(19.5%) and questions about treatment (16%) (Fig. 2). We received responses to the satisfaction survey from 149 families (82.7%), and found that overall, they agreed or strongly agreed that WhatsApp® facilitated access to the paediatrician (95.2%), that more medical providers should use WhatsApp® (98.2%), that they would miss being able to send WhatsApp messages® if this option was removed (68.3%) and that they found consultations through WhatsApp® useful (95.9%). Half of the families (52.8%) expressed concerns about security. In addition, 81.2% considered that the concerns expressed through WhatsApp® were addressed and were satisfied with the response they received (82.5%), which relieved fears and anxiety (83.1%). The families did not feel that this platform made them grow apart from their paediatrician (87.6%). Of all families, 58.7% reported using this means of contact less than once a month, and 39.4% reported having submitted pictures or videos. WhatsApp® was the method preferred by most to contact the paediatrician (70.4%), followed by phone calls (35.9%) and email (14.8%).

Messaging offers 2 main advantages over conventional phone calls: asynchrony and ubiquity. This has significant benefits compared to traditional communications through the telephone, which involved delays and interruptions. The fact that most consultations could be resolved directly through this system could significantly contribute to decongest and streamline health care delivery. Families declared that the use of WhatsApp® increased the quality of communication with the paediatrician. As for the limitations of our study, the fact that it was conducted in a single private clinic restricts the generalisation of its results, as the system would have to be introduced in different geographical areas and populations of varying socioeconomic status. Another limitation is that the questionnaire used in the satisfaction survey was not a validated instrument, although the response rate was substantial. It would also be interesting to replicate this study in the months that the clinic receives the most visits. The results of our study cannot be generalised, but the patterns of use by the families and their subsequent comments demonstrate that this is a tool that improves communication with patients. In our role as paediatricians, we can be leaders in the use of information and communication technologies (ICTs)[5,6] and are among the medical specialists that are best positioned to transform health care in this regard.

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https://doi.org/10.1016/j.anpede.2019.02.008

Descriptive analysis of mobile phone applications on breastfeeding☆

Análisis descriptivo de aplicaciones móviles sobre lactancia materna

Dear Editor:

The advantages of breastfeeding (BF) are recognised worldwide.[1] However, in spite of this awareness and the different strategies implemented internationally for its promotion and support, the objectives established by the World Health Organization (WHO) for the optimal duration of BF are not being met.[2]

On the other hand, we are undergoing a profound technosocial revolution, and information and communication technologies (ICTs) have irrupted with tremendous force and changed the paradigm of health care delivery. In Spain, the report *Indicadores de la Sociedad de la Información por género 2018* (Indicators of the Information Society by Sex, 2018) of the Observatorio Nacional de las Telecomunicaciones y de la Sociedad de la Información (National Surveillance Agency of Telecommunications and the Information Society, ONTSI) showed that 67.3% of the Spanish population had used the internet to obtain health information in recent months.[3] One of the areas that is growing fastest in the field of ICTs in health care is mobile phone applications (apps). At present, there are 22 million active app users in Spain, and the number is increasing.[4]

☆ Please cite this article as: Díaz Cano AI, Margaix-Fontestad L, Esplugues A. Análisis descriptivo de aplicaciones móviles sobre lactancia materna. An Pediatr (Barc). 2020;92:302–305.

Table 1 Descriptive analysis of the mobile applications on breastfeeding in Spanish, 2009–2018 period.

	n	%
Operating system		
iOS	106	72.6
Android	39	26.7
Windows	1	0.7
Author/developer		
Non-professional (mothers, software companies, other)	141	96.6
Professional	5	3.4
Medicine/Paediatrics	2	1.4
Professional association (AEP)	1	0.7
Medical students	1	0.7
International lactation consultants (IBCLC)	1	0.7
Region of origin		
Europe	87	59.6
Spain	51	34.9
North America	35	24
South America	15	10.3
Asia	9	6.2
Target population		
Parents	73	50
Mothers	59	40.4
Parents/professionals/support groups	9	6.2
Professionals	3	2
Children aged < 12 years	2	1.4
Features of the application (categories under analysis)		
Facilitates tracking of	71	48.6
Breastfeeding	47	32.2
Infant habits	42	28.8
Infant development	35	24
Other data	34	23.3
Utilities	34	23.3
Breastfeeding and formula feeding	26	17.8
Complementary feeding	21	14.4
Provides information on	50	34.2
Breastfeeding	34	23.3
Infant development	29	19.9
Other information	20	13.7
Complementary feeding	16	10.9
Maternal care	13	8.9
Breastfeeding and formula feeding	9	6.2
Other	15	10.3
Books/magazines	5	3.4
Entertainment (games)	3	2
Events	3	2
Resource map (breastfeeding, care providers, leisure)	2	1.4
Professional websites	1	0.7
Breastfeeding organisations	1	0.7
Information and monitoring	10	6.8
Feedback	21	14.4
Free app	134	91.8

Source: developed by the authors.

