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Evidence on the relationship between breastfeeding and long-term outcomes

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Abstract

Evidence suggests significant health benefits of breastfeeding including reduced risk of infectious diarrhoea and ear infections, improved cognitive development, lower rates of obesity among mothers and children, reduced risk of diabetes, hypertension, cardiovascular disease, low cholesterol, and some types of cancer. There are greater relative risks of hospitalisation among formula-fed infants for a range of individual illnesses. However, breastfeeding rates are on the decline globally, which includes Nepal. Some of the challenges associated with the initiation and continuance breastfeeding include lack of expert advice and support, perceptions surrounding pain and lack of milk, socio-economic deprivation – both regional or area specific – and racial/ethnicity based perceptions of breastfeeding as a sexual activity that means breastfeeding in public is met with social disapproval, and the role of media and commercial interests on marketing of formula milk. The formulation and implementation of societal standards and legal regulations that facilitate breastfeeding include multifaceted packages such as targeted, small group, interactive education programmes; complementary local and system-wide interventions for targeted groups. Prenatal combined with postnatal interventions and support work have been shown to be effective in increasing breastfeeding initiation and maintenance. This study aims to explore reasons for the global decline in breast feeding by reviewing the evidence base on breastfeeding outcomes and challenges. This paper draws from the review of literature at a global scale, however, some of those are purposively searched and selected from the UK and Nepal. It further draws from empirical findings from a formative evaluation of a community-based breastfeeding programme in England to identify good practice in breastfeeding continuation rates.

1. Introduction

This paper maps some of the research evidence from the literature addressing long-term outcomes of breastfeeding in general; with a comparative focus on factors affecting breastfeeding practices in England and Nepal. It includes facts and figures concerning

breastfeeding, long-term health and economic benefits of breastfeeding, challenges in initiating and continuing breastfeeding, and recommended actions. In addition to the literature review, we present empirical findings from a place-based programme evaluation in the east of England, 'A Better Start Southend' (ABSS)ⁱ, a community-based intervention to support children and families in selected areas of the coastal city of Southend-on-Sea, which are identified as experiencing deprivation.

The World Health Organisation (WHO) and United Nations Children's Fund (UNICEF) recommend the early initiation of breastfeeding within one hour of birth, exclusive breastfeeding for the first 6 months of life, and the introduction of nutritionally-adequate and safe complementary (solid) foods at 6 months together with continued breastfeeding up to 2 years of age or beyond. However, only about 44% of infants aged 0–6 months worldwide were exclusively breastfed over the period of 2015-2020ⁱⁱ. England has some of the lowest breastfeeding rates in the world with the percentage of infants totally or partially breastfed at 6-8 weeks was 49% in 2021/22ⁱⁱⁱ, and a survey conducted in 2010 shows exclusive breastfeeding at six weeks and six months as 24% and 1% respectively^{iv}. In the case of Nepal, early initiation of breastfeeding decreased from 55% in 2016 to 42% in 2019, whereas exclusive breastfeeding for 0-5 months decreased from 65% in 2016 to 62% in 2019^v. The breastfeeding data varies geographically and across different time points, according to deprivation level, ethnicity, socio-economic background of family and so on. Hence, while presenting the breastfeeding data, rather than drawing comparative conclusions, we use the data to bring discussions around the reasons for the variation in breastfeeding rates, challenges associated with initiation and early cessation of breastfeeding, longer-term benefits of breastfeeding and some positive initiatives to increase breastfeeding practices. In addition, we supplement the evidence from the literature on positive initiatives to increase breastfeeding through empirical findings from an evaluation of the ABSS intervention.

Hence, the purpose of this paper is three-fold:

1. Review the existing evidence on breastfeeding practices and outcomes.
2. Identify challenges associated with breastfeeding initiation and continuation.
3. Explore the longer-term benefits of breastfeeding and positive initiatives to increase breastfeeding.

ⁱ For the detail on the programme please visit: <https://abetterstartsouthend.co.uk/>

ⁱⁱ <https://www.who.int/news-room/fact-sheets/detail/infant-and-young-child-feeding>

ⁱⁱⁱ <https://www.gov.uk/government/collections/breastfeeding-statistics#full-publication-update-history>

^{iv} <https://www.unicef.org.uk/babyfriendly/about/breastfeeding-in-the-uk/>

^v <https://data.unicef.org/countdown-2030/country/Nepal/2/>

1.1 Paper structure

The remainder of this paper is structured as follows:

- Section two presents the methods used to collect and review the literature and development of the evidence maps.
- Section three presents a thematic summary of relevant findings from the literature on breastfeeding interventions and long-term impacts.
- Section four presents empirical findings from a formative evaluation of 'A Better Start Southend' (ABSS) programme's breastfeeding initiatives.
- Section five presents evidence maps on breastfeeding and long-term outcomes.
- Section six offers conclusions and recommendations for future practice.

2. Methods

2.1 Search strategy

Literature reviews require a boundary to create an operative study. To achieve this, ECLIPSE (Wildridge and Bell 2002) and STARLITE (Booth 2006) models were applied to the research objectives. This search method enables a systematic approach for the search for evidence. The studies included for review were open to a global scale, however, some of the included papers were purposively searched and selected from the UK/England and Nepal. A light touch and systematic approach was followed to search and review the literature where topic- followed by abstract- and finally full-text was reviewed. ECLIPSE (Wildridge and Bell 2002) and STARLITE (Booth 2006) was used to structure the literature search, which is given in Appendix 1. ECLIPSE and STARLITE are mnemonics that are widely used in health and social care literature search and review. Here ECLIPSE stands for looking at gathering information on Expectation, Client group, Location, Impact, Professionals and Service, from the literature. Whereas STARLITE stands for looking at Sampling strategy, Types of study, Approaches, Range of years, Limits, Inclusion and exclusions, Terms used (for searching) and Electronic databases searched.

A total of 42 literature met the inclusion criteria were reviewed.

2.2 Data analysis

The major findings were thematically grouped and presented. We used narrative synthesis (Popay et al. 2006) as an analytical method to synthesise and analyse the data. "*Narrative synthesis*" refers to an approach to the systematic review and synthesis of findings from multiple studies that relies primarily on the use of words and text to summarise and explain the findings of the synthesis' (Popay et al. 2006: 5). A summary table was used as one of the stages to provide a preliminary synthesis of the evidence base. The summary table is given in Appendix 2. Based on the patterns of similarity and difference identified in the included

papers through the summary table, major findings were presented into themes. Thematic presentation of findings is detailed in section 3 below. Further, empirical findings from formative evaluation of 'A Better Start Southend' (ABSS) on breastfeeding outcomes are presented as an example on benefits of place-based and system-wide targeted programme on infant feeding practices to improve breastfeeding rates. Then finally evidence maps were developed by concisely presenting the findings into three major areas covering the challenges in initiating and continuing breastfeeding, evidence on longer-term benefits of breastfeeding and evidence on what works well in making the breastfeeding interventions effective.

3. Thematic summary of findings from the literature review: The relationship between breastfeeding and long-term outcomes

We collected and reviewed literature in general and particularly from the UK/England and Nepal on breastfeeding practices, problems associated with initiation and continuation of breastfeeding, and long-term benefits of breastfeeding. 17 studies used quantitative designs and 8 studies used nationally representative survey data; nine used systematic literature review; six used qualitative designs and two studies used mixed methods designs on breastfeeding trend to explore challenges associated with breastfeeding, initiation and continuation of breastfeeding, long-term impact of breastfeeding, and good initiations and supporting factors in initiation and continuation of breastfeeding. Qualitative studies are mostly from England, i.e. out of six studies, four are from England and one covering the UK. Likewise, out of the eight studies based on analysis of nationally representative surveys, five studies on Nepal used Nepal Demographic and Health Surveys (NDHS) - a periodic national representative survey in Nepal.

Based on the research aims and objectives of the reviewed literature, major focus of these studies are grouped into the following themes: data and estimation on breastfeeding; breastfeeding and mother and child attachment; determinants of breastfeeding practices; barriers of breastfeeding practices; role of supporting interventions; and relationship of breastfeeding, disease and mortality, and economic costs. The data and estimation on breastfeeding situation reported status on early initiation of breastfeeding, exclusive breastfeeding, continuous breastfeeding for two years, and use of pre-lacteal feed. Breastfeeding and mother and child attachment reported mixed findings on relationship between breastfeeding and increased attachment between mother and child. Determinants

of breastfeeding practices reported on different factors influencing for the initiation and continuation of breastfeeding. It also provided special reference to ethnicity, geography, socio-cultural differences, economic status and level of deprivation. The role of supporting interventions reported on policies and programmes that enhanced breastfeeding practices. It included the role of development agencies and specialised programmes, health care facilities and workers, role of society and family members.

