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Breastfeeding in the European Union: A Systematic Literature Review

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Abstract: ***Background**: Many countries in Europe have low breastfeeding rates, according to current European Community health indicators. **Objectives**: This study explores the determinants, main barriers and gaps associated with breastfeeding in the UK and European countries. **Methods**: Systematic Literature Review was performed through multi-method approach, on electronic database, in the UK databases, EU/EEA and international accredited databases. **Results**: findings suggested lack of knowledge, lack of promotion and of appropriate support from health services or health professionals, lack of educational and support regarding breastfeeding. **Conclusion**: Although social and cultural determinants proved to be relevant for breastfeeding decision, barriers also founded were lack of information, education and support, suggesting the need for further improvement and development at health policies and healthcare level.*

Keywords: breastfeeding; Europe, workers; mothers; culture

1. Background

Breastfeeding (BF) is highly recommended by health authorities, like WHO and UNICEF, due to the great benefits to the child and to the mother and contribution to reducing childhood morbidity in the first years of life(1). Breastfeeding is important in reducing children morbidity (2) and is recommended due to reasons that include providing all nutrients needed for healthy development, protection against common childhood illnesses (diarrhoea, asthma, lower respiratory infections, ear infections), and positively associated with children's cognitive development(3, 4). Benefits for mothers include reducing the risks of breast and ovarian cancer (2) which are relevant mortality causes in the European Union (1).

WHO recommends that mothers worldwide exclusively breastfeed infants for the child's first six months and continue breastfeeding until at least 12 months, (1) to achieve optimal growth, development and health (5). The rates of breastfeeding in European countries haven't changed in the last two decades (5-7). Although the majority of countries in the European Union have a legislation that protects parental and maternity rights for workers (5, 8), the rates for breastfeeding are below optimal recommended levels (5).

This work reviews the literature from 2000 to 2013, concerning breastfeeding practices in European Union countries, and aims to explore the determinants and main barriers as well as gaps in the promotion and support of breastfeeding practices. ln this literature review, the focus will be on three main aspects (8): support (health services or health professionals practices and attitudes), promotion (education, culture, traditions or believes), and protection (legislation, social or work-related aspects) (5).

The European countries included in the review are the ones belonging to the European Union, not including the WHO European region countries that do not belong to the European Union (9). The literature review will follow a textual narrative synthesis approach, inspired on the Cochrane Collaboration's "Cochrane Handbook for Systematic Review of Interventions" (10).Although developed and affluent, many countries in Europe still have low breastfeeding rates, bellow recommended by WHO (11), with rates of 70-100% immediately after birth (48h) to 40-60% at 3 months of age, and less than 25% at 6 months, according to current European Community Health indicators (12).Some countries like the UK and Ireland present some of the lowest rates of any breastfeeding, whereas Nordic countries have much better rates of exclusive and continued breastfeeding (13).

In the UK, in 201O, 62% of mothers were exclusively breastfeeding at birth, and only 23% were exclusively breastfeeding at six weeks, presenting one of the lower rates in Europe, and a minority of hospitals and maternities started the Baby Friendly Hospital Initiative (BFHI) recommended by WHO (14).The reasons for this low adherence and why women choose either not to start breastfeeding, or opt for a short duration, might be related to education, social and cultural factors, influencing attitudes towards breastfeeding (15). A group of policies, legislation and measures to promote, support and protect breastfeeding practices have been implemented in Europe (3), during the last two decades, including policies like the Baby Friendly Hospital initiative (BFHI), or the International Code for Breast milk substitutes, training and monitoring, however low rates and early cessation of breastfeeding became a public health priority (1, 3, 16). In this study, the following framework analysis was applied:

Protection (Legislation, social and work-related aspects)
The implementation of policies of social protection in the European Union includes protection to mothers and parents, through paid maternal or parental leave. The European legislation, assures "at least a period of 14 weeks" to all workers, regardless of gender (3). Most European countries (15 of 24 in 2007), fully implemented the International Labour Organization (ILO) standards, and it was partially implemented in the remaining ones (5). Scandinavian countries implemented parental leave, rather than maternal leave, meaning that both parents can equally share the leave or part of it. Nordic countries also have the longer duration leaves, up to 60 weeks (17). Besides healthcare related policies, like the Baby Friendly Hospitals Initiative, the implementation of the International Code of marketing of Breast-milk Substitutes, is another line of intervention that

recommends education and no advertisement or promotion of these products to the general public (18).