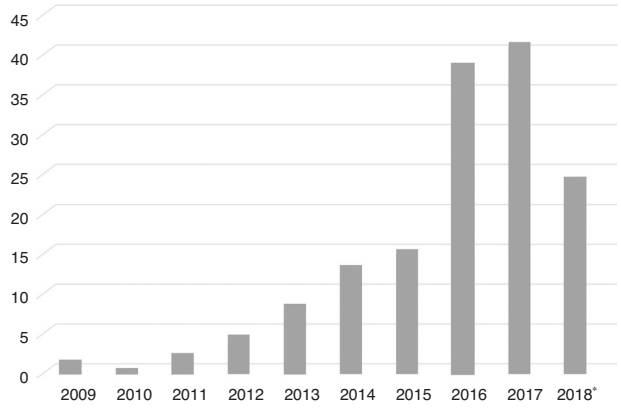

Figure 1 Launching of breastfeeding apps in Spanish; 2009–2108 period.
Source: developed by the authors.
* Up to 1/10/2018.

The aim of our study was to identify existing BF apps, analyse their characteristics and reflect on their potential use as community health tools.

We conducted a mixed study by searching the main app stores using the keyword ''lactancia materna'' (breastfeeding). We included apps in Spanish available through 01/10/2018 and classified them according to the following variables: operating system, developer, country of origin, available language(s), target population, content/features, feedback, description, download volume and free access (Table 1).

Subsequently, we made a quantitative analysis of app contents and features using quantitative analysis based on the description provided by the developer, and established the following categories: information, tracking and other contents (Table 1).

Of the 270 apps that we identified, we only included the 146 available in Spanish. The most frequent operating system was Android (72.6%). The distribution by origin included 29 countries in 4 continents, with a predominance of apps from European countries ($n = 87$). Fifty-nine percent of European apps were Spanish ($n = 51$). Most were developed for parents ($n = 73$). Over half of the apps (67%) were available in other languages besides Spanish.

The mean number of downloads was 185 035. Fig. 1 presents the app launch growth (number of apps/year), showing an increasing trend and a significant leap in 2016. Most apps were free (91.7%), and the mean price of the rest was 2.33 euro.

When we analysed the content of the apps, we found that the most frequent feature/content categories were tracking (48.6%) and information (34.2%). The most frequent tracking features were tracking of BF ($n = 46$) and tracking of the baby's habits/routines ($n = 42$). In the information category, the predominant type was information on BF ($n = 34$).

We were surprised by the large number of *apps* that could be used to track feeding schedules considering that the WHO recommends BF on demand.[5]

Something worth mentioning regarding the analysis of the quality of the information given by the apps is that of all the apps we found, only Lactapp was pending approval to receive the ''Healthy App'' certification given by the Health Care Quality Agency of the Department of Health of Andalusia. This is a certification given to health apps that meet quality and safety recommendations and that can be trusted for use by the general population. Another salient finding was that only 3.4% of the developers were doctors/paediatricians or certified BF consultants and offered updated evidence-based information. One example is the breastfeeding app of the Spanish Association of Pediatrics (Lactancia materna AEP), which offers high-quality content developed by the Committee on Nutrition and Breastfeeding of this association.

When it came to feedback, few apps allowed interaction ($n = 21$). Only one, WeMoms, allowed mothers to participate in chats to discuss and address concerns about BF.

The large number of downloads reflects that this is an emerging vehicle for seeking help and information that could complement traditional forms of BF support.[6]

As health care professionals, we need to adapt to emerging demands and should consider the inclusion of BF apps in our everyday practice as an additional tool for community-based intervention. However, we must be careful in recommending apps, and there need to be quality assessment guidelines and certifications to allow a safe and rigorous use of these apps.

The use of BF apps could also provide ongoing access to information on BF and participation in virtual spaces in which to share experiences and advice with peers to promote successful BF.

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https://doi.org/10.1016/j.anpede.2019.03.008