asked specifically about alcohol consumption (Table 12). 51% stated that they never drink alcohol. All mothers who reported occasional to daily alcohol consumption (N= 610) were asked about drinking alcohol during their pregnancy. Of these, 30 women reported having consumed alcohol during that time.

Table 12: Alcohol consumption

N=1234	**N**	**%**
Never	624	50.6
Less than once a month	331	26.8
Every month (several times a month)	197	16.0
Every week	78	6.3
Every day or almost every day	4	0.3

Mental health of mothers

During the first weeks after giving birth, 27% of mothers reported that they had problems with their mental health. Two-thirds of them reported great sadness and a lot of crying (increased baby blues). 21% reported other mental health issues, like mild baby blues, excessive demands and adjustment to the new life situation, anxiety and processing the birth. 8% were diagnosed with postpartum depression and 1% with postpartum psychosis.

In most cases (78%), the mental health issue was not treated. 14% received psychotherapeutic support, especially mothers with postpartum depression, baby blues or other mental health problems. 5% received medication, particularly mothers with diagnosed postpartum depression. 7% received support in conversations with midwife, family and friends or alternative medicine (homeopathy, acupuncture, TCM).

4.2.4 Vaccination in pregnancy

Participants were asked if they were advised on Pertussis and Influenza or if they were vaccinated during their most recent pregnancy against Influenza or Pertussis and the reasons for either.

Table 13: Self-reported advice on vaccination and vaccine-uptake with recommended maternal vaccines during pregnancy

	N = 1269	%
Advice on Vaccination		
Yes	1,082	85%
No	169	13%
Don't Know	18	1.4%
Influenza Vaccination		
Yes	274	22%
No, already vaccinated	74	5.8%
No	865	68%
Don't Know	56	4.4%
Pertussis (Tdap) Vaccination		
Yes	889	70%
No, already vaccinated	121	9.5%
No	233	18%
Don't Know	26	2.0%

A large majority of participants received advice on vaccination during pregnancy (85%). 70% were vaccinated against Pertussis during pregnancy, but only 22% were vaccinated against Influenza.

Table 14 takes seasonality into account using the infant’s birthdate and gestational age at birth to identify women who were pregnant during the Influenza vaccination season, conservatively defined as between the dates of 15 October and 31 December. It excludes women missing information on infant’s birthdate or gestational age at birth (73 women).

Table 14: Vaccination status by season of pregnancy

	Pregnant during Influenza Vaccination Season[1]		
	No N = 148	**Yes** N = 1,048	**p-value**[2]
Influenza Vaccination Status	N (%)	N (%)	0.007
Yes	16 (11%)	243 (23%)	
No, already vaccinated	11 (7.4%)	60 (5.7%)	
No	115 (78%)	700 (67%)	
Don't Know	6 (4.1%)	45 (4.3%)	
Pertussis Vaccination Status			0.8
Yes	100 (68%)	741 (71%)	
No, already vaccinated	16 (11%)	101 (9.6%)	
No	30 (20%)	185 (18%)	
Don't Know	2 (1.4%)	21 (2.0%)	

[1] defined as between the dates of 15 October and 31 December

[2]Pearson's Chi-squared test; Fisher's exact test

Most participants in our sample were pregnant during the Influenza vaccination season, and a larger proportion of mothers who were pregnant during the Influenza vaccination season declared that they received influenza vaccine (23%) than mothers who were not pregnant during the Influenza vaccination season (11%). We also see a slight difference in uptake for Pertussis vaccine when comparing these two groups (71% vs. 68%). As expected, this difference is statistically significant for Influenza vaccine uptake ($p = 0.007$) but not for Pertussis vaccine uptake ($p = 0.8$).

Mothers who declared that they had received either Pertussis or Influenza vaccine were asked their reasons for receiving it, and women who declared that they had not received the vaccine, without specifying that they were already vaccinated, were asked their reasons for not receiving it. They could select multiple reasons for receiving or not receiving a vaccine.

Table 15: Reasons for receiving Influenza and Pertussis vaccines

	Influenza	**Pertussis**
	N = 274[1]	**N = 889**[1]
Recommended by health professional	224 (82%)	811 (91%)
Protect infant	202 (74%)	682 (77%)
Protect self	159 (58%)	242 (27%)
Other	8 (2.9%)	5 (0.6%)

[1]n (%)

Recommendations of health professionals were cited most frequently, with 91% of women who received Pertussis vaccine and 82% of women who received Influenza vaccine citing this reason (Table 15). In both cases, protecting the infant was also cited by large majorities of women. Protecting their own health was a major motivation for women receiving influenza vaccine (58%) compared to 27% of women receiving Pertussis vaccine.

Table 16 reports responses for all women who answered “no” to the question on whether they received pertussis vaccine during their last pregnancy. For Influenza vaccine, it only includes reasons cited by women who were pregnant during Influenza vaccination season.

Table 16: Reasons for not receiving Influenza[1] and Pertussis vaccines

	Influenza	Pertussis
	N = 700[1]	**N = 233**[1]
Not recommended by health professional	299 (43%)	75 (32%)
Not safe and effective	49 (7.0%)	42 (18%)
Not safe for infant	64 (9.1%)	58 (25%)
Not necessary	446 (64%)	127 (55%)
Other	57 (8.1%)	26 (11%)

[1] only mothers pregnant in Influenza season defined as between the dates of 15 October and 31 December.
[2] n (%)

4.2.5 Infant health

Most infants are healthy; however, a considerable percentage reported a health problem after birth (30%) and 7% of the infants were hospitalized after birth (Table 17). Most of the hospitalized infants (59%) were discharged after less than a week, while 22% had to stay for more than 3 weeks. In addition, questions were asked about previous or current acute diseases in infancy. 79% of all infants have already had an acute disease or health problem or since birth. The most commonly mentioned were colds (59%), fever (53%), colic (25%), gastrointestinal infections (10%) and respiratory diseases (9%).

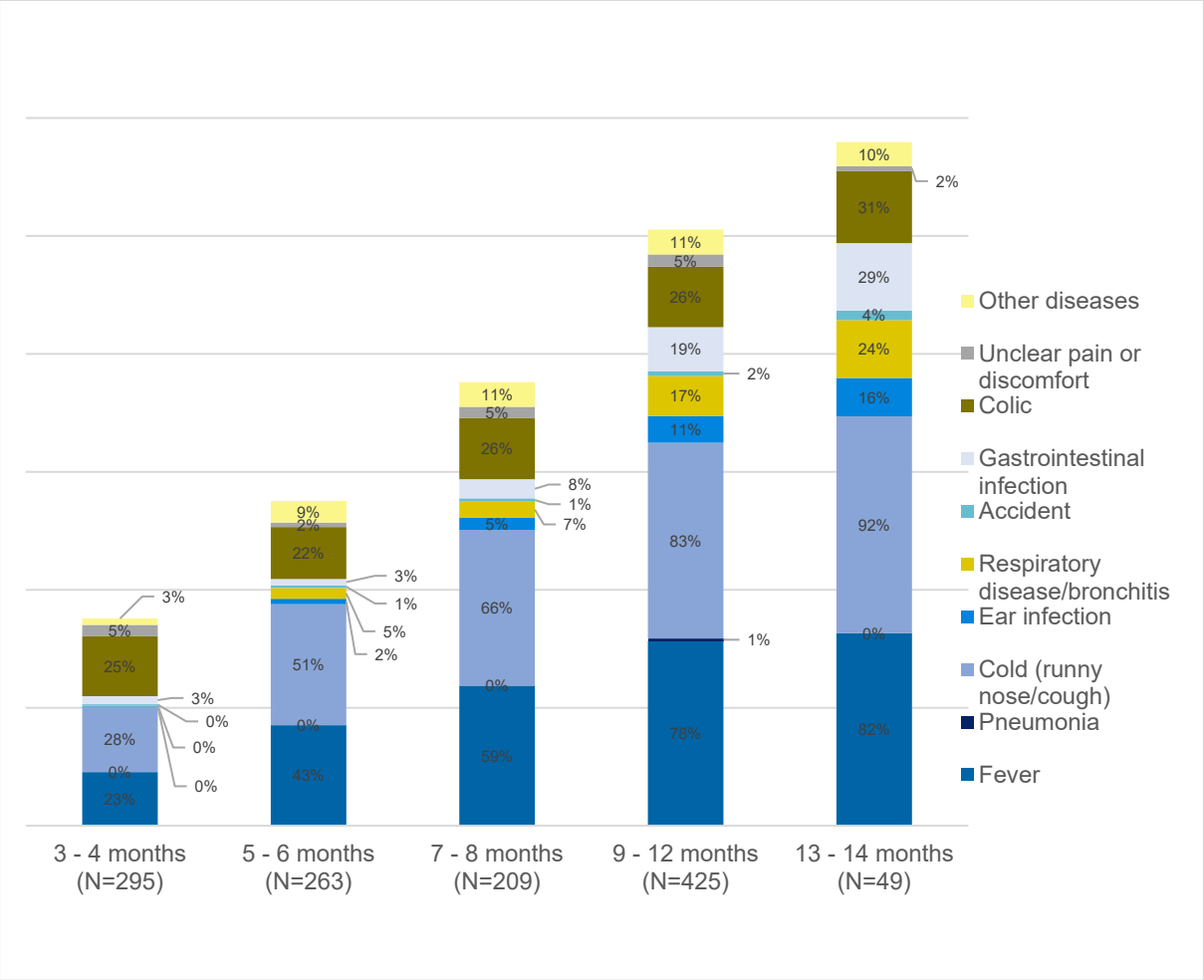
Table 17: Health problems and diseases after birth and temporary disease since birth

N=1269	N	%
Health problem after birth (N=1269)	383	30.2
Problems due to having been born prematurely	45*	11.7
Insufficient weight gain	174*	45.4
Jaundice with phototherapy (blue light therapy)	81*	21.1
Infection	31*	8.1
Apnea spells	18*	4.7
Cleft lip and palate	1*	0.3
Other complications	119*	31.1
Hospitalized after birth (N=1269)	92	7.3
Length of hospitalization after birth (N=92)		
< 1 week	54	58.7
1 - 3 weeks	18	19.6
> 3 weeks	20	21.7
Acute illness since birth (N=1241)	1006	79.3
Fever	676*	53.3
Pneumonia	4*	0.3
Cold (runny nose/cough)	753*	59.3
Ear infection	74*	5.8
Respiratory disease/bronchitis	111*	8.8
Accident	18*	1.4
Gastrointestinal infection	127*	10.0
Colic	311*	24.5
Unclear pain or discomfort	52*	4.1
Other diseases	104*	8.2
Thereof medically treated (N=1006)	480	47.7
Thereof hospitalized (N=1006)	175	17.4
Length of hospitalization (N=175)		
< 1 week	161	92.0
1 - 3 weeks	12	6.9
> 3 weeks	2	1.1

*Multiple responses possible

The following Figure 10 shows which acute illnesses the infants have had since birth (N=1241). The total of over 100% is because multiple answers were possible. Colic and colds are already an issue at an early age. Middle ear infections were hardly mentioned by mothers of infants < 6 months; they are increasingly mentioned from the 6th month of age. Gastrointestinal infections occurred early on but are a more frequent topic from the 7th month onwards. Respiratory diseases were described since 5th month with an increasing frequency.

Figure 10: Acute illness since birth



90% of all mothers stated that their infant had received medication in the preceding 24 hours (Table 18). The high percentage of infants who received medication is mainly due to Vitamin D, which was administered in 87%. Further, 11% of all infants had received homeopathic or complementary medicines in the last 24 hours, 6% medication against pain or fever suppositories, and 1% antibiotics. 7% received other medication, not specified in the survey.

Table 18: Medication in the last 24 hours

N=1241		
	N	%
Any medication	1134*	89.4
Vitamin D	1099*	86.6
Other vitamins	13*	1.0
Suppository for pain relief or fever	73*	5.8
Antibiotics	11*	0.9
Homeopathic remedies or complementary medicinal products	137*	10.8
Other medication	89*	7.0

*Multiple responses possible

4.2.6 Work status of parents and maternity/paternity leave

91% of mothers had been working before birth. 87.3% were employed and 6.0% were self-employed (multiple answers). The mean work percentage was 76.5% (SD: 24.2) (see Table 19.)

Table 19: Working status and working percentage of the mother before and after birth

	Working before birth, N=1218		**Working after birth, N=1218**	
	N	%	N	%
Working	1110	91.1%	625	51.3%
Not working	108	8.9%	237	19.5%
Not (yet) working, but planned to work again			356	29.2%
	Working percentage		**Working percentage**	
	Mean	SD	Mean	SD
	76.5	24.2	57.2	23.7

At the timepoint of the survey, 51.3% had already started to work again. After birth, the mean working percentage was 57.2% (SD: 23.7). Employed mothers started to work when their infant was 6 months old (median, IQR: 4-6) and self-employed mothers with 4 months (median, IQR: 3-5). Mothers who planned to work in their jobs again planned to start when their child turns 7 months (median, IQR: 6-9). 44.6% of the working mothers work partly or fully in home office. The mean working percentage in home office is 33.7% (SD: 27.2). For self-employed mothers the mean home office percentage is with 46.9% (SD: 38.2) much higher than for employed mothers with a mean of 32.0% (SD: 38.2).

Table 20 summarizes the duration of the mothers' paid maternity leave. Most of the mothers had 14 weeks (35.1%) or 16 weeks (44%) paid maternity leave.

Table 20: Duration of paid maternity leave

	Paid maternity leave	
	N	%
No maternity leave	8	0.75%
14 weeks	373	35.1%
16 weeks	468	44.0%
> 16 weeks	190	18%
Other		

Of the people living with the infant's mother in the same household, 98.8% had worked before the birth of the infant. The mean work percentage was 93.5% (IQR: 90-100).

The partners living with the infant's mother in the same household were asked about a parental leave, which was in most cases a paternity leave (multiple answers possible): 3.9% took no leave, 61.5% had the 2 weeks provided by law, and 29.3% had more than 2 weeks paid leave10.1% took unpaid holidays and 2.7% paid holidays. For 17 persons (1.5%) there was no statutory leave possible.

Open-ended responses about maternity/paternity leave

Among the 198 mothers, who provided an open-end response (see chapter 3.4), 26 indicated that the duration of maternity leave was perceived as insufficient. The mothers perceive a discrepancy between current policy and recommendations from health institutions, which advocate exclusive breastfeeding for the first (4-) 6 months of life, whereas statutory paid maternity leave in Switzerland is limited to 14 weeks. 11 mothers described returning to work as a difficult tradeoff between financial stability and personal autonomy versus the desire to care for and bond with their infant. In this context, 5 mothers appealed to the Swiss State for extended maternity leave, drawing comparisons to more generous provisions in Germany and Sweden.

4.2.7 Caring and support in daily life

The questionnaire contained various questions about the support mothers receive with childcare. The mothers were also asked to what extent they felt supported by their partner. While the first question related to childcare during working hours, the partnership support was about specific situations in everyday life.

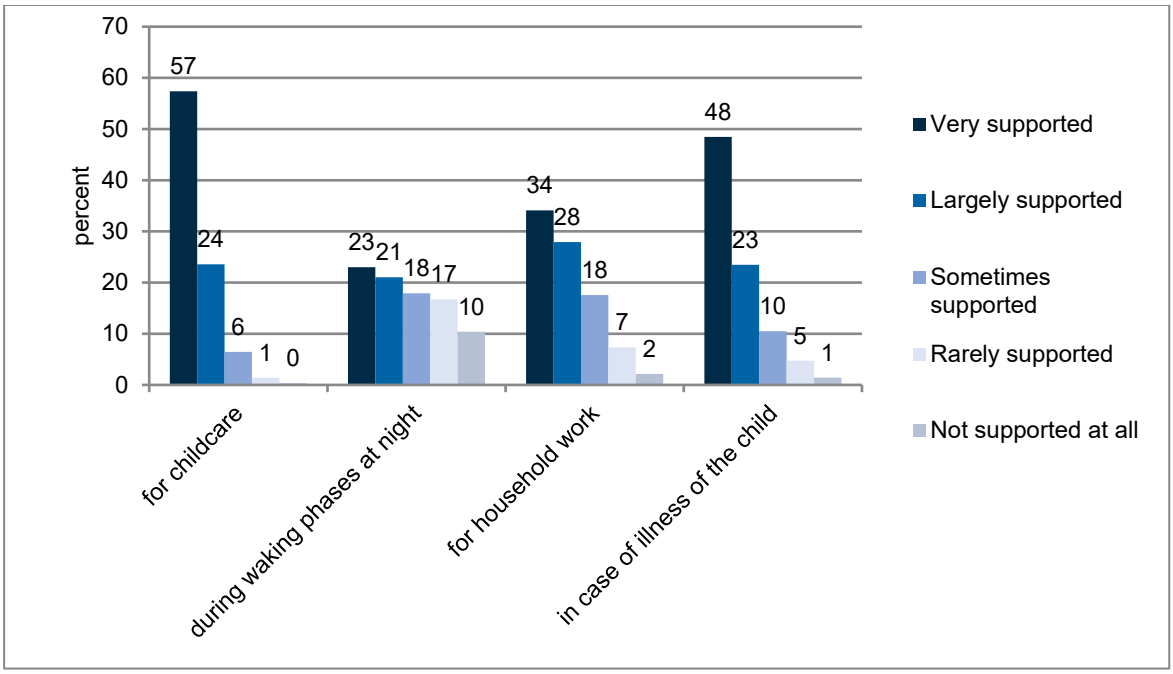
Table 21: Childcare in the case of mothers returning to work (multiple answers possible)

	working mothers, N=625		**<= 6 months, N=103**		**> 6 months, N=522**	
	N	%	N	%	N	%
A family member (e.g. partner, grandparents)	490	78.5	83	80.6	407	78.0
Daycare center	281	45.0	33	32.0	248	47.5
Childminder	35	5.6	4	3.9	31	6.0
Nanny/Au pair	25	4.0	5	4.9	20	3.8
Others	22	3.5	9	8.7	13	2.5

Childcare during working hours is often provided by different people and structures (Table 21). 18% of working mothers combined at least 2 different forms of childcare. The most common form was childcare by a family member (78%). Half (51%) reported external help (daycare centers and childminders). Only a small percentage (4%) have paid help at home and a further 4% have found other forms of childcare , e.g. friends or house keeper.

A high percentage of the participating mothers feel supported by their partners with regard to specific everyday situations (Figure 11). They experience the greatest support with childcare (81% very supported – largely supported) and when their infants are ill (72% very supported – largely supported), but slightly less support with household chores (62% very supported – largely supported). There is less support when the infant is awake at night (44% very supported – largely supported).

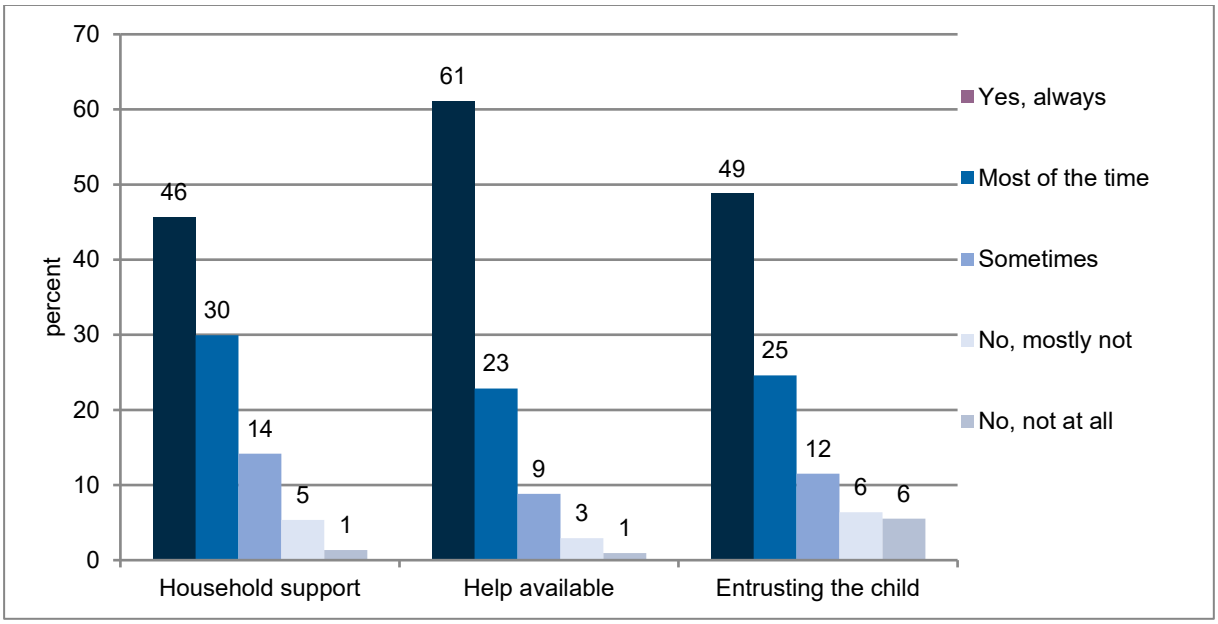
Figure 11: Women's assessment of support from their partner (N=1224)*



*Percentages do not simulate 100% due to missing data

Most women are confident that they would receive support from their social environment if they needed it (Figure 12). However, 6% of all women stated that they had no one they could entrust with the child. 61% of all women are confident that they would always have someone available to help them if necessary. The possibility of receiving support in the household (46%) or being able to entrust the infant to someone (49%) was assessed somewhat less positively. Single mothers were less certain that they would receive support if needed. In particular, they rated their ability to entrust the infant to someone always or most of the time (45%) less highly compared to mothers with partner (76%).

Figure 12: Women's assessment of support from their personal environment if required



*Percentages do not simulate 100% due to missing data

4.3 Pregnancy, birth and puerperal

4.3.1 Pregnancy and birth

The survey contained questions about the course of pregnancy and birth as well as complications. A total of 84.5% of women (N=1’072) indicated that the moment of pregnancy was planned. A large majority were singleton pregnancies (96.2%, N=1’221) whereas 3.8% (N=48) were multiples (see chapter 4.7).

The pregnancy proceeded without complications for more than half of the mothers (59.7%). Accordingly, 40.3% of women reported one or more complications (see Table 22). The most frequent complications during pregnancy were bleeding (10.4%), gestational diabetes (7.9%) and preterm contractions (6.5%). 18% of the mothers mentioned “other complication”. The qualitative entries were categorised according to International Classification of Diseases (ICD) codes. Among the other complications maternal care for cervical incompetency (ICD JA84.3, N=25), iron deficiency (ICD 5B5K.0, N=21), nausea (ICD MD90.0, N=20) and liver disorders in pregnancy, childbirth or the puerperium (ICD JA65.0, N=14) were mentioned most often.

Table 22: Pregnancy complications, N=1'249 (multiple answers possible)

Pregnancy complications		**Frequency**
	N	**%**
Complications in pregnancy	511	40.3
Specific pregnancy complications		
Bleeding	132	10.4
Gestational diabetes	100	7.9
Preterm contractions	83	6.5
High blood pressure	69	5.4
Protein in urine	38	3.0
Mental illness	21	1.7
Preeclampsia	16	1.3
Others	233	18.4

Most births took place in Swiss hospitals, clinics and birth centers (97.1%, 1'232) and 2.1% (N=26) at home (Table 23). One infant was born in the car and five children outside of Switzerland (Germany, Ireland, Italy and Spain). A total of 17.0% of participants had an outpatient birth (N=205) meaning that mothers went home a few hours after having given birth. Whereas 60.1% of participants (N=762) gave birth spontaneously, 11.7% (N=149) had an instrumental birth and 28.2% (N=358) a caesarean section. Caesarean sections most often were not planned and occurred during labour because of complications or emergencies (39.4%, N=141). A good third of caesarean sections (35.5%, N=127) were planned and indicated because of medical reasons, 14.0% (N=50) had a caesarean section in their medical history, and 11.2% (N=40) were carried out on maternal request.

Table 23: Labour and birth related characteristics, N=1'269

Labour and birth characteristics	Frequency	
	N	%
Place of birth		
Hospital, clinic, birth center	1'237	97.5
At home	26	2.1
Other	1	0.0
Not in Switzerland	5	0.4
Mode of birth		
Spontaneous birth	762	60.1
Instrumental birth	149	11.7
Caesarean section	358	28.2
Reasons for caesarean section		
Planned, on request	40	11.2
Planned, repeat caesarean section	50	14.0
Planned, medical indications	127	35.5
Not planned, complication or emergency during labour	141	39.4
Pain medication		
No pain medication	488	38.5
Pain medication	271	21.4
Epidural analgesia	607	47.8
Do not remember	15	1.2
Labour induction and augmentation		
No labour induction or augmentation	776	61.2
Labour induction	281	22.1
Labour augmentation	221	17.4
Do not remember	40	3.2
Labour and birth complications		
No complications during labour	981	77.3
Complication during labour and birth	267	21.0
Did not remember	21	1.7
Specific labour and birth complications		
Malposition of the child, e.g. breech	62	23.2
Hypoxia child	34	12.7
High blood loss needing blood transfusion	17	6.4
Others	185	69.3

A total of 38.5% of women (N=488) did not have any pain medication (Table 23). Whereas 21.4% (N=271) received pain medication, 47.8% (N=607) had epidural analgesia and 1.2% (N=15) did not remember the pain management. Just over 60% of participants did not receive medication with an

effect on contractions (61.2%, N=776). A good fifth of participants were induced (22.1%, N=281) and 17.4% received labour augmentation, meaning medication because of insufficient labour activity (N=221). A minority of mothers (3.2%, N=40) did not remember if labour was induced or augmented.

Complications during labour and birth occurred in 21.0% of participants (N=267). Of those with complications, an incorrect position of the child was most often indicated (23.2%, N=62) followed by lack of oxygen of the child (12.7%, N=34) and high blood loss needing blood transfusion (6.4%, N=17). Other reasons were often indicated (69.3%, N=185). They were categorized by the researchers with ICD codes The most frequent being fetus and newborn affected by abnormality in fetal intrauterine heart rate or rhythm during labour (KA05.71, N=49), arrest of labour due to different causes (JB06.Z, JB04, JB04.0, JB04.1, JB05.4, JB06, N=31), high blood loss after birth (JA43, N=23) and labour or delivery complicated by umbilical cord entanglement with compression (JB08.5, N=11).

Table 24 presents measures to promote breastfeeding in the hospital setting, A large majority of participants reported that the infant was placed on their chest immediately after birth (89.5%, N=1’136). In 10.5% of mothers, this was not possible. The first attempt of breastfeeding took most often place within the first hour (72.0%, N=914). A total of 14.1% (N=179) of mothers mentioned that this was within the first two hours, 12.4% (N=157) later and for 1.5% (N=19) this did not happen at all. Most participants experienced always rooming in (81.2%, N=1’030) and 10.6% with only one or two exceptions (N=134). Only 2.7% of infants (N=34) stayed with their mothers during the day but not during the night and 5.6% (N=71) of mothers were unsure about the rooming in. Whereas 84.8% of mothers (N=1’021) breastfed on demand, 12.8% stuck to a timetable and 2.4% indicated another breastfeeding rhythm, mostly because of pumping or medical problems. A total of 93.1% of infants (N=1’181) were fed during the first days of life with breast milk (breastfed, expressed breast milk) and of these 60.4% (N=767) received only breast milk. No infant received water, yet, 4.6% (N=58) were fed maltodextrin and a good third formula milk (34.5%, N=438).

Whereas two thirds of all infants (66.4%, N=803) were not fed with the bottle, 32.8% (N=397) were bottle-fed with expressed milk or infant formula. Just over two thirds of infants did not receive a pacifier (68.2%, N=825). Free samples of formula were provided to 9.1% of participants whereas 88.3% indicated that they had not been given any.

Table 24: Measures to promote breastfeeding in hospital / birth center, N=1'269

Measure	Frequency	
	N	%
Bonding (skin to skin contact)		
Immediately after birth	1'136	89.5
No, was not possible	131	10.5
First attempt of breastfeeding		
Within an hour of birth	914	72.0
Within two hours of birth	179	14.1
Later	157	12.4
Never	19	1.5
Rooming in		
Always with mother	1'030	81.2
Always with 1-2 exceptions	134	10.6
During the day	34	2.7
Did not remember	71	5.6
Breastfeeding rhythm		
On demand	1'021	84.8
Sticked to a timetable	154	12.8
Other	29	2.4
Nutrition in hospital		
Breast milk	1'181	93.1
Water	0	0
Maltodextrin	58	4.6
Formula	438	34.5
Other	24	1.9
Do not remember	20	1.6
Bottle feeding		
Yes	397	32.8
No	803	66.4
Do not remember	9	0.7

Table 24 continued	N	%
Pacifier		
Yes	370	30.6
No	825	68.2
Do not remember	14	1.2
Free sample formula		
Yes	110	9.1
No	1’067	88.3
Do not remember	32	2.7

In most cases, mothers and infants remained together after birth (90.0%, N=1’142). However, all 10th mother-infant dyads were separated after birth (10.0%, N=127), 3.6% (N=45) because of a transfer of the mother to another unit and in 7.3% (N=92) because a referral of the child. In a median, this separation lasted 6.5 days (Range: 1-90 days).

4.3.2 The puerperium

The puerperium is the time of physical and psychological transition into parenthood. The women who have recently given birth need support both in hospital and at home. In the first few days at home, they were most often cared for and supported by their partner (92.4%, N=1’173, Table 25), health professionals such as midwives, nurses and the Spitex (75.3%, N =956) or a family member (33.4%, N=424). Family member were mostly parents and siblings. Other support providers were rare (1.3%, N=17) and mostly friends, neighbours and domestic help. A minority of 1.3% of participants (N=17) indicated that they did not have any support).

Table 25: Support during the first days at home (multiple answer possible), N=1’269

Support		Frequency
	N	%
Partner	1’173	92.4
A family member	424	33.4
Health professional (midwife, nurse, Spitex)	956	75.3
Other	41	3.2
No support	17	1.3

In a median, participants were visited at home 8.0 times by health professionals (mean: 8.9, min-max: 1-25). Women with outpatient birth received a median of 9.0 home visits (mean: 8.8, min-max=1-20).

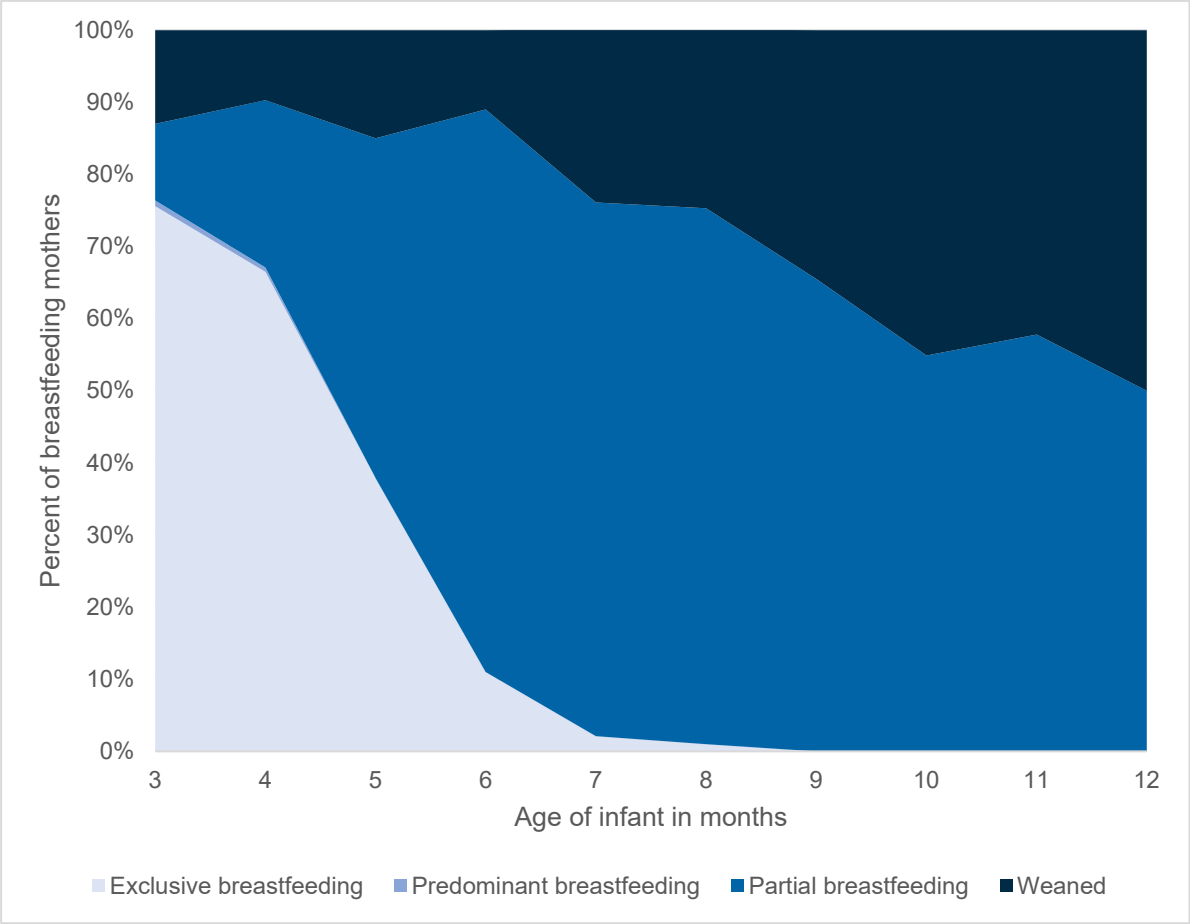
4.4 Infant feeding 1: breastfeeding

97% of the mothers have ever breastfed their infant.

Figure 13 below shows the unweighted **prevalence of breastfeeding** among breastfed infants by the monthly age of the infant based on the 24-hour feeding protocol (N=1081). The following WHO breastfeeding categories are distinguished: exclusive and predominant breastfeeding (corresponds to "full breastfeeding"), partial breastfeeding and weaned.

At the age of 3 months, 75.6% of infants were exclusively breastfed. The exclusive breastfeeding rate is 66.5% for infants aged 4 months, 37.9% at the age of 5 months and 11% at the age of 6 months. Predominant breastfeeding was almost not reported at all (2 mothers, 0.17%). For partial breastfeeding, the pattern is reversed compared to exclusive breastfeeding: it starts with 10.6% age of 3 months and rises to over 70% at 6, 7 and 8 months. The percentage of weaned infants is below 20% for infants aged 3 to 6 months and varies between 25% and 45% for infants aged 7 to 11 months old. At 12 months, 50% of infants were weaned.