Findings from the review have been condensed into the following overarching themes: facts and figures from the globe, UK/England and Nepal on breastfeeding practices; evidence on the long-term benefits of breastfeeding; evidence on the challenges in initiating and continuing breastfeeding; and evidence on supporting factors to initiate and continue breastfeeding. The thematised summary of findings from the review are presented as below.

3.1 Facts and figures from the UK, Nepal and globe on breastfeeding

Literatures present facts and figures on breastfeeding either collected through primary sources or by using secondary data from existing literatures. The data varies among different sources. Likewise, focus of data specificities among the studies are different. For instance, some studies present data on breastfeeding practices in general, whereas other studies focus on early initiation of breastfeeding or exclusive breastfeeding – which again varies according to different timeframe. Hence, rather than bringing comparative conclusion from different rates of breastfeeding, we analysed different factors affecting the breastfeeding practices. The literatures suggest the influence of different factors including socio-economic and cultural factors on breastfeeding practices, such as ethnicity, level of deprivation, or availability of support and advice to initiate and continue breastfeeding.

The UK remains to have one of the lowest breastfeeding rates in Europe (Cook et al. 2021). Breastfeeding initiation rates in UK hospitals exceed 70% on average. However, many women reduce or cease breastfeeding during the following days and weeks, often as a result of problems. The prevalence of breastfeeding at six to eight weeks is below 50%, and fewer than 2% of infants are breastfed exclusively at six months (Cleminson et al. 2015). Compared with white British mothers, initiation of breastfeeding and continuation at four months is significantly higher in all ethnic groups, but evidence on exclusive breastfeeding is not available (Santorelli et al. 2013). Ethnicity and Index of Multiple Deprivation (IMD) influence breastfeeding cessation. For instance, white mothers are 69% more likely to stop breastfeeding compared with non-white mothers (Agboado et al. 2010). Breastfeeding duration is associated with levels of multiple deprivation (Indices of Multiple Deprivation) in England and Wales (Brown et al. 2009). The indices of multiple deprivation are calculated based on income deprivation, employment deprivation, health deprivation and disability,

education, skills and training deprivation, barriers to housing and services, living environment deprivation and crime.

South Asian countries achieved better outcomes in breastfeeding initiation and continuation compared with western countries. A study based on national representative surveys in south Asian countries finds that early initiation of breastfeeding within one hour of birth (EIBF)^{vi}, avoidance of pre-lacteal feeding (APF)^{vii}, and exclusive breastfeeding (EBF)^{viii} increased in Bangladesh, India, and Nepal from 1990 to 2016, whereas continued breastfeeding (CBF)^{ix} for two years of age remained almost constant across the region except Afghanistan – i.e. from 1990–1994 to 2014–2016. CBF at two years remained over 85% in both Bangladesh and Nepal, over 72% in India, and below 60% in Pakistan, and decreased from 71.6% in 2010–2013 to 58.6% in 2014–2015 in Afghanistan (Benedict et al. 2018). Likewise, EBF rates in Bangladesh, India, and Nepal were slightly above the World Health Assembly 2025 breastfeeding target of 50% (Benedict et al. 2018). The study also shows the fluctuation of EBF trends over time in Nepal. For instance, from 1990–1994 to 2005–2009, EBF decreased significantly by 22% from 74.9% to 53.0%, then increased to 69.6% in 2010–2013 and decreased again to 66.1% in 2014–2016 (Benedict et al. 2018).

While we compare the above findings based on national representative surveys (Benedict et al. 2018), other place-based studies show variation in findings in Nepal. Some of these are given below. A study among hospital workers in Kathmandu finds 45% children were exclusively breastfed for any duration while 11% were exclusively breastfed for six months (Bhandari et al. 2019). Another study showed urban mothers cease exclusive breastfeeding earlier than rural mothers (Karkee et al. 2014). These mothers are more likely to be returning to a workplace away from home compared with rural mothers, therefore making exclusive breastfeeding more challenging in the workplace set up, such as due to the lack of a warm, clean, comfortable and private space to express/feed a baby at work. It is supported by another study in which 51% of the women stated work as barrier for not exclusively breastfeeding (Bhandari et al. 2019). Nepal has been working to extend the maternity leave from two months to six months, which may enable mothers to continue breastfeed. Comparatively, the mothers in Pokhara (an urban city in Nepal) had higher rate for exclusive breastfeeding within two months after delivery, i.e. 82.3% (Chandrashekhar et al. 2007). This

^{vi} World Health Organisation (WHO) defines early initiation of breastfeeding (EIBF) as feeding mothers' breast milk to newborn within the first hour of birth.

^{vii} Avoidance of pre-lacteal feeding (APF) is not feeding any kind of fluid or semisolid food to newborn before breastfeeding.

^{viii} WHO defines exclusive breastfeeding (EBF) an infant is only fed breast milk and no other liquids or solids are given – not even water, except for oral rehydration solution, or drops/syrups of vitamins, minerals or medicines.

^{ix} Continued breastfeeding (CBF) for two years is continuation of breastfeeding along with the introduction of solid food after six months.

is above the national average, which could be due to increased level of awareness among the mothers in the city.

Another study found 98% of mothers continued breastfeeding up to six months, however, exclusive breastfeeding rates declined rapidly from 90.9% at birth to 29.7% at 22 weeks (Karkee et al. 2014). Nepali custom of introducing solid food with a cultural ceremony called “pasni” between 5 and 6 months is seen as one of the major reasons for the decline of exclusive breastfeeding by 22 weeks (Karkee et al. 2014).

Pre-lacteal feeds are still in use in Nepal and across the south Asian region. Compared to 32.7% infants were received pre-lacteal feeds as their first food in general (Bhandari, S. et al. 2019 – based on survey in 21 village development committees), 7% of the hospital workers in Kathmandu used pre-lacteal feeds (Bhandari et al. 2019). In another study, pre-lacteal feeds were given to 14% of the babies (Chandrashekhar et al. 2007). Another study based in Sarlahi district (Southern plain area in Nepal) shows over 99.7% infants initiated breastfeeding where 72.6% were partially breastfeed (i.e. combined breastfeeding with other milk-based fluids and/or solids) (Mullany et al. 2008). Goat and/or buffalo milk are often provided to the newborn infants in Sarlahi, especially during the first 24–48 hours after birth. Infants who were breastfed in the first 24 hours were more likely to be exclusively breastfed (42.3%) than late initiators (8.0%) (Mullany et al. 2008). The common pre-lacteal feeds given were formula feeds (6.2%), sugar water (5.9%) and cow’s milk (2.8%). Complementary feeds were introduced by 12.7% of the mothers (Chandrashekhar et al. 2007). The main supplementary foods introduced were cow or buffalo milk, while 6% to 13% fed their babies formula during the period (Karkee et al. 2014).

Study based on Nepal Demographic and Health Survey (NDHS) 2011 data shows 66.4% initiated breastfeeding within one hour of delivery (Adhikari et al. 2014). The early initiation of breastfeeding in Nepal increased from 35.4% in 2006 to 66.4% in 2011 (Adhikari et al. 2014). Programmes and interventions such as Baby Friendly Hospital Initiatives (BFHI), female community health volunteers (FCHVs) and community bases initiatives are seen to have played role in increasing the rate. Role of health workers and family is found paramount in encouraging to breastfeed as about 80% mothers reported that they were encouraged to breastfeed by health workers or family members (Karkee et al. 2014). However, contrastingly, Borg et al. (2022) report that 78% of births took place in health facilities in 2019, among which only 42% of infants breastfed within an hour of birth. In these cases, health workers reported that they were unable to support breastfeeding due to overwhelming responsibilities at work.

Studies in Nepal have highlighted geographic variations, alongside ethnicity and other variables, in breastfeeding initiation rates. Early initiation of breastfeeding varies

geographically. There has been a recent decline in early initiation of breastfeeding from approximately 30% in 2017–2019, to 17% in 2020 and to 15% in 2021 (Borg et al. 2022 – reporting unpublished data from the ministry of health, Nepal). The decline since 2019 could be possibly due to the impact of COVID-19 pandemic where extended family members had travel restrictions and avoided visits due to the risk of spreading the disease. Another observational study in four public hospitals shows 49.5% had timely initiation of breastfeeding (Gurung et al. 2021). Contrastingly, a cross-sectional survey in Pokhara (Chandrashekhar et al. 2007) shows the rates of initiation of breastfeeding within one hour and within 24 hours of delivery as 72.7% and 84.4% respectively, which is significantly higher compared to the national figure.

Another interesting finding was that though breast milk/colostrum was given as the first feed to 86.2% babies, 17.2% of them were either given expressed breast milk or were put to the breast of another lactating mother (Chandrashekhar et al. 2007). Likewise, 14% of the babies were given breast milk from other lactating mothers as a first feed and 47.4% of these babies were breastfed from other lactating mothers when the mother was unable to initiate breastfeeding within 24 hours after delivery (Chandrashekhar et al. 2007). It could be a unique practice to the western countries and can be seen as a good initiation of relying on breastfeeding rather than on formula milk when the mothers were unable to lactate initially.

