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**ORIGINAL ARTICLE** 

## Trend of exclusive breastfeeding in Chile before and after the parental postnatal law

Tendencia de la lactancia materna exclusiva en Chile antes y después de la implementación de la Ley postnatal parental

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#### **Abstract**

**Introduction**: To describe the trend of exclusive breastfeeding (EBF) until sixth month of life in Chile before and after the implementation of the parental postnatal law in children treated in the public health system. **Material and Method**: An observational and population-based study, using the EBF data up to the sixth month obtained from monthly statistical records (MSR), available at the Department of Information and Statistics on Health of children treated in the public health system. Prevalence and weighted prevalence were determined by region and country. Cumulative percentage variation (PV) and annual percentage variation (APV) of prevalence were analyzed using a linear regression model in the period before (2008-2011) and after (2011-2013) of the implementation of the law. **Results**: The highest prevalence of EBF was observed in 2008 (49.1%) and 2009 (45.1%) and the lowest in 2011 (41.1%). The Antofagasta (33.6%) and Atacama Region (31.6%) had the lowest weighted prevalence of the period. A negative APV was observed in the period 2008-2011 and a positive APV in the period 2011-2013 in all regions and in the country, except for the B. O'Higgins Region. **Conclusions**: The enactment of the law that increases EBF until 24 weeks of life reverses the decreasing tendency previosly observed until the sixth month. This could encourage other governments to invest resources and efforts in early childhood by providing equity and health.

Keywords:
Breastfeeding Postnatal
Law;
Breastfeeding;
Nutrition Infant

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#### Introduction

Breastfeeding satisfies all nutritional and immunological requirements of the newborn<sup>1,2</sup>, favoring the emotional bonding with the mother, reducing the risks of sudden death, preventing malnutrition, infectious diseases, among other benefits<sup>3-5</sup>. From an economic point of view, it is the most complete and convenient food for this stage of life, favoring the family economy and the prevention of possible causes of child morbidity and mortality in all socioeconomic levels<sup>6-8</sup>.

The World Health Organization (WHO) recommends that exclusive breastfeeding (EBF) to begin within the first few hours of life (ideally within the first 60 minutes) until six months, then breastfeeding should be supplemented with foods up to two years of age<sup>9,10</sup>.

Since 1990, Chile has implemented different regular programs to promote breastfeeding<sup>11</sup>, such as the Mother- and Baby-Friendly Hospital Initiative<sup>12</sup>, the child protection program 'Chile Crece Contigo' (*Chile Grows With You*) (Law 20,379), training of health teams, the creation of a breast milk bank, among others13. During 2011, parental post-natal leave went from 12 to 24 weeks of maternity leave because of the law 20,545<sup>14</sup>.

The National Surveys that measure the prevalence of breastfeeding in Chile, conducted between 1993 and 2002, showed an increase in the prevalence of exclusive breastfeeding up to the sixth month of life from 25% in 1993 to 43% in 2002<sup>15,16</sup>. It was further noted that the prevalence of exclusive breastfeeding at the sixth month among women who work outside their homes, was half of those who stayed at home<sup>17</sup>. The latest national breastfeeding survey in 2013, conducted among children aged 6-24 months in the public health system, showed 56% in national average of EBF at the sixth month<sup>18</sup>.

In the public health sector is maintained the Monthly Statistical Register (REM) of breastfeeding in children under one year of age from well-baby visits<sup>19</sup>, however, these data are not systematically analyzed and spread out; for this reason, the objective of this study is to describe the trend of exclusive breastfeeding during the sixth month of life in Chile before and after the implementation of the parental post-natal law in children in the public health system.

#### **Population and Methods**

A population-based observational design was used to describe the prevalence of breastfeeding in Chile in 2008-2011 and 2011-2013. The year 2011 was considered as the cut-off point for the studied period, because

that year, in Chile, the maternity protection regulations were modified, incorporating parental post-natal leave (Law 20,545), in which working mothers could take a paid leave of 24 weeks after the birth of their child<sup>14</sup>.

Data were obtained from monthly statistical records (REM) issued in Primary Health Care Services and available in the Department of Health Information and Statistics (DEIS)<sup>19</sup>. A consolidation of monthly data was made in order to obtain annual breastfeeding figures from each region and from the whole country. It was used the regionalization decreed in 2007, which divides Chile into 15 regions (Law 20,174 and 20,175). The variables studied were: the studied year, region of the country and the prevalence of exclusive breastfeeding until sixth month of life in children in control of the public health service.