Promotion (Education, Tradition, Culture and Believes)
Public health professionals as well as health workers have a significant role in promoting and influencing breastfeeding and have an adequate formation on the importance of human lactation (19), and educating Public Health students and professionals to general breastfeeding information would facilitate their attitudes, understanding and behaviours about breastfeeding (19). An increasing number of European countries implemented peer counsellors services, and mother-to-mother support groups, to promote and develop the practice of breastfeeding (5).

Traditional and cultural aspects can be relevant to the option for breastfeeding, including the influence of relatives and friends (20). Mothers often experience conflicting advice, invasive or insufficient assistance, and in some cultures can be discouraged to breast feeding (19). Evolution from the traditional role of women in society, like the entrance of women in the labour (21]) world and the advent of new roles for women, like professional life, careers, independence, autonomy, also influence women's behaviour towards breastfeeding (22), having to deal with feeling of loss of freedom, isolation or social exclusion or slow-down of professional life (23).

Support (Health Services and professionals practices and attitudes)
The Baby Friendly Hospital Initiative, promoted by the WHO, recommends the training of health professionals, aiming to to the improvement on breastfeeding exclusivity and duration after discharge (24). The actual application of these policies might be less then optimal, and some studies showed that 37% of health care workers used formula feed instead of early breastfeeding(25). Inadequate hospital practices include hospital supplemental feeding with formula, early discharge with gifts including formula, policies and procedures not allowing rooming- in (19). To improve the rates of breastfeeding initiation within an hour after birth, vaginal delivery should be enhanced (25), and application of ALR anaesthesia should be encouraged in the case of caesarean section. As some studies have showed, longer discharge and longer post-partum periods are associated with caesarean section, or instrumental delivery (26), increasing the odds for a later skin- to skin contact, or formula feeding. Although The WHO's Implementation Plan on Maternal, Infant and Young Child feeding, in 2012, set a goal of increasing exclusive breastfeeding in the first 6 months by 50%, from the current global average of 37%, by 2025 (27), the "State of the World's Children" 2012 UNICEF report, shows a global breastfeeding initial rate of 42%, an exclusive breastfeeding rate of 30%, and a continued breastfeeding rate of 55%, in the CEE/CIS region (7), with an exclusive breastfeeding rates at 6 months are below 10% (5, 6), in some European countries (UK).

2. Objectives

The specific objectives include: 1) to explore the influence of culture and tradition on choosing natural breastfeeding 2) Look for main gaps in the promotion of this practice at social or healthcare levels 3) Identify perceived legal or work-related barriers, that might influence the option for or duration of breastfeeding.

3. Study Design

A systematic review of the existing literature on breastfeeding, in the UK and EU countries, was performed. A literature search flowchart is included, with the search strategy used and with information regarding the main databases searched, number of studies found, number of studies selected and number of excluded studies.

4. Methodology

For this systematic literature review, qualitative, quantitative and mixed methods studies were selected. After the selection of studies, a summary of selected papers/articles was done, followed by a methodological appraisal. The included studies are qualitative studies (thematic analysis and systematic reviews), quantitative studies (RCT, NRCT studies, Cohort studies), also including case-studies reviews and reports. Tables 1 to 4 (Appendix, in Annexure,) summarize the main aspects of the included studies, regarding study design, sample size, settings, participants, interventions, outcomes, main findings and conclusions. The studies population is mainly constituted by mothers in pre and post-natal period, also including fathers, parents, health workers, midwifery, public health workers, nurses, childcare centres workers and communities, with a total of 5637 participants were included in this review. The type of interventions included were designed to assess health services and health professionals practices and performances on what concerns health services breastfeeding support and practices and evaluation of the perceptions and experiences of mothers and families, the influence of cultural and educational factors on the decision to breastfeed. Case-studies and reports were also included. The type of outcomes measures includes primary outcomes, like breastfeeding initiation and duration rates, in European countries, (including exclusive, predominant or complementary breastfeeding). As secondary outcomes we looked for the main determinants why mothers and parents choose to breastfeed, and how important is the influence of parental or maternal leave length and social support.

Search methods for identification of studies
Electronic databases (WHO, OECD, GMC, NHS, Pub Med /Medline, Cochrane, NICE), were accessed for published studies. The search strategy will include key words like: "European countries, Europe, policy, legislation, maternal, OCDE, regulation, breastfeeding, nutrition, culture, under-5 morbidity, WHO, UNICEF, recommendations, hospitals, baby, friendly, maternities", using truncation, Boolean operators, proximity search, and adding subject headings.