Figure 13: Breastfeeding prevalence by age of infant in months (24-hours feeding protocol)

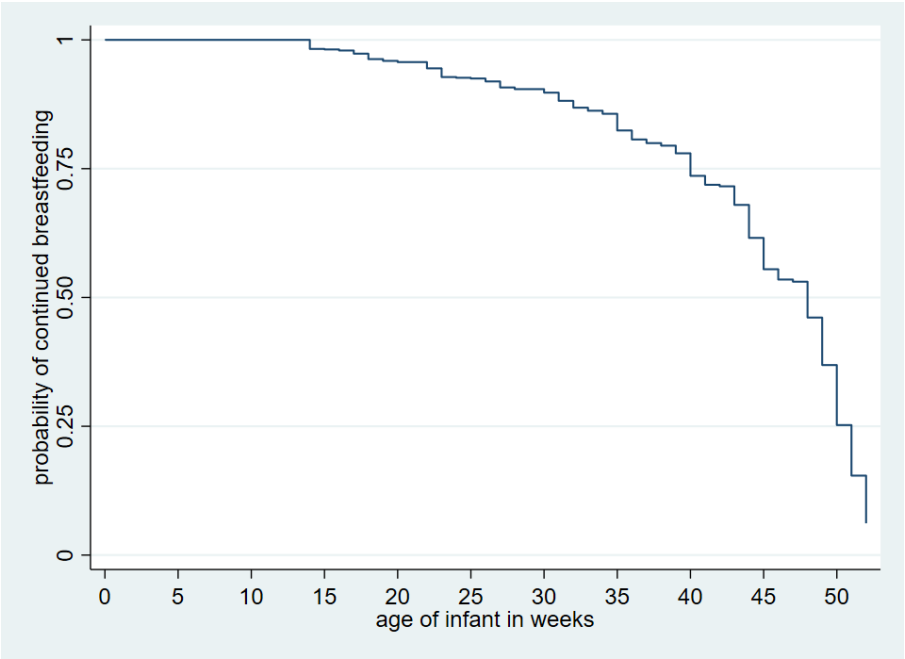


Full breastfeeding comprises predominant and exclusive breastfeeding

The estimation of unweighted **breastfeeding durations** (total breastfeeding, exclusive breastfeeding, full breastfeeding) using Kaplan-Meier survival curves is based on the retrospective data and the 24-hour feeding protocol.

For the total breastfeeding duration, we could not use the reported weeks of total breastfeeding (based on the question “at what age did you wean?”), as was done in 2014. This was due to the high number of infants still being breastfed which prevented the calculation of the median or 75th percentile. To still have an approximate estimation for this indicator, we estimated the probability of continued breastfeeding using an alternative time variable: the age of the infant. Figure 14 informs us, that from infants aged 48 weeks old, 50% were still breastfed. 75% of infants aged 40 weeks old and 25% of infants aged 51 weeks still received breastmilk.

Figure 14: Breastfeeding by age (in weeks) -Kaplan-Meier curve



The duration of exclusive breastfeeding (the infant only receives breast milk) is shown in Figure 15. The median exclusive breastfeeding duration is 17.4 weeks (~4 months). 75% of mothers still exclusively breastfed after 4 weeks and 25% after 23.9 weeks.

The duration of full breastfeeding (the infant receives breast milk, possibly also tea or water) in Figure 16 is nearly identical to the Kaplan Meier survival curve of exclusive breastfeeding, as there were almost no infants that received water or tea in addition to breastmilk.

Figure 15: Duration of exclusive breastfeeding by age (in months) Kaplan Meier curve (retrospective)

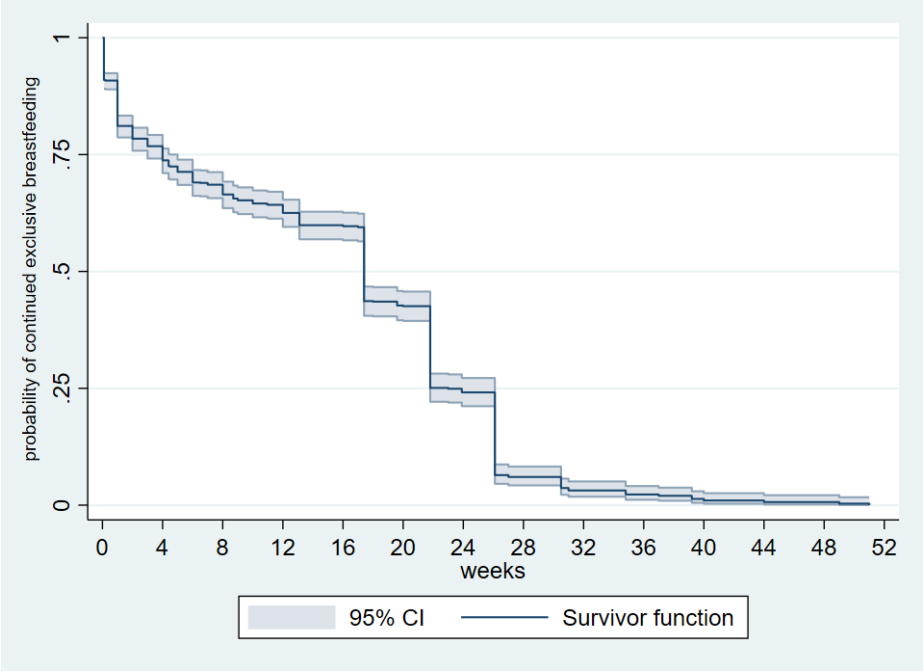
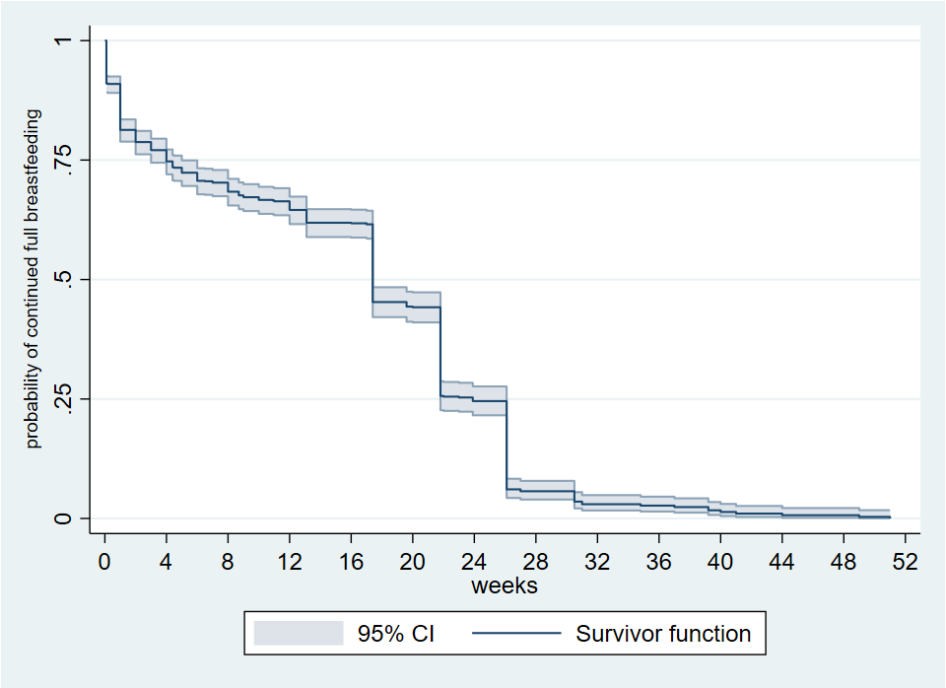


Figure 16: Duration of full breastfeeding by age (in months) – Kaplan Meier curve (retrospective)



4.4.1 First attempt at breastfeeding

72.0% of the infants made their first attempt to drink from the breast within the first hour after birth (see Table 26), 14.1% in the second hour and 12.4% later.

For 1.5% of the infants, there was no attempt at breastfeeding. There were slightly more infants with attempts to drink after vaginal births than after caesarean section.

Table 26: First attempt at breastfeeding

First attempt at breastfeeding	Totally (N=1269)	After caesarean section (N=358)	After vaginal birth (N=911)
Within an hour after birth	914 (72.0%)	187 (52.2%)	727 (79.8%)
Within two hours after birth	179 (14.1%)	94 (26.3%)	85 (9.3%)
Later	157 (12.4%)	70 (19.6%)	87 (9.6%)
Never	19 (1.5%)	7 (2.0%)	12 (1.3%)

4.4.2 Advice on breastfeeding in puerperium

79.0% of the initially breastfeeding women received advice on how to breastfeed their infant in the first days after the birth, 16.4% had enough experience and did not need advice and 56 mothers (4.7%) did not recall receiving advice at all. These 56 not receiving advice all gave birth in a hospital.

The mothers receiving advice had a rather high overall satisfaction with 80.5% being very satisfied or rather satisfied with the advice, 16.1% partly satisfied, 3.5% not satisfied or not at all satisfied.

The following techniques were demonstrated during the breastfeeding consultation (multiple answers were possible):

- Several different breastfeeding positions (89.3%)
- Getting the infant to latch on (87.9%)
- Nipple care (68.1%)
- Breast massage (66.8%)
- Expressing breast milk by hand (47%)
- Expressing breast milk with a pump (45.5%)

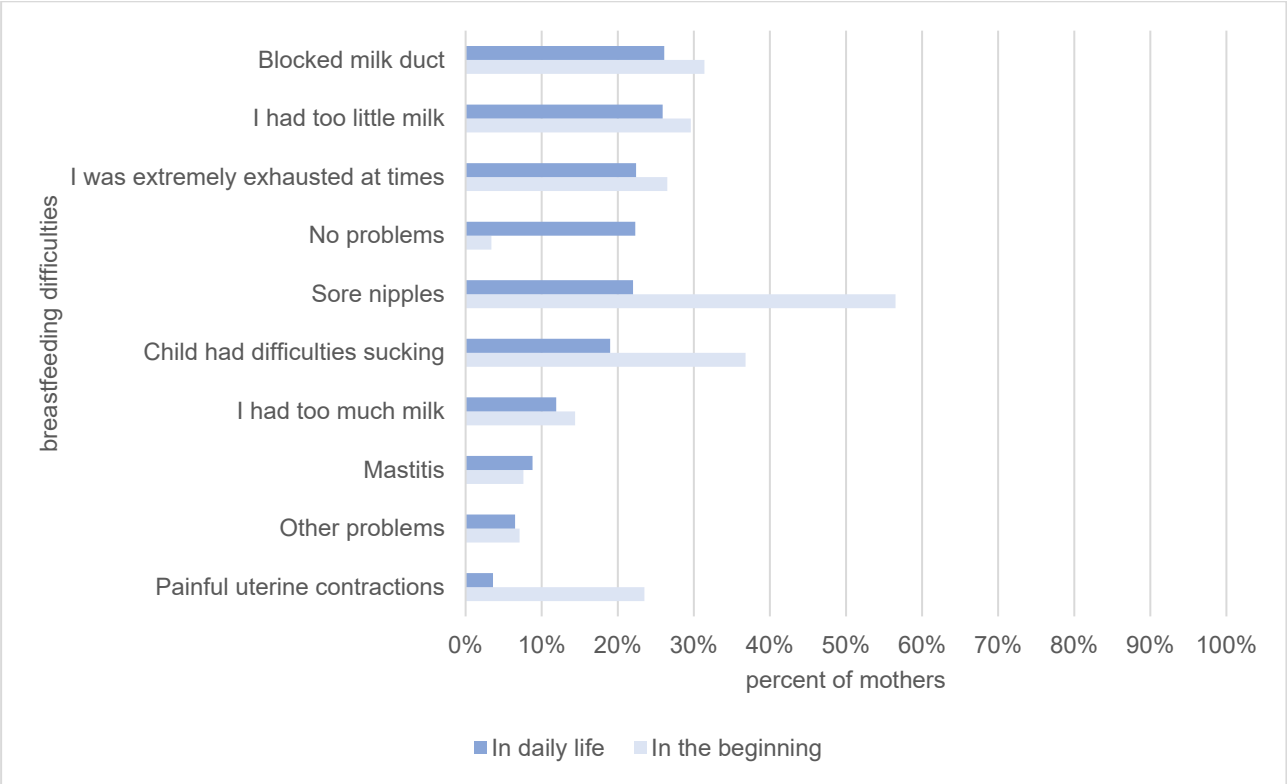
Eight of the advised mothers (0.8%) were not shown any breastfeeding techniques.

4.4.3 Breastfeeding and breastfeeding problems

The majority of mothers (66.5%, N=800) reported difficulties with breastfeeding, either in the beginning of breastfeeding or later on. Thereof, 41% reported minor difficulties and 25% major difficulties. As to be expected breastfeeding difficulties were more common initially and only 3.4% of mothers had no problems with breastfeeding in the beginning, while 22.3% reported no problems later in everyday life (see Figure 17).

Sore nipples (56.5%) and child's difficulties with sucking (36.8%) were the breastfeeding difficulties reported most frequently for in the beginning of breastfeeding, while later in daily life blocked milk ducts (26.1%) and too little milk (25.9%) were mentioned most often. Painful uterine contractions were prevalent in the beginning with 23.5% and reduced to 3.6% in daily life.

Figure 17: Breastfeeding difficulties in the beginning and later in everyday life



4.4.4 Weaning

We differentiate in primary weaning, right after birth as decided by the mother beforehand or after first attempts, and secondary weaning that occurs later

19 infants (1.5%) were never put at breast and 22 infants (1.7%) were weaned right after birth. The most frequently cited reasons for primary weaning were, desire not to breastfeed (46.3%), breastfeeding problems with the first infant (14.6%), health problems of the mother (15.4%) or medication that the mother had to take (17.1%).

At the time of the survey, 31.6% (N=334) of mothers who had started breastfeeding had already weaned. Table 27 below lists the reasons for secondary weaning. Mothers who had breastfed 12 weeks at most and who had returned to work after 16 weeks differed to some extent in their weaning reasons. Mothers who had weaned early, too little milk, hunger of the infant and exhaustion were frequently reported as reasons. Mothers who had returned to work after 16 weeks also frequently gave the reason that they had too little milk and were exhausted. In the group of working mothers, however, the most frequent reason was that breastfeeding could not be reconciled with their job (28.8% vs. 12.3%). Working mothers were further twice as likely to report that their infant no longer wanted to breastfeed anymore (25.4% vs. 12.3%) or that they wanted more time for themselves and their partner (16.9% vs. 8.8%) than mothers having weaned their infants early. Further, working mothers also indicated fewer breastfeeding problems as weaning reason.

Table 27: Reasons for weaning in mothers who had breastfed their infant

	All (N=334)	Mothers starting employment after 16 weeks maternity leave (N=59)	Mothers who have breastfed 12 weeks at most (N=114)
I did not have enough milk	48.8%	47.5%	65.8%
My child no longer wanted to breastfeed (so often)	26.3%	25.4%	12.3%
I could not reconcile it with my job	24.3%	28.8%	12.3%
I was exhausted	21.3%	22%	22.8%
My child was hungry	21.0%	15.3%	29.8%
I wanted more time for myself and my partner	15.6%	16.9%	8.8%
Other reasons	13.8%	11.9%	16.7%
My child was very restless	12.9%	6.8%	14.9%
I could not reconcile it with my household and family obligations	10.8%	10.2%	17.5%
My child's age	8.1%	13.6%	0.9%
I had problems with my nipples	7.8%	6.8%	14%
My child's teeth came in	6.0%	3.4%	0%
I had mastitis	5.4%	3.4%	10.5%
My child was sick	3%	3.4%	3.5%
My child was away from me for several days	2.1%	3.4%	3.5%

Among other reasons for weaning some were related to the infant and others to the mother. Infant reasons were problems with sucking, tongue tie or breastfeeding with twins mentioned several times. Maternal weaning reasons were (ordered by frequency): sickness/hospital stay, pain while breastfeeding, problems with expressing milk, stressful nights, medications that were incompatible with breastfeeding, new pregnancy and smoking.

4.4.5 Breastfeeding and working

51.3% of participants were working at the time of the survey (N= 625). 87.3% were employed and 6.0% were self-employed (multiple answers). Of the employed mothers 92 (16.2%) were breastfeeding and 303 (52.5%) were expressing milk at their workplace. From the mothers breastfeeding or expressing milk at their workplace, 74.3% of the women’s employer regard expressing time as full work time, 2.6% got half of the time compensated and 10.2% were not compensated at all. 7.9% did not know if their employer compensates expressing time.

We asked mothers who were breastfeeding and had been employed before the birth of their youngest child how they had found out about their rights as breastfeeding employees (multiple answers were possible). 27% had been informed about their rights as breastfeeding employees by their employer. 65.7% had informed themselves and 8.0% indicated other sources of information such as health

professionals (gynaecologist, midwife, breastfeeding consultant), friends, family etc. 11% did not know what their rights were as a breastfeeding employee.

In addition to the personal attitude and knowledge of rights as a breastfeeding employee, the situation in the workplace is just as relevant. Certain conditions must be met to be able to breastfeed or express milk at all. For this reason, working mothers after the birth were asked whether the conditions for breastfeeding at their workplace listed in Table 28 were met.

Table 28: Requirements for breastfeeding at the workplace for working mothers (employed and self-employed)

N=625	Suitable room at workplace that can be used for breastfeeding or expressing milk	Possibility at workplace keep expressed milk refrigerated
Yes	56.3%	84.0%
No	32.8%	6.9%
I don’t know	7.2%	5.4%
Missing	3.7%	3.7%

Working mothers who were not breastfeeding or expressing milk at their workplace were asked about their attitude to breastfeeding/expressing milk at work (multiple answers possible). 81.4% did not have a problem with mothers breastfeeding at the workplace and 74.0% did not see a problem with mothers expressing milk at the workplace. 20.0% would find it uncomfortable for themselves to breastfeed/express milk at workplace and 7.5% had no clear opinion on the matter. The univariate analysis showed that feeling uncomfortable about breastfeeding or expressing milk at work, the absence of a breastfeeding room, not knowing about the possibility to keep milk refrigerated and the degree of employment were associated with a higher probability of weaning (Table 29).

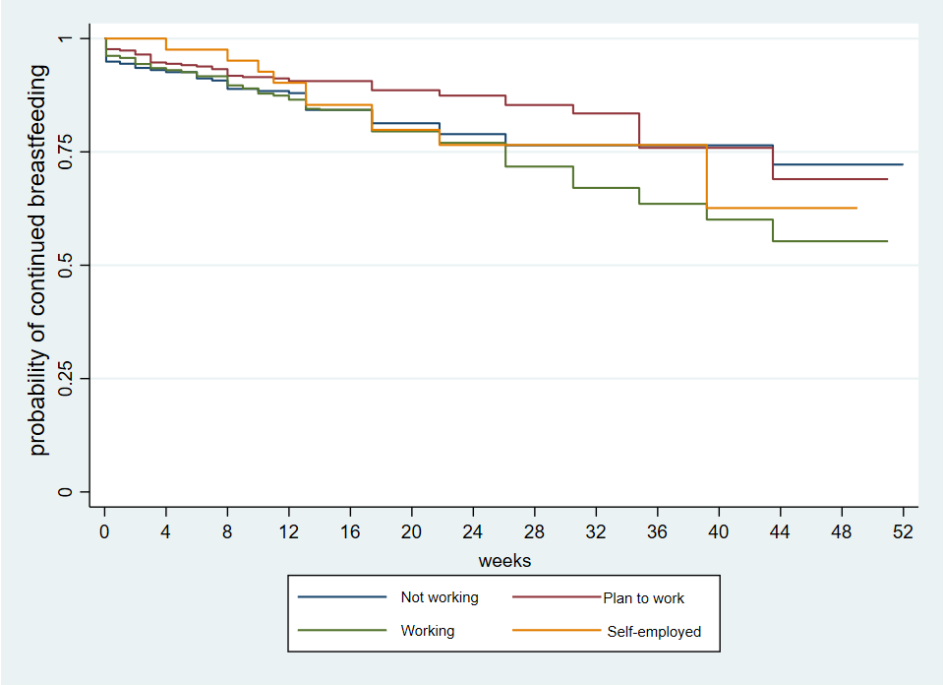
Table 29: Factors influencing the duration of breastfeeding in working mothers - probability (HR) of weaning (univariate analyses)

Variable	N	Total breastfeeding duration Hazard ratio	95% CI
Uncomfortable with breastfeeding/expressing milk at work			
No	321	1	
Yes	77	2.95***	2.11-4.14
Maternity leave			
14 weeks	145	1	
16 weeks	210	1.17	0.82-1.67
>16 weeks	71	1.24	0.78-1.95
Room available for breastfeeding/expressing milk			
Yes	245	1	
No	156	1.47**	1.06-2.05
I don't know	32	2.59***	1.57-4.29
Possibility to keep milk refrigerated			
Yes	381	1	
No	30	1.34	0.76-2.37
I don't know	22	2.13**	1.15-3.95
Compensation for breastfeeding/expressing milk			
Not compensated	26	1	
Compensated	177	1.08	0.38-3.07
I don't know	14		
Mothers current working percentage	445	1.01***	1.01-1.02
Mothers working percentage in home office	445	1.00	0.99-1.01
Fathers current working percentages	398	1.00	0.99-1.01

Significance level: *p<0.05, **p<0.01, ***p<0.001, (*) p<0.1

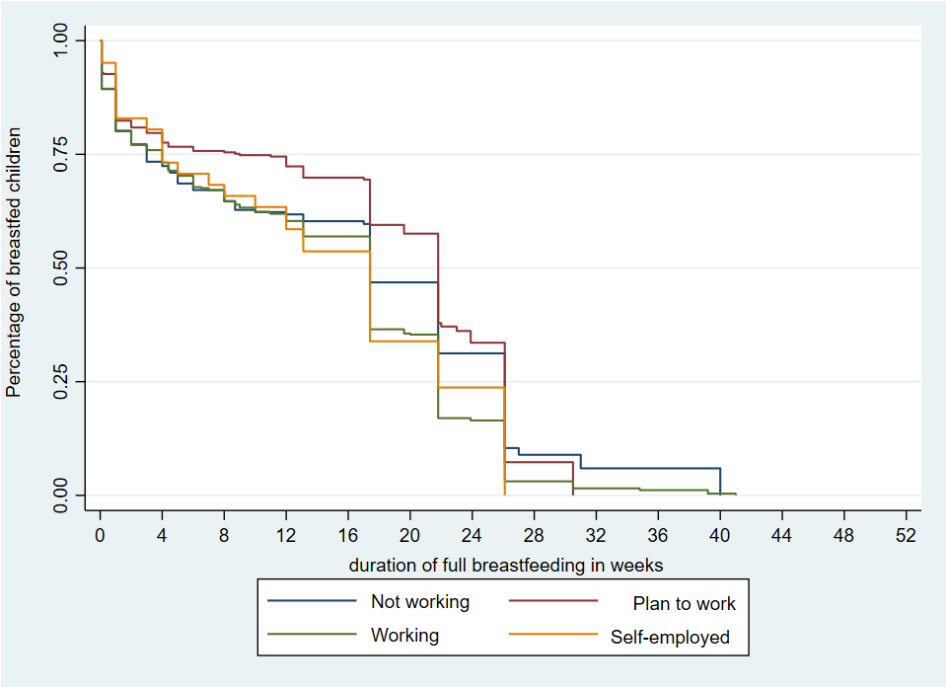
The total breastfeeding duration by working status is illustrated in Figure 18. The lowest probability for weaning was noted for mothers not working or not yet working, where 25% of infants were weaned at week 43. For the mothers that started to work, 25% of infants were weaned at week 26, while for self-employed mothers it was markedly later (week 39).

Figure 18: Duration of total breastfeeding by working status – Kaplan-Meier curve



In Figure 19, the duration of full breastfeeding is displayed for different groups of mothers working or not (yet) working. The median full breastfeeding time is highest for mothers that are not yet working but have planned to start to work (21.8 weeks vs. 17.4 weeks in working mothers). The Kaplan-Meier estimates indicate that 75% of working mothers (either employed or self-employed) stopped with full breastfeeding at 21.8 weeks, whereas 75% of mothers not working or planning working stopped at 26.1 weeks. The curve shows the steepest drops for working mothers after 16 weeks and 22 weeks. For not working mothers, the two most markedly drops were at 22 weeks and 26 weeks of full breastfeeding.

Figure 19: Duration of full breastfeeding by working status – Kaplan-Meier curve



Open-ended responses about breastfeeding and working

In the open-ended responses (N=198) (see chapter 3.4), 7 mothers reported challenges in reconciling work with breastfeeding practices. Although Swiss labor law grants mothers the right to breastfeed or express milk during working hours, the practical implementation of these measures was perceived as insufficient.

7 participants described Swiss employers as maintaining traditional gender role expectations and offering insufficient support or family-friendly policies, which contributed to difficulties in maintaining breastfeeding upon returning to work.

4.4.6 Multivariate analysis of factors on breastfeeding

To understand which factors are associated with different indicators of breastfeeding duration we ran multivariate Cox analyses for total, exclusive and full breastfeeding. This analysis included all infants up to 12 months of age for whom the necessary information was available to record the time of weaning and the WHO breastfeeding definitions (N=1081). Factors that were significant in the univariate analysis at $p<0.1$ (see appendix 8.1) or are known to be associated from previous surveys were introduced as co-variates in an exploratory approach. Thereby, only sociodemographic factors, lifestyle factors, birth factors, infant-friendly hospital indicators and social support factors were included to avoid multicollinearity.

The individual influencing factors are corrected for each other, i.e. the hazard ratios (HR) represent effects that are independent of the other factors included in the model. A HR>1 means a higher probability of having weaned the infant earlier or no longer fully or exclusively breastfeeding compared to the respective baseline group.

Mothers who, during pregnancy, either did not intend to breastfeed or were undecided had a 4- to 6-fold higher likelihood of weaning their infants earlier compared to mothers who intended to breastfeed (total breastfeeding time: HR: 6.69, full breastfeeding: HR= 3.86 and exclusive breastfeeding: HR=3.97). Another significant factor across all three indicators was infant nutrition in the first days of life. Infants who received formula in addition to breast milk during this period had more than twice the hazard of earlier weaning, and earlier cessation of full and exclusive breastfeeding, compared to those who received breast milk only. Health problems of the infant in the first days of life and higher birth weight also had significant effects on all three indicators, but with lower effect sizes. Infants with a health problem had a higher probability of being weaned earlier (HR:1.56), their mothers stopping earlier with full (HR: 1.46) and exclusive breastfeeding (HR: 1.44) than infants not having health problems in the first days of life. Infants with birth weight of 4000 grams and over had a lower probability to be weaned earlier (HR: 0.53) and to be stopped with full (HR: 0.66) and exclusive breastfeeding earlier (HR: 0.61) than infants with a birth weight of 2500-4000 grams.

While most factors that were significant in the univariate analyses (Appendix 8.1) remained significant in either one of the breastfeeding indicators in the multivariate analyses; language-region, paying attention to diet and education of parents were no longer significant.

Some factors were only associated with specific breastfeeding indicators: Mental health problems of the mother (HR:1.53), mother smoking (HR: 2.90) and a BMI over 30 (HR: 1.80) remained significant only for total breastfeeding duration, but not for full and exclusive breastfeeding, while the employment of the mother and chronic health conditions of the mother were factors that were only significant for exclusive breastfeeding. A positive attitude towards breastfeeding among the closest was associated

with a longer total breastfeeding duration (HR: 0.49) and if the closest can imagine both, this was associated with an earlier stop of full breastfeeding (HR: 1.44).

Women with pregnancy complications were found to significantly stop later with full and exclusive breastfeeding than women without such complications. Complications were observed more often in women with chronic health conditions. When a variable indicating whether these women had received counselling from a gynaecologist was included in a separate model, the previously observed association between pregnancy complications and breastfeeding duration was no longer evident.

Among the factors not significantly associated in the univariate analyses, parental income was the only one that became significant in the multivariate analyses: Mothers/parents with the highest income had a lower probability of early weaning than those with lowest income for total breastfeeding (HR: 0.55) and for exclusive breastfeeding (HR:0.74).

Table 30: Factors influencing breastfeeding - hazard ratio of weaning, no longer fully or no longer exclusively breastfeeding (multivariate analysis)

	Total breastfeeding duration		Full breastfeeding		Exclusive breastfeeding	
	Hazard ratio	**95% CI**	**Hazard ratio**	**95% CI**	**Hazard ratio**	**95% CI**
Age of infant in weeks	1.00	0.98-1.02	1.01	1.00-1.02	1.00	0.99-1.01
Age of mother						
19-29 years	1		1		1	
30-39 years	1.17	0.73-1.90	1.11	0.89-1.38	1.08	0.86-1.36
> 39 years	1.51	0.76-2.99	1.34	0.89-2.01	1.30	0.88-1.91
Region						
French-speaking	1		1		1	
German&Italian-speaking	0.77	0.51-1.14	1.02	0.82-1.28	1.00	0.80-1.24
Higher education of parents						
Without higher education	1		1		1	
One parent	1.26	0.78-2.03	0.97	0.75-1.24	0.96	0.74-1.23
Both parents	1.11	0.70-1.75	0.93	0.73-1.18	0.92	0.73-1.17
Employment of mother			1		1	
No	1					
Yes	1.27	0.87-1.85	1.19	0.98-1.44	1.22**	1.01-1.48
Monthly household income						
Between 4500 and 6000 Fr.	1		1		1	
>4500Fr	0.51	0.19-1.37	0.62	0.29-1.33	0.60	0.28-1.27
Between 6000 and 9000 Fr.	0.56**	0.37-0.85-	0.87	0.69-1.10	0.83	0.66-1.05
Over 9000 Fr.	0.55 (*)	0.35-0.87	0.80 (*)	0.62-1.02	0.74**	0.58-0.95
Number of further children under 17 years old						
No further child	1		1		1	
1 further child	1.12	0.78-1.61	0.89	0.73-1.08	0.94	0.77-1.14
2 or more further children	1.08	0.61-1.91	0.86	0.65-1.13	0.85	0.64-1.13
BMI						
18.5-24.9 (normal weight)	1		1		1	
>18.5	0.58	0.18-1.88	1.15	0.72-1.85	1.16	0.75-1.78
25-30	1.15	0.80-1.65	0.99	0.82-1.19	0.97	0.81-1.16
>30	1.80**	1.17-2.78	1.23	0.93-1.63	1.22	0.93-1.61
Mother smoking						
No	1		1		1	
Yes	2.90***	1.71-4.90	1.04	0.67-1.64	0.97	0.58-1.63
Mental health issues of mother						
No	1		1		1	
Yes	1.53**	1.10-2.13	1.11	0.91-1.36	1.04	0.85-1.27
Chronic health condition of mother before pregnancy						
No						
Yes	0.79	0.56-1.10	1.19	1.01-1.41	1.22**	1.03-1.44
Pay attention to diet						
No	1		1		1	
Yes	0.75 (*)	0.54-1.04	0.98	0.84-1.15	1.01	0.86-1.18
Birth weight						
2500-4000	1		1		1	
<2500	0.88	0.37-2.10	0.61 (*)	0.35-1.08	0.70	0.41-1.21
>4000	0.53**	0.29-0.95	0.66**	0.50-0.87	0.61***	0.45-0.82
Gestational age						
Term birth	1		1		1	

Table 30 continued	Total breastfeeding duration		Full breastfeeding		Exclusive breastfeeding	
	Hazard ratio	**95% CI**	**Hazard ratio**	**95% CI**	**Hazard ratio**	**95% CI**
Premature birth	4.04**	1.22-13.35	2.73**	1.10-6.74	2.33	0.94-5.75
Late premature birth	1.01	0.49-2.08	0.85	0.49-1.45	0.89	0.53-1.52
Transferred	1.51	0.59-3.85	1.26	0.83-1.93	1.25	0.84-1.85
Health problems of infant first days or weeks of life						
No	1		1		1	
Yes	1.53**	1.11-2.11	1.46***	1.21-1.77	1.44***	1.19-1.74
Pregnancy complications	1		1		1	
No						
Yes	0.72(*)	0.52-1.00	0.75***	0.64-0.89	0.75**	0.64-0.89
Birth mode						
Spontaneous labour	1		1		1	
Suction cup or forceps delivery	0.68	0.39-1.21	0.80	0.60-1.05	0.80	0.61-1.06
Caesarean section	1.15	0.80-1.64	1.07	0.88-1.30	1.10	0.90-1.35
Pain medication during birth						
Without	1		1		1	
Pain medication	1.51 (*)	0.94-2.42	1.17	0.91-1.49	1.06	0.81-1.39
Epidural	1.17	0.78-1.75	0.99	0.81-1.19	0.95	0.78-1.15
Pain medication and epidural	1.22	0.67-2.21	0.79	0.57-1.10	0.79	0.57-1.08
Nutrition in first days of life						
Breastmilk	1		1		1	
Breastmilk and maltodextrin solution or water	2.31 (*)	0.90-5.90	1.25	0.73-2.13	1.25	0.76-2.04
Breastmilk and infant formula	2.09***	1.50-2.91	2.63***	2.16-3.20	2.49***	2.03-3.04
Attitude towards breastfeeding among closest (father, partner family members)						
Is against breastfeeding or indifferent	1		1		1	
Could imagine both	1.18	0.69-2.01	1.44**	1.05-1.99	1.20	0.90-1.62
Wants mother to breastfeed	0.49**	0.27-0.89	1.09	0.79-1.51	0.96	0.71-1.30
Attitude of mother towards breastfeeding in pregnancy						
I had decided to breastfeed	1		1		1	
I wanted to wait to see how I would feel	1.77**	1.20-2.63	1.63***	1.28-2.08	1.57***	1.23-2.00
I did not want to breastfeed	6.69***	3.37-13.31	3.86***	2.35-6.34	3.97***	2.38-6.63
Received information about breastfeeding						
Yes						
No, did not need any information	0.98	0.67-1.42	0.92	0.77-1.11	0.91	0.76-1.10
No, did not receive any information	1.08	0.74-1.58	0.96	0.78-1.17	0.99	0.81-1.22

Total breastfeeding duration: period during which the infant receives breast milk and possibly tea, infant milk or complementary food
Full breastfeeding: Period in which the infant receives breast milk and possibly tea (no complementary food, no infant milk)
Exclusive breastfeeding: Period in which the infant only receives breast milk
Significance level: *p<0.05, **p<0.01, ***p<0.001, (*) p<0.1
Robust standard errors were used when proportional hazard assumption was violated

4.4.7 Breastfeeding prevalence in comparison to earlier monitoring studies

The data from the present study are compared below with the results of the previous studies in 1994, 2003 and 2014. It should be noted that the first monitoring studies investigated 0 - 6 months old infants, while the targeted age distribution of the later studies was 0 – 12 months and the breastfeeding indicators were calculated in infants 0 -12 months old (see Table 31). Further, as the study populations across all survey years differ slightly with regard to maternal socio-demographics and associated health behaviors comparisons need to be interpreted with caution. In chapter 4.4.9, weighted rates are presented, adjusted for nationality, education and smoking, based on reference data of the Swiss population.