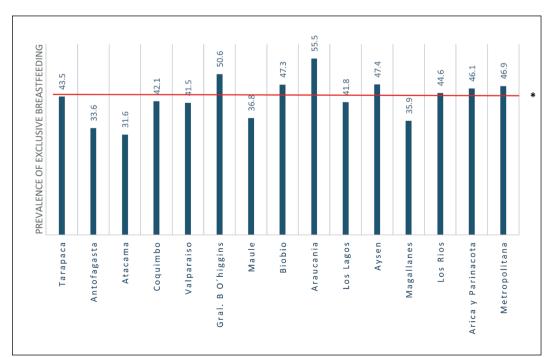
For the data analysis, the prevalence and weighted prevalence of exclusive breastfeeding were calculated from the total number of children care for in primary health care centers and children who registered exclusive breastfeeding at the sixth month of life, according to the studied year and country region. Cumulative percentage change (PC) and annual percentage change (APC) in prevalence were determined using a linear regression model over the period 2008-2011 and 2011-2013. Data were analyzed in the STATA 12.0 software and considered statistically significant when the value of p < 0.05.

#### Results

In Chile, during the period 2008-2013, the total number of exclusively breastfed children up to the sixth month of life was 682,282, with an mean prevalence of 44.2%. The highest prevalence of exclusive breastfeeding was observed in 2008 and 2009 (49.1% and 45.1% respectively), while 2011 was the year with the lowest prevalence (41.1%). Analyzing the situation by region, it was observed that, with the exception of the Aysén and Magallanes region, the prevalence in 2008 was higher than the one observed in 2013 in all regions during the period 2008-2013 (Table 1).

Analyzing the exclusive breastfeeding prevalence weighted for the period 2008-2013, it was observed that the Libertador General B. O'Higgins Region (50.6%), Biobío Region (47.3%), Araucanía Region (55.5%), Aysén Region (47.4%), Los Ríos Region (46.1%), Arica and Parinacota Region (46.9%), and Santiago Metropolitan Region (44.6%) exceed the average for the country (44.2%), being the Libertador Gral. B. O'Higgins and Araucanía Region the highest weighted prevalence observed. In contrast, the Antofagasta Region and Atacama Region had the lowest weighted prevalence of the period (33.6% and 31.6% respectively) (Figure 1).

Regions	Years								
	2008	2009	2010	2011	2012	2013	_		
Tarapacá	44.1	50.5	42.3	41.9	39.8	43.1	43.5		
Antofagasta	39.3	34.5	31.0	30.2	34.9	33.2	33.6		
Atacama	43.6	30.4	25.4	27.0	33.6	34.5	31.6		
Coquimbo	45.3	41.5	40.7	40.2	42.7	42.7	42.1		
Valparaíso	42.2	42.5	41.3	40.3	40.6	42.4	41.5		
Gral. Libertador B. O'Higgins	62	52.9	50	48.9	44.7	48.3	50.6		
Maule	41.9	36.9	31.9	30.9	38.8	41.5	36.8		
Biobío	51.7	48.6	47.7	42.9	45.8	48.1	47.3		
Araucanía	59.1	53.1	55.1	54.2	55	57.2	55.5		
Los Lagos	49.6	42.2	43.7	38.1	37.3	41.6	41.8		
Aysén	42.8	53.3	49.1	41.1	49.1	47.8	47.4		
Magallanes	39.5	27.9	33.1	36.4	36.6	42.1	35.9		
Metropolitana	49.9	45.6	44.6	41.4	43.4	44.3	44.6		
Los Ríos	50.6	47	42.7	45.8	45	46.8	46.1		
Arica y Parinacota	52.2	45.8	45.8	41.6	49.2	47.1	46.9		
N° Breastfed Children	103784	121060	116282	113548	116550	111058	113714		
N° Children in health control	211276	268684	267622	276570	270280	243304	256289		
Global Prevalence	49.1	45.1	43.5	41.1	43.1	44.7	44.2		



**Figure 1.** Weighted prevalence of exclusive breastfeeding in infants 0-6 months by region. \*Chile, mean.

Table 2. Annual percentage change (APC) and Cumulative percentage change (CP) of exclusive breastfeeding in infants 0-6 months between years 2008-2011 y 2011-2013

Regions	Y	ears 2008-201	1	Years 2011-2013			
	VPA period (%)	р	VP acum. (%)	VPA period (%)	р	VP acum. (%)	
Tarapacá	-1.47	0.521	-2.2	0.60	0.766	1.2	
Antofagasta	-3.1	0.041	-9.1	1.5	0.566	3.4	
Atacama	-5.48	0.144	-16.6	3.75	0.263	7.5	
Coquimbo	-1.61	0.101	-5.1	1.25	0.333	2.5	
Valparaíso	-0.69	0.101	-1.9	1.05	0.249	2.1	
Gral. Libertador B. O'Higgins	-4.22	0.084	-13.9	-0.30	0.916	-0.6	
Maule	-3.8	0.032*	-11	5.3	0.176	10.6	
Biobío	-2.73	0.033	-8.8	2.60	0.042*	5.2	
Araucanía	-1.27	0.373	-4.9	1.5	0.168	3	
Los Lagos	-3.3	0.106	-11.5	1.75	0.445	3.5	
Aysén	-0.93	0.788	-1.7	3.35	0.430	6.7	
Magallanes	-0.41	0.893	-3.1	2.85	0.314	5.7	
Metropolitana	-2.65	0.025*	-8.5	1.45	0.137	2.9	
Los Ríos	-1.87	0.261	-4.8	0.5	0.626	1	
Arica y Parinacota	-3.18	0.061	-10.6	2.75	0.506	5.5	
Global	-2.56	0.017*	-8	1.80	0.041*	3.6	