Data collection and analysis
Data collection is summarized in tables 1 to 4, in Annexure (Appendix II).Methodological quality appraisal was done using the "Critical Appraisal Skills Programme" tool (CASP), STROBE and NICE Guidelines for Cohort, RCT, Qualitative studies and Systematic Reviews, and the Cochrane Review's Handbook for Systematic Reviews (10).

Selection of studies

The exclusion criteria were: studies not related to Europe, or not related to the subject of the literature review. 1456 records were initially reviewed, each record initially assessed through the reading of the title, according to the research question; 306 records were then selected after reading the abstract. From these, 229 were excluded and 77 were reviewed, according to the exclusion criteria of population and setting, location, relevance to the topic, appropriateness and intervention. Search for studies were made in English,in French and in Spanish.A total of 12 studies were finally selected, and were then fully reviewed for quality and critical appraisal

Data extraction and management

Data extraction was made after detailed reading of the selected articles, with the help of summarizing tables, included in annexure (appendix II). The main findings were summarized in tables, according to the EPOC data collection check list (29)(30).

Heterogeneity

Statistical heterogeneity was not assessed and meta-analysis will not be considered, since the interventions and outcomes are not homogeneous enough to provide a meaningful summary. A narrative synthesis approach, with organisation by interventions followed by theory construction and synthesis of results will be done according to the "Guidance in conducting narrative synthesis in Systematic Reviews" (31) (32).

Assessment of bias

Assessment of quantitative studies (Table 1) included assessment of internal and external validity, reliability and objectivity. Internal validity was assessed by evaluating randomization and allocation concealment, blinding, outcomes reporting and data follow-up. Quantitative studies were assessed by looking at randomization processes, allocation concealment, blinding of participants, blinding of outcomes assessment, incomplete outcome or data, or selective reporting. Bias assessment is summarized in Table 1, and studies were classified as good, medium or low quality.

Qualitative studies were included in the review, and quality assessment was also done in what concerns credibility, transferability and dependability, summarized in Table II. Appraisal of qualitative studies included evaluation of internal validity, like triangulation, detailed description of settings, participants, processes and interactions, negative or discrepant information, detailed description of processes, collecting and analysis of information, peer's review and debriefing and control for bias on interpretation. Methodological appraisal summarized in Table I and II.

Table I: Quantitative studies: bias assessment

N	Author	Randomization (selection)	Allocation (selection)	Blinding (performance)	Attrition (outcomes)	Overall appraisal
1	Simonetti, 2012	done (RCT)	unclear	done	no	Good
2	Zacarija-Grković, 2010	B/A study	no	no	yes	Medium
3	Quintero, 2006	done (RCT)	unclear	no	no	Medium
4	Cattaneo, 2010	ITS	no	no	no	Good
5	Ekstrom, 2012	done (RCT)	unclear	done	no	Good
6	Bakoula, 2007	cohort	unclear	no	no	Medium
7	Wright, 2006	cohort	no	no	no	Good

Table II: Qualitative studies: quality appraisal and assessment

Author	Credibility	Transferability	Dependability	Confirmability
Williamson, 2012	+++	+	++	+++
Thomson, 2012	+++	+	++	++
Quintero, 2006	+	+	unclear	unclear
Regan, 2013	+++	++	+	unclear
Stewart-Knox,2003	+++	++	++	+
Scale	*High*+++	*Medium*++	*Low*+	Unclear/ Non existent

5. Results

Description of studies

The twelve included studies are described separately and also summarized in tables 1 to 4, (in Annexure - Appendix II). For an easier lecture, studies were also numbered 1 to 12.From the 77 articles initially screened, by theme and abstract revision, 18 were initially selected for full review and appraisal. From these 18 only 12 were finally retrieved. Excluded studies were either studies in different locations outside the European Union, like the USA, African (Egypt, South Africa, Ghana) or Asian countries (Pakistan, India, Indonesia, China, Vietnam), Australia or South America (Brazil, Peru, Chile). Excluded studies are summarized in tables in Appendix III.The included studies included qualitative, quantitative or mixed (quantitative and qualitative) methods. An individual quality appraisal was made for each study, separately, and summarized in Tables I and II, for quality and bias assessment according to the Cochrane's Handbook for Systematic Review's tool (10).