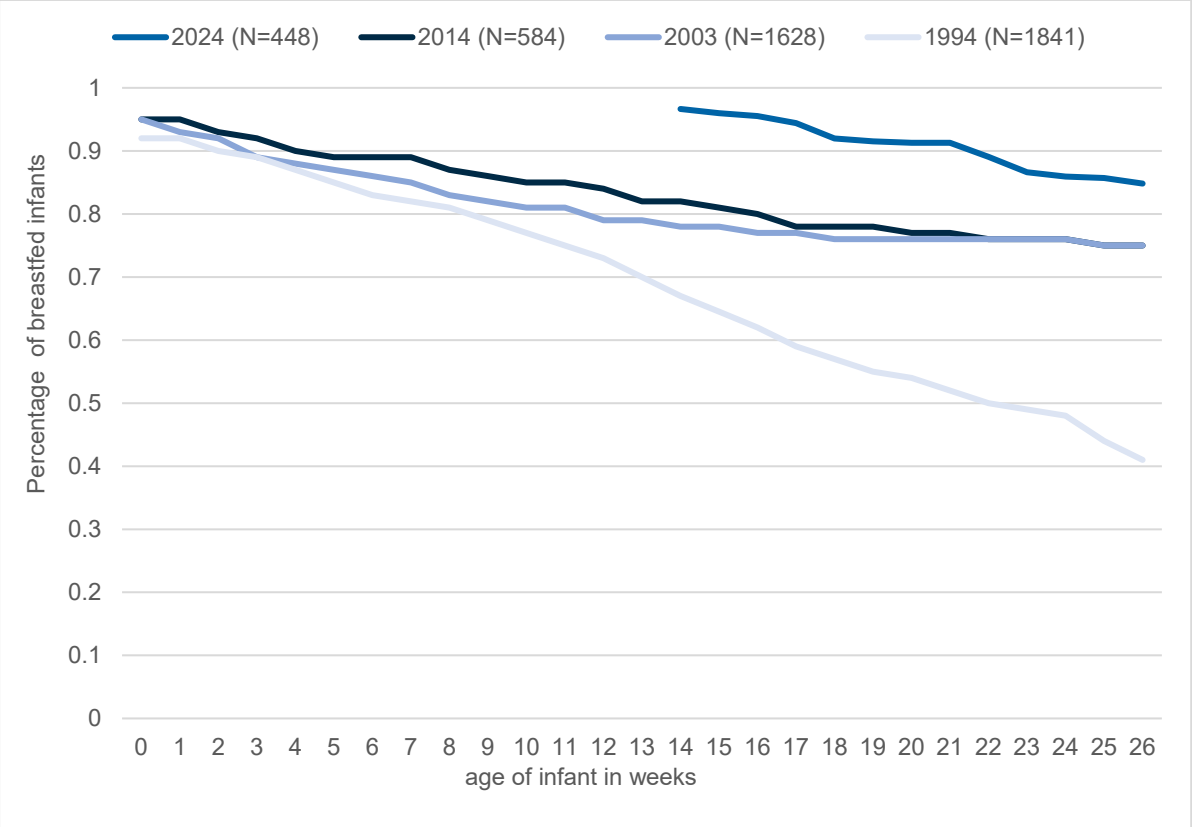
Table 31 displays the percentage of ever breastfed infants that has increased from 92% in 1994 to 97% in 2024.

Table 31: Swiss infant feeding studies since 1994 and study population

	Survey 1994	Survey 2003	SWIFS 2014	SWIFS 2024
Study population (N)	2098	2919	1535	1269
Percentage of infants ever breastfed	92%	94%	95%	97%
Age range	0 - 6	0 - 6	0 - 12	0 - 12

In all monitoring years mothers were asked whether they were still breastfeeding at the time of the survey or if their infants were already weaned. The 2024 data are not fully comparable, since the youngest infants were already 3 months old, respectively, we cannot compare the age group of 0 -2 months year-olds. Figure 20 below compares the unweighted prevalence of breastfed infants for the four national studies over the course of the first 6 months of life, determined by the cumulative weaning rate per weekly age of the infant. The weaning rate was derived from maternal self-report of whether the infant was still breastfed or had been weaned at the time of the online survey.

Figure 20: Percentage of breastfed infants up to 6 months in the 1994, 2003, 2014 and 2024 studies



The WHO breastfeeding definitions were calculated and compared graphically between the current monitoring data in 2024 and the previous monitoring data in 2014. The following results are based on the 24h feeding protocol (see Figure 21, Figure 22 and Figure 23). For the comparison with 2014, the analysis restricts to infants up to 12 months.

Infants in the 2024 study showed a higher percentage of being breastfed compared to same age infants in 2014 (see Figure 22). The difference was biggest for infants aged 7-8 months (49%). This increase is due to a slightly higher exclusive breastfeeding percentage (see Figure 23) and a higher percentage of partial breastfeeding (see Figure 23): From month 5 on, infants in 2024 showed a higher percentage of being partially breastfed compared to 2014: Between the age of 6 and 9 months, partial breastfeeding in 2024 was between 78% and 74%, while in 2014, the percentage of partial breastfeeding was between 48% and 37%. This goes in line with a lower rate of weaned infants for all monthly ages (see Figure 24).

The percentage of full breastfeeding is not displayed here since it corresponds in 2024 to the percentage of exclusive breastfeeding, as there were almost no infants that were predominantly breastfed. Full breastfeeding covers exclusive and predominant breastfeeding (see chapter 3.3).

Figure 21: Percentage of breastfed infants according to the 24-hour feeding protocol 2014 and 2024

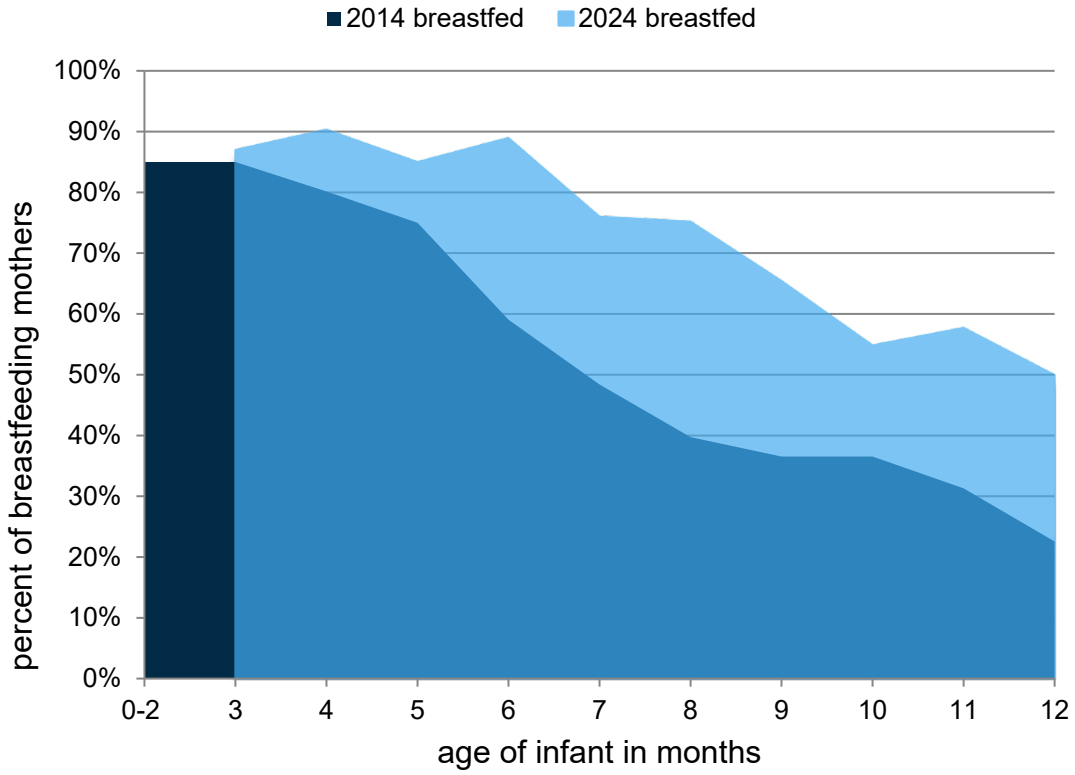


Figure 22: Percentage of partially breastfed infants according to the 24-hour feeding protocol 2014 and 2024

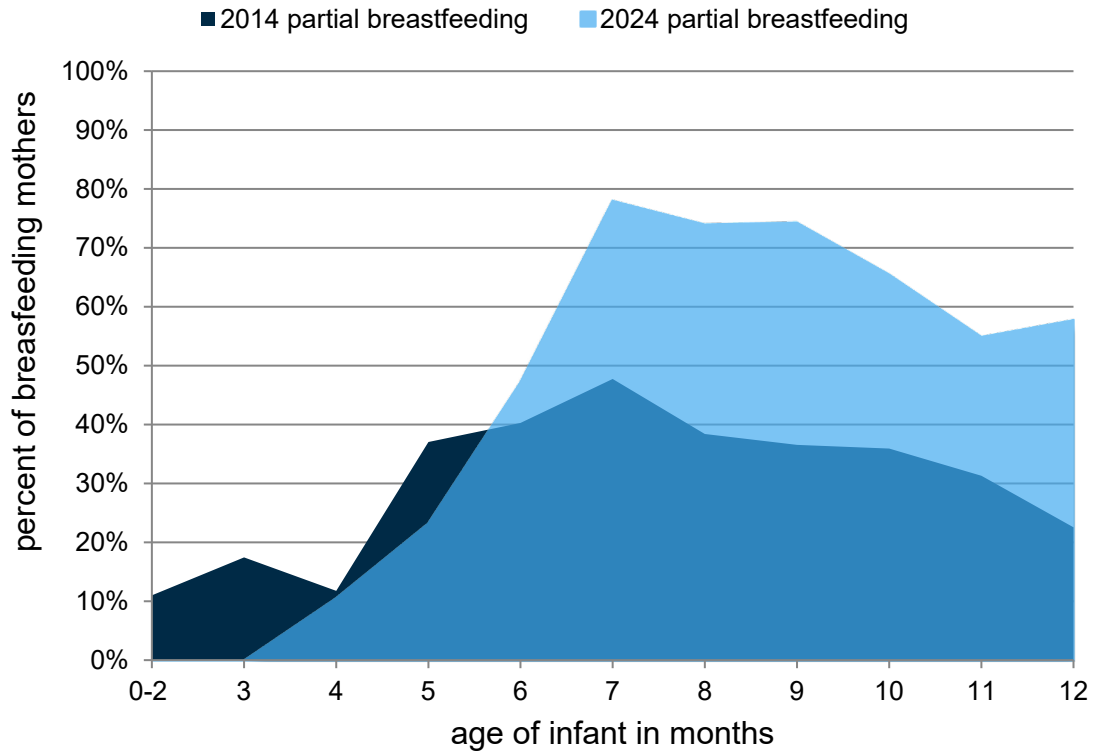


Figure 23: Percentage of exclusively breastfed infants according to the 24-hour feeding protocol 2014 and 2024

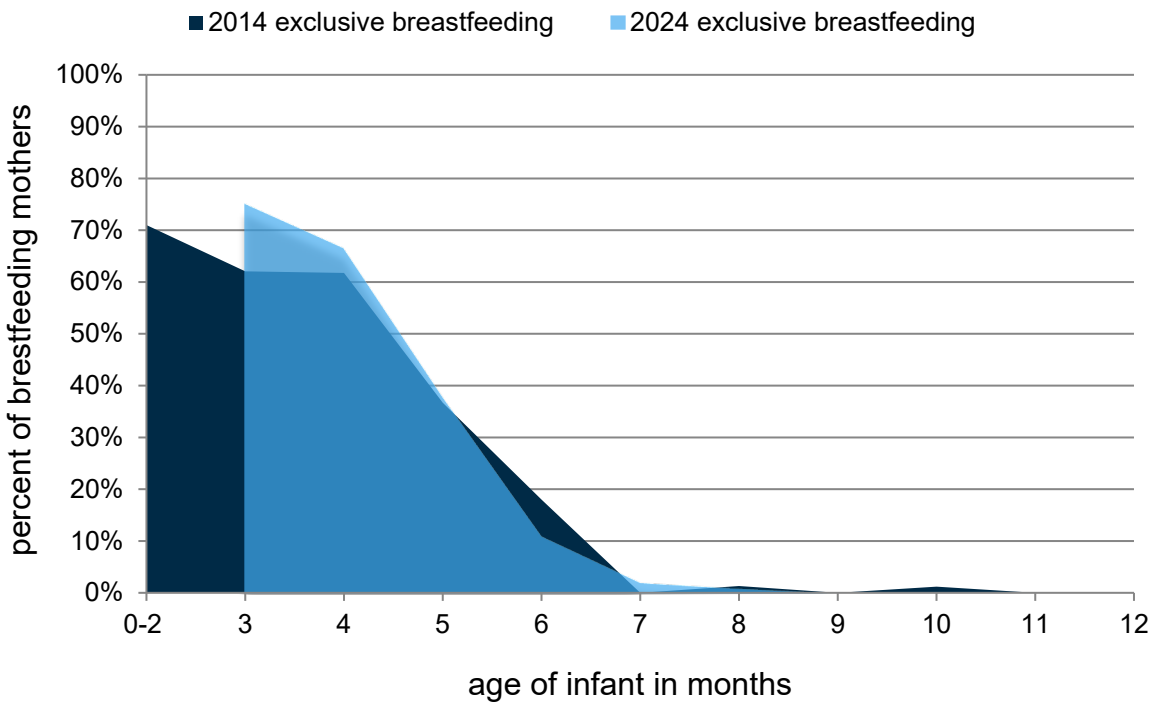
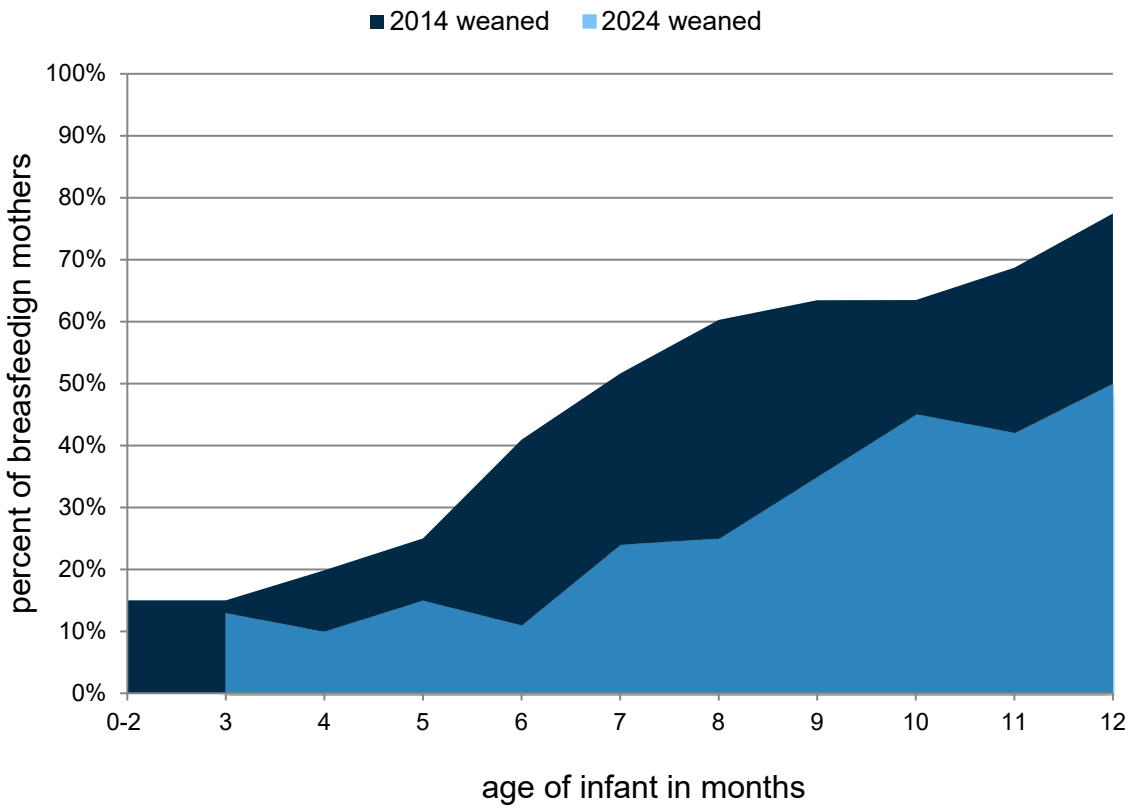


Figure 24: Percentage of weaned infants according to the 24-hour feeding protocol 2014 and 2024



4.4.8 Breastfeeding duration in comparison to earlier monitoring studies

Kaplan-Meier survival analyses were used to estimate the total duration of breastfeeding, the duration of full and exclusive breastfeeding of exclusive breastfeeding.

For the purpose of comparison, we report here the weeks of breastfeeding as a duration as in 2014. The obtained curve for 2024 is not the same as in Figure 15, see explanation in chapter 4.4. The variable “weeks of breastfeeding” was created by the mothers’ retrospective answer to the question, at which age they had weaned their infant. The curves for the total duration of breastfeeding show that 75% of infants have still been breastfed after 16.0 weeks in the year 2014, while in 2024, it was much later, after week 30.5 (see Figure 25). The log rank test revealed a significant difference in the duration of breastfeeding between the two years (Chi^2: 137.5, $p<0.001$).

Using Cox-regression analysis, corrected for maternal age, parental education level, language region and sex of the infant found a significant influence ($p<0.001$) of year, education and language-region on total breastfeeding duration.

For full breastfeeding, the curves for 2014 and 2024 run almost parallelly (Figure 26). In both years, 50% of infants stopped been fully breastfed by week 17.4. After 21.8 (2014) and 23.9 (2024) weeks, 75% of infants stopped being fully breastfed.

As illustrated in Figure 27, exclusive breastfeeding was again significantly different between 2014 and 2024 (Log rank test: $Chi^2=51.4$, $p<0.001$). In 2024, the median exclusive breastfeeding time was 17.4 weeks, while in 2014, it was 12.0 weeks. To examine differences in breastfeeding duration across sociodemographic groups, additional log-rank tests were performed. The results revealed statistically significant differences in the survival distributions of total breastfeeding duration between the monitoring’s 2014 and 2024 when stratified by highest parental education ($Chi^2 = 123.2$, $p < 0.001$), single parent status ($Chi^2 = 123{,}6$, $p < 0.001$), and current maternal smoking behaviour $Chi^2 = 136.6$, $p < 0.001$).

Figure 25: Total breastfeeding duration 2014 and 2024 in comparison – Kaplan Meier curve (retrospective)

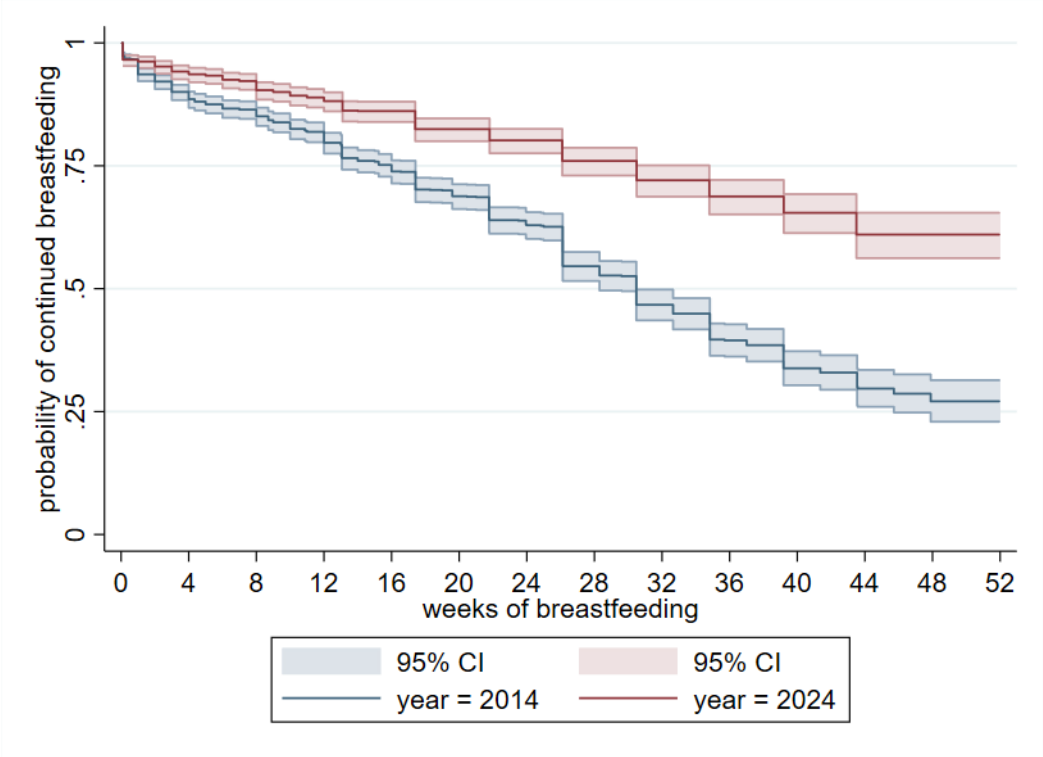


Figure 26: Full breastfeeding duration 2014 and 2024 in comparison– Kaplan Meier curve (retrospective)

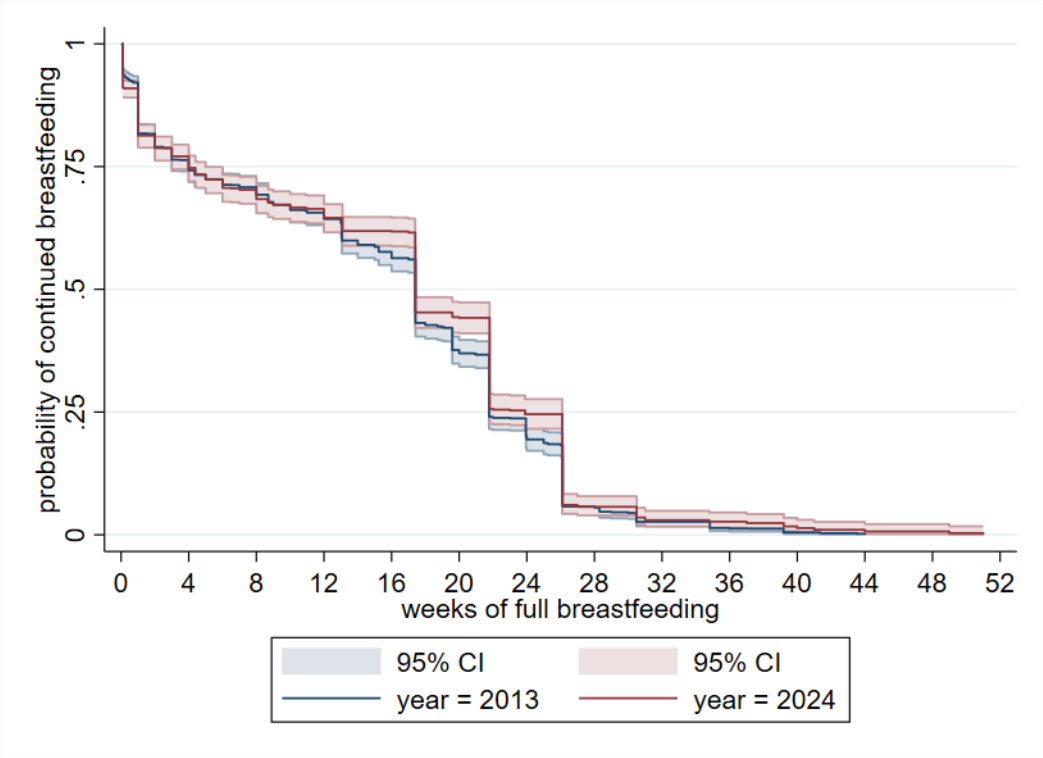
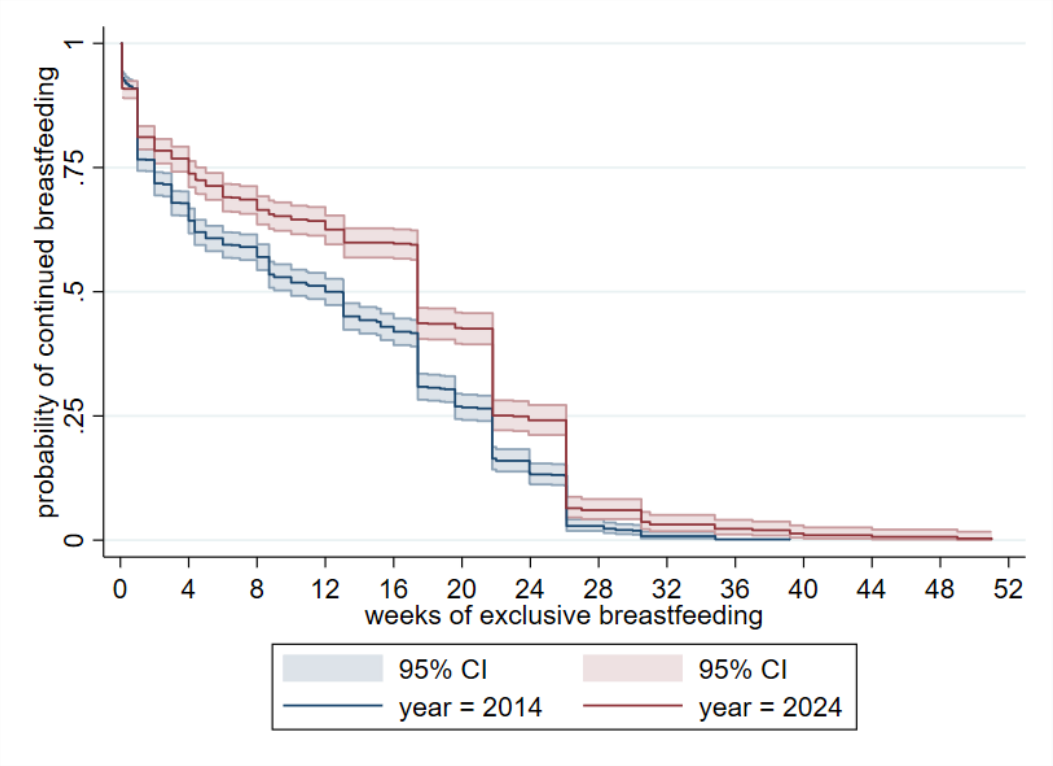


Figure 27: Exclusive breastfeeding duration 2014 and 2024 in comparison– Kaplan Meier curve (retrospective)



In order to be able to consider breastfeeding in the context of overall infant feeding in the first year of life, the following Table 32 compares in addition to the breastfeeding indicators the administration of infant formula and complementary foods for the study years 2014 and 2024.

In 2024, a greater proportion of mothers breastfed their infants at least once in the past 24 hours compared to 2013. This increase was particularly marked among infants aged 7 to 12 months, with the breastfeeding rate in 2024 nearly twice as high as in 2013. A smaller proportion of infants received infant formula in 2024 in the last 24hours compared to 2014, while the opposite trend was observed for complementary food, which was slightly more commonly provided in 2024."

Table 32: Infant feeding at different ages: 24-hour feeding protocol 2014 and 2024

	In the last 24 hours									
	Exclusively breastfed		**Fully breastfed**		**Breastfed at least once**		**Infant formula at least once**		**Complementary food at least once**	
Age of infant	2014	2024	2014	2024	2014	2024	2014	2024	2014	2024
1-2 months	71%	-	74%	-	81%	-	24%		0%	
3-4 months	62%	68%	68%	68%	78%	85%	31%	29%	2%	7%
5-6 months	26%	25%	27%	25%	63%	85%	47%	32%	66%	72%
7-10 months	0%	1%	1%	1%	39%	70%	66%	49%	98%	99%
>= 10 months	0%	0%	0%	0%	30%	53%	65%	57%	99%	100%

4.4.9 Weighted breastfeeding prevalences

The results of the weighted analysis for the three indicators of breastfeeding duration are displayed in Table 33 (see 3.5.2 for the detailed weighting procedure). Although the weighting results in slightly lower estimates at the lower and upper bounds of the interquartile range, particularly for education and smoking and the combined score, the medians for both full breastfeeding and exclusive breastfeeding remain unchanged. The median for total breastfeeding duration cannot be estimated due to the high percentage of mothers in our sample that are still breastfeeding (censored events).

The weighting was also applied for the 2014 data with education only (see Table 34). Again, the estimates did not differ from the unweighted values.

Table 33: Weighted breastfeeding prevalences 2024

	Total breastfeeding duration		**Full breastfeeding**		**Exclusive breastfeeding**	
	Median	**IQR (25%; 75%)**	**Median**	**IQR (25%; 75%)**	Median	**IQR (25%; 75%)**
Unweighted		(30.5; -)	17.4	(4; 23.9)	17.4	(4; 23.0)
Highest education of the mother	-	(30.5; -)	17.4	(4; 22.0)	17.4	(4; 21.8)
Mother currently smoking	-	(30.5; -)	17.4	(4; 21.8)	17.4	(4; 21.8)
Single mother	-	(30.5; -)	17.4	(4; 23.9)	17.4	(4; 23.9)
Nationality of mother	-	(30.5; -)	17.4	(4; 23.9)	17.4	(4; 23.0)
Combined weighting score (education, smoking, single parent)	-	(26.1; -)	17.4	(4; 21.8)	17.4	(3; 21.8)

Table 34: Weighted breastfeeding prevalences 2014

	Total breastfeeding duration		**Full breastfeeding**		**Exclusive breastfeeding**	
	Median	**IQR (25%; 75%)**	**Median**	**IQR (25%; 75%)**	**Median**	**IQR (25%; 75%)**
Unweighted	30.5	(16; -)	17.4	(4; 21.8)	12.0	(2; 21.8)
Highest education of the mother	30.5	(15; -)	17.4	(4; 21.8)	12.0	(2; 21.8)

4.5 Infant feeding 2: complementary foods

Complementary foods supplement the infant's milk meals and, according to the recommendations of the Swiss Society for Nutrition and the Swiss Society for Pediatrics, should be introduced **not before** the beginning of the 5th month of life (17 weeks) at the earliest and **not later** than the beginning of the 7th month of life (26 weeks) [45]. The WHO recommends the introduction of complementary foods after 6 months of age [10].

For the analysis of the study data, any solid food, such as porridge or bread, as well as drinks and liquids with nutritional value, such as fruit, vegetable juice or cow milk, which were given in addition to breast milk or powdered milk, were defined as complementary foods. Whether and how complementary foods were introduced was determined, on the one hand, using the questions on the time point of introduction of complementary foods (retrospective data) and, on the other hand, using the 24-hour feeding protocol.

For the analysis, the introduction of complementary foods and the introduction of beverages were looked at separately.

At the time of the survey, 70.6% of all infants in the study population had already received complementary foods according to the retrospective data. Only very few of the infants in their 3rd or 4th month of life (1.5%) received solid food before the beginning of the 5th month of life (Table 35). According to the 24-hour feeding protocols, this was the case for only three of the infants in their 3rd or 4th month of life (2.3%).

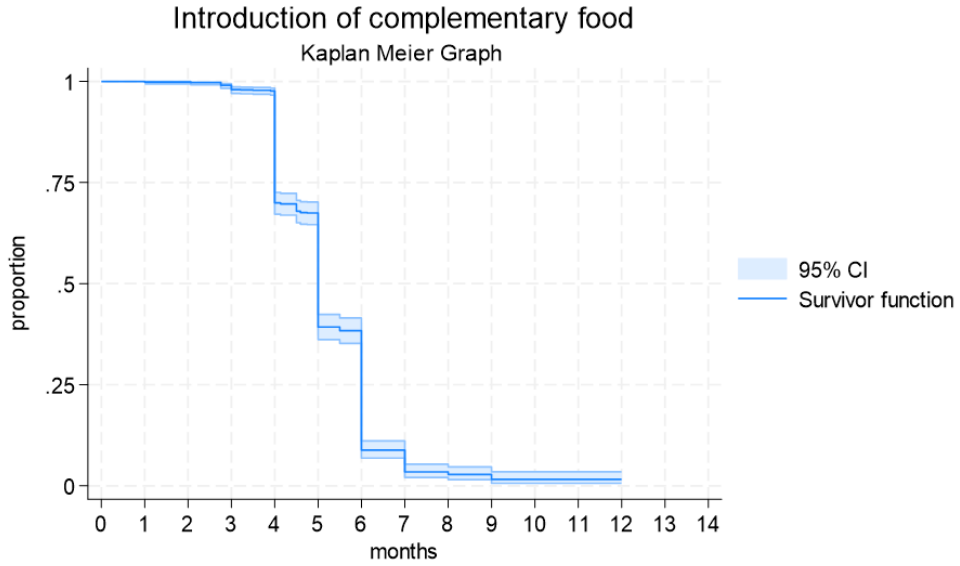
Table 35: Introduction of complementary foods by infant age group – retrospective data and 24-hour feeding protocol

		Received complementary food (retrospective)		**Received complementary food (24h feeding protocol)**	
	N	N	%	N	%
all infants	1244	879	70.6	866	69.6
Infants 3rd-4th month of life (<17 weeks)	133	2	1.5	3	2.3
Infants 5th-6th month of life (>=17 weeks)	307	90	29.3	82	26.7
Infants 7th-9th month of life	418	401	96.0	395	94.5
Infants >=10th month of life	586	584	99.7	584	99.7

Overall, the comparison of the results based on retrospective data and data from the 24-hour feeding protocol shows a high level of overall agreement. There are slight differences, particularly during the transition period from breast milk to complementary food. These are due to infants who have already received complementary foods but were only breastfed during the documented last 24 hours. As the proportion of complementary foods in infant feeding increases, the differences between the retrospective and 24-hour feeding protocol data decrease further.

The Kaplan Meier graph (Figure 28), based on retrospective data shows that the introduction of complementary food in the study population mainly took place between the 5th and 7th month of life. At the age of 5 months, 50% of the infants had already received complementary food (IQR: 4-6)

Figure 28: Introduction of complementary foods (retrospective)



4.5.1 Introduction of solids and foods and consistency with Swiss nutrition recommendations

Based on the retrospective survey on infant feeding, the timing of the introduction of specific foods can also be examined in addition to the general timing of the introduction of complementary foods (Table 36).