3.2 Evidence on the longer term benefits of breastfeeding

Some of the major evidence on benefits of breastfeeding include reduced risk of infant mortality as short-term benefit and reduced risk of infections, diabetes, hypertension, cardiovascular disease, low cholesterol, and some types of cancer and improved cognitive development as long-term benefits. In contrast, formula feeding shows increased risks of diseases. However, there is lack of longitudinal studies exploring the relationship between breastfeeding and long-term health benefits and reduced risk of infections, diseases and deaths, which we suggest as an area for future research.

Global evidence suggests the health benefits of breastfeeding include a reduced risk of infectious diarrhoea and ear infection (Agostoni et al. 2009); improved cognitive development, lower rates of obesity among mother and child, reduced risk of diabetes (both type 1 and type 2), hypertension, cardiovascular disease, low cholesterol, and some types of cancer (Binns et al. 2016; Horta et al. 2007; Victora et al. 2016). Likewise, a Scottish Birth Cohort study (1997–2009) shows a greater relative risk of hospitalization among formula-fed infants for a range of individual illnesses including gastrointestinal, respiratory, and urinary tract infections, otitis media, fever, asthma, diabetes, and dental caries within the first year of life and beyond (Ajetunmobi et al. 2015).

The evidence suggests wider health and economic benefits of breastfeeding (Pokhrel et al. 2015; Rollins et al. 2016). A global estimate based on a systematic review and meta-analysis of 28 literature on breastfeeding and outcomes in children or mothers suggests that the scaling up of breastfeeding to a near universal level could prevent 823,000 annual deaths in children younger than 5 years in low and middle income countries in 2015 and 20,000 annual deaths from breast cancer (Victora et al. 2016). This study based on 28 literature review presents huge benefits of breastfeeding and particularly of exclusive breastfeeding that include reduced risk of child and maternal mortality. However, the calculation of annual death and possibility of reduction of death rates in low- and middle-income countries based a modelling and estimation could be questionable.

Likewise, Pokhrel et al. (2015) estimates that supporting mothers who are exclusively breastfeeding at one week to continue breastfeeding until four months can be expected to reduce the incidence of three childhood infectious diseases and save at least £11 million annually in the UK. Doubling the proportion of mothers currently breastfeeding for 7–18 months in their lifetime is estimated to reduce the incidence of maternal breast cancer and save at least £31 million at 2009–2010 value in the UK (Pokhrel et al. 2015). Though this study provides scientific evidence on reduced risk of infectious diseases, cancer and deaths, in similar line to the comment on the above study, these estimations could be questionable.

There are lack of studies exploring the relationship between breastfeeding and long-term health benefits in Nepal. An analysis based on Nepal's NDHS 2016 data shows that early initiation of breastfeeding (EIBF) significantly reduces the risk of acute respiratory infection (ARI) in children under 2 years (Borg et al. 2022). This recent study claims that it is one of the first studies to explore the relationship between delayed breastfeeding initiation and ARI morbidity, and the first of such studies in Nepal. Likewise, a study based on a randomised controlled trial in Sarlahi district (Southern plain area in Nepal) from 2010 to 2017 shows that if WHO's four elements of newborn health are fulfilled (which include: immediate and thorough drying, skin to skin contact, delayed cord clamping, and early initiation of breastfeeding), the risks of neonatal mortality decrease by 72% (Bryce et al. 2020). EIBF was associated with the largest reduction in risk of neonatal mortality^x, which alone reduced the risk by 28% (Bryce et al. 2020).

Another study from Sarlahi district shows that compared with those breastfed within the first hour after birth, mortality risk was 2.80, 4.08, and 4.19 times higher among infants first breastfed after 1, 2, or 3 day of life respectively (Mullany et al. 2008). Mortality risk was 2.56 times higher comparing all those fed after versus before one hour after birth. Late initiators (≥ 24 h) were 1.74 times more likely to die during the neonatal period than early initiators

^x Here, neonatal mortality is defined as a death between 3 hours and 28 days of age.

(≤ 24 h). This study estimates that around 41.3% of neonatal deaths after 48 hours might be prevented if breastfeeding was initiated within one hour of birth. It also showed that partially breastfed infants were at substantially higher mortality risk than those who were exclusively breastfed (Mullany et al. 2008). Assuming that early breastfeeding has no effect on deaths prior to 48 hours (53.9% of deaths), this study predicts that 19% of all neonatal deaths could be averted with early initiation of breastfeeding and that if breastfeeding was delayed for 24 hours or more, neonatal mortality increased 1.4 times (Mullany et al. 2008). Similar findings and predictions exist from a study based in Ghana that estimated up to 22 and 16% of all neonatal deaths could be prevented with universal coverage of breast-feeding within one and 24 hours of birth, respectively (Edmond et al. 2006).

3.3 Evidence on the challenges in initiating and continuing Breastfeeding

Evidence from the literature review suggests that advice and support from health practitioners and family play a major role in initiating and continuing breastfeeding. Lack of skilled advice and support for attachment and latching is one of the key factors in premature cessation of breastfeeding (Cleminson et al. 2015). Women who do not receive feeding advice or support from a parent or peer support group, voluntary organisation, or breastfeeding clinic are more likely to stop breastfeeding in the first 10 days (Oakley et al. 2014). The most common barriers to breastfeeding irrespective of ethnicity are perceptions surrounding pain and lack of milk (Cook et al. 2021).

Literature suggest that perception of family members and mothers around pain associated to breastfeeding, insufficient milk and commercial milk formula (CMF) containing more nutrients than breastmilk continues to be one of the most common reasons for introducing commercial formula milk and stopping breastfeeding (Pérez-Escamilla et al. 2023). Due to lack of appropriate knowledge and skills to support mothers, both parents and health professionals frequently misinterpret typical, unsettled baby behaviours as signs of milk insufficiency or inadequacy (Pérez-Escamilla et al. 2023). The commercial formula milk industries are exploiting these concerns of parents and making unfounded product claims and pushing overwhelming and unethical marketing of breast-milk substitutes (Pérez-Escamilla et al. 2023). These are one of prominent challenges in initiating and continuing exclusive breastfeeding in the market-driven world where the commercial milk formula industries are violating the WHO International Code for Marketing of Breast-milk Substitutes (Pérez-Escamilla et al. 2023).

The duration of breastfeeding period and initiation of breastfeeding is associated with women's birth experiences. Positive birth experiences and absence of medical complications lead to early initiation and a longer period of breastfeeding (Davis and Sclafani 2022). Similar to the above findings, some barriers to initiating breastfeeding in Nepal include caesarean

delivery, home delivery by traditional birth attendants, small sized baby at birth (Benedict et al. 2018; Chandrashekhar et al. 2007). Child delivery is still in practice at home in rural area in Nepal, as almost 65% of births occur outside of health facilities (Adhikari et al. 2014), which disconnect women to receive services from healthcare facilities including support and advice on breastfeeding from trained healthcare workers.

Benedict et al.'s (2018) study of south Asian countries suggest lower decision-making autonomy among women with lower level of education and income or tendencies of gender-confirming attitudes among different ethnic groups as some of the barriers to initiating breastfeeding. Hence, Strategies and programmes are needed to support early initiation of breastfeeding (EBIF) in caesarean delivery, supporting BF practices in hospitals and women empowerment initiatives. There are mixed findings for geographical disparity related to breastfeeding practice in Nepal. Acharya and Khanal (2015) suggest lower rate of breastfeeding in rural area due to lower level of knowledge, whereas Karkee et al. (2014) suggest comparatively higher breastfeeding in rural area and early cessation of breastfeeding in urban area. As mentioned earlier, early cessation of exclusive breastfeeding in urban areas were mainly due to work commitment of women and lack of longer maternity leave. Likewise, contrasting to other studies, Khanal et al. (2016) show higher rate of EBF among those who delivered at home than in health facilities and predict that it could be because of the cultural factor in Nepal that mother should breastfeed. Alternatively, it could be because of unavailability or lack of affordability of supplementary food in the rural area including formula milk.

Regional and ethnic disparities are also seen in breastfeeding practice in Nepal. Terai region (southern flat land adjacent to Indian border) and *Madheshi* community had lower rate of breastfeeding (Acharya and Khanal 2015) and the authors mentioned the possible influence of cultural practice of introduction of pre-lacteal food in reducing the early initiation of breastfeeding. Likewise, EBF was higher in hills compared to mountains. It could be because of hardship on women in mountain regions and due to lack of health facilities to encourage and support women for breastfeeding (Khanal et al. 2016).