Results of the search

Table III presents the main findings of the intervention s at health services level, after description and quality appraisal. Two main types of results emerged from the review: determinants related to performance from health services or health professionals, suggesting that where evidence of lack of knowledge, lack of promotion and lack of appropriate support from health services or health professionals, concerning ante-natal and postpartum support and follow - up. Four studies (Simonetti 2012, Ekstrom 2012, Bakoula 2007 & Quintero 2006) showed that interventions that

promoted and support breastfeeding had a positive influence in increasing breastfeeding rates. Another type of results are the ones that emerged from qualitative studies. Three qualitative studies were selected (Williamson 2012, Thomson 2012 and Stewart- Knox, 2003). A fourth study selected is a literature review of qualitative research, that included 28 qualitative studies. Qualitative studies were mainly selected from the UK, and the main emergent themes are summarized in table IV.

Table III: Main findings from interventions at health services level

Authors	*Findings*	*Statistics*
Simonetti, 2012 *Italy*	The SCT intervention was effective on improving breastfeeding during the first 5 months of age	**P<0.01** / **IG** / **GC** 0 months / 76% / 42% 3 months / 54% / 29% 5 months / 25% / 12%
Zakarija-Grković, 2012 *Croatia*	The study showed considerable lack of knowledge in BF practices, so implementing training increases professionals' performance.	*No statistics concerning BF*
Quintero 2006 *Italy*	The study founded significant differences between regions, regarding full breastfeeding rates interpreted as a need of better training of health professionals, with regards to lactation management, communication and counselling skills, and addition of peer-counselling	Regions: FVG (North) / BAS (South) Types of BF EB: No significant differences FB: 71% / 75% 61% / 66% 22% / 16%
Cattaneo 2010 *EU*	The global results indicate that some progress on BF initiation was made but rates of BF and continued BF still fall short of WHO's recommendations	Countries / Initiation rates / EB(6M) rate LV: 100% / 45% SK: 90% / 45% SE: 100% / 35% UK: 80% / 5%
Ekstrom 2012 Sweden	The study concluded that BF had a significantly longer duration with the IG (intervention group) then CG (control group).The reasons were interpreted as due to a better information about breastfeeding.	**BF** / **IG** / **CGA** / **CGB** EB Duration: 5.3m / 3.9m(p:0,1) / 4.9m(p:0.6) Breast milk substitutes: 3.8m / 2.3m(p:0.1) / 2.0m(p:0.03)
Bakoula 2007 Greece	Factors founded as positively influencing exclusive breastfeeding initiation	Determinants / P value / Determinants / P value BFHI Hospitals: >.001 / Vaginal delivery: >.001 Early contact: >.001 / Higher Education: >.001 Rooming- in: >.001 / Influence of relatives: .97 Previous experience: > 001
Wright 2006, UK	The study concludes that initiation of Breastfeeding (in Britain) remains strongly connected to socio-economic background	Background / BF at birth (% / OR (95% CI)) / BF at 4 months (% / OR (95% CI)) most affluent: 33.2 / 1.00 / 9.5 / 1.00 more deprived: 65 .3 / 2.08 (1.5-2.9) / 26.4 / 1.20(0.67-2.1) higher education: 84.2 / 8.14 (4.6-14.) / 48.9 / 7.69 (3.2-18.4) Beyond 16y: 45.8 / 1.73 (1.0-2.9) / 10.9 / 1.22 (0.4-3.4) GCSE: 49.7 / 2.03 (1.4-3.0) / 13.9 / 1.65 (O.7-3.7) None: 25 / 1.00 / 6.8 / 1.00

Table IV- Main emergent themes identified from qualitative analysis

Author	Emergent themes
Williamson, 2012, UK	• "Experience of pain and tension" "day-to-day struggle" "threat to maternal identity" were some of the emerging themes
Thomson, 2012, UK	• "Painful, hard-working and exhausting experience"
Regan, 2013,UK	• "viewing the breast as a narrative object", "technological discourse devaluing women's experiences", "Cartesian separation between mind and body", "dominance of infant formula and profit"
	• "Restriction of freedom, and independence" "embarrassment of self and others" "feelings of isolation" "maternal leave inadequate"
Stewart-Knox, 2003, UK	• "Societaldisapproval""financialloss""professionalexclusion" • "job loss" "loss of financial independence"

6. Conclusions

Findings of the selected studies were grouped in three main sub-themes:

6.1 Findings related to gaps in the promotion of breastfeeding at healthcare level

Studies showed that interventions for counselling and support after discharge like STC can increase twice the rates

of breastfeeding at 5months (Simonetti, 2012). Other studies (Ekstrom 2012, Zacarija-Grkovic 2012) showed that training of midwifes and health professionals increased the initiation and duration of breastfeeding rates, whereas from the factors founded as determinants of breastfeeding initiation (Bakoula 2007), at least four were related to pre-discharge healthcare practices (BFHI maternities, early contact, rooming-in, vaginal delivery). Currently in the European Union, less then 20% of health units with maternity services are designated BFI Hospitals, or have BFIH certificates (41).