The trend analysis for the period 2008-2011 shows a negative APC in all regions and in the country, with the Maule region (-3.8%), Metropolitan Region (-2.65%), and the country value (-2.56%) showing statistically significant differences (p<0.05). The Atacama Region (-16.6%), Libertador General B. O'Higgins Region (-13.9%), Los Lagos Region (-11.5%), Maule Region (-11%) and Arica and Parinacota Region (-10.6%) presented the highest accumulated PC of the period (Table 2).

On the other hand, analyzing the 2011-2013 trend, a positive APC was observed in all regions, with the exception of Libertador General B. O'Higgins Region, with the Biobio Region (2.60%) and the country value (1.80%) showing statistically significant differences (p<0.05). The Maule Region (10.6%), Atacama Region (7.5%), Aysén Region (6.7%) and Magallanes Region (5.7%) have the highest accumulated PC of the period (Table 2).

#### Discussion

The woman is the only person able to breastfeed newborns, however, her incorporation into the labor market has had both positive and negative repercussions on her physical, mental and social health<sup>20</sup>, which have affected her family environment. Evidence shows that, in working women, exclusive breastfeeding at the sixth month is reduced by 50% compared to nonworking women<sup>18</sup>. According to data from the National Health Survey, 2009-2010, 57% of women of childbearing age are working outside the home<sup>21</sup>, which represents an important risk factor for the cessation of breastfeeding.

The enactment of the parental postnatal care law has contributed to increasing the prevalence of women who exclusively breastfeed their children until the sixth month of life, with a 3.1% increase in the prevalence of exclusive breastfeeding at the sixth month of life after the law implementation.

The prevalence of EBF in 2013 was 44.3%, 12% lower than reported by the National Breastfeeding Survey (ENALMA) in the same year<sup>18</sup>. The difference found in this study with those reported in national surveys may be due to the way data are collected. In the case of monthly statistical reports, the data are obtained from the well-baby visits in primary health care centers, while in the last National Breastfeeding Survey, a survey was applied to mothers of children up to 23 months of age, which could induce a recall bias on the part of the interviewees.

By analyzing the trend of EBF over the period 2008-2011, a decrease in prevalence is observed until 2011 and then an increase in prevalence by the year 2013. This could be explained by the different measures implemented by the government to promote breastfeeding, perhaps the most important among them, both economically and in strengthening the mother-child relationship, was the enactment of law 20,545 in 2011, which extends the postnatal period from 12 to 24 weeks<sup>14</sup>. This kind of results allows encouraging other governments to invest resources and efforts in early childhood, contributing to equity and health in the short and long term.

Law 20,869 came into effect in 2006, which, among other things and through advertising, tends to discourage the use of breast milk substitutes<sup>22</sup>. On the other hand, Chile has become a migration destination country, a factor that could positively or negatively influence the prevalence of breastfeeding<sup>23</sup>. Both factors should be considered in later studies.

The WHO sets as a goal that at least 50% of children should be exclusively breastfed until the sixth month of life worldwide by 2025<sup>24</sup>. This implies important challenges to keep promoting the EBF in our country, as well as evaluating the impact of public policies implemented in this area. Currently, there are regions where strategies to promote EBF should be strengthened, focusing efforts on women under the age of 24<sup>18</sup>.

The limitations of this study are that the data come from the public health system, which represents almost 80% of the population and mainly the three lowest

quintiles, without information regarding breastfeeding in the private sector. On the other hand, updated data on breastfeeding after 2013 are not available from monthly statistical registers.

### **Ethical Responsibilities**

Human Beings and animals protection: Disclosure the authors state that the procedures were followed according to the Declaration of Helsinki and the World Medical Association regarding human experimentation developed for the medical community.

**Data confidentiality:** The authors state that they have followed the protocols of their Center and Local regulations on the publication of patient data.

**Rights to privacy and informed consent:** The authors have obtained the informed consent of the patients and/or subjects referred to in the article. This document is in the possession of the correspondence author.

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#### **Conflicts of Interest**

Authors declare no conflict of interest regarding the present study.

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