A study based in England also found strong associations between sociodemographic factors and breastfeeding at the area level (Oakley et al. 2013). This study included Index of Multiple Deprivation (IMD) as area-based sociodemographic indicators in analysis. IMD includes indicator of material deprivation, the proportion of births to older (aged >35 years) and younger (aged <20 years) mothers, and the proportion population from Black and Minority Ethnic (BME) backgrounds, prevalence of maternal smoking, as an additional explanatory factor. It explains much of the variation in breastfeeding rates between areas in England (Oakley et al. 2013). These findings are similar to our empirical findings from formative

evaluation of 'A Better Start Southend' projects where health outcomes depend on the Index of Multiple Deprivation (IMD) in different wards of Southend.

The above findings on the association of sociodemographic factors and breastfeeding practices are also similar to the findings on variations in breastfeeding rates according to geographical area and ethnic groups in Nepal. These include variation in breastfeeding rates between urban and rural areas and in different geographical locations, according to level of education, occupation and wealth, and among different ethnic groups.

Henderson et al. (2011) find some other obstacles to breastfeeding in England as perceptions of breastfeeding as a sexual activity, strong cultural associations between breasts and sexuality and anxieties concerning appropriate gender roles and the dominant mass media emphasis on breasts as a sexual site. In addition to this study, other studies also report different factors at the societal and family level creating barriers to breastfeeding through the perceptions of breastfeeding as a sexual activity. For example, the mothers who breastfed report their perceptions of social disapproval of breastfeeding in public. They report about the breastfeeding ridiculed by friends, lack of support from some health providers, and difficulties continuing breastfeeding along with their work (Guttman and Zimmerman 2000). Young mothers in the UK (as the older ones) report feeling uncomfortable breastfeeding in public or in front of male family members. This creates conflict and distress for young mothers, who want to overcome the stigma attached to young motherhood and consider that breastfeeding can help overcome the stigma through its associations with good mothering (Hunter and Magill-Cuerden 2014). Likewise, there is a paucity of support for breastfeeding and maintaining exclusive breastfeeding within social networks for the young mothers.

A qualitative study based on in-depth semi-structured interviews with 34 UK-born women of Black African, Black Caribbean, Pakistani, Bangladeshi, Indian and Irish parentage and 30 health-care professionals in the UK found that ethnic minority women choose to feed their infant with formula despite being aware of the benefits of exclusive breastfeeding (Twamley et al. 2011). The main barriers to breastfeeding were the perceived difficulties and embarrassment about breastfeeding in front of others due to lack of privacy in front of other family members particularly among those who lived with extended family, and family preference for formula feed. Women of South Asian parentage, particularly those who lived with an extended family, suggested that their intentions to breastfeed were compromised by the context of their family life. The lack of privacy in these households and grandparental pressure appeared to be key barriers to breastfeeding.

3.4 Evidence on supporting factors to initiate and continue breastfeeding

This review suggests that setting up of national and international achievement targets and policies and implementation of programme measures are helpful to support breastfeeding. National policy directives are helpful to address barriers experienced by practitioners when trying to work across sectors, organisations and professional groups (Dyson et al. 2009). Paediatricians play an important role in implementation of health policies devised to promote breastfeeding (Agostoni et al. 2009). Likewise, promotion of societal standards and legal regulations facilitate promotion of breastfeeding (Agostoni et al. 2009). Political support (Rollins et al. 2016) together with investment in services that support women who want to breastfeed for longer can reduce the health and economic impact from low breastfeeding (Pokhrel et al. 2015; Rollins et al. 2016).

Evidence also shows that multifaceted packages including targeted, small group, interactive education programmes and peer support for women from low incomes groups are effective to enable women to breastfeed. Based on a systematic review, WHO/UNICEF Baby Friendly Initiative (BFI) is seen as one of those initiatives (Cleminson et al. 2015). The BFI across hospital and community services are instrumental to breastfeeding promotion in the UK (Dyson et al. 2009). In the case of Nepal, programmes and interventions such as Baby Friendly Hospital Initiatives (BFHI), Female Community Health Volunteers (FCHVs) and community bases initiatives are seen to have played major roles in increasing breastfeeding rate (Adhikari et al. 2014).

Globally, studies recommend to train health care workers to promote breastfeeding and counselling (Agostoni et al. 2009). It is recommended to train women's health providers in providing lactation support and management as an integral part of preventive health for women and they should be enabling families to achieve optimal breastfeeding (Bartick et al. 2017). It is further recommended to amplify prenatal infant feeding consultations to address ways to overcome logistical and apprehension barriers such as social disapproval of breastfeeding (Guttman and Zimmerman 2000). Prenatal combined with postnatal interventions are suggested as more effective than usual care in prolonging the duration of breastfeeding (Chung et al. 2008).

Since the breastfeeding initiation and continuation is found to be influenced by the perception and experience of child birth, practitioners are recommended to provide early support to those women who perceive their childbirth as a negative event, and thus alleviate potential barriers to breastfeeding (Davis and Sclafani 2022). Likewise, informal and targeted support such as peer support or peer counselling are found more effective than interventions with structured education in increasing both short- and long-term breastfeeding rate (Chung et al. 2008). Moreover, believing that breastfeeding as natural, normal, easier and more enjoyable option is found as the key to continue breastfeeding.

In England, in addition to national level programmes, local complementary interventions are suggested to target to specific groups such as targeted intervention towards disadvantaged white women, in particular those who are teenagers or lone parents (Dyson et al. 2009). A study recommended strengthening and mobilising Children's Centres in England to support breastfeeding. It included promoting the centres as breastfeeding friendly venue, training to staff and increasing resources, and involving fathers (Condon and Ingram 2011). Services to support diverse communities need that are tailored to acknowledge different traditional and familial practices (for instance among white British, Pakistani, Bangladeshi, black African and Polish) is recommended to reduce breastfeeding inequalities (Cook et al. 2021; Oakley et al. 2013). It is further recommended to continue the practical support and reassurance throughout their breastfeeding journey (Cook et al. 2021).

Postcode and thus deprivation level is recommended to be used as a non-intrusive way to identify women who are most at risk of low breastfeeding rates and service provision to target directly at women in areas recognised as being high in deprivation (Brown et al. 2009). ABSS is one of the community based interventions targeted to the most deprived wards in the Southend-on-sea. Breastfeeding support programmes are found helpful to prevent breastfeeding cessation in the first few weeks (Oakley et al. 2014). Antenatal or perinatal education with men is recommended to address not only practical issues but also provide advice on tackling problems generated by wider sociocultural issues of sexuality associated to breastfeeding and masculinity (Henderson et al. 2011). Moreover, (extended) family members are recommended to be included in breastfeeding support programmes (Twamley et al. 2011).

Mothers who attend antenatal classes and breastfeeding support groups and who are encouraged to breastfeed by family and friends and healthcare workers were found to increase breastfeeding duration (Brown et al. 2009). This is similar in Nepal as well where the mothers who attended four or more antenatal check-up visits are more likely to EBF (Khanal et al. 2016).

Far western region of Nepal, which is one of the most deprived regions, is found to have the highest rate of breastfeeding of 79.9% compared to 54.4% in central region in Nepal (Adhikari et al. 2014). Maternal and child health programme interventions in the western and far-western regions of Nepal is seen to play a role to increase early initiation of breastfeeding (Acharya and Khanal 2015). Other possible reasons for the increase of breastfeeding in the regions was taken as inaccessibility to other alternatives of breastfeeding and lack of affordability to feed formula.

Mothers level of education had positive relation to early initiation of breastfeeding in Nepal (Acharya and Khanal 2015; Adhikari et al. 2014), which is similar in the South Asian region as well (Benedict et al 2018). Hence, in addition to targeted support and advice on breastfeeding, longer-term and holistic policies and programmes to educate and empower women could bring longer term impact on breastfeeding. In addition to the mothers' education and profession, fathers' education and profession is found to have influence in initiating and continuing breastfeeding in Nepal. Fathers from non-agricultural occupation such as professional, clerical, service, and manual occupations had less EBF rate (Khanal et al. 2016). This contrasted with other studies where fathers' increased knowledge helped increase EBF. It could be because of the father's involvement in outside jobs increase work burden on mothers and that lowers EBF.

Studies based in Nepal present conflicting findings on relationship between wealth and breastfeeding practice and hospital delivery. For instance, some studies suggest higher rate of breastfeeding among higher wealth quantile and babies delivered in health facilities (Acharya and Khanal 2015; Adhikari et al. 2014). Whereas Chandrashekhar et al.'s (2007) findings show higher rate of (exclusive) breastfeeding among the lower income families. Women with lower household income ($\leq 10,000$ Nepalese rupees per month) were more likely to be exclusively breastfeeding their babies compared with those who had a household income of $\geq 10,000$ Nepalese rupees per month. It could be due to lack of affordability to buy formula milk. However, another study shows that compared to middle wealth quantile, mothers from either rich or poor families had higher breastfeeding (Adhikari et al. 2014).