Table 36: Average age at the introduction of complementary foods in months (retrospective)

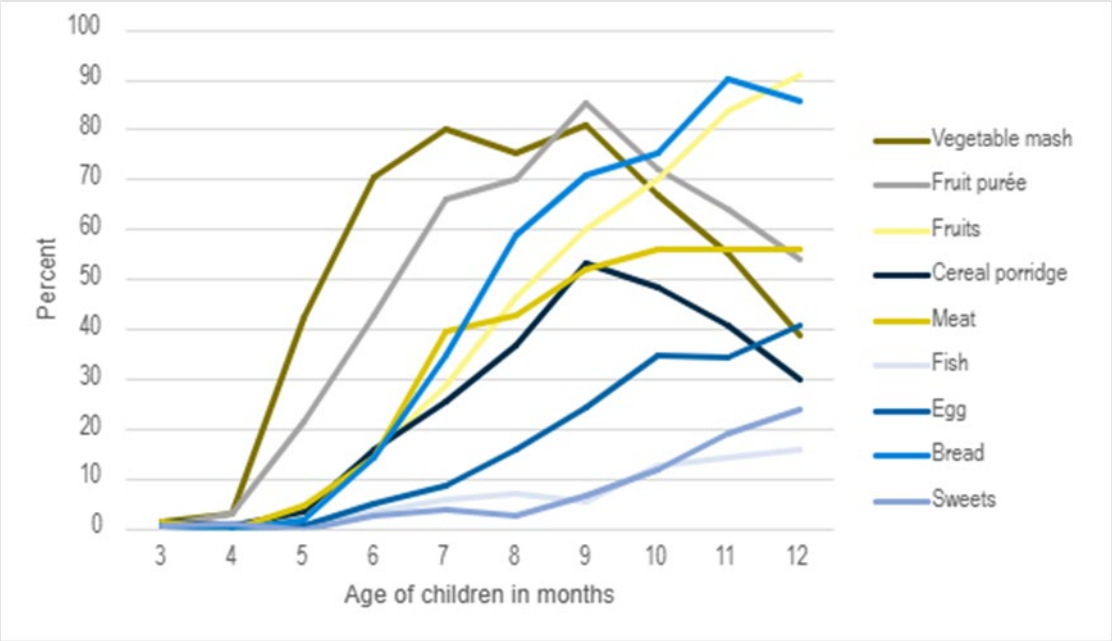
	Median	IQR
Complementary food in general	5	(4;6)
Individual foods		
Fruits	6	(5;6)
Vegetables	5	(4;6)
Potatoes	6	(5;6)
Cereals	6	(5;7)
Meat	7	(6;8)
Fish	8	(6;*)
Bread	7	(6;9)
Egg	8	(6;10)
Yogurt	8	(7;12)
Cookies	*	(12;*)
Sweets	*	(12;*)

* Median or IQR not calculable

In the transition phase from milk to complementary food, vegetable/potato mash and fruit purées are the main foods for infants alongside breast milk or infant formula. Vegetable purées are introduced the earliest with 50% of infants having already received them at 5 months of age. Next, fruit purées, mashed potatoes and cereal porridge are introduced. Meat and bread, and then again fish, egg, and yoghurt follow slightly later. According to the recommendations of the Swiss Society of Pediatrics [46] meat, fish and egg can be introduced gradually from the 5th month of life. Compared to 2014, parents are introducing meat, but especially fish and eggs earlier than 10 years ago. Dairy products such as yoghurt can be given in small quantities to prepare porridge and purée from the 7th month onward. The recommendation is followed by parents in this sample.

Figure 29 shows the consumption of various foods by month of life in the study population in the last 24 hours. According to this, vegetable and fruit purées are the first complementary foods introduced. Later cereal porridge with meat, bread and fruits determine the daily menu in the first year of life. Sweets like biscuits, sweetened yogurt or sugared foods are increasingly part of the daily diet from 8 months onwards.

Figure 29: Consumption of various foods in the last 24 hours, by month of life (24h-feeding protocol)



Once complementary foods are introduced, a variety of other foods are introduced relatively quickly. Among infants of 6 months of age, 53.8% of parents had already introduced four or more foods, and among the 8 months-olds, 77.3% of all infants were already eating at least six different foods.

4.5.2 Introduction of beverages

Infants received various liquids in addition to breast milk or after weaning. The retrospective data (Table 37) show that at 26 weeks (6 months) 50% of infants had received water. Mothers who had never breastfed, were no longer breastfeeding or were partially breastfeeding gave their infants infant milk. At 8 weeks, already 25% of all infants had received infant milk; at 26 weeks, 50% of infants had received infant milk. However, there are around a third of all infants who never received infant milk.

Similarly, many infants never received cow milk, and those who received it, received it late, with a median at 56.6 weeks (13 months).

Table 37: Introduction of fluids in weeks (retrospective data)

N=1244	Median	IQR
Water	26.1	(21.8;30.5)
Tea	*	(34.8; *)
Infant milk	26.1	(8; *)
Cow's milk	56.6	(52.3; *)

* Median or IQR not calculable

Figure 30: Introduction of water (retrospective data)

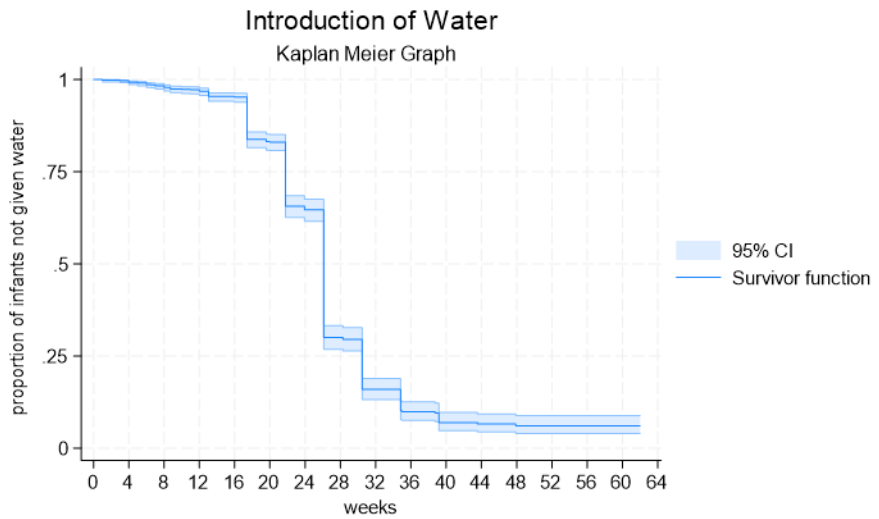


Figure 31: Introduction of infant milk (retrospective data)

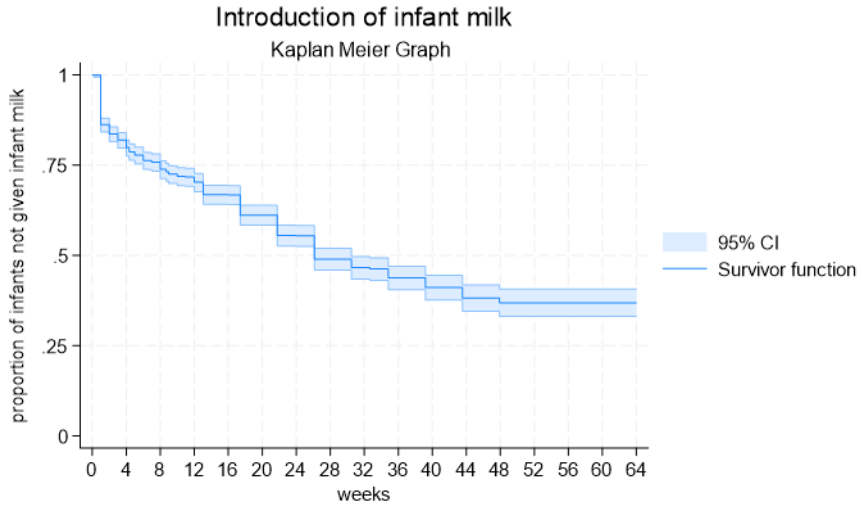
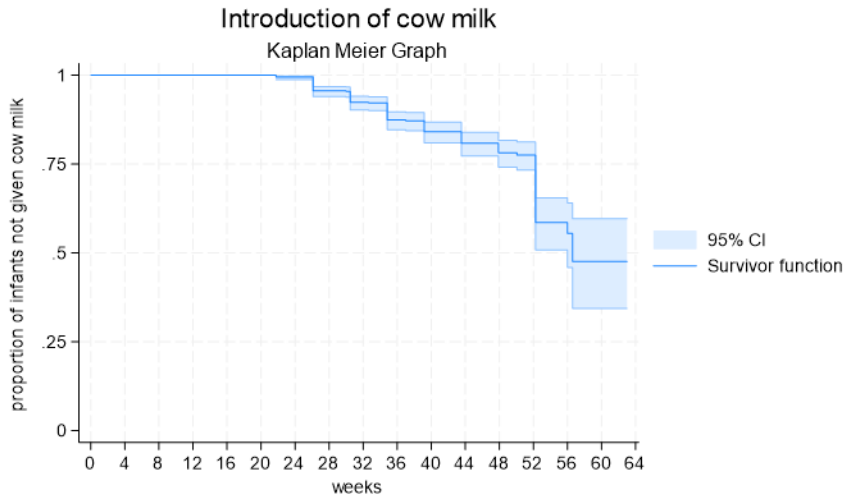


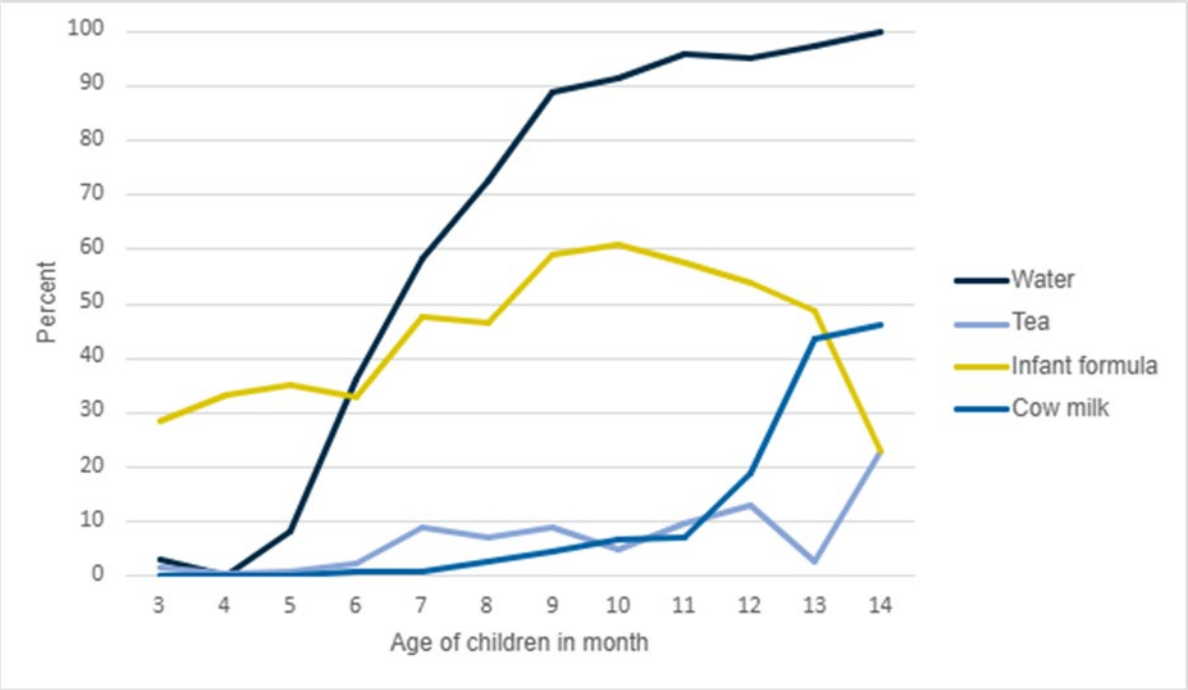
Figure 32: Introduction of cow milk (retrospective data)



The data from the 24-hour feeding protocol support the retrospective data. Water becomes particularly important as a drink with the introduction of complementary foods and, overall, much more frequent than tea (Figure 33). The high proportion of infant formula - especially in the first few months of life - is also evident in the 24-hour feeding protocols: 31.1% of infants aged 3 or 4 months had received infant milk in the last 24 hours. The data from the 24-hour feeding protocols also show that infant formula remains an important part of the daily diet alongside complementary foods until the end of the first year of life (Figure 33).

According to recommendations, cow milk can be introduced in small quantities after 6 months, however, bigger quantities should only be fed to infants after the age of 9 months [46]. Data from the 24-hour feeding protocol shows that only 5.4% of the infants received cow milk, and only one of all infants younger than 6 months (N=559) had received cow's milk in the last 24 hours (Figure 33). Of the parents who gave their infants cow milk after the age of 6 months, 34.8% diluted the milk.

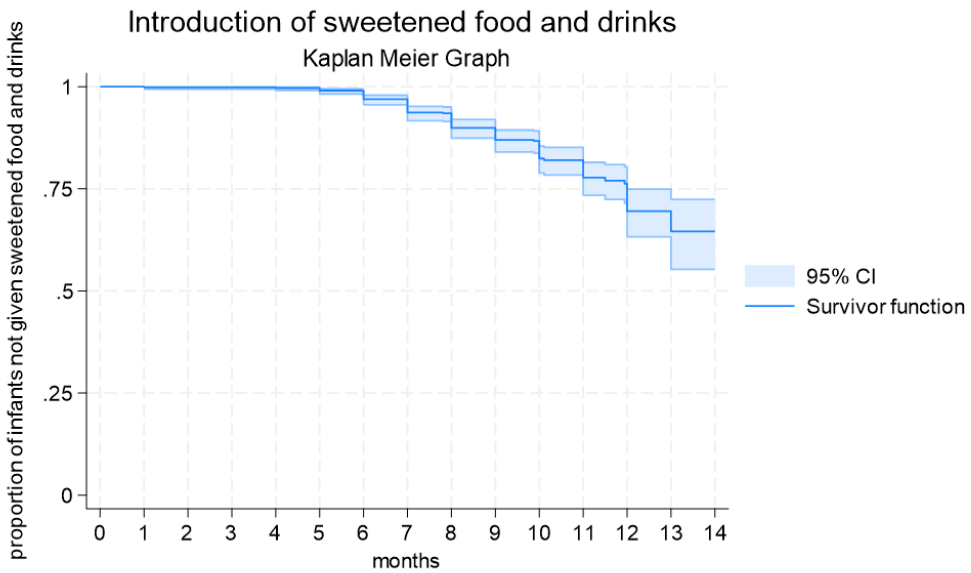
Figure 33: Drinks in the last 24 hours, by month of life (24-hour feeding protocol)



Sweetened food and drinks

Giving sweetened drinks and food to infants is not recommended in the first year of life [46]. According to the retrospective data, mothers/parents indeed started late to give their infants sweetened drinks and food compared to other foods. At the age of 12 months, only 25% of the infants had received any sweetened drinks and food (Figure 34).

Figure 34: Introduction of sweetened food and drinks (retrospective)



The data from the 24-hour feeding protocol also indicate the high compliance with recommendations regarding sweetened food and drinks, particularly in infants below the age of 6 months. While 8.1%

(N=102) of all infants were given sweetened tea, yoghurt, porridge or sweet cookies at least once in the last 24 hours, the figure for infants younger than 6 months was just 1.1 (Table 38). Overall, less infants received sweetened drinks or food compared to 2014 (13.2%).

Table 38: Frequency of sweetened drinks and food in the last 24 hours (24-hour feeding protocol)

		All infants (N=1244)		**Infants 3-6 months (N=559)**
	N	%	N	%
Any sweetened drink and food	98	7.9	6	1.1
Sweetened tea	3	0.2	7	1.3
Sweetened yogurt	30	2.4	2	0.4
Sweet cookies	69	5.6	3	0.5
Addition of sugar	11	0.9	2	0.4

Cereals with or without gluten

In the past, it was recommended that cereals containing gluten are introduced as porridge from the 5th to 7th month of life to reduce the risk of coeliac disease [47]. Current infant feeding recommendations do not differentiate anymore between cereals containing gluten or not [46]. In comparison to 2014, the reluctance to introduce gluten seems to have decreased.

The 24-hour feeding protocols show that a total of 30.7% (N=382) of all infants received cereal porridge or fruit and vegetable purées with cereals in the last 24 hours. 92.4% of the cereal porridges fed to the infants contained gluten.

Cereal porridge or fruit and vegetable porridge with cereals, and in particular porridge containing gluten, was mainly introduced after the age of 6 months. Only 7.5% of the 1-6 months old infants had received a pure cereal porridge in the last 24 hours, most of them containing gluten (81.0%).

Table 39: Frequency of cereal porridge in the last 24 hours

	All infants N=1244		**Infants 3-4 months N=295**		**Infants 1-6 months N=559**	
	N	%	N	%	N	%
Infants receiving cereal porridge/porridge with cereals	382	30.7	3	1.0	42	7.5
Gluten-free	29	7.6	0	0	8	19.1
Containing gluten	353	92.4	3	100.0	34	81.0

Complementary food production

The 24-hour feeding protocols recorded whether food purées and porridges were purchased or home-made. Of the mothers who had given their infants any fruit or vegetable purée or cereal porridge in the last 24 hours (N=728), 82.7% made at least one of these purées/porridges themselves. Particularly, vegetable purée was home-made (Table 40).

Table 40: Home-made food (24-hour feeding protocol)

	All infants receiving purée/porridge (N=1244)		Proportion of home-made purée/porridge	
	N	%	N	%
Any fruit or vegetable purée or cereal porridges	728	58.5	602	82.7
Fruit purée	549	44.1	373	67.9
Vegetable purée	586	47.1	502	85.7
Cereal porridge	290	23.3	109	37.6

4.5.3 Multivariate analysis of factors on introducing complimentary foods

In the multivariable analysis, covariates that were significant at $p<0.1$ in the univariate analyses (see Appendix 8.1) or previously associated with complementary feeding were introduced into the model. This included socio-economic factors, language region factors, maternal health behavior factors and infant factors. Table 41 shows the results of the multivariable analysis. The individual influencing factors are corrected for each other, i.e. the hazard ratios (HR) represent effects that are independent of the other factors included in the model. A HR>1 means a higher probability of having received complementary food at an earlier point of time compared to the respective reference group.

The results of this multivariable analysis show that after controlling for these potential influencing factors, only a very few factors still had a significant influence on the timing of complementary feeding initiation. Only a higher educational degree of both parents, the maternal return to work and language regions influenced the introduction of complementary food significantly. Whereas a higher educational degree and the return of the mother to work is associated with an earlier introduction of complementary food, and coming from German-or Italian-speaking Switzerland is associated with a later introduction of food.

Table 41: Factors influencing the introduction of complementary foods: probability (HR) of introducing complementary foods (multivariable analysis)*

Influencing factors	Hazard ratio	P>z	95% CI
Age of infant in weeks	1.010	0.013	1.00-1.02
Age of mother			
19 -29	1		
30 -39	0.88	0.301	0.68-1.12
> 40	0.90	0.575	0.62-1.30
Monthly household income			
<4500 CHF	0.88	0.621	0.53-1.46
up to 6000	1		
up to 9000 CHF	0.96	0.747	0.76-1.22
> 9000 CHF	0.96	0.735	0.74-1.23
High education* of parents			
without a higher degree	1		
1 parent higher degree	1.22	0.122	0.95-1.56
both higher degree	1.41	**0.006**	1.11-1.79
Employment after birth			
Not employed	1		
employed	1.35	**0.002**	1.12-1.63
Region			
French-speaking Switzerland	1		
German- and Italian-speaking Switzerland	0.72	**0.002**	0.57-0.89
Number of children under 17 years old			
No further child	1		
1 further child	1.02	0.863	0.85-1.21
2 or more further children	0.75	0.058	0.56-1.01
Mother smoking			
No	1		
Yes	1.34	0.115	0.93-1.92
BMI			
18.5-24.9 (normal weight)	1		
<18.5	1.05	0.803	0.71-1.55
25-30	0.99	0.949	0.82-1.21
>30	1.08	0.562	0.83-1.41
Allergic predisposition of the infant			
No	1		
Yes	1.10	0.398	0.88-1.38
Pay attention to diet			
No	1		
Yes	0.99	0.874	0.84-1.17
Health problems after birth			
No	1		
Yes	1.04	0.640	0.88-1.24
Health issues of the infant			
No	1		

Table 41 continued	Hazard ratio	P>z	95% CI
Yes	1.04	0.805	0.77-1.39
Birth weight			
<2500	1		
2500-4000	1.14	0.631	0.68-1.91
>4000	1.13	0.684	0.64-2.00
Gender of the infant			
Female	1		
Male	0.91	0.283	0.78-1.08

* Probability of introducing complementary foods earlier compared to the reference group; an HR <1 indicates a protective influence; i.e. complementary foods are introduced later.

4.5.4 Allergy and complimentary foods

Only 167 (13.4%) mothers reported having an allergy. Allergies among fathers was not asked for in 2024.

Figure 35: Introduction of complementary foods depending on allergic predisposition

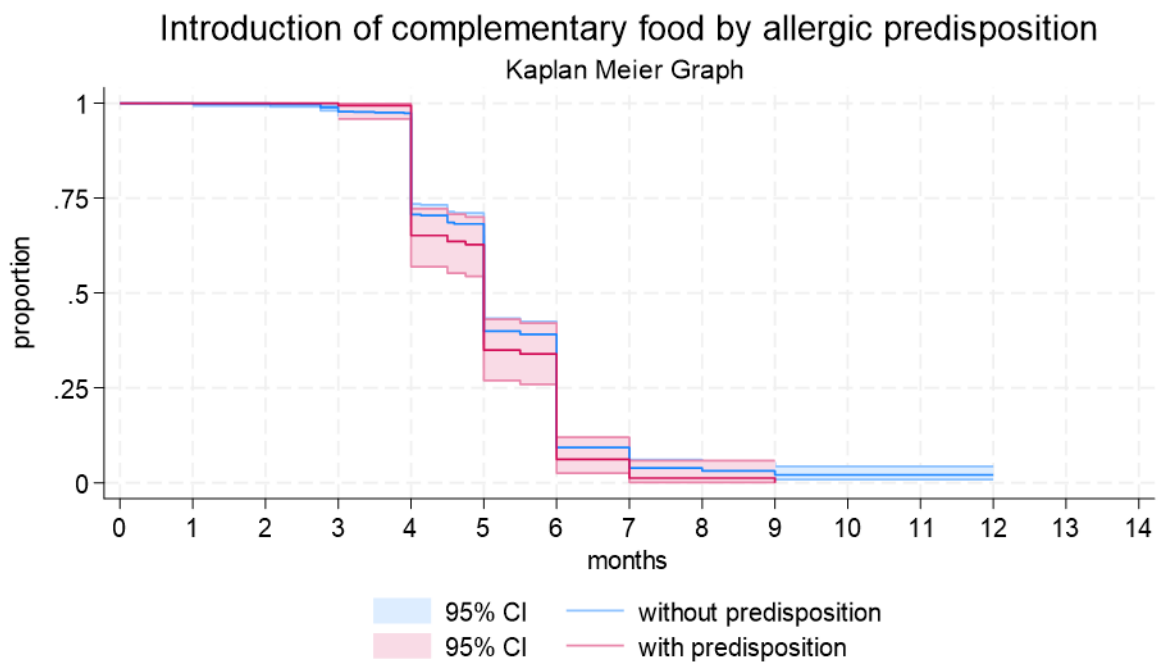


Figure 35 shows the introduction of complementary foods by allergic predisposition of the mother. The introduction of complementary foods in infants with vs. without a maternal predisposition is non-significantly different (p=0.129), even though the Kaplan Meier survival curve shows a slightly earlier introduction between the 5th to the 7th months in infants without a maternal predisposition.

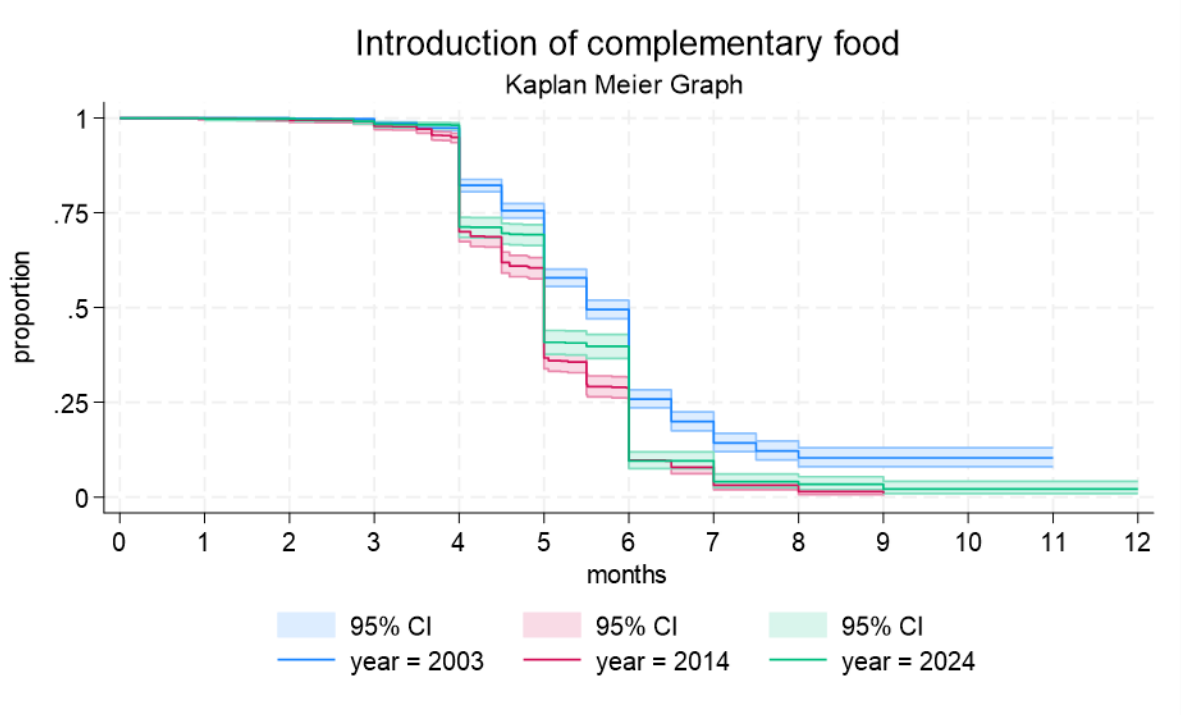
No differences were also observed for foods associated with an increased risk of triggering allergies (such as cow's milk, eggs, wheat, and fish).

4.5.5 Introduction of complimentary foods in comparison to earlier monitoring studies

Kaplan-Meier survival analyses were used to compare the timepoint of introduction of complementary foods between the monitoring studies of 2003, 2014 and 2024. The median and the interquartile range (IQR) of Kaplan-Meier estimates were used to compare the curves for the introduction of complementary foods. It should be noted that in contrast to the monitoring studies of 2003 and 2014, the 2024 monitoring study contained no infants below 3 months.

A comparison of the introduction of complementary foods in the 2024 study with the previous two monitoring studies reveals that complementary foods was introduced at a similar time in 2014 and 2024, but earlier than in 2003 (Figure 36).

Figure 36: Comparison of the timing of complementary food introduction by month of life in the 2003, 2014, and 2024 studies (retrospective data)



Log-rank test: p<0.001

A comparison of the medians between 2003, 2014 and 2024 shows that complementary foods are not only generally introduced earlier in 2014 and 2024 compared to 2003, but that this also applies to individual foods. This is particularly evident for the introduction of fish, eggs and yogurt, which are introduced significantly earlier today compared to 2013 and 2003. Even though very few infants received cookies and sweets in 2024, infants received them later compared to earlier monitoring studies as the 25% percentile shows.

Table 42: Median age at the introduction of complementary feeding in months (retrospective data)

	2024 (N=1244)		2014 (N=1508)		2003 (N=2919)	
	Median	**IQR**	**Median**	**IQR**	**Median**	**IQR**
Complementary food in general	5	(4 ;6)	5	(4;6)	5.5	(5;6.5)
Individual foods						
Fruits	6	(5;6)	5.5	(5;6.5)	*	*
Vegetables	5	(4;6)	5	(4;6)	6	(5;7)
Potatoes	6	(5;6)	5	(4.5;6)	*	*
Cereals	6	(5;7)	6	(5;7)	7.5	(6; **)
Meat	7	(6;8)	7	(6;8)	8	(7; **)
Fish	8	(6;**)	9	(7; **)	**	(9.5;**)
Egg	8	(6;10)	10	(7.5;12)	*	*
Yogurt	8	(7;12)	9	(7;11)	**	(8; **)
Bread	7	(6;9)	7	(6;9)	7.5	(6;**)
Sweet cookies	**	(12;**)	12	(8;**)	11	(7; **)
Sweets	**	(12;**)	12	(8;**)	**	(7; **)

* These food items were not included in the questionnaire 2003
** Median or IQR cannot be calculated

The data from the 24-hour food protocol show how often certain foods were eaten by certain age groups in the last 24 hours. A comparison between 2003, 2014 and 2024 shows a similar pattern between 2014 and 2024 in terms of an earlier introduction of complementary foods compared to 2003 (Table 42). While vegetable and fruit purées were introduced at the same time in 2003, vegetable mash is now introduced around one month before fruit purée, before other food items like cereals or bread and meat are introduced again one month later (see Figures 37, 38 and 39). This indicates that most mothers follow the recommendations on complementary food introduction.

Figure 37: Consumption of various foods in the last 24 hours, by month of life (24-hour feeding protocol), 2024

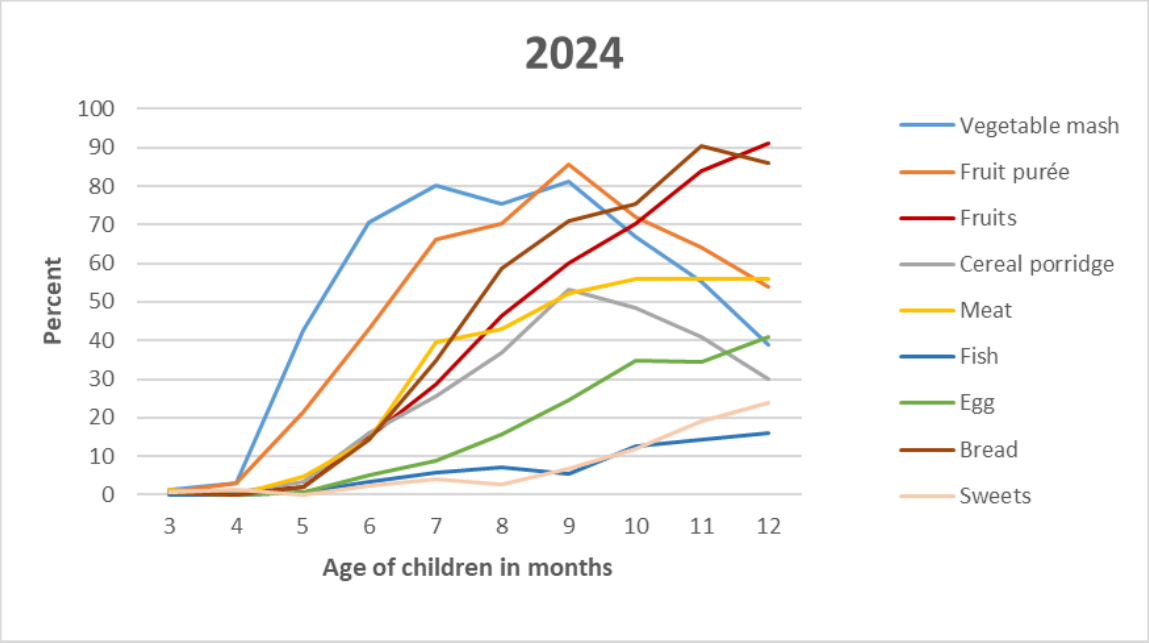


Figure 38: Consumption of various foods in the last 24 hours, by month of life (24-hour feeding protocol), 2014 [9]

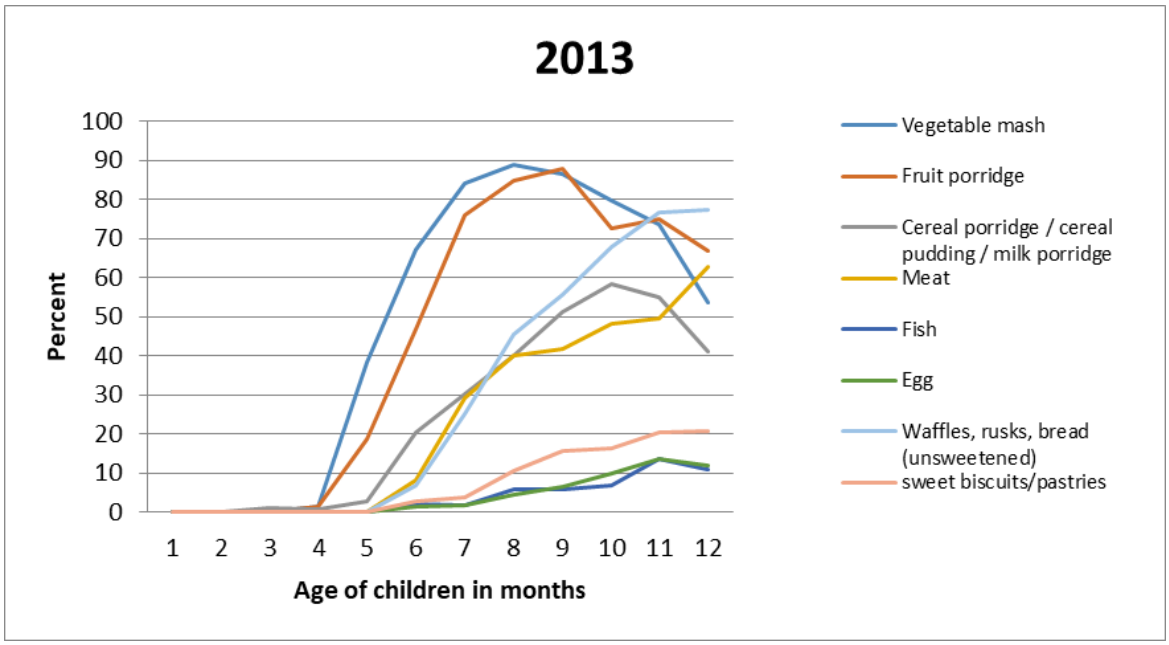
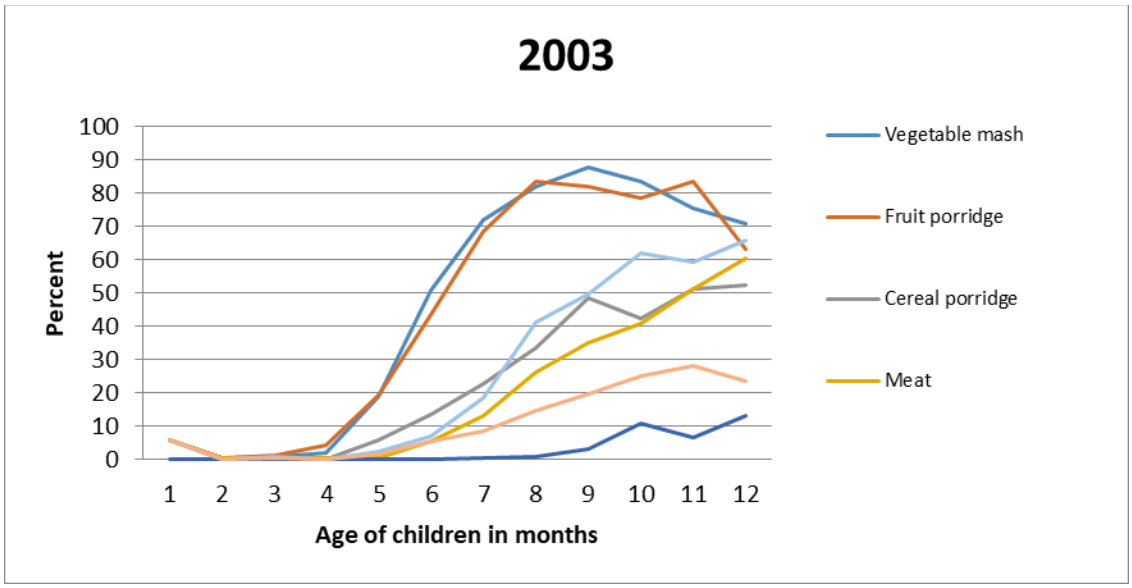


Figure 39: Consumption of various foods in the last 24 hours, by month of life (24-hour feeding protocol), 2003 [8]



Introduction of beverages

There are also differences in the introduction of drinks between 2003, 2014 and today. Today, particularly water, tea and infant milk is introduced later than in 2003 and 2014 (see Table 43).