6.2 Findings related to culture, tradition or education towards breastfeeding

Some already known determinants of breastfeeding practices include lack of adequate knowledge about breastfeeding, lack of support at home or from the family, lack of family members with experience on breastfeeding, lack of time and privacy for breastfeeding lack of opportunities to connect with other breastfeeding mothers, as well as social and cultural beliefs (19). Qualitative studies have shown that although mothers planto breastfeed, barriers at knowledge and education level contribute to make breastfeeding a "day-to-day" struggle (Williamson 2012, Thomson, 2012) to some mothers, whereas social and cultural factors might contribute to feelings of isolation, inadequacy or embarrassment (Stewart-Knox, 2003).

6.3 Findings related to work-resuming or professional determinants

Socio-economic and financial aspects also have a relevant role in breastfeeding initiation and duration (Wright 2006, Quintero Romero 2006) with more affluent mothers having longer and higher rates of breastfeeding. Parental and maternal paid or unpaid leaves are a determinant factor for less affluent women to start breastfeeding or to opt for early cessation. It was estimated that 40% of American mothers are back to work 4 months after birth, compared to Sweden, where nearly all mothers take advantage of the paid parental leave, taking approximately one year of parental leave and resuming work on part-time basis, and ranking at 77.8% rates of employment for mothers with children below six years of age, US at 61.5% and Ireland at 44.4% (Galtry, 2003). Swedish women have a strong position in the labour market, with a higher rate of female labour force representation, compared with othercountries, as well as the female-male earnings ratio (0.90 Sweden, 0.77 US; Galtry, 2003).

Although a formal comparison between countries cannot be made, the analysis of different countries separately can provide a global picture, showing that lower breastfeeding rates are a public health burden in most countries).This review focused in the context of European countries, where there is a certain homogeneity regarding socio-economic groups, in the sense that all countries are high income countries, however social and cultural differences do exist, as a potential source of bias that is not controlled for. The main findings of this review were similar to the findings from other studies or systematic reviews, either in the US, or in non-US, non- EU countries like African(25) and Asian(42) countries. Breastfeeding main determinants were found to be lower socio economic groups, lack of knowledge from mothers, parents and family, lack of appropriate support from health professionals and institutions, as well as cultural and social influences (26, 43-80).

7. Implications for practice

Breastfeeding in European countries is below WHO recommendation, and the WHO recommendation of EB in the first 6 months, and continued breastfeeding at least until 12 months is not met. Formula and supplement feeding is still practiced in Maternities and Paediatric services, before hospital discharge, even in the absence of clinical illness of the mother or infant. Although general information, education and media campaign are relevant activities, health professionals and health services are fundamental for correct counselling and education of mothers or parents, on correct breastfeeding practices and longer duration. Economic and financial aspects are also relevant, since studies have shown that women in more vulnerable economic situation have to resume work earlier, compared to women from higher socioeconomic groups, who present higher rates of breastfeeding. As a consequence, countries that offer longer maternal or parental paid leaves, have considerably higher rates of exclusive and continued breastfeeding. Although social and cultural determinants proved to be relevant for breastfeeding decision, regardless of financial reasons, a considerable barrier that was also founded was lack of information, education and support, suggesting the need for further improvement and development at health policies and healthcare level.

8. Implications for research

Counselling and guidance of mothers, parents and families, ante-natal and after discharge were found as fundamental in increasing breastfeeding rates. Even in high-income countries, like European countries, low breastfeeding rates are a public health concern. Although affluent and providing a good level of social and parental protection, Europe has to cope with low birth rates, decrease of fertility and ageing population, as consequence of demographic transition. Empowerment and participation of women in the labour-market, with a higher solicitation from professional goals and careers, is another determinant of lower parity and breastfeeding options.All the benefits associated with breastfeeding, including improvement of social and educational outcomes, reduction on obesity and cardiovascular diseases in the long term, led to the inclusion of breastfeeding promotion and policies as public health priority.

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