4. Empirical findings from formative evaluation of 'A Better Start Southend' (ABSS) programme

One of the intended outcomes of ABSS is improving children's diet and nutrition to support healthy physical development and protect against illness in later life. ABSS, along with other interventions, has been implementing a range of projects and activities to support breastfeeding to achieve these outcomes. ABSS strives to implement science and evidence-based interventions and keeps on improving those through continuous test and learn processes.

Evidence from the formative evaluation of ABSS suggest that an integrated system of service delivery on diet and nutrition outcomes could promote and sustain system-wide legacy and sustainability in infant feeding practices. Some of the programme components under the diet and nutrition outcome workgroup include, one-to-one breastfeeding support, group

breastfeeding support and health visitors contact in 3-4 month along with the support from infant feeding lead advisors. These interventions have brought significant changes in terms of increase in breastfeeding rates including system-wide changes across infant feeding practices, increased confidence among mothers to initiate and continue breastfeeding and enhanced recognition of benefits of breastfeeding. For instance, prevalence of breastfeeding has increased from 39.1% in 2018 to 50% in 2022 in the Southend wards where ABSS interventions are run.

As mentioned earlier, the breastfeeding rates varies in different wards of Southend, which shows association of health and wellbeing status to the level of multiple deprivation index in different wards.

A selection of verbatim responses from mothers on the ABSS interventions to enhance diet and nutrition among families are as follows.

"I felt like she knew my anxieties around breastfeeding [...] I feel like with some people you speak to about breastfeeding, that it's very much made clear that it is best [...]."

"Being a first-time mum, I thought breastfeeding would be so easy and I thought it'd be easy option. I've always wanted to do that, but I did not know how hard it was. I was so naive and honestly without the team, I would not have carried on at all to the point where I'm still carrying on now and I absolutely love it. I give true thanks to the support they gave me because I would have given up."

"I have to say the support and care I received from all the ladies I spoke to at Better Start has been amazing! From first being introduced to the scheme at 16 weeks of my pregnancy and having everything explained to me, I felt that Better Start would give me the support and advice I needed when considering breastfeeding. I then had an appointment at 36 weeks to discuss my colostrum harvesting [...] and then six weeks of breastfeeding support and an introduction to 'bump to breast' group."

"Just being able to talk to someone that understood where I was coming from [...] I've got my mum, she's great, but she never breastfed for longer than three days [...] they just listened to me rant, but they also come [sic] to help different positions, different techniques to try and ease [...] I just felt some much better about everything."

"With the help you get with Better Start, they were fabulous and because I had that extra support, it made the midwife and health visitor visits [...] if it wasn't for Better Start, I don't think I would have breastfed."

5. Evidence map on breastfeeding and long-term outcomes

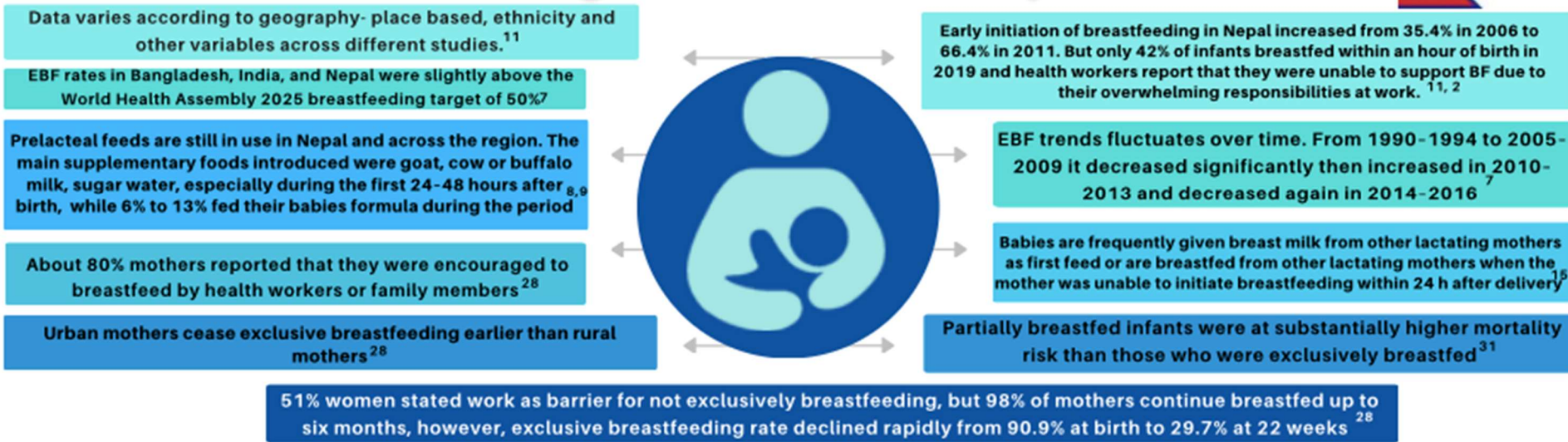
Evidence map on the relationship between breastfeeding and long-term outcome in England/UK



WHAT DOES THE EVIDENCE TELL US?

Challenges in initiating and continuing breastfeeding	Long-term benefits - health and economy ^{37, 38}	What works well?
<ul style="list-style-type: none"> Lack of advice and support^{17, 20, 21, 32} Breastfeeding rates linked to indices of multiple deprivation³³ Perception of breastfeeding as sexual activity^{24, 25, 41} Lack of support to young mothers²⁷ 	<ul style="list-style-type: none"> Reduced risks of infectious diarrhoea and ear infection⁴ Improved cognitive development¹⁰ Lower rates of obesity among mother and child Reduced risks of diabetes, hypertension, cardiovascular disease, cholesterol, and some types of cancer^{10, 26, 42} Reduced risks of hospitalisation from gastrointestinal, respiratory and urinary tract infections, asthma, and dental caries⁵ 	<ul style="list-style-type: none"> Advice and support plays instrumental role in initiating and continuing breastfeeding^{25, 41} Multifaceted packages including targeted, small group, interactive education programs and peer support for women with low incomes are effective in enabling women to breastfeed, eg. UNICEF baby initiative (BFI)^{17, 22} Strengthened and mobilised Children's Centres are efficient for supporting breastfeeding¹⁹ National policy directives, political support and financial investments is needed to enhance the existing services^{22, 37, 38} Societal standards and legal regulations that facilitate breastfeeding should be promoted⁴ Implement local level complementary initiatives and targeted interventions to reduce breastfeeding inequalities^{20, 22, 33} Increase the capacity of services and Human Resources^{4, 6, 19, 24} Continued practical support and reassurance throughout their breastfeeding journey^{12, 16, 20, 21, 25, 32} Targeted interventions to men and extended family¹⁹ Use of postcode and deprivation level to identify women most at risk of low breastfeeding and implement targeted interventions¹²

Evidence map on the relationship between breastfeeding and long-term outcome in Nepal



WHAT DOES THE EVIDENCE TELL US?

Challenges in initiating and continuing breastfeeding

- Some barriers to initiate breastfeeding in Nepal: caesarean delivery, home delivery by traditional birth attendants, small sized baby at birth, and lower decision making power of women^{7,15}
- Early discontinuation of breastfeeding due to work commitment of women and lack of maternity leave²⁹
- Nepali custom of introducing solid food with a cultural ceremony "Pasni"²⁸

Long-term benefits - health and economy

- Breastfeeding reduces the risk of acute respiratory infection (ARI) in children under 2 years¹¹
- Lower rates of obesity among mother and child risks of neonatal mortality decrease by 72%¹¹
- lack of studies exploring the relationship between breastfeeding and long-term health and economic benefits in Nepal¹⁴

What works well?

- Maternal and child health programme interventions helped increase early initiation of breastfeeding in Western and Far-western regions of Nepal
- Other possible reasons for the increase of breastfeeding in the regions was taken as inaccessibility to other alternatives of breastfeeding⁹
- Antenatal classes and breastfeeding support groups and who are encouraged to breastfeed by family and friends increase breastfeeding duration²⁹
- Mothers higher level of education had positive relation to early initiation of breastfeeding²⁹
- Father's involvement, mostly from rural jobs, and father's level of knowledge were related to higher rates of early breastfeeding.²⁹

Evidence map on the relationship between breastfeeding and long-term outcome in the globe



A greater relative risk of hospitalization among formula-fed infants for a range of individual illnesses including gastrointestinal, respiratory, and urinary tract infections, otitis media, fever, asthma, diabetes, and dental caries within the first year of life and beyond⁵

Global evidence suggests the health benefits of breastfeeding include a reduced risk of infectious diarrhoea and ear infection;⁴ improved cognitive development, lower rates of obesity among mother and child, reduced risk of diabetes (both type 1 and type 2), hypertension, cardiovascular disease, low cholesterol, and some types of cancer^{10,26,42}

The commercial formula milk industries are exploiting concerns of parents and making unfounded product claims and pushing overwhelming and unethical marketing of breast-milk substitutes³⁶



A global estimate suggests that the scaling up of breastfeeding to a near universal level could prevent 823,000 annual deaths in children younger than 5 years in low and middle income countries in 2015 and 20,000 annual deaths from breast cancer⁴²

Positive birth experiences and absence of medical complications lead to early initiation and a longer period of breastfeeding²¹

Advise and support from health practitioners and family play a major role in initiating and continuing breastfeeding. Lack of skilled advice and support for attachment and latching is one of the key factors in premature cessation of breastfeeding¹⁷

The most common barriers to breastfeeding irrespective of ethnicity are perceptions surrounding pain and lack of milk²⁰

South Asian countries (Bangladesh, India, and Nepal) achieved better outcomes in breastfeeding initiation and continuation compared with Western countries (Afghanistan and Pakistan)⁷

WHAT DOES THE EVIDENCE TELL US?