Table 43: Median age at the introduction of beverages in weeks (retrospective)

	2024 (N=1244)		2014 (N=1508)		2003 (N=2919)	
	Median	**IQR**	**Median**	**IQR**	**Median**	**IQR**
Water	26.1	(21.8; 30.5)	21.8	(17.4; 26.1)	21.8	(13.1; 30.5)
Tea	*	(34.8; *)	21.8	(8.7; *)	13.1	(3; 26.1)
Infant milk	26.1	(8; *)	19.6	(6; 34.8)	21.8	(8.7;39.2)
Cow's milk	56.6	(47.9; *)	52.3	(50.1; *)	*	(45.7; *)

* Median or IQR cannot be calculated

Introduction of sweet foods and drinks

A comparison of the medians (Table 44) between 2003, 2014 and 2024 with survival time analysis was only partially possible due to late introduction of sweetened drinks and sweet cookies, nevertheless the Kaplan Meier graph (Figure 40) shows that fewer infants received sweetened food and drinks in the first year and at a later stage in 2024.

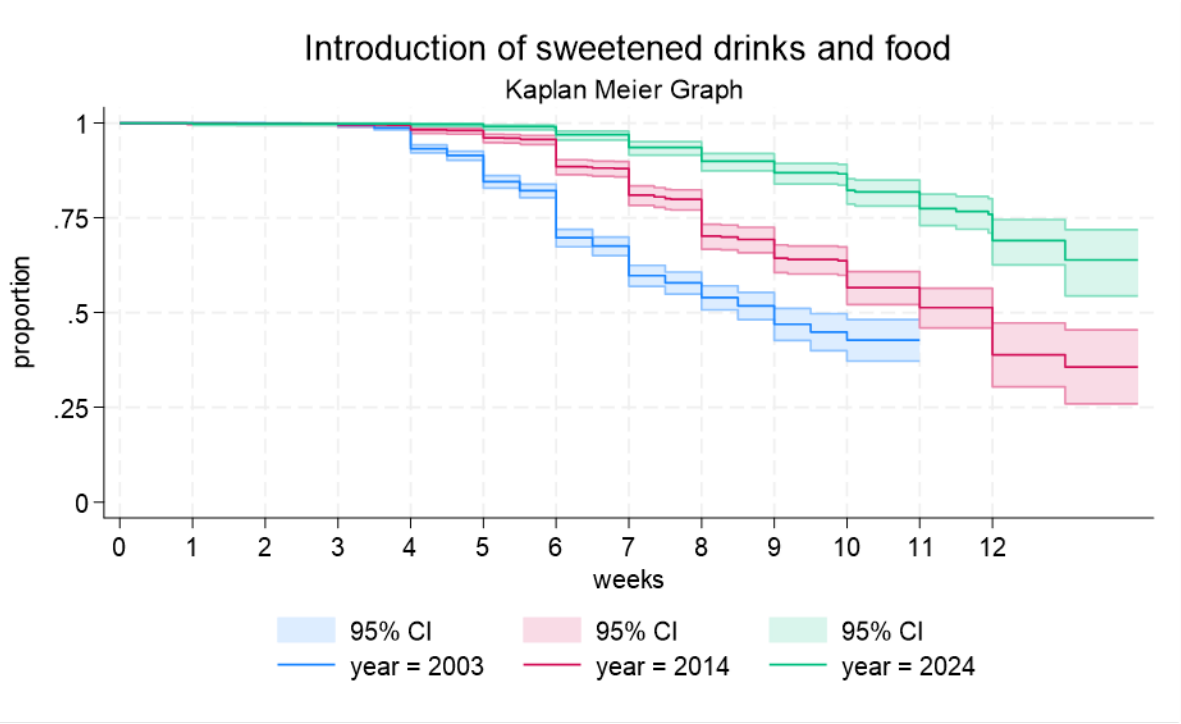
Table 44: Introduction of sweetened food and drinks – comparison 2024, 2014 and 2003 (retrospective)

Sweet food/drinks	2024 (N=1244)		2014 (N=1508)		2003 (N=2919)	
	Median	**IQR**	**Median**	**IQR**	**Median**	**IQR**
Sweetened drink/biscuits/pastries*	**	(12; **)	12	(8; **)	9	(6; **)

* Information on sweetened porridges only 2003
** Median or IQR cannot be calculated

Using Cox-regression analysis, corrected for maternal age, parental education level, language region and sex of the child infant found a significant influence (p<0.001) for year, maternal age, and language-region on the introduction of sweetened drinks and food.

Figure 40: Introduction of sweetened drinks and food by months of life in 2003, 2014 and 2024 (retrospective)



Log-rank test: p<0.001

4.6 Prevention and advice

4.6.1 Prevention and advice in pregnancy

Pregnancy check-ups offer the opportunity to advise expectant mothers on relevant health topics during as well after pregnancy and birth (Table 45).

Most of the women were advised on the intake of folic acid (95.4%, N=1’210) and supplements (92.2%, N=1’170). Slightly fewer women recalled that they also received advice on nutrition (76.5%, N=971), intake of medication (80.8%, N=1’025) or on vaccinations (85.3%, N=1’082) during

pregnancy, listeriosis and/or toxoplasmosis (72.4%, N=919), smoking (78.9%, N=1’001), alcohol consumption (79.2%, N=1’005) during pregnancy.

Table 45: Counselling topic during pregnancy check-ups (multiple answer possible), N=1’269

Counselling topics		**Frequency**
	N	**%**
Intake on folic acid	1’210	95.4
Intake of supplements	1’170	92.2
Nutrition during pregnancy	971	76.5
Intake medication during pregnancy	1’025	80.8
Vaccination during pregnancy	1’082	85.3
Listeriosis and/or toxoplasmosis during pregnancy	919	72.4
Smoking	1’001	78.9
Alcohol	1’005	79.2

Women smoking before pregnancy did not receive significantly more often advice on smoking during pregnancy (82.0% vs. 80.1%, p=0.577) compared to non-smoking mothers. Those smoking during pregnancy in contrast received slightly but not significantly more often counselling on smoking in pregnancy (93.8 vs 79.1, p=0.053).

Out of 26.9% of women (N=332) who reported a chronic disease prior to their pregnancy, 47.6% (N=158) were advised about their chronic diseases by their gynecologist before they became pregnant. In particular, women with diabetes and high blood pressure, received counselling more often (Table 46).

Table 46: Counselling in case of chronic disease, N=1'234

Chronic disease	Reporting a chronic disease		Reporting counselling on their chronic disease	
	N	%	N	%
Allergies	115	9.3	49	42.6
Asthma	53	4.3	28	52.8
Mental illness	44	3.6	23	52.3
Neurodermitis	36	2.9	13	36.1
High blood pressure	20	1.6	16	80.0
Diabetes	11	0.9	10	90.9
Other	49	4.0	37	75.5

4.6.1.1 Folic acid

A large majority of women (95.7%, N=1'215) took acid folic before or during the pregnancy of their youngest infant. Thereof 60.2% (N=729) followed the recommendation and began at least one month before conception. Further 30.0% (N=363) of women started before and 9.9% (N=120) after the 8th week of pregnancy (see Table 47).

Table 47: Intake of folic acid and timepoint, N=1'212

Start intake of folic acid	Participants	
	N=1'212	%
At least one month before pregnancy	729	60.2
Before 8th week of pregnancy	363	30.0
After 8th week of pregnancy	120	9.9

Folic acid intake differs by planned or unplanned pregnancy. A total of 97.4% of women with planned pregnancy took folic acid compared to 90.8% with unplanned pregnancy ($p<0.001$). As expected, the largest difference between planned and unplanned pregnancies was seen in the timepoint of intake of folic acid, planned pregnancies mothers took folic acid more often before the conception (67.6% vs. 16.4%, $p<0.001$, Figure 41). Further, women with a planned pregnancy reported more often to have received counselling about folic acid if the pregnancy compared to women with unplanned pregnancies (97.1% vs 91.8%, $p=0.001$).

Figure 41: Starting time of the intake of folic acid in relation to pregnancy in women with and without planned pregnancies, N=1'212

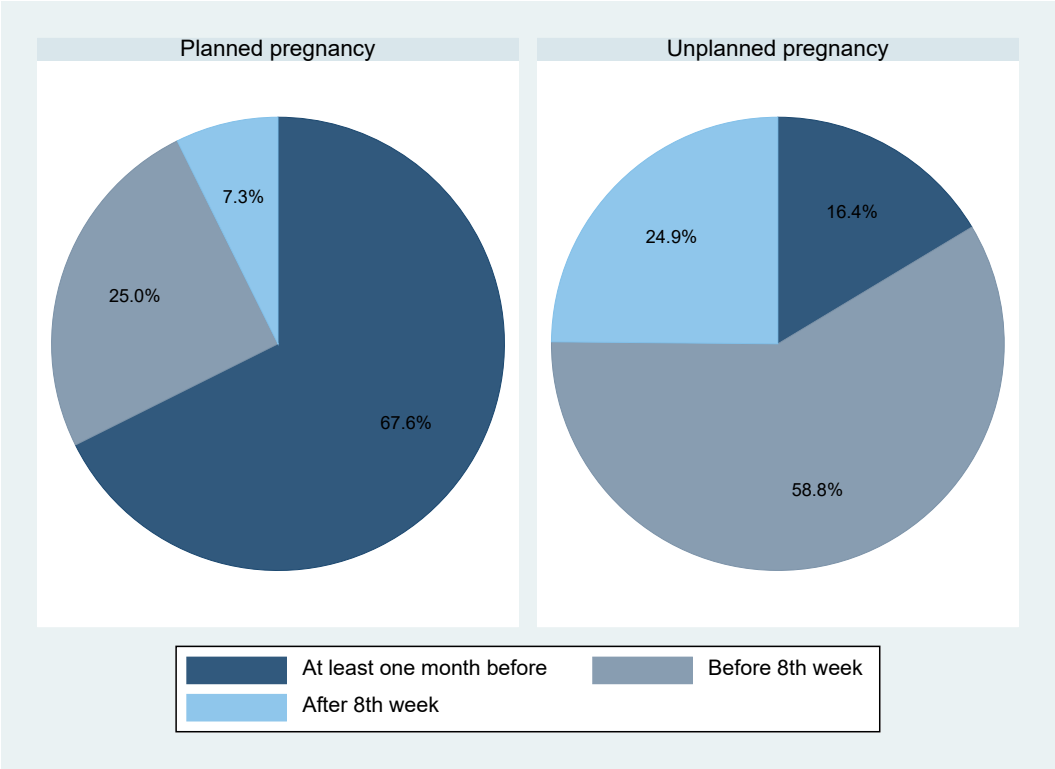


Table 48 shows the start of prophylactic folic acid intake four weeks before pregnancy in relation with various influencing factors comparing 2014 and 2024. The intake of folic acid in 2024 was higher than ten years ago. Significant differences could be observed within the language regions, parents' highest education, the level of household income, smoking, planned or unplanned pregnancy and the number of children in both surveys. However, the differences between categories were much lower in 2024 than 2014.

Table 48: Univariate analyses: Factors associated with folic acid intake according to recommendation in 2024 and 2014

Factor	Proportion of folic acid intake[α] 4 weeks before pregnancy, (%)	p-value	Proportion of folic acid intake[α] 4 weeks before pregnancy, (%)	p-value
		2024		**2014**
Language area				
German	63.3		51.9	
French	48.5		38.9	
Italian	50.0	<0.001*	31.8	<0.001*
Higher education parents				
No higher education of both parents	51.6		42.6	
One parent	64.6		45.3	
Both parents	60.0	0.001*	54.7	<0.001*
Household income				
< 4’500 CHF	33.3		29.3	
4’500-6’000 CHF	55.2		38.1	
6’000-9’000 CHF	60.1		50.3	
>9’000 CHF	65.5	<0.001*	59.2	<0.001*
BMI before pregnancy				
Underweight (<18.5)	52.4		48.2	
Normal weight (18.5-24.9)	62.4		50.4	
Overweight (25.0-29.9)	56.8		41.2	
Obesity (>30.0)	58.8	0.141	41.9	0.027*
Smoking before pregnancy				
Yes	61.9		51.9	
No	48.0	<0.001*	33.7	<0.001
Pregnancy planned				
Yes	67.6		17.9	
No	16.4	<0.001*	56.4	<0.001
Number of Children				
First	66.6		52.8	
Second	58.6		45.0	
Third and more	45.5	0.049*	34.4	<.001*

[*] Univariate group comparisons (Chi^2): Significance given if p <=0.05

[α] in 2014 intake and regular use was combined, in 2024 no information on regular intake was collected

4.6.2 Advice on breastfeeding and other topics

A total of 50.7% (N=643) of women stated that they had received information about breastfeeding before birth. A further 27.2% (N =345) indicated that they had not needed any information and 22.1% (N =281) had not received any information about breastfeeding. Most of the women received information from their midwife (34.0%), followed by childbirth preparation courses (23.4%), social media (18.8%) as well as friends and relatives (15.7%, Table 49).

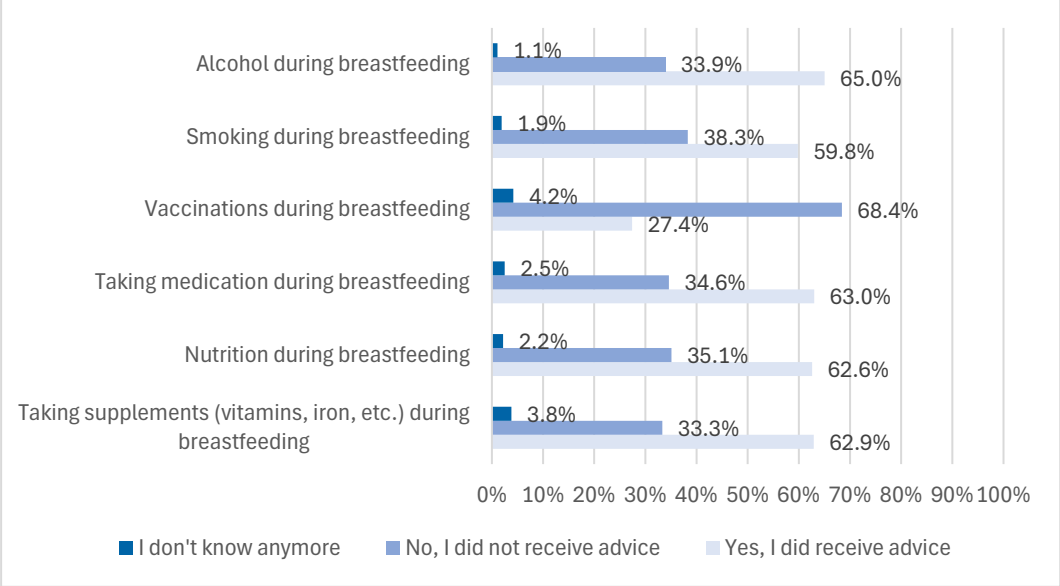
The importance of childbirth preparation classes, the social environment and the media decreases as source of information with increasing parity. Instead, midwives and the doctor become more important sources of information for women with two or more children. Other sources were consulted rarely in women expecting their first or subsequent child.

Table 49: Sources of information on breastfeeding, N=1'269, multiple answers possible

Information source	Frequency	
	N	%
Childbirth preparation course	297	23.4
Midwife	431	34.0
Breastfeeding consultant	88	6.9
Doctor	148	11.7
Friends and relatives	199	15.7
Print media	162	12.8
Digital media	238	18.8
Other	18	1.4

Information about breatfeeding in relation to alcohol, smoking, vacination, taking medication, nutrition and taking supplements was provided before or at the beginnig of breastfeeding by a doctor, a midwife or other health care profesesional in more than half of the women (Figure 42).

Figure 42: Information about breastfeeding in relation to other topics

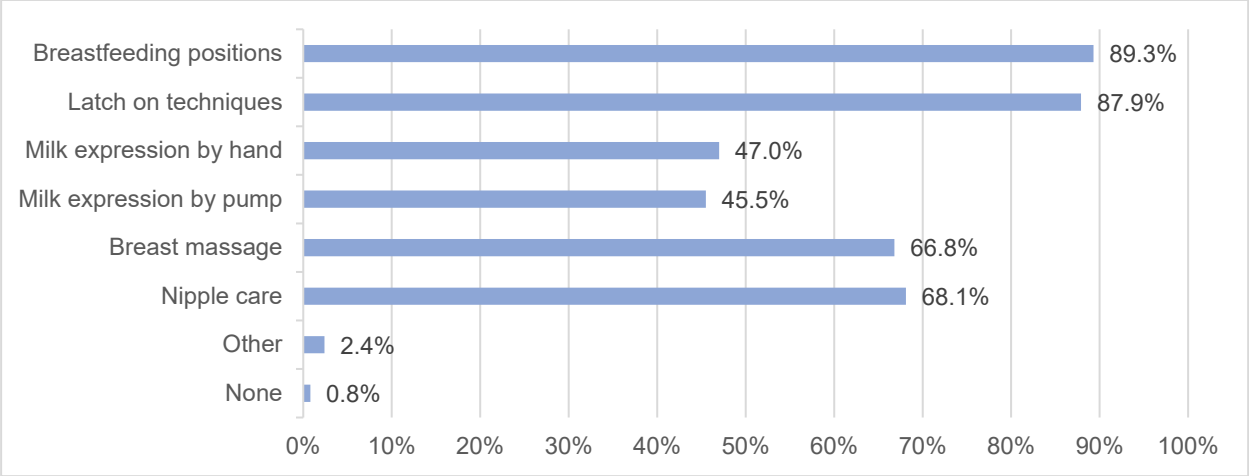


Counselling in the hospital

Out of 1'167 women having given birth in a hospital, a clinic or birth center, 79.4% received advices on how to breastfeed during the first few days after birth. About 15.9% did not need any information because of their previous experiences and 4.7% stated that they were not informed. A total of 80.1% women receiving breastfeeding advices during the first days after birth were very satisfied or satisfied with this counselling and just about 3.6% were not satisfied respectivey not satisfied at all.

Of 951 women, most (99.2%) received instructions on various techniques techniques during the first days after childbirth (Figure 43). Whereas breastfeeding positions and latch on techniques were shown most often, milk expression by hand and pump was instructed to slightly less than half of the women. About two thirds of women received advices in breast massage amd nipple care.

Figure 43: Introduction on breastfeeding techniques



Counselling with breastfeeding difficulties

Out of 1'204 women who ever breastfed their infant, 24.4% (N=306) indicated, that they had major breastfeeding problems. Whereas 41.0% (N=494) had minor breastfeeding problems, about a third (33.6%, N=404) did not have any breastfeeding problems.

For the frequency of breastfeeding problems that women experienced in the beginning of their breastfeeding see chapter 4.4.3

Of the 800 women who were breastfeeding their infant and had ever experienced breastfeeding difficulties, 87.4% indicated that they had sought and received counselling or looked for information (Table 50). About 5.0% of women did not receive advices, 4.4% did not look for it and 5.5% had enough previous experiences and did not need advices or information.

Table 50: Counselling and information with breastfeeding difficulties and satisfaction, N=800

	Number of women		**Satisfaction** (very satisfied and rather satisfied)	
	N	%	N	%
Counselling breastfeeding difficulties	699	87.4		
Advice and information source				
Health care professionals	688	98.4	597	86.8
Friends and relatives	155	22.2	126	81.3
Print media	75	10.7	54	70.7
Digital media	186	22.6	127	68.3
Other	14	2.0	14	100.0

A large majority of women with breastfeeding difficulties sought advice and information from health care professionals such as midwives, parental counsellors, breastfeeding counsellors and doctors (98.4%, see Table 50). Almost a quarter used digital media (22.6%) or the social environment (22.2%) to inform themselves. Print media (10.7%) and other sources (2.0%) played a minor role as information source. Only few mothers mentioned other sources, such as governmental websites, WhatsApp groups, nutrition counselling and osteopathy.

Satisfaction with the advice and information sources was highest with “other sources” (100% satisfied or rather satisfied), health care professional (86.8% satisfied or rather satisfied) and the social environment (81.3% satisfied or rather satisfied).

Open-ended responses about counselling

In the open-ended responses 21 from total 198 mothers (see chapter 3.4), who provided an open-end response, indicated that they had received insufficient counselling regarding breastfeeding practices and positioning, infant allergies, formula feeding, nutritional guidance, and sleep management. 21 mothers felt insufficiently supported by the professionals in the hospital, by doctors and/or midwives.

4.6.3 Information and advice in digital media

514 mothers sought advice on breastfeeding, breastfeeding difficulties or the introduction of complementary foods on digital media. As illustrated in Figure 44, the digital media used most were websites for mothers/fathers/parents (71%), internet search engines (61%) and social media (59%).

The mothers were asked to specify, how often they use specific digital media. Social media were used by 63.6% frequently or very frequently and similarly, internet search engines were used by 62.8% frequently or very frequently (see Table 51). In contrast, websites for mothers/fathers/parents were only used by 41.1% frequently or very frequently.

Figure 44: Digital media used by mothers to inform about breastfeeding and introduction of complementary foods

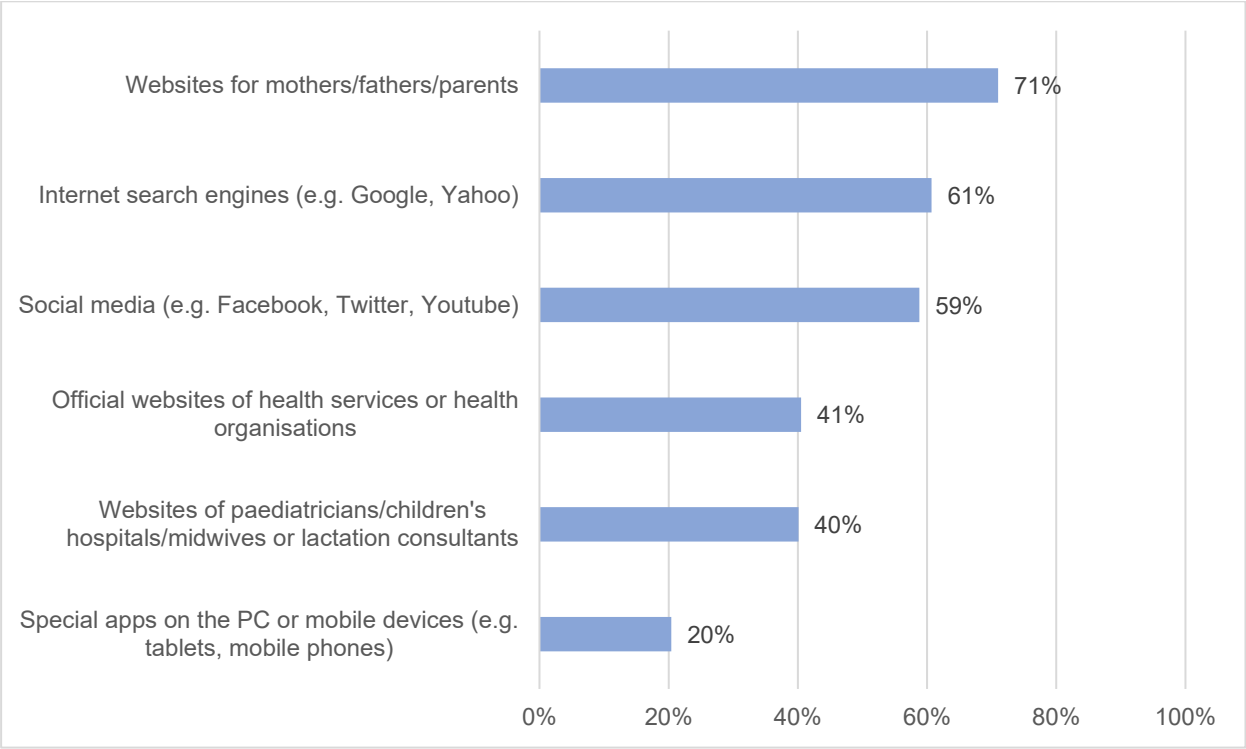


Table 51: Frequency of digital media used to inform about breastfeeding and introduction of complementary foods

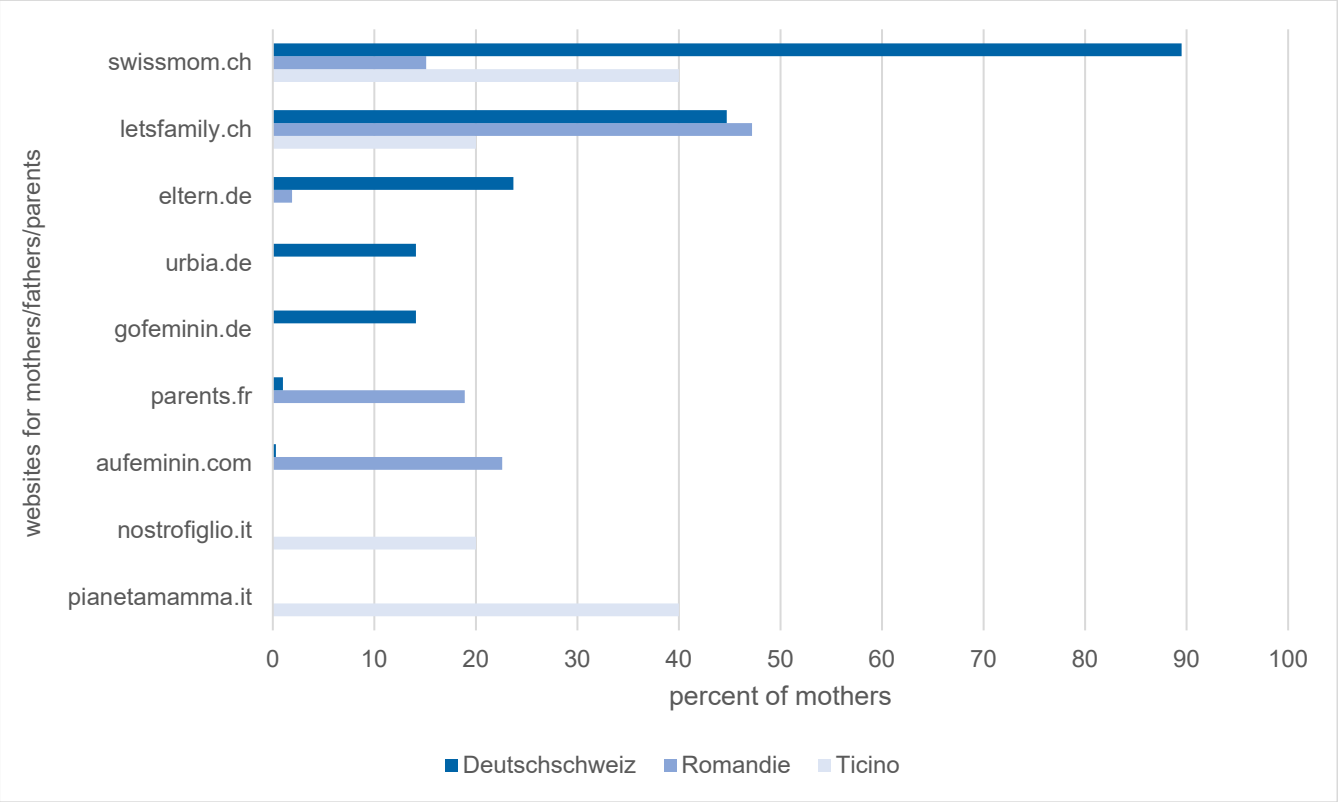
		Frequency of use			
Type of digital media	**% never**	**% never or rarely**	**% sometimes**	**% frequently**	**% very frequently**
Social media	3.0	6.0	27.5	40.4	23.2
Websites for mothers/fathers/parents	0.8	7.7	50.1	36.2	5.2
Internet search engines	0.3	4.5	32.3	40.4	22.4
Special apps on the PC or mobile devices	16.2	10.5	36.2	25.7	11.4
Websites of paediatricians/children's hospitals/midwives or lactation consultants	2.9	17.0	51.0	22.3	6.8
Official websites of health services or health organisations	0.5	17.3	51.0	23.1	8.2

The frequency of use of the different digital media was not related to mothers' satisfaction with the information found on the specific digital media except for searches on internet search engines. Mothers using search engines frequently or very frequently were more satisfied than mothers using search engines never or seldom (87.0 vs. 77.6%, p: 0.01).

Of the 365 mothers, that indicated to use websites for mothers/fathers/parents, only three did not specify which preselected websites they use. Figure 45 illustrates that *swissmom.ch* and *letsfamily.ch* were the most often used websites for parents and they were used by mothers from all three language regions, but clearly most frequently by German-speaking mothers (89.5%). *Parents.fr* (18.9%) and *aufeminin.ch* (22.6%) were mainly used by French-speaking mothers.

Mothers could also indicate other websites they use. Five mothers indicated the website of la leche league. Kinderandentisch.ch and Naitre-et-grandir.fr were each mentioned 4 times. Other websites mentioned were Pro Juventute, official websites of health services and organizations (mothers and fathers counseling or birth hospitals) and websites of companies.

Figure 45: Used websites for mothers/fathers/parents by language region



88 mothers provided a choice of three apps, that they use to inform themselves about breastfeeding and introduction of complementary foods (see Table 52). The app used most often was “baby+” of Philipps (26 mentions) and in all three language regions. Other frequently mentioned apps were “Solid Starts” (9), “cuisinez pour bébé “(7), “Instagram “(6), “Mamamap” (6), “Medela” (6) and “Oje ich wachse” (6).

Table 52: 10 most frequently mentioned apps used to inform about breastfeeding and introduction of complementary foods

Name of App	Frequency mentioned
Baby+	26
Solid Starts	9
cuisinez pour bébé	7
Instagram	6
Mamamap	6
Medela	6
Oje ich wachse	6
Baby center	4
Babyjahre	4
preglife	4

4.6.4 Check-ups and preventive measures in the first year of life

In the first year of life, it is recommended that children be regularly examined by a paediatrician to screen for developmental deviations, signs of unhealthy development, and to provide preventive measures, such as basic vaccinations or prescription of vitamin D, often referred to as “healthy child” check-ups.

4.6.4.1 Healthy child check-ups

Most mothers attended the recommended “healthy child” check-ups by a pediatrician in the first year of life. Only 2% stated that they had not (0.3%) or only partially (1.7%) attended the check-ups (Table 53). The univariate analyses showed no difference regarding nationality, mother's education, language region and mother's age with regard to the number of preventive check-ups. Almost all mothers with the highest household income attended the check-ups significantly more often (p=0.014) as compared to mothers with the lower household incomes.

Table 53: Utilization of recommended precautionary and preventive measures

N=1241	Yes		Yes, but not at the recommended times		Not or only partially	
	N	%	N	%	N	%
Attended recommended preventive medical check-ups	1196	96.4	20	1.6	25	2.0
Carried out the recommended vaccinations	1006	81.1	79	6.4	81	12.2

81.1% of all mothers stated that their infants had been vaccinated in accordance with the recommendations. 6% reported that the vaccinations had not taken place at the recommended times. One eighth of mothers stated that they had only partially vaccinated their infants (6%) or not at all (6%)

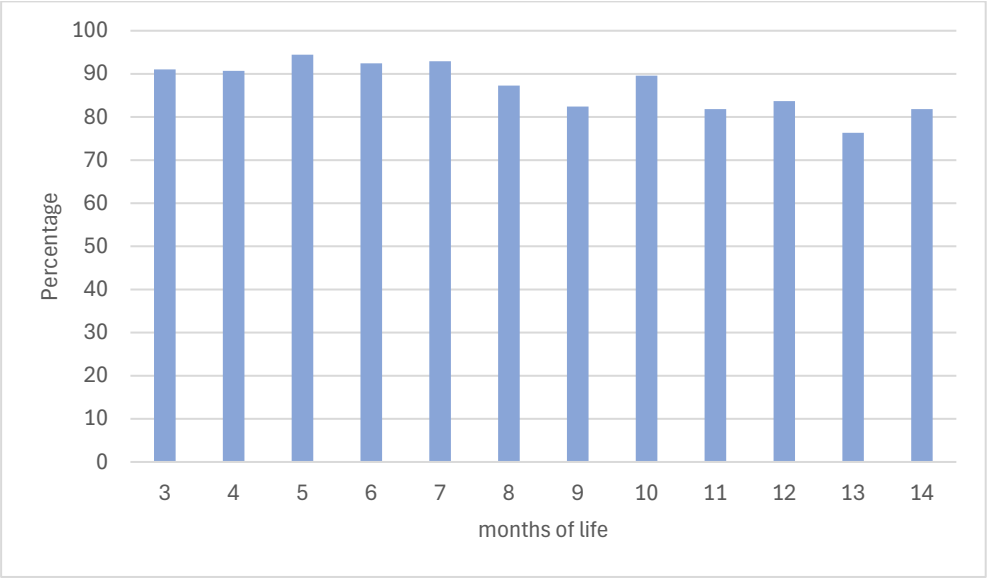
(Table 53). Among mothers who had deliberately decided against certain vaccinations hepatitis B (N=28) and rotavirus (N=18) was mentioned most often.

The univariate analyses yielded significant associations between the recommended basic vaccinations and monthly household income, nationality, mother's education and mother's age. Mothers with the highest income (p=0.001) compared to lower incomes and a nationality non-Swiss (p=0.004) compared to Swiss mothers were less likely to not vaccinate their infant, comparable to the survey 2014. 2024 mothers with a university degree compared to other educational categories were less likely to decide against vaccination (p=0.001). Further, age was associated with vaccinations: mothers older than 30 years were less likely to not vaccinate (p=0.005). The univariate analyses showed no association between vaccinations and language region.

4.6.4.2 Vitamin D

86.5% of the mothers surveyed (N=1262) stated that they had given their infant vitamin D in the last 24 hours. The prevalence varies slightly depending on the age of the infant but is generally high (Figure 46).

Figure 46: Vitamin D intake in the last 24 hours



Among the 142 infants who had not received vitamin D in the last 24 hours, only 18 (1.4%) had never received vitamin D (before). All others had previously received vitamin D (N=47) or did not receive it daily (N=77).

It was examined univariately whether vitamin D administration differed according to maternal or infant characteristics (e.g. income, childhood health problems or smoking). Mothers with Swiss nationality were more likely to have given vitamin D in the last 24 hours (p=0.018). A high household income also led to the administration of vitamin D (p=0.030). No significant difference was found between breastfed and weaned children.

The number of infants had a significant influence on vitamin D administration in the analysis (p<0.001). For example, 93% of primipara gave their infant vitamin D in the last 24 hours, 86% of mothers with 2 children and 74% of mothers with 3 or more children.

4.7 Multiple births

A total of N=48 mothers (3.8%) indicated to have given birth to multiples. Although the number is too small to make generalisable statements, the key indicators are summarized here.

From the 48 multiples, 38 are twins and 1 is a triplet. 9 mothers with multiples missed this answer as they quit the questionnaire before they got to the questions on multiples at the end of the questionnaire.

The multiple mothers were on average 35 years old (23-44 years), and more than half had complications during pregnancy (26 out of 47 mothers). Complications during labor occurred in 8 out of 47 mothers (17%). The caesarean section rate was 55%, most of which were performed for medical reasons (14 out of 26). 47% of first-born multiples health problems in the first days of life. Most common health problems were “problems due to having been born prematurely” (26%) and “insufficient weight gain” (15%). 11 out of 44 first-born and 7 out of 39 second-born were hospitalized. As reasons for hospitalizations mothers indicated among others fever, Respiratory syncytial virus (RSV), inguinal hernia and photo therapy.

91% of the first-born multiples have been breastfed. The most common feeding pattern for all ages was partial breastfeeding combined with infant formula (Table 54). 40% were weaned to the timepoint of the study. The main reasons for weaning were too little milk (75%) and exhaustion (58%).

Table 54: Infant feeding for multiples by different age categories: 24 hours protocol

	In the last 24 hours					
Monthly age	**Number of multiples (N)**	**Exclusively breastfed (N)**	**Fully breastfed (N)**	**Breastfed (N)**	**Infant formula (N)**	**Complementary food**
3	6	1	1	4	5	1
4-5	10	5	5	7	5	1
6-7	6	0	0	4	3	5
8-9	9	1	1	4	6	8
>= 10	16	0	0	9	12	16
Total	**47**	**7**	**7**	**28**	**31**	**31**

5 Discussion

The fourth national survey on breastfeeding and infant nutrition (Swiss Infant Feeding Study, SWIFS) is the subject of this report. Since the first national study in 1994, there have been many changes in breastfeeding and infant nutrition practices, parallel to legislative changes and scientific evidence on breastfeeding and the introduction of complementary foods. The Swiss recommendations on breastfeeding and introduction of complementary foods for healthy, full-term infants have not changed much in the past 20 years [14] and are in line with the European recommendations [13], while they deviate from the WHO recommendations regarding 6 months exclusive breastfeeding [12]. The current survey shows a high initial breastfeeding prevalence and good implementation of the Swiss recommendations on infant feeding. According to the 2024 survey, mothers breastfed exclusively their infants until the age of 5 months and only introduced complementary foods in the 5th month of life.

Methods and study population

Since SWIFS serves to monitor breastfeeding and infant nutrition at the national level, great importance was attached to comparability with previous studies and a random sample. With regard to comparability, the 2014 survey questionnaire was only adapted marginally. Thus, for the main breastfeeding indicators, the consistent wording was used, and a central part of the survey, the 24-hour feeding record, was also kept. Some topics were extended, such as breastfeeding and work, or introduced for the first time, digital information seeking. While in 2014 the decision was taken to use the same recruitment method as in previous studies, in which the sampling and distribution of questionnaires was carried out by mother and father counseling centers (MVB), in 2024 the decision was taken to go with a random sampling method via the national population registry. A random sample is believed to increase the representativeness of the sample and ensures the same recruitment methods irrespective of the region or canton.

Given the random sampling and postal recruitment, the response rate (34%), was in the expected range and only a little bit lower than in 2014 (40%), however, far below the participation rate in 2003 with 76%. Each sampling method has its advantages and disadvantages. In 2003 the sampling was based on the MVB address lists, which carries the bigger risk of a selection bias, but due to the personal component there is a higher chance of participation. In 2014 and 2024 the sampling basis were local birth registries respectively the national population registry. The local birth registries are sent to MVB monthly, ensuring the sampling frame was up to date. However, the national population registry is updated every 3 months. In consequence the 2024 sample does not include <3 months year-old infants, whereas the distribution of infants per month of life in total and across the regions is very even. More general reasons for the decline in response since the first breastfeeding survey have been discussed widely: the general increase in scientific population studies, but also marketing studies, a lower willingness to volunteer, and the increasing complexity of the studies [40], as well as possibly a changing interest in the topic infant feeding.

The quality and completeness of the data was high, also due to the online survey in REDCap which allowed filter questions, predefined range of entries, or reminders if a question was not answered. Also, mothers who decided to participate completed the questionnaire conscientiously despite its length.

The study population of the current survey consists mainly of married Swiss women in their mid-30s with a high level of education. The increase in mean age at birth by one year and the higher number of primipara is consistent with the shift seen in national birth statistics. The survey reached higher educated mothers better than mothers with lower educational background, however the difference was not as large as initially assumed. National data matched on the infant age and mothers highest completed education indicated that in fact highly educated mothers are the largest group of mothers in Switzerland (63.5%). Compared to the national data available to us, single-parent mothers participated less than married mothers. However, the accessible national data were insufficiently matched to the infant age in SWIFS nor the base population. The FSO national structural survey [39] estimates 5% single parents among all households, while the number of single mothers in households with children < 25 years is 14% (single

fathers 3%). The first is probably an underestimation since it takes all households as basis, while the second may be an overestimation in the SWIFS context as we expect separation rates to be the lowest for couples with infants below one year old. Compared with the Swiss birth register, the proportion of non-Swiss women was also lower (23% vs. 29%), but almost identical to 2014. Given the survey languages, German, French, Italian, and English, it is not surprising, that among non-Swiss mothers most are of European nationalities. The introduction of English as a fourth survey language did not increase the percentage of non-Swiss or even non-European mothers. Representativity remains a question and challenge for all population-based surveys. To address potential non-representativeness and impact on our breastfeeding prevalence and duration results, we ran weighted results for nationality, education, single mother status and smoking, as the latter has shown to be a strong influencing factor and national data are available.

While comparability guided the development as well as the analyses, we could not guarantee 100% similar analyses, as the data collected differed to a small degree and sometimes demanded other approaches. As an example, the high rate of breastfeeding mothers did not allow us to calculate the median and the 75% percentile for all outcomes or the decision how to calculate months or weeks of age were marginally different. We feel that these slight differences do not limit the comparability respectively the general interpretation of the data across time. The non-representation of infants <3 months of age on the other hand, limits the generalizability to this age-group. Nevertheless, the high exclusive breastfeeding rate in infants aged 3 months indicates that the prevalence in the 0–2-month-olds must be equally high or higher.

Breastfeeding

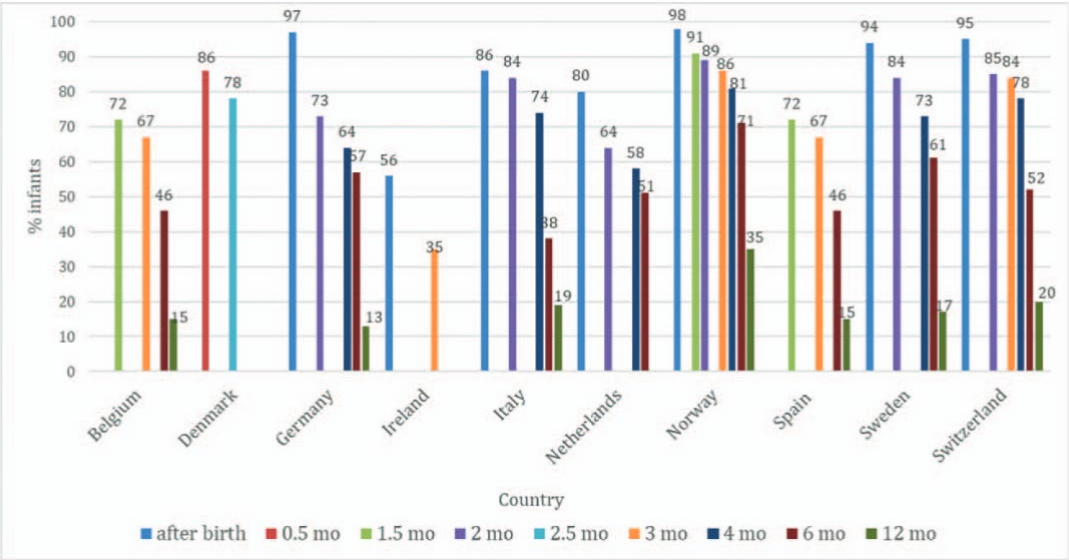
The SWIFS 2024 survey shows a high degree of consistency between current breastfeeding practices and the current Swiss recommendations on breastfeeding. Compared to the 2014 survey, the total duration of breastfeeding as well as the rate of exclusive breastfeeding have increased. In contrast, the duration of full breastfeeding was similar to 2014. The 24-hour feeding logs show that today, children are **more likely to be exclusively breastfed** during the first four months of life than in 2014 or 2003. In 2003 and 2014, water or tea was given significantly more often in addition to breast milk, while in 2024 predominant breastfeeding was almost non-existent. This development is particular and indicates a conscious decision to avoid any other fluids in the first months of the infant's life. While overall, we see a prolongation of breastfeeding duration, the reasons for weaning have not changed. Breastfeeding problems with the first child were already among the two most frequently cited reasons for primary weaning in 1994, 2003 and 2014.

In the period between the first two surveys, 1993 and 2003, various public health measures to promote breastfeeding were implemented, e.g., the launch of the WHO initiative "Baby Friendly Hospitals" (BFH) in 1997 and the establishment of the Foundation for the Promotion of Breastfeeding in 2000. These measures also included the training of breastfeeding counselors and awareness-raising in hospitals and among the general public. Since then, even though less hospital carry the Baby Friendly Hospital Label [48], more and more hospitals follow breastfeeding friendly practices which might have led to the constant increase in breastfeeding [48].There were also some important legislative steps in support of breastfeeding. In 2014, a law addressing breastfeeding stipulates that breastfeeding at work and at home is recognized as working time, indicating that breastfeeding is considered a relevant practice by society and policymakers. In 2017, the new EU Commission Delegated Regulation was adopted and applied in the years to follow, modifying labeling rules, forbidding nutritional and health claims on infant formula [49]. While the surveys cannot investigate the direct causal effect on breastfeeding of these changes, the data do provide some insight into their implementation and let us speculate on their impact.

Comparisons with other surveys must always be interpreted with caution due to methodological differences, however, the comparison provides a rough benchmark. Figure 47 shows breastfeeding prevalence rates in different European countries from before 2019 [50]. Here the German, Swedish and Norwegian rates are

similar to the Swiss rates, which were based on SWIFS 2014. Newer literature with international comparisons was not found.

Figure 47: Reported percent of any breastfeeding infants by country and age [50].



The repeated population-based surveys on infant feeding make it possible to identify trends not only in prevalence rates and breastfeeding duration but also in determinants of breastfeeding duration. Since 1993 the survey collects and analyses behavioral factors, such as smoking and body weight and more recently maternal nutritional behaviors, as well as maternal and infant individual and social factors.

From a public health perspective, the reasons for early weaning are of interest. The number of mothers who weaned directly after birth (primary weaning) is almost negligible (N=22). However, apart from a third who had no desire to breastfeed, previous problems with breastfeeding were the main reason for weaning, right after birth. These reasons can be addressed by health professionals involved in pregnancy and birth. Breastfeeding problems are indeed very common, especially in the beginning. Almost all mothers reported some kind of problems, from “sore nipples”, “child’s difficulty to suckle” to “not enough milk”. Two-thirds received professional counselling and help in the puerperium or during the first days at home. However, two-thirds still reported similar problems later on. The survey did not ask about the magnitude or duration of these problems or if counselling was provided. The breastfeeding problems themselves play a role for secondary weaning, in fact “too little milk” was mentioned frequently. According to a systematic review, mothers’ perception of insufficient milk is a common barrier to exclusive breastfeeding with a strong evidence level [36]. However, other reasons to wean were just as important. For infants who had been weaned early, but also by mothers who had returned to work, “exhaustion” was a frequent answer. Exhaustion was already mentioned in 2014. It is not clear whether these states of exhaustion can be reduced with increased support or counseling [51], but they should be taken seriously [52,53]. Mothers who had returned to work after 16 weeks also frequently stated that breastfeeding could not be reconciled with their job. Working mothers were twice as likely to report that their infant no longer wanted to breastfeed and that they wanted more time for themselves and their partner. Thus, maternal and structural reasons are important weaning determinants. Given that we see a prolongation of breastfeeding altogether, the urgency of addressing these factors might seem less important. However, the structural reasons associated with work should be addressed.

The multivariate analysis showed that sociodemographic factors, factors related to everyday life, and the attitude of the closest (friends and family) toward breastfeeding influence the duration of breastfeeding. Compared to 2003 and 2014, maternal age was no longer a significant factor, which might be explained by the increasing age of primipara. Among the other explored socio-demographic factors, only income was significant. Mothers with high household income showed a lower risk of earlier weaning compared to other income categories. Among the behavioral factors, women who smoked at the time of the survey had stopped breastfeeding earlier, while mothers who said they paid attention to their diet had a lower hazard ratio to wean earlier. Smoking mothers are likely to be aware that nicotine accumulates in breast milk and can harm the child [54]. Among the infant health issues explored, high birth weight is associated with a lower risk of earlier weaning, as well as longer full or exclusive breastfeeding duration, while health problems are associated with a higher risk for all three outcomes. The impact of birth weight on breastfeeding duration is in line with other European studies and it is hypothesized that infants with higher birth weight may have better health and feeding capacities [55,56]. The analyses indicate further that maternal indecisiveness regarding the wish to breastfeed is associated with a higher risk of early weaning, while the wish of the closest ones for the mother to breastfeed increases the chance of longer breastfeeding. The result may encourage professionals to address the topic with persons important to the mother prior to birth.

A population survey carries the risk of bias due to self-selection. Should mothers who weaned early have participated less than breastfeeding mothers, the data may overestimate the breastfeeding prevalence. While we cannot control for this self-selection reason, we can control for factors associated with “early weaning”. To correct for potential self-selection bias we ran weighted analyses for nationality, education, single parent, and smoking. The choice of factors was based on their significance for breastfeeding in both 2014 and in 2024, with the exception of nationality which was no longer significantly associated with breastfeeding in 2024. The weighting was based on whole population data and data were available for the specific target group of mothers with infants. The weighted analysis on breastfeeding prevalence and duration yielded non-relevant differences to the unweighted analyses. This implies that the collected sample is in fact quite representative with regard to these factors.

Baby Friendly Hospital criteria

The Baby Friendly Hospital Initiative (BFHI) was implemented to improve breastfeeding support [57]. United Nations International Children's Emergency Fund (UNICEF) has defined breastfeeding-promoting guidelines (Ten Steps to Successful Breastfeeding) including measures such as immediate skin-to-skin contact, early attempt of breastfeeding, rooming in, no use of bottle and pacifiers and not distributing free formula samples which should be fulfilled by the UNICEF-certified Baby Friendly Hospitals [58]. Certain conditions in hospitals, which must be met by “Baby-Friendly” hospitals, can promote breastfeeding. The past surveys investigated the effect of these measures and could show a positive association for most of the Baby-Friendly measure [7–9]. In addition, it was shown that BFHI hospitals had higher breastfeeding rates in 2014 than non-BFHI hospitals [22].

In recent years, the BFHI certified hospitals in Switzerland decreased significantly [48]. However, many hospitals who carried the Baby Friendly Label once continue to implement the measures, and many other hospitals have implemented them at least partially. SWIFS 2024 shows that more than two-thirds of mothers had immediate skin to skin contact after birth (90%), could attempt to breastfeed within the first two hours (86%), roomed-in (81%) or breastfed on demand (85%). Further, 93% were only fed with breast milk while in hospital, which increases the likelihood that breastfeeding is continued after discharge. Two measures are still less well implemented, no pacifier use (68%) and bottle feeding (66%). However, the

evidence of their importance for breastfeeding seems less robust. In fact, in 2014 already, pacifier use was not significantly associated with breastfeeding. Albeit, strictly regulated by law [59], 9% had received free samples of infant formula in the hospital. On a positive note, this is lower than in 2014, when 16% of mothers reported receiving infant formula, and 2003 survey with 23%.

Introduction of complementary foods

A total of 71% of children in the study sample had already received complementary foods at the time of the study. This high prevalence is linked, among other things, to the mean age of the participating children, which was 7.4 months. Complementary foods are mainly introduced between the 5th and 7th month, in line with Swiss recommendations. Overall, complementary foods were introduced at a similar time in 2014 and 2024, but earlier than in 2003. While the last SWIFS report 2014 discussed if the introduction of complementary foods in the 5th month would impact breastfeeding rates, the current survey indicates that this does not impact breastfeeding duration negatively. It is also positive to note that similar to 2014 but in contrast to 2003, almost no complementary foods were introduced before the age of 4 months (1% vs. 4%). Regarding complementary food introduction Switzerland with a median introduction age of 5 months is similar to other European countries: The mean monthly age of introduction of complementary foods was between 4.7 and 5.8 months in France and United Kingdom [60] and the median in six European countries was 6 months [61]. However, the proportion of children who received complementary foods before 4 months of age varies greatly: from 0.8% in Greece to 17.5% in Belgium [61].

The multivariate analysis of the determinants of complementary feeding introduction yielded only few significant factors. A higher educational degree of both parents and the maternal return to work were associated with an earlier introduction of solid foods while German/Italian language region was associated with a later introduction. The association with language region was already seen in 2014. Compared to past surveys, introduction of complementary foods seems to be less influenced by maternal lifestyle, when smoking status and overweight were significantly associated with an earlier introduction. In the past also younger maternal age was negatively associated, however the average age of primipara is higher and there are no < 20-year-old and only 14% 20-29 year-old mothers compared to 27% in 2014 in our sample. Further, we no longer see a gender difference with regard to the timing of complementary foods. In 2014, Swiss and international data indicated that boys were given complementary foods earlier [62,63].

The factors higher educational degree and return to work are also significant factors for shorter breastfeeding duration, while not all factors associated with shorter breastfeeding play a role for complementary feeding. Returning to work might have to do with the necessary delegation of feeding, especially, in view of the low number of mothers who actually do breastfeed or pump milk at work. The effect of educational status is harder to explain, and questionnaire data does not allow the mothers' motives to be examined.

Detailed analyses of the intake of individual foods also showed a high compliance with Swiss recommendations [1,2]. Further, we did not observe any difference between the timing of the introduction of complementary foods in children with and without allergic predisposition, which indicates that mothers are aware of the recommendation to introduce foods between the 5th and the 7th months also in infants with an allergic predisposition. Evidence indicates this time point of introduction is actually protective for allergy development [64,65]. It should be noted that only 15% of the mothers reported an allergic predisposition compared to 40% in 2014. Another paradigm shift around the time of SWIFS 2024 was that the introduction of a larger variety of foods in the first year of life is associated with less allergies [66]. The SWIFS 2024 data show that mothers actually introduce the range of food groups until the age of 12 months.

In the following, specific foods are addressed: sweetened foods&drinks, cow’s milk, cereal. Since 2003, sweetened foods and drinks are being introduced significantly later overall. While in 2014, 50% of all children had already been given sweetened foods by the age of one, in 2024 it was only 25%. In contrast to 2014, no significant regional and cultural differences in the introduction of sweetened complementary foods or drinks

could be found. This is certainly due to the small number of infants who received sweetened foods at all, reducing the power of analysis. However, it might also be due to a general trend, which we can see from 2003, over 2014 to today. Overall, the observed trend to less sweetened foods is a very positive one, as early introduction of sweetened foods and sweets is associated with long-term health consequences, such as obesity and tooth decay [67]. Cow's milk is recommended after the age of 1, but can be given in small quantities for preparing food, e.g., porridge, from the age of 7 months [46]. Similar to 2014, a small number of infants (5%) received cow's milk after the 6th month of life, but only 1 infant before. A third reported diluting cows' milk. As the survey does not ask for quantities, it cannot assess if the recommendation is followed fully. An early introduction of gluten containing cereals between the 4th to 12th months was first recommended by the ESPGHAN in 2016 and updated in 2024 [68,69]. A third of the infants received cereals by the age of 5 months, of which most were gluten-containing cereals. The change in recommendations regarding gluten exposure [1,14] seems to have reached mothers, while overall cereals are still being introduced later than proposed by pädiatrie schweiz.

Going back to work

The vast majority of mothers had been in paid employment before giving birth (91%) and at the time or the survey half of the participants had returned to work. The proportion of women who had returned to work was similar to 2014, however, higher than 2003 (35%). SWIFS addresses employment as determinant of infant feeding and as a potentially promotive setting. Firstly, women who had started to work were more likely to have introduced infant formula by the time of the survey. Thus, going back to work was a significant factor associated with shorter exclusive breastfeeding duration. However, it did not impact the full or total breastfeeding duration. Secondly, returning to work is significantly associated with an earlier introduction of complementary foods, not before the 5th month of life, but earlier within the recommended age range. Thirdly, regarding employment as a setting, different laws regulate breastfeeding promotion at work. According to Labor Act [70] employers must provide a suitable place (a room with privacy and good hygiene conditions—not the restroom) for breastfeeding or pumping milk. Since July 2014, breastfeeding at work and at home is recognized as paid working time to a limited extent regulated in the Article 60(2) of Ordinance 1 to the Labor Law (Verordnung 1 zum Arbeitsgesetz; ArGV 1) in line with international law (ILO Convention No. 183) [23,70]. Compared to 2014, markedly more women were informed about their rights as breastfeeding employees, although only a third had been informed by their employers. While most mothers were informed, if not by the employer than otherwise, 11% did not know about the rights as breastfeeding mother of an infant. While there still is room for improvement, the data show an improvement to 2014 when only 13% had been informed by the employer and a third was not informed at all. Similarly, there is an improvement regarding the provision of a room adequate for breastfeeding and pumping milk. Half reported that their employer had a suitable room for expressing milk/breastfeeding (2014 35%) and the majority had the possibility to keep the milk refrigerated at their workplace (2014 65%). A bit more than a half of the mothers in our sample were actually expressing milk at their workplace and 16% were breastfeeding. While these laws have been in place for some time, a quarter of the working mothers would feel uncomfortable expressing milk or breastfeeding at the workplace, rather similar to the third in 2014. It seems as the culture or social norms haven't changed along with the legislation. Feeling uncomfortable breastfeeding or pumping milk at work, the non-availability of an adequate room to breastfeed or pump milk or a refrigerator to store breast milk, as well as the working percentage were significantly associated with a shorter breastfeeding duration in univariate analyses.

Maternal health, health behaviors and health counselling

This survey includes a detailed record of chronic illnesses in mothers, health risk factors, and children's health. Fortunately, the majority of children and parents are healthy. The number of mothers who reported poor or very poor health was below 1% and 16% considered their health to be average. This might be an

underestimation, as mothers with very poor health might be less inclined to participate in a study. Similar to 2014, among SWIFS 2024 participants a quarter had a chronic disease diagnosed prior to pregnancy. Half of the women with preexisting chronic diseases were advised about their disease before pregnancy by their gynecologist. However, most women with high blood pressure or diabetes received advice, as well as women who stated “other” disease. A bit concerning is the fact, that only half of the women with pre-existing mental illnesses had received advice. Especially, in view of the overall high prevalence of mental health conditions [71] and the higher risk of postpartal depression in women with previous diagnosis of depression. [72]. Women who reported “other illnesses” received counseling most frequently (77%). It is of course possible that mothers did not recall the advice received. The differences by diagnosis, however, indicate that there is a differential practice depending on diagnosis.

The vast majority of mothers attend their first prenatal checkup within the first trimester. This initial prenatal check-up, as well as subsequent check-ups, provide an opportunity to discuss relevant topics for pregnancy and childbirth, vaccination, weight or smoking and alcohol consumption during pregnancy. Only a fifth reported not having received advice on alcohol consumption or smoking, which is less than in 2014, when health counselling in pregnancy was first addressed. However, mothers who smoked before pregnancy did not receive more counselling as compared to non-smoking mothers, while smoking mothers during pregnancy were advised more often. Approximately two-thirds of mothers received advice on nutrition during pregnancy, while almost all were advised on folic acid (95%) and supplements (92%).

Regarding smoking, 16% smoked before pregnancy, which is lower than in 2014, and except for 3 women, all stopped smoking during their pregnancy. After birth a small percentage of the previous smokers (5%) took up smoking again. Almost all participants (98%) stated that they did not drink alcohol during pregnancy. Among breastfeeding mothers, the proportion of mothers who abstain from drinking alcohol or consume very little (less than once a month) is positively high, 83%, also compared to 2014 (48%). One health outcome of concern is the prevalence of overweight (26%) and obese mothers (11%). Maternal obesity during pregnancy is associated with more frequent birth complications and can have metabolic consequences for the child [73]. While we did not investigate any potential association with birth complications or outcomes, we do see a higher rate of gestational diabetes in women with overweight or obesity (12%) compared to normal weight mothers (5.4%). Problematic is also that the mean weight gain during pregnancy in overweight and obese mothers exceeded the recommended weight gain in pregnancy [2,44]. While it is positive to note that obese and underweight pregnant mothers received nutritional advice more often than normal-weight or overweight mothers, a third had not.

Taking folic acid, iron, and other minerals and vitamins during pregnancy may have a positive effect on the health of both mother and child [74,75]. There is good scientific evidence for folic acid, in particular. Folic acid was taken by almost all mothers (96%), which is even higher than in 2014 (90%), and two-thirds took folic acid before conception, provided the pregnancy was planned. Numerous studies confirm that taking folic acid 4 weeks before conception and until the 12th week of pregnancy reduces the risk of neural tube defects in the unborn child [31]. The FSVO therefore recommends a continuous daily intake of 0.4 mg of synthetic folic acid in tablet or capsule form, preferably in a multivitamin preparation [75]. Folic acid is a water-soluble vitamin that is important for cell division. Therefore, there is an increased need during pregnancy that cannot be met through diet alone [75]. Mothers who had not planned their pregnancy took folic acid less often as recommended, but most within the first eight weeks of pregnancy. Considering that in the 2003 survey, folic acid intake was much lower (67%), one may speak of a very successful development and efforts by health and public health professionals to raise awareness and intake. But it would be desirable to increase pre-conception intake. Univariate analyses indicate that a lower socioeconomic status is associated with lower folic acid intake. The 5th Swiss Nutrition Report [76] already found that mothers from the former Eastern Bloc countries and Turkey took folic acid prophylactically less often than mothers from Western European countries.

Influenza and Pertussis vaccine are both specifically recommended for pregnant women in the Swiss National Immunization Plan, which recommends that women receive Influenza vaccine at any stage in their pregnancy and Pertussis vaccine during the 2nd or 3rd trimester [77]. Previous studies have shown

discrepancies in uptake of the two vaccines [78], but to date there is no nationally representative data on vaccine uptake in pregnancy for these two vaccines in Switzerland. In 2024, the survey asked about vaccinations in pregnancy, specifically against influence or pertussis. The majority of women had been counselled on either of these two vaccines. Overall, more women were vaccinated against pertussis (70%) than influenza (22%), also when adjusted for seasonality: Influenza vaccination campaigns go from mid-October until the start of wave of Influenza cases that season – generally in late December or early January. Vaccinations may be available until the end of the season, typically in March [79]. The main reasons for vaccination were the recommendation by a professional and the wish to protect the child. More than half of the women, who had not been vaccinated, felt it was unnecessary, or had not received a recommendation by a health professional. The data indicate that the official recommendations and health arguments for these vaccinations, especially against influenza, are not yet known broadly and that recommendation does seem to have an impact.

In 2024 two-fifth (40%) reported pregnancy complications. While these data are subjective and the gravity of the complications cannot be evaluated, this constitutes a rise in comparison to 2014 (29%) and 2003 (26%). While all diagnoses show a rise, with exception of pre-eclampsia, a 100% increase in gestational diabetes and a 75% increase in hypertension sticks out. Birth complications are a traumatic and dangerous event for both mother and child. Fortunately, only a fifth reported birth complications which was lower than 2014 with a third of the participants having experienced a birth complication. Caesarean sections were similar to the 2003 (27%) and 2014 (30%) survey with a bit below a third (28%). The frequency of complications underscores the importance of good counseling, preventive care, and treatment for mothers.

A third of the participants reported mental health problems in the first weeks after giving birth. Among these, most experienced great sadness and crying (baby blues) and 8% were diagnosed with postpartum depression. While the mothers with post-partum depression had received treatment in form of psychotherapeutic support or medication, most mothers did not need treatment.

Child health and prevention

Most infants are healthy; however, a considerable percentage reported a health problem after birth (30%) and 7% of the infants were hospitalized after birth. Right after birth the main health problems are related to premature birth, insufficient weight gain or jaundice. The most common illnesses later on are fever and colds. More serious illnesses or hospitalizations were rare. It is worth noting that almost a quarter of children received medication in the previous 24 hours (22%). The most common medications besides vitamin D were complementary or homeopathic remedies (11%). Six percent of children received painkillers or fever suppositories similar to 2014. While we cannot evaluate the indication or correctness of use, overall, the use of medication seems stable.

Most mothers also took advantage of preventive care services for their infants. Only 2% had not yet had the preventive checkups carried out or had only had some of them done. This is in line with 2014 and anecdotal information. Early preventive check-ups have a high acceptance in the population. The prevalence of children who had not been vaccinated according to the vaccination schedule was higher (6%). A similarly high percentage of children in Switzerland remain unvaccinated or only partially vaccinated during childhood [80]. Both SWIFS and the national vaccination-monitoring, however, are prone to self-selection of health-conscious parents or social desirability bias.

In infancy, all children, and in particular fully breastfed children should receive vitamin D, as breast milk contains little vitamin D and fully breastfed children do not obtain vitamin from infant formula or fortified complementary foods [81]. Thus, it is good to know that the proportion of infants receiving vitamin D in the previous 24 hours was a bit above 90% until the 7th month of life. Further, vitamin D substitution was even higher in SWIFS 2024 than in 2014 (87% vs. 81%). Based on the response rate of the current study and the inclusion of all children up to 14 months of age, we observed that mothers are giving their children additional vitamin D after their first birthday, in line with the recommendations of the FSVO, which recommends the supplementation of vitamin D beyond the first year of life [29]. SWIFS could show again that first-born

children have a higher chance of receiving vitamin D than second or further children. Possibly, counselling assumes prior knowledge and vitamin D is less a topic in counselling of multi-para. SWIFS did not measure actual vitamin D levels and thus cannot make a statement on vitamin D sufficiency or deficiency. While Menu-CH kids will provide first-time national vitamin D status data in 6 – 17-year-olds, there is in fact no Swiss epidemiological data on vitamin D deficiency in healthy newborns and infants. Further, SWIFS did not address children with higher risk of vitamin D deficiency such as children with heavily pigmented skin, insufficient sun exposure, and overweight [82].

Limitations

Some limitations need to be discussed. In general, surveys carry the risk of self-selection bias. The study tried to avoid this by using neutral wording, simple language, and addressing infant nutrition instead of breast feeding as our main focus in the invitation and information letter. Nevertheless, we cannot exclude that the study may have attracted more mothers interested in infant nutrition with possibly a higher compliance with recommendations. We addressed this potential selection by running weighted analyses for factors we had current and specific national data, such as nationality, educational level, single parenthood, and smoking in mothers with infants.

The 24-hour feeding records are likely to overestimate the prevalence of exclusive breastfeeding, as a child may have received tea, infant formula or complementary foods earlier on another day [83]. The Kaplan-Meier curves, on the other hand, are based on retrospective data that take this aspect into account. The limitation here is the recollection of the mother (recall bias). However, there is no reason to assume that the uncertainties described would have changed over time.

The Kaplan-Meier Analyses were applied for the sake of comparability of methods and results across the survey. However, due to the high percentage of breastfeeding mothers at the time point of the study, we were not able to calculate all percentiles. This relates to the Kaplan Meier survival time method, which can only estimate the percentiles, when sufficient women actually stopped to breastfeed, all other participants drop out at the infant age and are censored. The high percentage of mothers still breastfeeding in the sample (right-censored events) could bias the results on total breastfeeding duration. Although the Kaplan Meier procedure takes censoring into account, it makes specific assumptions on the mechanism of censoring which should be fulfilled. Other methods for handling censoring have been proposed , which have not been applied, mostly because the described problem did not occur for all investigated outcomes, and in addition, the Kaplan Meier results based on retrospective data are consistent with the 24-hour feeding results, as well as with the trend already seen in 2003 and 2014. Nevertheless, to avoid right-censoring in future infant feeding monitoring's, the observation period should be prolonged by considering also infants older than 12 months old.

6 Conclusion and recommendations

SWIFS 2024 shows a very high compliance with Swiss guidelines and recommendations regarding infant feeding and preventive interventions. This high level of compliance with pediatric recommendations has even increased since 2014 and is evident for all the breastfeeding indicators, as well as for the introduction of complementary foods. The trend to longer breastfeeding duration and especially a trend to exclusive breastfeeding in the first 4 months of life are noteworthy. Among the factors associated with breastfeeding respectively weaning some can be addressed more easily, such as exhaustion or involvement of family and friends, than others, especially the repeatedly shown influence of socio-demographic factors, such as education or income, are less easily modifiable. However, counselling and support can be intensified to help mitigate their impact.

Among the preventive interventions recommended, we see a high intake of folic acid in pregnancy, and in infants a high vitamin D supplementation, attendance of preventive healthy child visits and vaccinations. SWIFS 24 underlines the high importance of counselling in pregnancy and in infancy. The first 1000 days (from pregnancy to two years of age) are considered a window of opportunity for public health. In this period parents commonly show a high interest in health promotion and prevention for their child's health. This can be extended to the health of the family altogether. The information gathered on preventive care and counseling of pregnant mothers, introduced first in 2014, indicated again some need for action. Still, a fifth did not receive counselling on smoking in pregnancy, also among smoking women. Addressing preexisting chronic diseases, especially mental health, can still be improved. Further, the high weight gain in obese and overweight mothers indicates a need for intensified counselling and support. Obesity is a risk factor for mother and child's health. National guidelines of different countries stress the importance of identifying overweight during pregnancy in order to provide counseling about nutrition and physical activity and to inform about the maternal and fetal complications associated with overweight during, pregnancy, delivery and postpartum [84]. On the positive side, alcohol consumption in pregnancy has declined, indicating a higher social awareness, and possibly a trend of higher health consciousness altogether. The importance of counselling is evident also in view of the frequently cited breastfeeding problems and their impact on breastfeeding duration. This is a theme across all Swiss infant feeding surveys and most probably avoiding such problems to a 100% is not possible. However, with good counselling problems can be alleviated and breastfeeding can be continued.

The new legislation on breastfeeding at work was introduced in 2014. SWIFS cannot make a direct connection between this legislation and breastfeeding by mothers who returned to work. The data indicate an improvement, but not yet satisfactory change in information status on breastfeeding working mothers' rights, the availability of breastfeeding rooms and refrigerators, and the actual use of these rights. The latter is most probably due to a combination of structural factors – e.g. information status or societal attitudes like the acceptance of breastfeeding at work – and individual factors, including the low number of women who actually feel comfortable to breastfeed or pump milk at work. The recent SECO[2] campaign to sensitize employers and public, indicates the way forward, creating a higher responsibility on the side of employers and a change in culture.

Overall, the SWIFS 2024 provides important data on infant nutrition and health of mother and child in Switzerland. For future surveys, it is recommended to extend the survey to the age of 18 months to take the longer breastfeeding duration into account. An extension to 24 months of age would add importantly to the value

[2] https://www.news.admin.ch/de/nsb?id=102242

of SWIFS, since very little data is available on nutrition, other health behaviors and prevention in the under-two-year-olds.