Challenges in initiating and continuing breastfeeding

- Lack of skilled advice and support for attachment and latching is one of the key factors in premature cessation of breastfeeding¹⁷
- perceptions surrounding pain and lack of milk²⁹
- lower decision-making autonomy among women with lower level of education and income or tendencies of gender-confirming attitudes⁷

Long-term benefits - health and economy

- reduced risk of infectious diarrhoea and ear infection; improved cognitive development, lower rates of obesity, reduced risk of diabetes, hypertension, cardiovascular disease, low cholesterol, and some types of can^{4,10,26,42}
- prevention of 823,000 annual deaths in children younger than 5 years in low and middle income countries⁴²
- prevention of annual deaths from breast cancer⁴²

What works well?

- national policies, national and international achievement targets and policies and implementation of programme measures are helpful to support breastfeeding¹⁷
- advise and support from health practitioners and family play a major role in initiating and continuing breastfeeding²²
- multifaceted packages including targeted, small group, interactive education programmes and peer support for women from low incomes groups are effective to enable women to breastfeed¹⁷
- WHO/UNICEF Baby Friendly Initiative (BFI)¹⁷
- believing that breastfeeding as natural, normal, easier and more enjoyable option is found as the key to continue breastfeeding¹⁶

Empirical findings from 'A Better Start Southend' Programme in England/UK



Breastfeeding rate increased from 39.1% in 2018 to 50% in 2022 in ABSS wards

"I have to say the support and care I received from all the ladies I spoke to at Better Start has been amazing! From first being introduced to the scheme at 16 weeks of my pregnancy and having everything explained to me, I felt that Better Start would give me the support and advice I needed when considering breastfeeding. I then had an appointment at 36 weeks to discuss my colostrum harvesting [...] and then six weeks of breastfeeding support and an introduction to 'bump to breast' group."

"Just being able to talk to someone that understood where I was coming from [...] I've got my mum, she's great, but she never breastfed for longer than three days [...] they just listened to me rant, but they also come [sic] to help different positions, different techniques to try and ease [...] I just felt some much better about everything."



"I gained an incredible emotional attachment to my son. Every single time I fed h [...] it just felt magical. I know that sounds quite cliché [sic], but I could tell it was [...] as soon as I had a drop of milk, I loved that it would calm him right down and it made me feel so special, in a way [...] and we've had that bond ever since."

"Being a first-time mum, I thought breastfeeding would be so easy and I thought it'd be easy option. I've always wanted to do that, but I did not know how hard it was. I was so naive and honestly without the team, I would not have carried on at all to the point where I'm still carrying on now and I absolutely love it. I give true thanks to the support they gave me because I would have given up."

"With the help you get with Better Start, they were fabulous and because I had that extra support, it made the midwife and health visitor visits [...] if it wasn't for Better Start, I don't think I would have breastfed."

"I felt like she knew my anxieties around breastfeeding [...] I feel like with some people you speak to about breastfeeding, that it's very much made clear that it is best [...]."

6. Conclusion

Data on the breastfeeding practices, either early initiation of breastfeeding, continuous breastfeeding, exclusive breastfeeding or use of pre-lacteal feed suggest various factors influencing to initiate, terminate or continue breastfeeding. Some of the factors include regional and geographical variations, socio-economic deprivation, cultural practices and rituals to introduce pre-lacteal feed or introduction of solid food, socio-economic characteristics of husband and wife and corporate marketing practises of breast milk substitutes. Specialised, system-wide and targeted support and advice from health care workers play significant role in increasing confidence and practical skills in initiating and continuing breastfeeding.

Support and advice from family members, including babies' fathers, society and health workers are key to challenge the barriers associated to initiating and continuing breastfeeding. Cultural practices and rituals sometimes can be barriers. For instance, introduction of pre-lacteal feed such as goat or cow milk, honey or sugar water, or introduction of solid food between 5-6 months among Nepali families called 'pasni'. It may need long-term educational initiatives and holistic intervention to bring changes to the practices embedded to culture and rituals. Likewise, political will and national policies and programmes could be instrumental in facilitating continuation of breastfeeding. For instance, extension of maternity leave could prolong the breastfeeding practices among urban workingwomen. Likewise, international and national initiatives to increase awareness on benefits of breastfeeding and increased health risks associated with commercial formula milk together with measures to control unethical marketing of the commercial formula milk industries could motivate and support mothers to initiate and continue breastfeeding.

Review of literature from the globe, UK/England and Nepal suggest that there is gap in knowledge on long-term benefits of breastfeeding. Few studies show immediate benefit of breastfeeding including possible reduction in infant mortality rate. Likewise, most of the studies have presented data on breastfeeding across different geography, ethnicity, and socio-economic background, which lack longitudinal study and analysis to long-term consequences of breastfeeding or its early cessation.

Both Nepal and England have targeted programme interventions to promote and increase the prevalence of breastfeeding. Some of these include Baby Friendly Hospital Initiatives (BFHI), community-based initiatives, place-based initiatives through the support of internal and external funding support including implementation of programmes through local authorities and health care institutions. More specifically in England, the ABSS programme seems to be a valuable model of intervention since it has brought significant changes in

terms of increase in breastfeeding rates including system-wide changes across infant feeding practices, increased confidence among mothers to initiate and continue breastfeeding and enhanced recognition of benefits of breastfeeding.

However, research focus and available scientific evidence on breastfeeding and its long-term benefits between Nepal and England has a huge gap. Involvement and partnership of higher education institutions including universities in regular research and evaluation of voluntary sector's programme interventions, such as formative evaluation of ABSS can be seen as one of the best practices in England and throughout the UK. Empowerment and mobilisation of local women as Female Community Health Volunteers (FCHVs) and mobilising them as a part of mainstream healthcare services at the grassroot can be seen as one of the best practices in Nepal. Hence, both the countries potentially benefit from knowledge sharing and partnership in research. It would also bring scientific evidence from different regions and countries having different socio-politico-economic standing.

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Appendix 1 (Details on the use of ECLIPSE and STARLITE)

Table 1: ECLIPSE used to search and review literature

Expectations	Gather evidence on either shorter-term or longer-term benefits of breastfeeding interventions, good practices, challenges, and ways to improving services
Client group	Women and families with breastfeeding aged children or who are expecting babies
Location	UK and Nepal focused as well as open to global scale
Impact	Evidence on benefits of breastfeeding, areas of challenges in improving breastfeeding rates and ways of improving services are accessible to refer to while implementing breastfeeding programmes
Professionals	Healthcare and community practitioners, social workers, community volunteers
Service	Local organisations and authorities, national government, international organisations, social services

(ECLIPSE adopted from Wildridge and Bell 2002)

Table 2: STARLITE used to search and review literature

Sampling strategy	Light touch and purposive, follow systematic process
Types of study	Any studies (both empirical and systematic review) consist of evidence on either shorter-term or longer-term benefits of breastfeeding interventions, good practices, challenges, and ways to improving services
Approaches	Internet based search by using search terms followed by snowballing
Range of years	Publications from 2000 and onwards was chosen to focus on recent evidence
Limits	Published in English and access to full text
Inclusion and exclusions	<p>Inclusion: publications presenting evidence on benefits of breastfeeding interventions, good practices, challenges, and ways to improving services (both empirical research findings and systematic reviews)</p> <p>Exclusion: Publications that do not provide evidence based on empirical research or systematic review</p>

Terms used (for searching)	'breastfeeding' or 'breast feeding' AND 'outcome' OR 'interventions' OR 'support' OR 'benefit' or 'long-term benefit' or short term benefit' or 'health benefit' or 'economic benefit'
Electronic databases searched	University of Essex library website followed by connectedpapers.com, a web platform was used to trace relevant and mutually referenced literature

(STARLITE adopted from Booth 2006)

Appendix 2 (Summary table)