7 List of literature

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8 Appendix

8.1 Univariate analyses breastfeeding

A HR>1 means a higher probability of having already weaned the infant at a certain point in time compared to the respective baseline group or no longer breastfeeding fully or exclusively.

Table 55: Breastfeeding duration by age, nationality, education, income, employment, family factors (single parent, number of infants) and language region

	Total breastfeeding		Full breastfeeding		Exclusive breastfeeding	
	Hazard ratio	**95% CI**	**Hazard ratio**	**95% CI**	**Hazard ratio**	**95% CI**
Age of mother						
19-29 years [	1					
30-39 years	0.96	0.69-1.35	1.06	0.90-1.24	1.03	0.88-1.22
> 39 years	1.42	0.87-2.30	1.29(*)	0.96-1.73	1.27	0.95-1.69
Nationality of mother						
Swiss	1					
Europe	0.79	0.58-1.07	1.03	0.87-1.22	1.03	0.87-1.21
Outside Europe	1.01	0.47-2.14	1.13	0.71-1.78	1.04	0.66-1.65
Higher education of parents						
Without higher education	1					
One parent	0.73(*)	0.52-1.04	0.92	0.75-1.12	0.87	0.71-1.07
Both parents	0.59***	0.43-0.81	0.89	0.75-1.07	0.85(*)	0.71-1.02
Income						
>4500Fr	1					
Between 4500 and 6000 Fr.	1.17	0.61-2.27	1.04	0.71-1.53	1.10	0.73-1.66
Between 6000 and 9000 Fr.	1.07	0.58-1.99	1.17	0.82-1.68	1.21	0.81-1.79
Over 9000 Fr.	1.01	0.54-1.89	1.16	0.81-1.66	1.16	0.78-1.71
Employment						
(not yet) employed	1					
Employed	1.57	1.21-2.04	1.41***	1.22-1.62	1.41***	1.22-1.63
Family						
Living with partner	1					
Single parent	0.89	0.55-1.43	0.79	0.60-1.04	0.81	0.62-1.07
Number of further children under 17 years old	1		1		1	
No further child						
1 further child	1.01	0.77-1.32	0.86(*)	0.73-1.00	0.88	0.75-1.03
2 or more further children	0.85	0.54-1.34	0.69**	0.53-0.90	0.68**	0.52-0.88
Language-region						
French-speaking	1					
German & Italian-speaking	0.63***	0.48-0.82	0.82**	0.69-0.97	0.82**	0.69-0.97

Total breastfeeding duration: period during which the infant receives breast milk and possibly tea, infant milk or complementary food,
Full breastfeeding: Period in which the infant receives breast milk and possibly tea (no complementary food, no infant milk)
Exclusive breastfeeding: Period in which the infant only receives breast milk
Significance level: *p<0.05, **p<0.01, ***p<0.001, (*) p<0.1

Table 56: Breastfeeding duration by lifestyle and health factors of the mother

	Total breastfeeding		Full breastfeeding		Exclusive breastfeeding	
	Hazard ratio	**95% CI**	**Hazard ratio**	**95% CI**	**Hazard ratio**	**95% CI**
BMI						
18.5-24.9 (normal weight)	1		1		1	
>18.5	0.48	0.17-1.26	1.06	0.71-1.57	1.03	0.69-1.53
25-30	1.32(*)	1.00-1.74	1.03	0.86-1.22	1.01	0.86-1.21
>30	2.04***	1.45-2.87	1.58***	1.26-1.97	1.60***	1.28-2.01
Physical activity (minutes of being out of breath)						
Inactive	1		1		1	
Partially active	1.02	0.74-1.39	1.06	0.88-1.72	1.06	0.88-1.28
Active	0.85	0.62-1.17	0.91	0.76-1.09	0.92	0.76-1.10
Mother smoking						
No	1					
Yes	3.66***	2.55-5.25	1.52**	1.09-2.11	1.61***	1.21-2.14
Allergic predisposition						
None	1					
Yes, diagnosed by physician	1.09	0.70-1.69	0.83	0.65-1.07	0.85	0.66-1.10
Pay attention to diet						
No	1		1		1	
Yes	0.58***	0.45-0.75	0.95	0.82-1.09	0.93	0.83-1.06
Mental health issues						
No	1		1		1	
Yes	1.82***	1.42-2.34	1.37***	1.18-1.59	1.32***	1.14-1.54

Total breastfeeding duration: period during which the infant receives breast milk and possibly tea, infant milk or complementary food
Full breastfeeding: Period in which the infant receives breast milk and possibly tea (no complementary food, no infant milk)
Exclusive breastfeeding: Period in which the infant only receives breast milk
Significance level: *p<0.05, **p<0.01, ***p<0.001, (*) p<0.1

Table 57: Breastfeeding duration by birth factors

	Total breastfeeding duration		Full breastfeeding		Exclusive breastfeeding	
	Hazard ratio	**95% CI**	**Hazard ratio**	**95% CI**	**Hazard ratio**	**95% CI**
Birth weight						
<2500	1		1		1	
2500-4000	0.49***	0.31-0.76	0.63**	0.46-0.88	0.63**	0.45-0.87
>4000	0.40**	0.22-0.72	0.52***	0.35-0.78	0.51***	0.34-0.75
Gestational age						
Term birth	1		1		1	
Premature birth	3.96***	2.16-7.53	2.28**	1.31-3.94	2.17**	1.25-3.77
Late premature birth	1.16	0.67-2.03	1.45	1.04-2.03	1.51**	1.08-2.10
Transferred	1.01	0.47-2.13	0.93	0.62-1.40	0.91	0.61-1.37
Health problems first day or weeks of life						
No	1		1		1	
Yes	1.60***	1.23-2.03	1.49***	1.29-1.72	1.44***	1.25-1.66
Illnesses/conditions						
No	1		1		1	
Yes	1.26	0.88-1.78	1.21(*)	1.00-1.47	1.24**	1.02-1.51
Mode of birth						
Spontaneous	1		1		1	
Instrumental birth	1.16	0.78-1.71	1.19(*)	0.96-1.43	1.16	0.93-1.44
Caesarean section	1.75***	1.36-2.25	1.39***	1.21-1.61	1.37***	1.18-1.61
Pain medication/ birth mode						
Vaginal without pain medication	1		1		1	
Vaginal with pain medication	1.43	0.88-2.33	1.23(*)	0.96-1.56	1.15	0.87-1.51
Vaginal with PDA	1.55**	1.13-2.14	1.28***	1.10-1.49	1.23**	1.03-1.46
Caesarean section	2.16***	1.59-2.93	1.52***	1.77-3.26	1.47***	1.24-1.75

Total breastfeeding duration: period during which the infant receives breast milk and possibly tea, infant milk or complementary food

Full breastfeeding: Period in which the infant receives breast milk and possibly tea (no complementary food, no infant milk)

Exclusive breastfeeding: Period in which the infant only receives breast milk

Signifiance level: *p<0.05, **p<0.01, ***p<0.001, (*) p<0.1

Table 58: Breastfeeding duration by infant-friendly hospital indicators

	Total breastfeeding duration		Full breastfeeding		Exclusive breastfeeding	
	Hazard ratio	**95% CI**	**Hazard ratio**	**95% CI**	**Hazard ratio**	**95% CI**
Child placed at chest/stomach/in my arms immediately after birth	1		1		1	
Yes						
No	1.72***	1.24-2.38	1.44***	1.16-1.78	1.41**	1.14-1.75
First attempt at breastfeeding	1		1		1	
Within an hour of the birth						
Within two hours of the birth	1.76***	1.28-2.42	1.28**	1.06-1.56	1.30**	1.08-1.58
Later	1.66**	1.19-2.30	1.64***	1.35-1.99	1.62***	1.33-1.96
Rooming in						
Child was with me day and night	1		1		1	
Child was separated from me one or twice a few hours	1.67**	1.19-2.39	1.45***	1.15-1.83	1.45**	1.15-1.82
Child was with me during the day and slept in another room at night	3.07***	1.85-5.12	1.78**	1.06-2.98	1.70**	1.01-2.86
Rhythm of breastfeeding	1		1		1	
Stick to timetable						
When child shows signs of being hungry	0.62**	0.44-0.86	0.78**	063-0.98	0.79**	0.62-0.99
Nutrition in first days of life	1		1		1	
Breastmilk						
Breastmilk and maltodextrin solution or water	1.55	0.69-3.45	1.14	0.82-1.59	1.10	0.80-1.53
Breastmilk and infant formula	2.77***	2.19-3.51	2.44***	2.08-2.85	2.33***	2.00-2.72
Pacifier received from hospital/clinic/birthing center	1					
No						
Yes	1.85***	1.45-2.36	1.33***	1.14-1.55	1.28***	1.10-1.49
Free samples at hospital/clinic/birthing center	1					
No						
Yes	1.56**	1.08-2.24	1.52**	1.16-1.98	1.51**	1.16-1.98

Total breastfeeding duration: period during which the infant receives breast milk and possibly tea, infant milk or complementary food

Full breastfeeding: Period in which the infant receives breast milk and possibly tea (no complementary food, no infant milk)

Exclusive breastfeeding: Period in which the infant only receives breast milk

Signifiance level: *p<0.05, **p<0.01, ***p<0.001, (*) p<0.1

Table 59: Breastfeeding duration by social support

	Total breastfeeding duration		Full breastfeeding		Exclusive breastfeeding	
	Hazard ratio	**95% CI**	**Hazard ratio**	**95% CI**	**Hazard ratio**	**95% CI**
Average wake ups per night	1		1		1	
Not at all						
1 time	0.78	0.55-1.09	1.00	0.75-1.32	0.89	0.67-1.17
2-3 times	0.32***	0.23-0.45	0.66***	0.51-0.84	0.60***	0.47-0.77
More than 3 times	0.14***	0.09-0.23	0.57***	0.44-0.74	0.53***	0.41-0.69
Support in the home	1		1		1	
No, not at all						
No, mostly not	0.58	0.24-1.40	0.68	0.33-1.42	0.71	0.34-1.49
Sometimes	0.36**	0.15-0.82	0.60	0.29-1.22	0.60	0.30-1.24
Most of the time	0.45**	0.21-0.97	0.81	0.40-1.64	0.82	0.41-1.66
Yes, always	0.48(*)	0.23-1.03	0.77	0.38-1.56	0.78	0.38-1.56
Help when needed	1		1		1	
No, not at all						
No, mostly not	0.72	0.21-2.46	0.57	0.27-1.20	0.73	0.25-2.16
Sometimes	0.87	0.30-2.50	0.74	0.38-1.41	0.79	0.29-2.15
Most of the time	0.83	0.30-2.26	0.82	0.44-1.54	0.90	0.34-2.43
Yes, always	0.72	0.27-1.95	0.77	0.42-1.43	0.84	0.32-2.25
Someone to entrust the children	1		1		1	
No, not at all						
No, mostly not	1.62	0.75-3.50	1.21	0.82-1.81	1.22	0.82-1.82
Sometimes	1.66	0.82-3.33	1.16	0.81-1.65	1.14	0.80-1.63
Most of the time	1.57	0.81-3.06	1.16	0.83-1.61	1.17	0.84-1.63
Yes, always	1.58	0.83-3.00	1.12	0.82-1.53	1.16	0.85-1.58
Support by the person in the couples' home	1		1		1	
No support at all						
A little support	0.54	0.25-1.17	1.28	0.78-2.08	1.35	0.83-2.20
Much support	0.76	0.38-1.51	1.29	0.82-2.04	1.30	0.83-2.06
Very much support	0.90	0.46-1.77	1.59(*)	1.01-2.50	1.61(*)	1.02-2.53
Attitude towards breastfeeding among closest (father, partner family members)	1		1		1	
Is against breastfeeding or indifferent						
Could imagine both	1. 39	0.89-2.19	1.15	0.90-1.49	1.04	0.82-1.32
Wants mother to breastfeed	0.44***	0.27-0.72	0.75**	0.58-0.96	0.70**	0.55-0.89
Paternity leave	1		1		1	
No						
Yes+	0.72	0.42-1.24	1.00	0.70-1.43	1.02	0.71-1.47
Frequency of use of social media, apps, search engines and parent sites	1		1		1	
Never or rarely						
Frequently or very frequently	0.99	0.67-1.45	0.96	0.77-1.20	0.93	0.75-1.16

+The following forms were summarized under paternity leave 'Yes': paid and unpaid paternity leave and holidays

Total breastfeeding duration: period during which the infant receives breast milk and possibly tea, infant milk or complementary food

Full breastfeeding: Period in which the infant receives breast milk and possibly tea (no complementary food, no infant milk)

Exclusive breastfeeding: Period in which the infant only receives breast milk

Significance level: *p<0.05, **p<0.01, ***p<0.001, (*) p<0.1

8.2 Univariate analyses complementary feeding

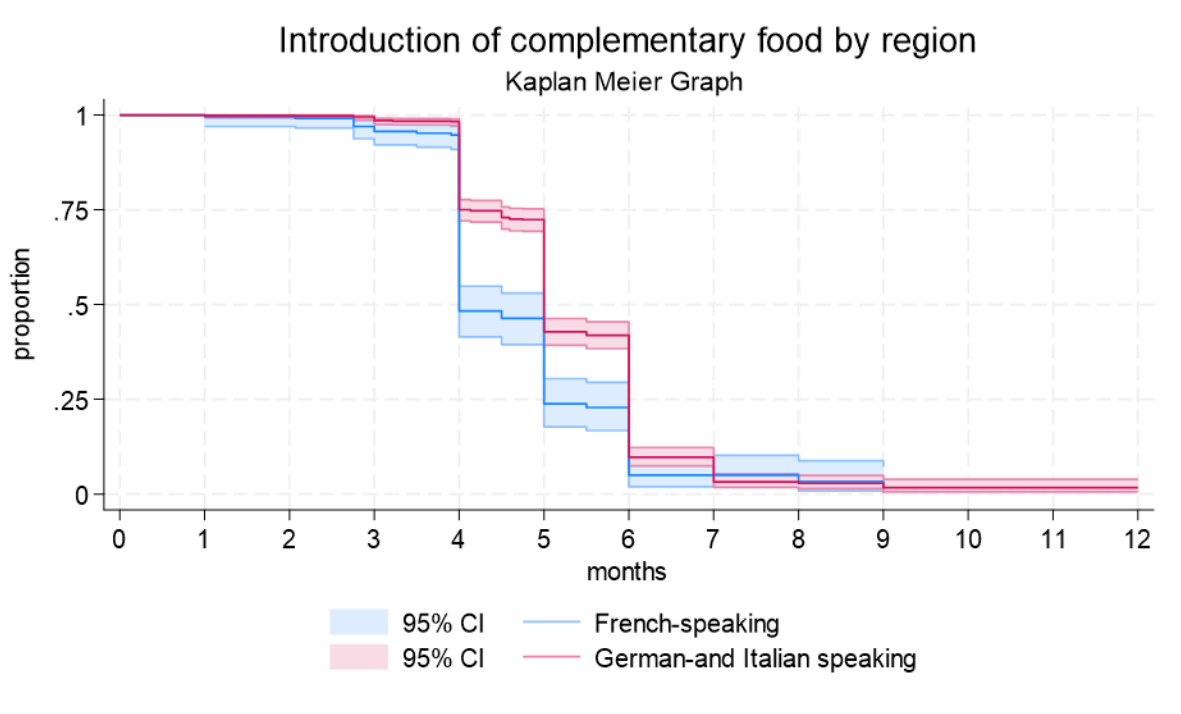
The retrospective data were used to investigate differences in the timing of the introduction of complementary feeding and various characteristics of mother and infant. These characteristics were bundled into 4 groups: Language regions, socio-economic status, maternal lifestyle and infant characteristics. All infants up to 14 months of age for whom information was available at the time of the introduction of complementary foods were included (N=1244).

The comparison between the **language regions** shows clear regional differences in the introduction of complementary foods (Table 60). Overall, food items are being introduced later in German- and Italian-speaking Switzerland (median=5, IQR=4-5 and median=5, IQR=4-6) than in French-speaking Switzerland (median=4, IQR=4-5; log-rank test p<0.001). Due to the low sample number from Italian-speaking Switzerland, the results for this group may not be reliable. For the further analysis, data from the German-speaking part was combined with data from the Italian-speaking part of Switzerland due to similar patterns

Table 60: Introduction of complementary food by language region

N=1244	**N**	**Median**	**IQR**
German-speaking	971	5	(4;6)
French-speaking	232	4	(4;5)
Italian-speaking	40	6	(5;6)

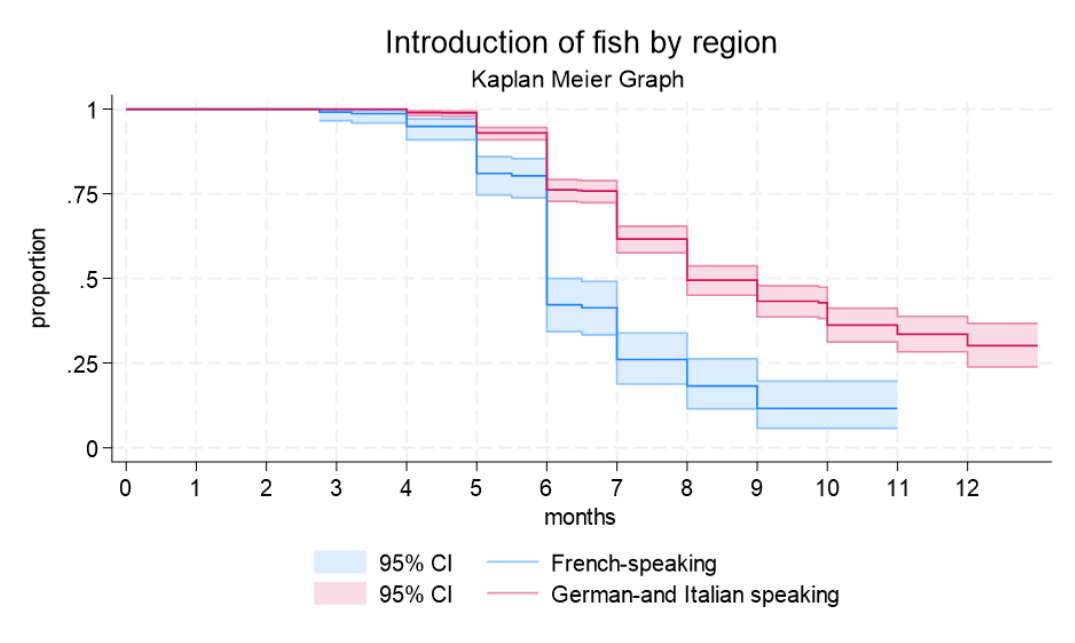
Figure 48: Introduction of complementary foods in German- and Italian-speaking Switzerland vs. French-speaking Switzerland



Log-rank test p<0.001

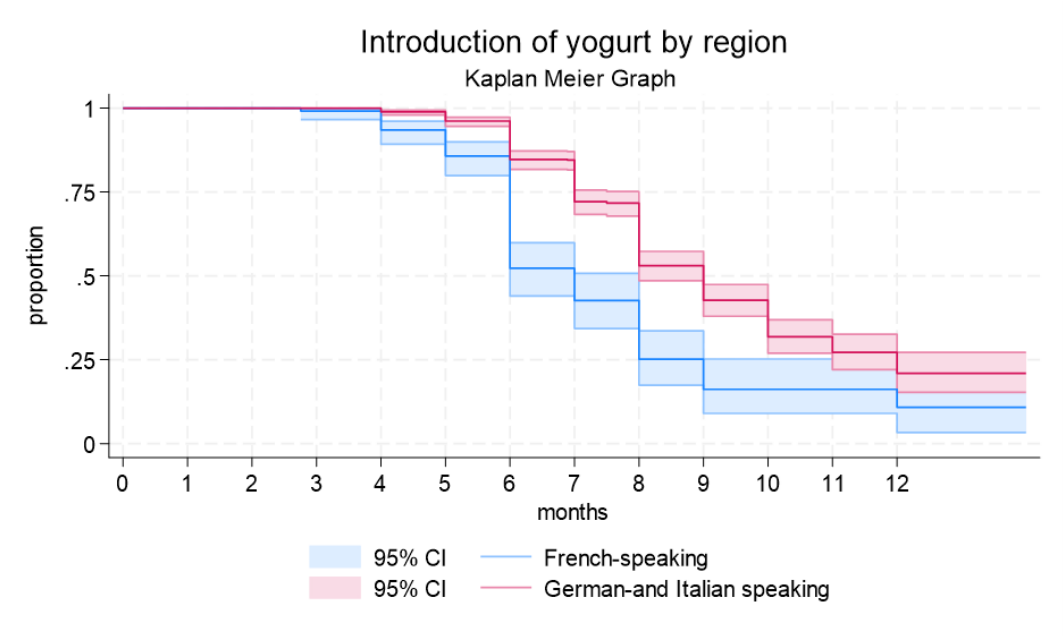
Regional differences were also found in food choices. While fruits, vegetables, potatoes, and meat were introduced more quickly in French-speaking Switzerland compared to German- and Italian-speaking Switzerland, the differences between the language regions are smaller when it comes to the introduction of cereals. Significant differences between the language regions are particularly evident with regards to the introduction of fish, meat, egg and yogurt (all p<0.0001) (Figure 49 and Figure 50 as examples).

Figure 49: Introduction of fish by region



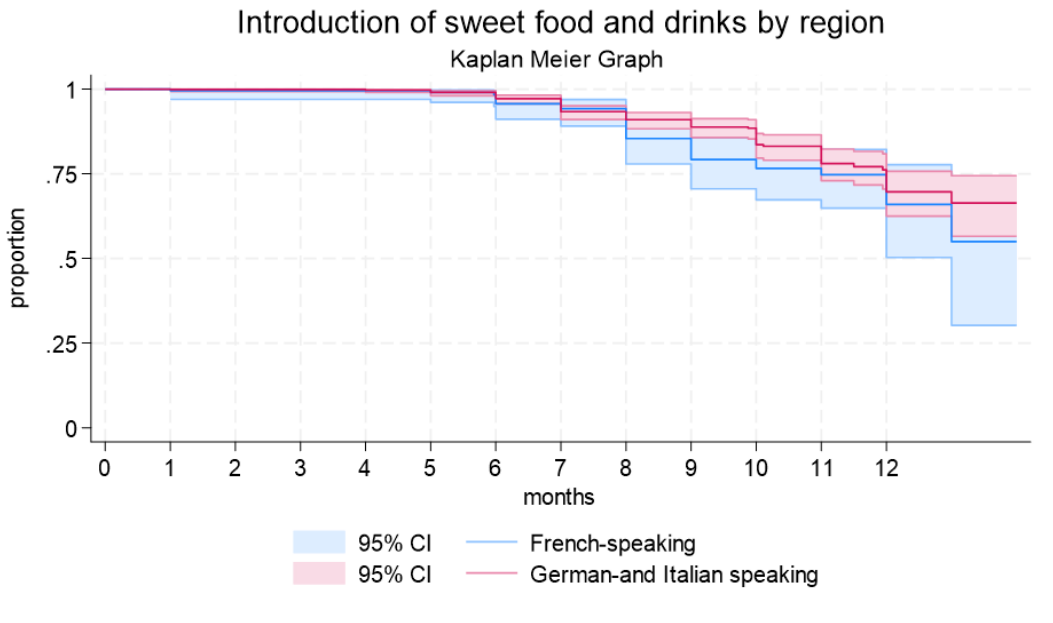
Log-rank test p<0.0001

Figure 50: Introduction of yogurt by region



Log-rank test p<0.0001

Figure 51: Introduction of sweet foods and drinks by region



Log-rank test p=0.1345

In contrast to 2014, no significant regional and cultural differences in the introduction of sweetened complementary foods or drinks could be found (Chi^2=2.20, p=0.1345). This is probably due to lack of statistical power given the small numbers of infants who received sweetened foods or drinks (Figure 51). 12.3% (N=27) of infants under the age of one in French-speaking Switzerland received sweetened food or tea compared to 9.3% (N=87) in German-speaking Switzerland and 7.7% (N=3) in Italian-speaking Switzerland.

Table 61: Univariate analyses: Introduction of complementary foods according to age, nationality, income, education, employment and family factors (N=1244)

	N	Median	IQR
Age of mother (N=1244)			
19-29 years	177	5	(4;6)
30-39 years	966	5	(4;6)
> 39 years	101	5	(4;6)
Nationality of mother (N=1244)			
Switzerland	962	5	(4;6)
Europe	250	5	(4;6)
Outside Europe	32	5	(4;6)
Higher education* of parents (N=1114)			
both parents have no	215	5**	(4;6)
one parent	286	5	(4;6)
both parents	613	5	(4;6)
Monthly household income (N=1204)			
<4500 CHF	52	5**	(4;6)

up to 6000 CHF	188	5	(4;6)
up to 9000 CHF	486	5	(4;6)
> 9000 CHF	478	5	(4;6)
Employment of the mother after birth (N=1210)			
Not (yet) employed after birth	588	6***	(5;6)
Employed after birth	622	5	(4;6)
Family (N=1229)			
Living together with partner	1149	5*	(4;6)
Single parent	80	6	(4;6)
Number of further children under 17 years (N=1070)			
one child	481	5**	(4;6)
two children	470	5	(4;6)
more than 2 children	119	6	(5;9)

* higher education qualification: university, university of applied sciences, higher vocational training (master craftsman's diploma)

Log-rank test, significance level: *p<0.05, **p<0.01, ***p<0.001, (*) p<0.1

The univariate analysis of **socio-economic factors (see** Table 61 shows that particularly the return to work of the mother (p<0.001) is associated with earlier introduction of complementary foods. In addition, also a higher level of education of the parents (p=0.0078), higher income (p=0.0050) and increasing parity (p=0.0034) are characteristics that are strongly to moderately associated with an earlier introduction of complementary food. On the other hand, the nationality of the mother (p=0.2695) and her age (p=0.9170) and raising the child as a single mother (p=0.0270) do not appear to differ from other mothers in the introduction of complementary foods.

The univariate analysis of **maternal health and lifestyle factors** and complementary foods shows that women who smoked at the time of the survey introduced complementary foods earlier compared to non-smokers (p=0.0040). Special diets (p=0.9651), BMI (p=0. 9825) and mental health issues (p=0.7250), on the other hand, had no influence.

The univariate analysis of **infant characteristics** showed that birth weight (p= 0.4046) had no effect, but the sex of the infant (p=0.0618), health problem in the first days and weeks of life (p= 0.0300) and allergic predisposition of the infant (p= 0.0442)) had some influence on the time of introduction of complementary foods. Also, health problems after birth were associated with an earlier introduction of food (p=0.0012).

8.3 Questionnaire SWIFS Survey 2024

Informed Consent

Dear study participants,

please read the following information about the study carefully and confirm your consent.

Hello Thank you for completing the survey for the Swiss Infant Feeding Study - SWIFS 2024. SWIFS is a national study that looks at infant nutrition in the first year of life as well as maternal and child health. It is carried out by the ZHAW School of Health Sciences on behalf of the Federal Food Safety and Veterinary Office (FSVO). Your information will be evaluated completely anonymously. The SWIFS study team, which evaluates the study data, does not have any information about names or addresses. Please confirm that, with the invitation letter, you have been informed of the objectives of this study and that you agree to the confidential collection, storage and evaluation of your survey responses.

◯ Yes, I have been informed about the objectives of the study and agree to the confidential collection, storage and evaluation of my data.
◯ No, I don't agree

You have not yet given your consent to participation in the study. If you feel that you have received sufficient information and agree to the confidential collection, storage and evaluation of your data, please click on the field.
If you have any questions, you can reach us at this e-mail address: swifs.gesundheit@zhaw.ch.
If you prefer not to participate, we thank you for your attention and wish you all the best for the future.

◯ Yes, I have been informed about the objectives of the study and agree to the confidential collection, storage and evaluation of my data.
◯ No, I do not agree and will not participate in the study

SWIFS Survey

For the study to be meaningful, it is important that you complete the survey in full and try to answer all the questions. If you are not sure about an answer, there is the option "I don't know". For some questions, more than one answer is possible; these are indicated by the instruction "You can select more than one option". If none of the answers apply to your situation/your child, you can check "Other" and write your answer in the field provided. You can pause the survey at any time by clicking on "Save&return later". To then continue the survey, please call up the QR code or the link in the invitation letter that you received by post.

Multiples

Have you had a multiple birth?

◯ Yes ◯ No

You gave birth to twins or multiple babies. Please complete the following questionnaire for the first-born twin or multiple child.
We will ask you a few questions in respect of the second-born twin or other multiple children at the end of the questionnaire.

Questions about your youngest child

Date of birth of your child (month-year)

◯ 05 - 2023 ◯ 06 - 2023 ◯ 07 - 2023 ◯ 08 - 2023 ◯ 09 - 2023 ◯ 10 - 2023 ◯ 11 - 2023
◯ 12 - 2023 ◯ 01 - 2024 ◯ 02 - 2024 ◯ 03 - 2024 ◯ 04 - 2024 ◯ 05 - 2024 ◯ 06 - 2024
◯ 07 - 2024 ◯ 08 - 2024 ◯ 09 - 2024 ◯ 10 - 2024 ◯ 11 - 2024 ◯ 12 - 2024

What gender was registered for your child at the civil registry office?

◯ Girl ◯ Boy

Birth weight of your child in grams

◯ Birth weight: {gebkgja} Please enter only the number, e.g. 3050
◯ I don't know exactly

If you don't know exactly what your child's weight was; What was the approximate weight of your child?

◯ Below 2'500 Gramm
◯ 2'500 to 4'000 Gramm
◯ Over 4'000 Gramm

Duration of pregnancy until birth
(Example: If your child was born after 39 weeks and 2 days, enter '39' for weeks and '2' for days)

☐ Weeks {wowo}
☐ Days {wota}
☐ I don't know exactly

In case you can't remember the exact week of pregnancy; My child was:

◯ A premature baby (earlier than 3 weeks before the due date)
◯ A mature baby (up to 3 weeks before or 2 weeks after the due date)
◯ Safely transferred (more than 2 weeks after the due date)

Questions about you

What is your relationship to the child?

◯ Biological mother
◯ Non-biological mother

Please indicate what your relationship to the child is as a non-biological mother:

◯ Wife/partner of the biological father
◯ Foster mother
◯ Adoptive mother
◯ Other, please specify: {famand}

At what age (child's age in months) did you welcome your child into your home?

◯ 0 ◯ 1 ◯ 2 ◯ 3 ◯ 4 ◯ 5 ◯ 6 ◯ 7 ◯ 8 ◯ 9 ◯ 10 ◯ 11 ◯ 12
◯ 13 ◯ 14 ◯ 15

How would you describe your household?

◯ Couple with child/children
◯ Single-parent household with child/children
◯ Other household {hhkompand}

Who do you live with?

◯ Biological father of the child
◯ Partner

Are you raising the child on your own?

◯ Yes
◯ No, I share custody with other legal guardians

Questions about your pregnancy with your youngest child

Before or at the beginning of your pregnancy, were you advised by a doctor, midwife or other healthcare professional on the following topics?

	Yes, I did receive advice	No, I did not receive advice	I don't remember
Taking folic acid during pregnancy	◯	◯	◯
Taking supplements (vitamins, iron, etc.) during pregnancy	◯	◯	◯
Nutrition during pregnancy	◯	◯	◯
Taking medication during pregnancy	◯	◯	◯
Vaccinations during pregnancy	◯	◯	◯
Listeriosis and/or toxoplasmosis during pregnancy	◯	◯	◯
Smoking during pregnancy	◯	◯	◯
Alcohol during pregnancy	◯	◯	◯

Did you take folic acid before/during your pregnancy with your youngest child?

◯ Yes
◯ No
◯ I don't remember

When did you start taking folic acid?

◯ At least 1 month before conception
◯ Before the 8th week of pregnancy
◯ After the 8th week of pregnancy

Was the time of your pregnancy planned?

◯ planned
◯ unplanned

How much did you weigh before the pregnancy?

_____
(Please enter only the number, e.g. 57. If you do not know exactly, enter your usual weight)

How much weight had you gained by the end of the pregnancy?
(Please enter only the number, e.g. 12
)

◯ Weight gain of {gewzuja}
◯ I don't know anymore

If you can no longer remember the exact weight gain, what was it?

◯ < 10 kg
◯ 10-20 kg
◯ >20 kg

Were you vaccinated against influenza during your pregnancy?

◯ Yes
◯ No, I was already vaccinated against influenza before the pregnancy
◯ No
◯ I don't know

Please select all the reasons for the vaccination that apply in your case

☐ The vaccination was recommended to me by a healthcare professional
☐ I want to protect my baby
☐ I want to protect myself
☐ Other reasons, please specify: {impfinfljaand}

Please provide all the reasons that apply as to why you were not vaccinated

☐ The vaccination was not recommended to me by any healthcare professional
☐ I don't think vaccines are safe and effective
☐ I don't think vaccines are safe for my baby
☐ I don't think the vaccination was necessary
☐ Other reasons, please specify: {impfinflneinand}

Were you vaccinated against whooping cough during your pregnancy?

◯ Yes
◯ No, I was vaccinated against whooping cough before the pregnancy
◯ No
◯ I don't know

Please select all the reasons for the vaccination that apply in your case

☐ The vaccination was recommended by a healthcare professional
☐ I want to protect my baby
☐ I want to protect myself
☐ Other reasons, please specify: {impfkeuchjaand}

Please provide all the reasons that apply as to why you were not vaccinated

☐ The vaccination was not recommended by any healthcare professional
☐ I don't think vaccines are safe and effective
☐ I don't think vaccines are safe for my baby
☐ I don't think the vaccination was necessary
☐ Other reasons, please specify: {impfkeuchneinand}

Did you have any of the following complications during your pregnancy? (You can select more than one option)

☐ Bleeding
☐ Protein in your urine
☐ High blood pressure
☐ Gestational diabetes
☐ Preterm contractions
☐ Preeclampsia
☐ Mental illness
☐ Other complications, namely: {andkomps}
☐ I had no complications during my pregnancy

Did you receive any information about breastfeeding before the birth?

◯ Yes
◯ No, I did not need any information about breastfeeding
◯ No, I did not receive any information about breastfeeding

From where/from whom did you receive the information?
(You can tick more than one option)

☐ From a childbirth preparation course
☐ From a midwife
☐ From breastfeeding advice
☐ From the doctor
☐ From friends or relatives
☐ Print media (e.g. books, magazines, info flyers)
☐ Digital media (e.g. websites, apps, blogs)
☐ Other, namely: {andstillinfo}

What was your attitude towards breastfeeding during your pregnancy?

◯ I had decided to breastfeed
◯ I wanted to wait to see how I would feel
◯ I did not want to breastfeed

What was the attitude towards breastfeeding among those closest to you?
e.g. the father of the child, partner, family members

For this answer, please select the person who supports you the most.

◯ He/She thought it was important that I breastfeed our child
◯ He/She could imagine both (breastfeeding or not)
◯ He/She was against me breastfeeding our child
◯ He/She had not thought about how the child would be fed
◯ I don't know

Questions about the birth

Where was your child born?

◯ In the following clinic/hospital/birthing centre: {klinik}
◯ At home
◯ Not born in Switzerland {gebortaus}
◯ Other: {gebortwas}

Did you give birth on an outpatient basis? (This means you went home shortly after the birth)

◯ Yes
◯ No

How did you give birth?

◯ Spontaneous labour
◯ Suction cup or forceps delivery
◯ Caesarean section

Wie haben Sie entbunden/geboren?

◯ The caesarean section was planned; I wanted it
◯ The caesarean section was planned; I had already had one
◯ The caesarean section was planned, on medical grounds
◯ The caesarean section was not planned; complications arose/an emergency occurred during the birth

---

Did you receive any pain medication during the birth?

◯ No
◯ Yes, I did receive pain medication
◯ Yes, an epidural (partial anaesthesia near the spinal cord)
◯ I don't remember

During the birth, were you given any contraction medication?

◯ No
◯ Yes, I was given contraction medication to induce labour
◯ Yes, I was given contraction medication during the birth (because the contractions were decreasing)
◯ I don't remember

Were there any complications during the birth?

◯ Yes
◯ No
◯ I don't know

What complications?
(You can select more than one option)

☐ Abnormal position of the child (e.g. breech position)
☐ Child did not get enough oxygen
☐ Major blood loss with blood transfusion
☐ Other complications, namely: {gebkompand}

Were you separated from your child after the birth?

☐ No
☐ Yes, I was transferred to another ward/hospital
☐ Yes, my child was transferred to another ward/hospital

How long did your child stay in the hospital/clinic? (days)

_____
(Please enter only the number, e.g. 5
)

Were you able to have your child immediately after the birth?

◯ Yes, my child was placed on my chest/stomach/in my arms immediately after the birth
◯ No, that was not possible

Regardless of whether it succeeded or not, when did your child make its first attempt at breastfeeding?

◯ Within an hour of the birth
◯ Within two hours of the birth
◯ Later
◯ Never

The initial period after the birth

In the first few days after being born, was your child separated from you for any longer period?

◯ No, my child was with me day and night
◯ Yes, my child was separated from me once or twice for a few hours
◯ My child was with me during the day and slept in another room at night
◯ Other: {trennandw}

Did you breastfeed your child?

◯ Yes
◯ No

What were your reasons for not breastfeeding?
(You can select more than one option)

☐ It was what I wanted
☐ I was very tired/exhausted
☐ I take medication that does not permit breastfeeding
☐ I have/had health problems
☐ My child has/had health problems
☐ I have issues with my nipples
☐ I had difficulty breastfeeding a previous child
☐ I could not reconcile it with my job
☐ I could not reconcile it with my household and family obligations
☐ Other reasons: {stillneinand}

What was your child given to drink in the first days of its life?
(You can select more than one option)

☐ Breast milk (I breastfed or expressed breast milk using a pump/by hand)
☐ Water
☐ Maltodextrin solution (sugared water)
☐ Infant formula
☐ Other: {trinkawas}
☐ I don't know if my child received anything other than breast milk

---

Did you receive free samples with infant formula at the hospital/clinic/birthing centre?

◯ Yes
◯ No
◯ I don't know

Did your child receive a pacifier (dummy) at the hospital/clinic/birthing centre?

◯ Yes
◯ No
◯ I don't know

Was your child bottle-fed at the hospital/clinic/birthing centre?

◯ Yes
◯ No
◯ I don't know

In the first few days/weeks after being born, did your child have any of the following health problems?
(You can select more than one option)

- ☐ Problems due to having been born prematurely
- ☐ Insufficient weight gain
- ☐ Jaundice with phototherapy (blue light therapy)
- ☐ Infection
- ☐ Apnea spells
- ☐ Cleft lip and palate
- ☐ Other complications: {andprobw}
- ☐ My child had no health problems

In the first few days at home (after being discharged from the hospital/clinic/birthing centre or after a home birth), who looked after, supported and helped you at home?
(You can select more than one option)

- ☐ Partner
- ☐ A family member: {betrfamw}
- ☐ A healthcare professional (e.g. midwife, nurse, at-home caregiver)
- ☐ Someone else: {betrandw}
- ☐ No one

How often were you seen by a healthcare professional?

_____
(Please enter only the number, e.g. 9. If you do not know the exact number, enter an estimate.)

During the first few weeks after the birth, did you have any issues with your mental health?
(You can select more than one option)

- ☐ No
- ☐ Yes, felt very sad and did a lot of crying (intensive baby blues)
- ☐ Yes, postpartum depression was diagnosed
- ☐ Yes, postpartum psychosis was diagnosed
- ☐ Yes, other mental health issue/diagnosis: {psychand}
- ☐ I don't remember

Did you receive treatment for these mental health issues/diagnoses?
(You can select more than one option)

- ☐ No
- ☐ Yes, medication
- ☐ Yes, psychotherapy
- ☐ Yes, other type of treatment: {psychjaand}

During the first few weeks after the birth, did you have any of the following physical issues:
(You can select more than one option)

- ☐ Persistent pain since the birth (suture pain, abdominal pain, headache)
- ☐ Perineal stitches that became inflamed
- ☐ Caesarean section stitches that became inflamed
- ☐ Perineal stitches that opened
- ☐ Caesarean section stitches that opened
- ☐ Other physical issue: {probppand}
- ☐ I did not have any physical issues

Before starting to breastfeed or just after you had started, were you advised by a doctor, midwife or other medical professional on any of the following breastfeeding-related topics?

	Yes, I did receive advice	No, I did not receive advice	I don't remember
Taking supplements (vitamins, iron, etc.) during breastfeeding	◯	◯	◯
Nutrition during breastfeeding	◯	◯	◯
Taking medication during breastfeeding	◯	◯	◯
Vaccinations during breastfeeding	◯	◯	◯
Smoking during breastfeeding	◯	◯	◯
Alcohol during breastfeeding	◯	◯	◯

In the first few days after the birth, were you advised on how to breastfeed your child?

◯ Yes
◯ No, I have/had enough experience and did not need any advice
◯ No, I did not receive advice

How satisfied were you with the advice?

◯ Very satisfied
◯ Satisfied on the whole
◯ Satisfied with some parts, but not all
◯ Not satisfied
◯ Not satisfied at all

Which of the following breastfeeding techniques were you shown?
(You can select more than one option)

☐ Several different breastfeeding positions
☐ Getting the child to latch on
☐ Expressing breast milk by hand
☐ Expressing breast milk with a pump
☐ Breast massage
☐ Nipple care
☐ Other: {techandw}
☐ I wasn't shown any techniques

How frequently did you breastfeed at the beginning?

◯ I breastfed whenever my child showed signs of being hungry
◯ I tried to stick to a timetable
◯ Other: {rhythwas}

Did you encounter any difficulties when breastfeeding, either at the beginning or later on in everyday life?

◯ Only minor difficulties
◯ Major difficulties
◯ No, no difficulties

What breastfeeding difficulties did you have at the beginning?
(You can select more than one option)

☐ Sore nipples
☐ Blocked milk duct, i.e. areas of the breast becoming hard, sore and hot
☐ Mastitis
☐ Painful uterine contractions while breastfeeding
☐ I had too little milk
☐ I had too much milk
☐ Child had difficulties sucking
☐ I was extremely exhausted at times
☐ Other: {stschwandw}
☐ No problems

What breastfeeding difficulties did you have later in everyday life?
(You can select more than one option)

☐ Sore nipples
☐ Blocked milk duct, i.e. areas of the breast becoming hard, sore and hot
☐ Mastitis
☐ Painful uterine contractions while breastfeeding
☐ I had too little milk
☐ I had too much milk
☐ Child had difficulties sucking
☐ I was extremely exhausted at times
☐ Other: {stschwandwsp}
☐ No problems

Were you given advice about these breastfeeding difficulties or did you go and look for information yourself?
(You can select more than one option)

☐ Yes
☐ No, I did not receive advice
☐ No, I did not look for any information
☐ No, I have/had enough experience and did not need any advice or information

From where or from whom did you receive advice or information?
(You can select more than one option) How satisfied were you with the advice or with the information received?

☐ From healthcare professionals (e.g. midwife, parent advisory professionals, doctor, breastfeeding counsellor){gesundzuf}
☐ From friends or relatives {freundzuf}
☐ Print media (books, magazines, information flyers) {printzuf}
☐ Digital media (websites, apps, blogs) {digitzuf}
☐ Other, namely: {ratand} {anderzuf}

How long did your child receive exclusively breast milk?

◯ Until now, because I am exclusively breastfeeding - i.e. my child is still receiving nothing but breast milk
◯ Until {mmwomo} weeks/months old - i.e. this was the age when my child was given baby porridge/puree, herbal tea or powdered milk for the first time
◯ I don't know

Is your child still being breastfed?

◯ Yes
◯ No, I stopped breastfeeding when my child was {still1womo} weeks/months

What led to your decision to stop breastfeeding at this time?
(You can select more than one option)

- ☐ My child's age
- ☐ My child was hungry
- ☐ My child no longer wanted to breastfeed (so often)
- ☐ My child's teeth came in
- ☐ My child was sick
- ☐ My child was away from me for several days
- ☐ I wanted more time for myself and my partner
- ☐ I was exhausted
- ☐ I did not have enough milk
- ☐ My child was very restless
- ☐ I had problems with my nipples
- ☐ I had mastitis
- ☐ I could not reconcile it with my job
- ☐ I could not reconcile it with my household and family obligations
- ☐ Other reasons: {grund2was}

Questions about the introduction of complementary foods

Were you given advice about the introduction of complementary foods or did you go and look for information yourself?
(You can select more than one option)

- ☐ Yes
- ☐ No, I did not receive advice
- ☐ No, I did not look for any information
- ☐ No, I have/had enough experience and did not need any advice or information

---

From where or from whom did you receive advice or information?
(You can select more than one option) How satisfied were you with the advice or with the information received?

- ☐ Healthcare professionals (e.g. midwife, parent advisory professionals, doctor, breastfeeding counsellor) {ratbgesundzuf}
- ☐ Friends or relatives {ratbfreundzuf}
- ☐ Print media {ratbprintzuf}
- ☐ Digital media {ratbdigitzuf}
- ☐ Other sources: {ratband}{ratbandzuf}

You sought out information about breastfeeding and/or infant nutrition via digital media. How frequently do you use the following digital media?

- ☐ Social media (e.g. Facebook, Twitter, YouTube) {sociaselt}
- ☐ Websites for mothers/fathers/parents {interselt}
- ☐ Special apps on the PC or mobile devices (e.g. tablets, mobile phones) {speziselt}
- ☐ Internet search engines (e.g. Google, Yahoo) {interselt_1}
- ☐ Websites of paediatricians/children's hospitals/midwives or lactation consultants {internselt}
- ☐ Official websites of health services or health organisations {offizselt}
- ☐ Other digital information sources, namely: {andereseltw} {andereselt}

You use websites for mothers/fathers/parents: Which website(s) do you use if you have questions about breastfeeding and/or infant nutrition?
(You can select more than one option)

- ☐ swissmom.ch
- ☐ gofeminin.de
- ☐ letsfamiliy.ch
- ☐ I don't know the name of the websites I use
- ☐ Other websites for mothers/fathers/parents: {internetand}

You indicated that you use apps for support with breastfeeding or infant nutrition. Which app(s) do you use?

- ☐ 1. I use the following app: {app1}
- ☐ 2. I use the following app: {app2}
- ☐ 3. I use the following app: {app3}

Nutrition of your child over the past 24 hours Please write down everything your child has been given to eat or drink in the past 24 hours. Please also indicate how many times your child has received a food or liquid over this period. Example: 1 portion of vegetable puree = 1 x or 4 breast milk = 4 x

Breast milk	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x
Water	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x

Tea	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x
What kind of tea?	◯ unsweetened ◯ sweetened
Infant formula milk	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x

Follow-on formula milk	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x
Fruit and/or vegetable juice	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x
What kind of fruit and/or vegetable juice?	☐ diluted with water ☐ undiluted ☐ home-pressed ☐ store bought

Cow's milk	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x
What kind of cow's milk?	☐ diluted with water ☐ undiluted
Other beverages	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x

Fruit puree	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x
What kind of fruit puree?	☐ homemade ☐ store bought ☐ with cereals, please specify which: {frbr24wg}
Fruit cut up into pieces	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x

Vegetable puree	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x
What kind of vegetable puree?	☐ homemade ☐ store bought ☐ with cereals, please specify which: {gembr24wg}
Vegetables cut up into pieces	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x

Cereal porridge/cereal added to bottle/milk porridge with cereals	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x
Which cereals:	_____
What kind of cereal porridge/cereal added to bottle/milk porridge with cereals?	☐ homemade ☐ store bought
Oil/fat added	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x

Sugar added	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x
Meat	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x

Fish	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x
Egg	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x

Yoghurt	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x
What kind of yoghurt?	☐ unsweetened ☐ sweetened
Unsweetened waffles, rusks, bread	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x

Sweet biscuits, waffles, rusks	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x
Other food	◯ 0 x ◯ 1 x ◯ 2 x ◯ 3 x ◯ 4 x ◯ 5 x ◯ 6 x ◯ 7 x ◯ 8 x ◯ 9 x ◯ 10 x ◯ 11 x ◯ 12 x ◯ 13 x ◯ 14 x ◯ 15 x ◯ 16 x ◯ 17 x ◯ 18 x ◯ 19 x ◯ 20 x ◯ 21 x ◯ 22 x ◯ 23 x ◯ 24 x
What exactly?	_____

Introduction of different beverages and foods Please indicate as precisely as possible when your child received a food or liquid for the first time. The age at introduction is specified either in weeks (0-12 weeks) or months (1-18 months).

Water	◯ not yet ◯ when it was the following number of weeks old: {wasserwo} ◯ or when it was the following number of months old: {wassermo}
Tea	◯ not yet ◯ when it was the following number of weeks old: {teewo} ◯ or when it was the following number of months old: {teemo}
Infant formula milk	◯ not yet ◯ when it was the following number of weeks old: {sglamwo} ◯ or when it was the following number of months old: {sglammo}
Follow-on formula milk	◯ not yet ◯ when it was the following number of weeks old: {sglfmwo} ◯ or when it was the following number of months old: {sglfmmo}
Cow's milk	◯ not yet ◯ when it was the following number of weeks old: {kmwo} ◯ or when it was the following number of months old: {kmmo}
Sweetened beverage	◯ not yet ◯ when it was the following number of weeks old: {gstrwo} ◯ or when it was the following number of months old: {gstrmo}
Fruit	◯ not yet ◯ when it was the following number of weeks old: {frwo} ◯ or when it was the following number of months old: {frmo}
Vegetables	◯ not yet ◯ when it was the following number of weeks old: {gemwo} ◯ or when it was the following number of months old: {gemmo}
Potatoes	◯ not yet ◯ when it was the following number of weeks old: {kartwo} ◯ or when it was the following number of months old: {kartmo}

Cereals	◯ not yet ◯ when it was the following number of weeks old: {getrwo} ◯ or when it was the following number of months old: {getrmo}
Meat	◯ not yet ◯ when it was the following number of weeks old: {flwo} ◯ or when it was the following number of months old: {flmo}
Fish	◯ not yet ◯ when it was the following number of weeks old: {fiwo} ◯ or when it was the following number of months old: {fimo}
Egg	◯ not yet ◯ when it was the following number of weeks old: {eiwo} ◯ or when it was the following number of months old: {eimo}
Yoghurt	◯ not yet ◯ when it was the following number of weeks old: {jogwo} ◯ or when it was the following number of months old: {jogmo}
Sweet biscuits, waffles, rusks	◯ not yet ◯ when it was the following number of weeks old: {bisswo} ◯ or when it was the following number of months old: {bissmo}
Unsweetened waffles, rusks, bread	◯ not yet ◯ when it was the following number of weeks old: {brotwo} ◯ or when it was the following number of months old: {brotmo}
Sweets such as chocolate, confectionery	◯ not yet ◯ when it was the following number of weeks old: {suesswo} ◯ or when it was the following number of months old: {suessmo}
Other:	◯ not yet ◯ when it was the following number of weeks old: {nahrwo} ◯ or when it was the following number of months old: {nahrmo}
What exactly?	_____

Questions about your child's health

Has your child ever had any of the following illnesses/conditions?
(You can select more than one option)

☐ No
☐ Fever
☐ Pneumonia
☐ Cold (runny nose/cough)
☐ Ear infection
☐ Respiratory disease/bronchitis
☐ Accident
☐ Gastrointestinal infection
☐ Colic
☐ Unclear pain or discomfort
☐ Other: {erkrandw}

Did your child receive medical treatment for this, or is such treatment currently ongoing?

◯ Yes
◯ No

Has your child ever been hospitalised outside of the phase immediately following the birth or the postpartum period?

◯ Yes, due to: {hospwas}
◯ No

How long was your child hospitalised for?

◯ Less than 1 week
◯ 1-3 weeks
◯ Longer than 3 weeks

Is your child currently receiving vitamin D?

◯ Yes
◯ No

Did you give vitamin D before?

◯ Yes, until it was the following number of months old: {vitdmo}
◯ No

Has your child been given any of the following vitamins or medications in the past 24 hours?
(You can select more than one option)

☐ No
☐ Vitamin D
☐ Other vitamins
☐ Suppository for pain relief or fever
☐ Antibiotics
☐ Homeopathic remedies, complementary medicinal products
☐ Other medication: {medwas}

In the first year of life, it is recommended that children be regularly examined by a paediatrician as a precautionary measure (at one, two, four, six, nine and twelve months). Have you kept up with the recommended number of check-ups so far?

◯ Yes
◯ Yes, but not at the recommended times
◯ Some of them
◯ No

In the first year of life, the recommendation in Switzerland is that children be vaccinated at two, four, nine and twelve months. Has your child had the recommended basic vaccinations?

◯ Yes
◯ Yes, but not at the recommended times
◯ Some of them, I declined the following vaccination(s): {impfwas}
◯ No
◯ I don't know

The following questions relate to your child's sleeping behaviour

Where does your child generally sleep?

◯ In the same bed as you or in the side-sleeping cot
◯ In its own bed, but in the same room as you
◯ In a different room from you

On average, how often does your child wake you up at night?

◯ not at all
◯ 1 time per night
◯ 2 times per night
◯ 3 times per night
◯ 4 times per night
◯ 5 times per night
◯ 6 times per night
◯ 7 times per night
◯ 8 times per night
◯ 9 times per night
◯ 10 times per night
◯ 11 times per night
◯ 12 times per night
◯ 13 times per night
◯ 14 times per night
◯ 15 times per night

Questions about your health

What is your general state of health?

◯ Very good
◯ Good
◯ So-so
◯ Poor
◯ Very poor
◯ I don't know

How heavy are you?

_____
(Please enter the number of kg)

How tall are you?

_____
(Please enter the number of centimetres)

Think of physical activities in which you are at least a little out of breath, e.g. brisk running, gardening, mother-baby gymnastics, postnatal exercises.

How many days per week do you do such activities?

◯ Never
◯ 1 day per week
◯ 2 days per week
◯ 3 days per week
◯ 4 days per week
◯ 5 days per week
◯ 6 days per week
◯ 7 days per week

On average, how long are you active on each of these days?

☐ hours per day: {atemstd}
☐ minutes per day: {atemmin}

In your free time, does physical activity make you sweat at least once a week? For example, running, cycling, etc.

How many days a week do you do these activities?

◯ 1 day per week
◯ 2 days per week
◯ 3 days per week
◯ 4 days per week
◯ 5 days per week
◯ 6 days per week
◯ 7 days per week
◯ Never

On average, how long are you active on each of these days?

☐ hours per day: {schwitzstd}
☐ minutes per day: {schwitzmin}

Did you smoke during the pregnancy?

◯ Yes
◯ No

Did you stop smoking during pregnancy?

◯ Yes, when I found out I was pregnant
◯ Yes, in the first trimester of my pregnancy
◯ Yes, in the second trimester of my pregnancy
◯ Yes, in the last trimester of my pregnancy
◯ No, but I reduced the number of cigarettes per day
◯ No

Do you currently smoke?

◯ Yes
◯ No

Do you drink alcohol?

◯ Never
◯ Less than once a month
◯ Every month (several times a month)
◯ Every week
◯ Every day or almost every day

Did you drink alcohol during your pregnancy?

◯ Yes
◯ No

Have you ever had any of the following conditions before pregnancy? High blood pressure, Asthma, allergies, neurodermatitis, mental illness, diabetes or other illnesses?

◯ Yes
◯ No

Did you ever have any of the following illnesses before your pregnancy? Was the illness diagnosed by a doctor? (You can select more than one option)

	Yes	Yes, diagnosed by a doctor
High blood pressure	☐	☐
Asthma	☐	☐
Allergies	☐	☐
Neurodermatitis	☐	☐
A mental illness	☐	☐
Diabetes	☐	☐
Other: {erkrmandwas}	☐	☐

Did you receive any advice from your gynaecologist in respect of your illness(es) prior to becoming pregnant or just after?

◯ Yes
◯ No
◯ I don't remember

Have you or your partner paid attention to or followed a particular diet over the last month?
(You can select more than one option)

☐ No, no particular diet
☐ Vegetarian
☐ Pescatarian
☐ Vegan
☐ Organic foods
☐ Allergen-free/gluten-free diet
☐ No/low alcohol
☐ Other diet/type of nutrition: {diatandw}

Over the last 30 days, how often have you suffered from fatigue?

◯ Never
◯ Rarely
◯ Sometimes
◯ Often
◯ Very often

Below, we would like to find out from you how much you feel supported by the people around you.

	Yes, always	Most of the time	Sometimes	No, mostly not	No, not at all	I don't know
I am sure that someone will help me out in the home if I need it	○	○	○	○	○	○
I am sure that someone will be there if I need help.	○	○	○	○	○	○
I have someone to whom I can entrust my child/children at any time.	○	○	○	○	○	○

Who supports and helps you with caring for and raising your youngest child?
(You can select more than one option)

☐ The child's father
☐ Partner
☐ A family member: {suppfamand}
☐ Friends
☐ Someone else: {suppand}
☐ No one

How much do you feel supported by the person in your couple's home with regard to the following issues? You had indicated "[hhpaar]".
I feel supported by the person in the couple's household ("[hhpaar]")...

	Very supported	Largely supported	Sometimes supported	Rarely supported	Not supported at all
when it comes to taking care of the child	○	○	○	○	○
when the child or children wake(s) up in the night	○	○	○	○	○
when it comes to housework	○	○	○	○	○
when the child or children is/are sick	○	○	○	○	○

Questions about breastfeeding and working

Did you work before the birth or adoption of your last child?

☐ No
☐ Yes, I was employed
☐ Yes, I was self-employed

What percentage of a full working week did you work?

_____
(Please enter only the number, e.g. 60)

How long did you receive paid maternity or adoption leave from your employer?

◯ 14 weeks
◯ 16 weeks
◯ >16 weeks
◯ None
◯ Other: {urlaubmwas}

Did you take additional unpaid maternity leave?

◯ Yes, namely _____ weeks/months {urlaubmxzahl}
◯ No

How did you learn about your rights as a breastfeeding worker?
(You can select more than one option)

☐ I don't know what my rights as a breastfeeding worker are
☐ I was informed by my employer
☐ I sought information myself
☐ Other {rechtanwas}

Have you returned to work since the birth of your last child?

◯ No
◯ No, but I plan to work again when my child is {erwerbmo} months old
◯ Yes, I have been in employment since my child was {erwerbmo2} months old
◯ Yes, I have been self-employed since my child was {erwerbmo3} months old

---

What percentage of a full working week are you working currently?

_____
(Please enter only the number, e.g. 60
)

Of your working hours, what percentage do you work from home?

_____
(Please enter only the number, e.g. 60
)

Who cares for your youngest child when you are at work?
(You can select more than one option)

☐ A family member (e.g. partner, grandparents)
☐ Daycare centre
☐ Childminder
☐ Nanny/Au pair
☐ Other: {betrandw2}

These questions relate to your workplace at your employer WITHOUT working from home.

Is there a suitable room at your workplace you can/could use for breastfeeding or expressing milk?

◯ Yes
◯ No
◯ I don't know

Is there a possibility at your workplace to keep expressed milk refrigerated?

◯ Yes
◯ No
◯ I don't know

Did you breastfeed at work or are you breastfeeding at work?

◯ Yes
◯ No
◯ I don't know

Did you express breast milk at work or are you expressing?

◯ Yes
◯ No

Does your employer regard breastfeeding/expressing breaks as working time, and does your employer compensate it as such?

◯ Yes, in full
◯ Yes, half
◯ Other {pausewas}
◯ No
◯ I don't know

What is your attitude towards breastfeeding/expressing at work?
(You can select more than one option)

☐ I have no problem with other mothers breastfeeding at work
☐ I have no problem with other mothers expressing milk at work
☐ I myself would be uncomfortable breastfeeding or expressing milk at work
☐ I don't have a strong opinion either way

How old are you?

_____

Where were you born?

◯ Switzerland
◯ Other country:

Other country:

- ◯ Afghanistan
- ◯ Albania
- ◯ Algeria
- ◯ Andorra
- ◯ Angola
- ◯ Antigua and Barbuda
- ◯ Argentina
- ◯ Armenia
- ◯ Austria
- ◯ Azerbaijan
- ◯ Bahrain
- ◯ Bangladesh
- ◯ Barbados
- ◯ Belarus
- ◯ Belgium
- ◯ Belize
- ◯ Benin
- ◯ Bhutan
- ◯ Bolivia
- ◯ Bosnia and Herzegovina
- ◯ Botswana
- ◯ Brazil
- ◯ Brunei
- ◯ Bulgaria
- ◯ Burkina Faso
- ◯ Burundi
- ◯ Cabo Verde
- ◯ Cambodia
- ◯ Cameroon
- ◯ Canada
- ◯ Central African Republic
- ◯ Chad
- ◯ Channel Islands
- ◯ Chile
- ◯ China
- ◯ Colombia
- ◯ Comoros
- ◯ Congo
- ◯ Costa Rica
- ◯ Côte d'Ivoire
- ◯ Croatia
- ◯ Cuba
- ◯ Cyprus
- ◯ Czech Republic
- ◯ Denmark
- ◯ Djibouti
- ◯ Dominica
- ◯ Dominican Republic
- ◯ DR Congo
- ◯ Ecuador
- ◯ Egypt
- ◯ El Salvador
- ◯ Equatorial Guinea
- ◯ Eritrea
- ◯ Estonia
- ◯ Eswatini
- ◯ Ethiopia
- ◯ Faeroe Islands
- ◯ Finland
- ◯ France
- ◯ French Guiana
- ◯ Gabon
- ◯ Gambia
- ◯ Georgia
- ◯ Germany
- ◯ Ghana
- ◯ Gibraltar
- ◯ Greece
- ◯ Grenada

- ◯ Guatemala
- ◯ Guinea
- ◯ Guinea-Bissau
- ◯ Guyana
- ◯ Haiti
- ◯ Holy See
- ◯ Honduras
- ◯ Hong Kong
- ◯ Hungary
- ◯ Iceland
- ◯ India
- ◯ Indonesia
- ◯ Iran
- ◯ Iraq
- ◯ Ireland
- ◯ Isle of Man
- ◯ Israel
- ◯ Italy
- ◯ Jamaica
- ◯ Japan
- ◯ Jordan
- ◯ Kazakhstan
- ◯ Kenya
- ◯ Kuwait
- ◯ Kyrgyzstan
- ◯ Laos
- ◯ Latvia
- ◯ Lebanon
- ◯ Lesotho
- ◯ Liberia
- ◯ Libya
- ◯ Liechtenstein
- ◯ Lithuania
- ◯ Luxembourg
- ◯ Macao
- ◯ Madagascar
- ◯ Malawi
- ◯ Malaysia
- ◯ Maldives
- ◯ Mali
- ◯ Malta
- ◯ Mauritania
- ◯ Mauritius
- ◯ Mayotte
- ◯ Mexico
- ◯ Moldova
- ◯ Monaco
- ◯ Mongolia
- ◯ Montenegro
- ◯ Morocco
- ◯ Mozambique
- ◯ Myanmar
- ◯ Namibia
- ◯ Nepal
- ◯ Netherlands
- ◯ Nicaragua
- ◯ Niger
- ◯ Nigeria
- ◯ North Korea
- ◯ North Macedonia
- ◯ Norway
- ◯ Oman
- ◯ Pakistan
- ◯ Panama
- ◯ Paraguay
- ◯ Peru
- ◯ Philippines
- ◯ Poland
- ◯ Portugal
- ◯ Qatar
- ◯ Réunion

- ◯ Romania
- ◯ Russia
- ◯ Rwanda
- ◯ Saint Helena
- ◯ Saint Kitts and Nevis
- ◯ Saint Lucia
- ◯ Saint Vincent and the Grenadines
- ◯ San Marino
- ◯ Sao Tome & Principe
- ◯ Saudi Arabia
- ◯ Senegal
- ◯ Serbia
- ◯ Seychelles
- ◯ Sierra Leone
- ◯ Singapore
- ◯ Slovakia
- ◯ Slovenia
- ◯ Somalia
- ◯ South Africa
- ◯ South Korea
- ◯ South Sudan
- ◯ Spain
- ◯ Sri Lanka
- ◯ State of Palestine
- ◯ Sudan
- ◯ Suriname
- ◯ Sweden
- ◯ Switzerland
- ◯ Syria
- ◯ Taiwan
- ◯ Tajikistan
- ◯ Tanzania
- ◯ Thailand
- ◯ The Bahamas
- ◯ Timor-Leste
- ◯ Togo
- ◯ Trinidad and Tobago
- ◯ Tunisia
- ◯ Turkey
- ◯ Turkmenistan
- ◯ Uganda
- ◯ Ukraine
- ◯ United Arab Emirates
- ◯ United Kingdom
- ◯ United States
- ◯ Uruguay
- ◯ Uzbekistan
- ◯ Venezuela
- ◯ Vietnam
- ◯ Western Sahara
- ◯ Yemen
- ◯ Zambia
- ◯ Zimbabwe

Since when have you been living in Switzerland? Please enter the year (e.g. 1985) _____

What is your nationality? (You can select more than one option)	☐ Switzerland ☐ Italy ☐ Germany ☐ Portugal ☐ France ☐ Kosovo ☐ Spain ☐ Serbia ☐ Turkey ☐ North Macedonia ☐ Other {natmw} ☐ Other {natmw2}
What is the nationality of the person in your household ('[hhpaar]')? (You can select more than one option)	☐ Switzerland ☐ Italy ☐ Germany ☐ Portugal ☐ France ☐ Kosovo ☐ Spain ☐ Serbia ☐ Turkey ☐ North Macedonia ☐ Other {natvw} ☐ Other {natvw2}
What is your marital status?	◯ Married ◯ Divorced ◯ Single ◯ Widowed ◯ Registered partnership ◯ Dissolved partnership
How many biological children do you have? Please enter the month and year of birth (excluding your youngest child)	☐ no other child ☐ 1st child {kind1mo}{kind1jahr} ☐ 2nd child {kind2mo}{kind2jahr} ☐ 3rd child {kind3mo}{kind3jahr} ☐ 4th child {kind4mo}{kind4jahr} ☐ 5th child {kind5mo}{kind5jahr} ☐ 6th child {kind6mo}{kind6jahr} ☐ 7th child {kind7mo}{kind7jahr} ☐ 8th child {kind8mo}{kind8jahr} ☐ 9th child {kind9mo}{kind9jahr} ☐ 10th child {kind10mo}{kind10jahr}
Which school or education/training establishment did you last attend?	◯ Compulsory schooling ◯ Apprenticeship or Matura ◯ University / university of applied sciences / higher vocational and professional education and training (Federal Master's certificate) ◯ No school-leaving certificate
Did the person in your couple household ("[hhpaar]") work before the birth of your youngest child?	◯ Yes ◯ No ◯ I don't know
What percentage of the person in your household ("[hhpaar]") is gainfully employed? Please enter the number of per cent	_____

Did the other parent take (paternity) leave?
(You can select more than one option)

- ☐ No
- ☐ Yes, the 2 weeks provided for by law (paid)
- ☐ Yes, for more than 2 weeks (paid)
- ☐ He/She took holiday leave
- ☐ The other parent has taken holidays
- ☐ Statutory leave not possible
- ☐ I don't know

Which school or training establishment did the person in your couple household ("[hhpaar]") last attend?

- ◯ Compulsory schooling
- ◯ Apprenticeship or Matura
- ◯ University / university of applied sciences / higher vocational and professional education and training (Federal Master's certificate)
- ◯ No school-leaving certificate

Approximately what is the total monthly net income of your household?

- ◯ less than 4,500 Swiss francs per month
- ◯ between 4,500 and 6,000 Swiss francs per month
- ◯ between 6,000 and 9,000 Swiss francs per month
- ◯ more than 9,000 Swiss francs per month

(Netto means AFTER deductions, i.e. what is paid into the account)

Multiples: second and third-born child

How many multiple-birth babies did you give birth to?

◯ 2 ◯ 3 ◯ >3

Has your second-born child ever had any of the following conditions?
(You can select more than one option)

- ☐ No
- ☐ Fever
- ☐ Pneumonia
- ☐ Cold (runny nose/cough)
- ☐ Ear infection
- ☐ Respiratory disease/bronchitis
- ☐ Accident
- ☐ Gastrointestinal infection
- ☐ Colic
- ☐ Unclear pain or discomfort
- ☐ Other: {erk2rw}

Did your second-born child receive medical treatment for this, or is such treatment currently ongoing?

- ◯ Yes, due to: {ther2text}
- ◯ No

Has your second-born child ever been hospitalised outside of the phase immediately following the birth or the postpartum period?

- ◯ Yes, due to: {hosp2text}
- ◯ No

How long was your second-born child hospitalised for?

- ◯ Less than 1 week
- ◯ 1-3 weeks
- ◯ Longer than 3 weeks

Is your second-born child's diet the same as or different from that of the first-born child (for example, in terms of breastfeeding and the introduction of complementary foods)?

◯ Same diet
◯ Different diet, namely: {food2text}

Has your third-born child ever had any of the following conditions?
(You can select more than one option)

☐ No
☐ Fever
☐ Pneumonia
☐ Cold (runny nose/cough)
☐ Ear infection
☐ Respiratory disease/bronchitis
☐ Accident
☐ Gastrointestinal infection
☐ Colic
☐ Unclear pain or discomfort
☐ Other: {erk3rw}

Did your third-born child receive medical treatment for this, or is such treatment currently ongoing?

◯ Yes, due to: {ther3text}
◯ No

Did your third-born child receive medical treatment for this, or is such treatment currently ongoing?

◯ Yes, due to: {hosp3text}
◯ No

Has your third-born child ever been hospitalised outside of the phase immediately following the birth or the postpartum period?

◯ Less than 1 week ◯ 1-3 weeks ◯ Longer than 3 weeks

Is your third-born child's diet the same as or different from that of the first-born child (for example, in terms of breastfeeding and the introduction of complementary foods)?

◯ Same diet
◯ Different diet, namely: {food3text}

Do you have any additions, questions or comments?
Please enter them in the field below

_____

Would you like to be informed about the results of the main study? If yes, please enter your e-mail address: _____

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