S.N.	Journal article	Research aims and methods	Main relevant findings
1	<p>Acharya & Khanal (2015)</p> <p>The effect of mother's educational status on early initiation of breastfeeding: Further analysis of three consecutive Nepal Demographic and Health Surveys Global health</p>	<p>To investigate the association between early initiation of breastfeeding and mother's educational status</p> <p>Nepal Demographic and Health Surveys (NDHS) 2001, 2006 and 2011 were used which included 12,845 children born within 5 years before the surveys.</p> <p>Early initiation of breastfeeding was defined as the initiation of breastfeeding within the first hour after birth.</p>	<ul style="list-style-type: none"> - Mother's higher level of education was associated with a higher likelihood of early initiation of breastfeeding in each survey in 2001, 2006 and 2011. - Other factors also had influences – Early initiation of breastfeeding was higher in the western and far western region. It was explained as possibility of the concentrated effort of existing maternal and child health intervention programs in the recent years. It might also be because of the unavailability or inaccessibility to the alternatives of breastfeeding in those regions.' - Higher rate among higher wealth quantile and babies delivered in health facilities - Lower rate of breastfeeding in rural areas – possibly due to lower level of knowledge and lack of support from family and society - Lower rate in Terai – possibly due to cultural practices of introduction of prelacteal food in the region - It recommends prioritising education for women and targeting the breastfeeding interventions to uneducated women.
2	<p>Adhikari et al. (2014)</p> <p>Factors associated with early initiation of breastfeeding among Nepalese mothers: Further analysis of Nepal Demographic and Health Survey, 2011</p>	<p>To determine the rate and the determinants of early initiation of breastfeeding in Nepal</p> <p>This study uses Nepal Demographic and Health Survey (NDHS) 2011 data to study the factors associated with early initiation of breastfeeding (within one hour of birth)</p>	<ul style="list-style-type: none"> - 66.4% initiated breastfeeding within one hour of delivery. - Mothers with higher education, ethnic group, who were involved in agriculture occupation, who delivered in a health facility, whose children were large at birth were more likely to initiate breastfeeding within the first hour of child birth. - Mothers from either rich or poor families had higher rate compared to middle wealth quantile.

		<p>Chi square test and multiple logistic regression analysis were used to examine the factors associated with early initiation of breastfeeding.</p>	<ul style="list-style-type: none"> - Far western region had the highest rate (79.9%) compared to 54.4% in central region. - The findings suggest a huge increase in early initiation of breastfeeding in NDHS 2011 compared to earlier NDHS 2006 (35.4%) – programmes and interventions such as Baby Friendly Hospital Initiatives (BFHI), FCHVs and community bases initiatives could have played role in increasing the rate. - The findings suggest the need of breastfeeding promotion programs among the mothers who are less educated, and not working. - Female Community Health Volunteers (FCHVs) played significant role in implementing infant and young feeding interventions.
3	<p>Agboado et al. (2010)</p> <p>Factors associated with breastfeeding cessation in nursing mothers in a peer support programme in Eastern Lancashire</p>	<p>To identify maternal socio-demographic and obstetric factors, and in-hospital infant feeding practices that are associated with breastfeeding cessation among the mothers supported by breastfeeding promotion programme.</p> <p>Data on mothers from Lancashire who gave birth at the Royal Blackburn Hospital and initiated breastfeeding while in hospital were linked to the Index of Multiple Deprivation (IMD). The data were analysed to describe infant feeding methods up to 6 months and the association between breastfeeding cessation, and maternal factors and in-hospital infant feeding practices.</p>	<ul style="list-style-type: none"> - The mean breastfeeding duration was 21.6 weeks and the median duration was 27 weeks. - White mothers were 69% more likely to stop breastfeeding compared with non-White mothers. - Breastfeeding cessation was also independently associated with parity and infant feeding practices in hospital. - There were no significant associations between breastfeeding cessation and marital status, mode of delivery, timing of breastfeeding initiation and socio-economic deprivation. - Ethnicity, parity and in-hospital infant feeding practices remained independent predictors of breastfeeding cessation in this peer support setting.

4	<p>Agostoni et al. (2009)</p> <p>Breast-feeding: A Commentary by the ESPGHAN Committee on Nutrition</p>	<p>This is a medical position article by the European Society for Paediatric Gastroenterology, Hepatology, and Nutrition (ESPGHAN). The aim is to summarise the current situation with regard to breast-feeding, knowledge of the composition of human milk, advisable duration of exclusive and partial breast-feeding, growth of the breast-fed infant, health benefits associated with breast-feeding, supplementation of breast-fed infants and contraindications to breast-feeding, as well as defining the role of paediatricians in the implementation of health policies seeking to promote breast-feeding.</p>	<ul style="list-style-type: none"> - This article emphasises the important role of paediatricians in the implementation of health policies devised to promote breast-feeding. - This article delineates the health benefits of breast-feeding, reduced risk of infectious diarrhoea and acute otitis media being the best documented. - Exclusive breast-feeding for around 6 months is a desirable goal, but partial breast-feeding as well as breast-feeding for shorter periods of time are also valuable. - Continuation of breast-feeding after the introduction of complementary feeding is encouraged as long as mutually desired by mother and child. - Health care workers should be trained in breast-feeding issues and counselling, and they should encourage practices that do not undermine breast-feeding. - Societal standards and legal regulations that facilitate breast-feeding should be promoted, such as providing maternity leave for at least 6 months and protecting working mothers.
5	<p>Ajetunmobi et al. (2015)</p> <p>Breastfeeding is Associated with Reduced Childhood Hospitalization: Evidence from a Scottish Birth Cohort (1997-2009)</p>	<p>To evaluate the risk of childhood hospitalization associated with infant feeding patterns at 6-8 weeks of age in Scotland.</p> <p>A retrospective population level study based on the linkage of birth, death, maternity, infant health, child health surveillance, and admission records for children born as single births in Scotland between 1997 and 2009 (n = 502,948) followed up</p>	<p>Within the first 6 months of life, there was a greater risk of hospitalization for common childhood illnesses among formula-fed infants and mixed-fed infants compared with infants exclusively breastfed after adjustment for parental, maternal, and infant health characteristics.</p> <p>Within the first year of life and beyond, a greater relative risk of hospitalization was observed among formula-fed infants for a range of individual illnesses reported in childhood including gastrointestinal, respiratory, and urinary tract infections, otitis media, fever, asthma, diabetes, and dental caries.</p>

		to March 2012. Descriptive analyses were used.	
6	Bartick et al. (2017) Suboptimal breastfeeding in the United States: Maternal and paediatric health outcomes and costs	To quantify the excess cases of paediatric and maternal disease, death, and costs attributable to suboptimal breastfeeding rates in the United States. Using the literature on the associations between breastfeeding and health outcomes for nine paediatric and five maternal diseases, Monte Carlo simulations modelling is created with a hypothetical cohort of U.S. women followed from age 15 to age 70 years and their children from birth to age 20 years.	<ul style="list-style-type: none"> - Suboptimal breastfeeding has a substantial impact on both maternal and paediatric health outcomes and costs. - Nearly 80% of the excess deaths and medical costs attributable to suboptimal breastfeeding are maternal. - Breastfeeding is a women’s health issue, and advocates for women’s health should play an integral role in enabling families to achieve optimal breastfeeding. - The results suggest that women’s health providers require training in lactation support and management as an integral part of preventive health for women. - Increased investment in public health programs and social policies that enable more women to breastfeed optimally may be cost-effective.
7	Benedict et al. (2018) Trends and predictors of optimal breastfeeding among children 0–23 months, South Asia: Analysis of national survey data	To find the trends in breastfeeding practices in South Asia. This study used national survey data from Afghanistan, Bangladesh, India, Nepal, and Pakistan since 1990. It used a socioecological approach to identify factors associated with optimal practices in each country. It discussed the policy and program implications of the findings for these countries.	<ul style="list-style-type: none"> - EIBF, APF, and EBF increased in Bangladesh, India, and Nepal from 1990 to 2016. - CBF remained almost constant across the region. - EBF rates in Bangladesh, India, and Nepal were slightly above the World Health Assembly 2025 breastfeeding target of 50% - Some barriers include caesarian delivery, home delivery by traditional birth attendants, small sized baby at birth, and lower decision making power of women. - Wealth, ethnic group, and caste had varied associations with breastfeeding. - Women’s education had positive impact on breastfeeding. - Variables are studied by placing into three major groups: household variables (country location, ethnicity/caste, hh size, religion, residence,

		Optimal breastfeeding practices include 'early initiation of breastfeeding (EIBF) within 1 hr of birth, exclusive breastfeeding (EBF) for the first 6 months of age, and continued breastfeeding (CBF) for 2 years of age or beyond with appropriate complementary foods'.	<p>wealth quintile), maternal variables (age, BMI, education level, employment, parity, women's empowerment, ANC visit, birth attendant, place of delivery, delivery type), and infant variables (age, sex, perceived birth size, birth type, timing of postnatal check-up).</p> <ul style="list-style-type: none"> - Strategies and programmes are needed to support EIBF in caesarian delivery and supporting BF practices in hospitals.
8	Bhandari et al. (2019) Practice of breastfeeding and its barriers among women working in tertiary level hospitals	<p>To examine the practice and barriers of breastfeeding.</p> <p>This is a hospital based descriptive cross-sectional study.</p> <p>The study participants were women working in some of the hospitals in Kathmandu.</p>	<ul style="list-style-type: none"> - 94% of women working in tertiary level hospitals practice breastfeeding. - 57% initiated breastfeeding within one hour of birth and 45% children were exclusively breastfed for any duration while 11% were exclusively breastfed for six months. It is below the national average on exclusive BF of 66%. The major reasons mentioned were lack of time due to work. - The mean duration of breastfeeding was 14.57 months and 43% started complementary feeding before six months. 51% women stated work as barrier for not exclusively breastfeeding. - Prolacteal feeds were still used by 7% - Complementary food included homemade food or formula.
9	Bhandari et al. (2019) Determinants of infant breastfeeding practices in Nepal: A national study	<p>To present prevalence estimates for four breastfeeding practices as assessed in a nationally representative sample of infants (< 12 months of age) in Nepal and examine factors that are associated with these feeding practices at individual, household and community levels.</p> <p>Data used for this study was collected during a national survey</p>	<ul style="list-style-type: none"> - Demographic Health Surveys (DHS) 2016 reported a decline of exclusive breastfeeding in early infancy from 70 to 66% between the two Demographic Health Surveys (DHS) in 2011 and 2016. - Breast milk was introduced within 1 h of birth in 41.8% of infants. - One-third of infants (32.7%) were reported to have received prelacteal feeds as their first food - 83.5% were fed colostrum, and predominant breastfeeding (PBF) was practiced by 57.2% of interviewed mothers of infants less than 6 months of age.

		(the PoSHAN Community Study) conducted from May to July 2013. Systematic random sampling in 21 VDCs in 21 districts - Mothers of 1015 infants were interviewed.	<ul style="list-style-type: none"> - WHO defines predominant breastfeeding (PBF) as a condition where a child less than 6 months of age is mainly breastfed, not fed solid/semi-solid foods, infant formula or non-human milk, and may or may not have received water-based fluids.
10	Binns et al. (2016) The Long-Term Public Health Benefits of Breastfeeding	To update the major reviews of the long-term beneficial effects of breastfeeding, that is, beyond the first 2 years of life, with a particular emphasis on the impact of chronic disease in adult. A review of recent major systematic reviews of breastfeeding and early development and long-term health	<ul style="list-style-type: none"> - Breastfeeding has many health benefits, both in the short term and the longer term, to infants and their mothers. There is an increasing number of studies that report on associations between breastfeeding and long-term protection against chronic disease. - The recent World Health Organization reviews of the short- and long-term benefits of breastfeeding concluded that there was strong evidence for many public health benefits of breastfeeding. Cognitive development is improved by breastfeeding, and infants who are breastfed and mothers who breastfeed have lower rates of obesity. Other chronic diseases that are reduced by breastfeeding include diabetes (both type 1 and type 2), obesity, hypertension, cardiovascular disease, hyperlipidemia, and some types of cancer.
11	Borg et al. (2022) Association between early initiation of breastfeeding and reduced risk of respiratory infection: Implications for nonseparation of infant and mother in the COVID-19 context	To determine the impact of breastfeeding practices on the risk of acute respiratory infection (ARI) in children in Nepal. This paper is based on secondary analysis of the 2016 Nepal Demographic and Health Survey (DHS).	<ul style="list-style-type: none"> - The results show that early initiation of breastfeeding significantly reduced the risk of acute respiratory infection (ARI) in children under 2 years. - This study claims that it is one of the first studies to explore the relationship between delayed breastfeeding initiation and ARI morbidity, and the first such study in Nepal. - Some figures from Nepal: <ul style="list-style-type: none"> o Neonatal mortality (from 0 to 28 days): 16 deaths per 1000 live births and accounts for 57% under-five mortality in Nepal (Ministry of Health and Population, 2016). o The 2030 SDG target for Nepal: 12 deaths per 1000 live births

			<ul style="list-style-type: none"> ○ Nepal's Every Newborn Action Plan target is 11 deaths per 1000 live births by 2035 (Family Welfare Division, 2019). - This study refers to earlier studies that evidence the benefits of early initiation of BF on digestion, protection from infections, and skin-to-skin contact after birth facilitate early initiation of BF - Over the past five years, early initiation of breastfeeding has declined from approximately 30% in 2017–2019, to 17% in 2020 and to 15% in 2021 (unpublished data from the ministry of health) - It also reported that 78% of births took place in health facilities in 2019, only 42% of infants breastfed within an hour of birth (Central Bureau of Statistics (CBS), 2019) – health workers report that they were unable to support BF due to their overwhelming responsibilities at work.
12	<p>Brown et al. (2009)</p> <p>Indices of Multiple Deprivation predict breastfeeding duration in England and Wales</p>	<p>To investigate the association between breastfeeding duration and socio-economic status as measured by the English and Welsh Indices of Multiple Deprivation (IMD).</p> <p>Total 216 mothers whose youngest or only child was between 6 and 24 months completed a retrospective questionnaire study of infant feeding between birth and 26 weeks. Measurements included breastfeeding history; socio-economic demography and IMD.</p>	<ul style="list-style-type: none"> - Breastfeeding duration was associated with levels of multiple deprivation in both English and Welsh samples. - Deprivation level and breastfeeding duration were associated with traditional indicators of socio-economic status. When considered in combination with other socio-economic indicators of breastfeeding duration, the deprivation level remained a strong predictor of breastfeeding duration over and above other socio-economic measures. - Deprivation, as assessed by the IMD is predictive of breastfeeding duration. - Postcode and thus deprivation level can be used as a non-intrusive way to identify women most at risk of low breastfeeding rates. - Service provision can be targeted directly at women in areas recognized as being high in deprivation.

13	<p>Brown et al. (2011)</p> <p>Young mothers who choose to breast feed: the importance of being part of a supportive breast-feeding community</p>	<p>To examine factors associated with breast-feeding initiation and duration in young mothers.</p> <p>A retrospective questionnaire completed with 138 mothers aged between 17 and 24 years between six and 24 months postpartum. A semi-structured interview with 10 mothers who breastfed for at least six months. Mothers were recruited from local mother and infant groups, nurseries and online mother and infant forums.</p>	<p>Breast feeding for at least six months was positively associated with attending a breast-feeding support group. They were encouraged to breastfeed by family and friends and support groups and believed breastfeeding to be easy and as the normal way to feed an infant. Increased breast-feeding duration was seen for mothers who attended antenatal classes and breastfeeding support groups.</p> <ul style="list-style-type: none"> - The women who continued breastfeeding felt that they were part of an environment where breast feeding was supported and encouraged - They had longstanding intention to breastfeed - They were convinced that breast feeding as natural and normal - Believing breast feeding as the easier, more enjoyable option - Feeling comfortable feeding their infant - They were influencing others
14	<p>Bryce et al. (2020)</p> <p>Coverage of the WHO's four essential elements of newborn care and their association with neonatal survival in southern Nepal</p>	<p>To examine the current coverage of each individual element (immediate and thorough drying, skin to skin contact, delayed cord clamping, and early initiation of breastfeeding), distribution of number of elements received, associated characteristics with receipt of each element, and the association(s) between the element(s) and neonatal mortality.</p> <p>This paper is based on data from a randomized trial in the Sarlahi</p>	<ul style="list-style-type: none"> - The World Health Organization developed core indicators to better monitor the quality of maternal and newborn health services. One of such indicators for newborn health is "the proportion of newborns who received all four elements of essential care". - The four elements are immediate and thorough drying, skin to skin contact, delayed cord clamping, and early initiation of breastfeeding. - Neonatal mortality is defined as a death between 3 h and 28 days of age. - Skin to skin contact and early initiation of breastfeeding were associated with lower risk of neonatal mortality. - The risk of mortality declined as the number of elements received increased - Receipt of one element compared to zero was associated with a nearly 50% reduction in risk of mortality and receipt of all four elements resulted in a 72% decrease in risk of mortality.

		district in Southern Nepal from 2010 to 2017.	<ul style="list-style-type: none"> - EIB was associated with the largest reduction in risk of neonatal mortality (HR = 0.68 [0.56, 0.82])
15	<p>Chandrashekhar et al. (2007)</p> <p>Breast-feeding initiation and determinants of exclusive breast-feeding - A questionnaire survey in an urban population of western Nepal</p>	<p>To assess rates of initiation of breastfeeding and exclusive breastfeeding within 2 months after delivery and the factors influencing exclusive breastfeeding.</p> <p>A cross-sectional survey was carried out with mothers (n=385) who had delivered a child within the previous 2 months and the survey was conducted to those who attended immunisation clinics in Pokhara.</p>	<ul style="list-style-type: none"> - The rates of initiation within 1 h and within 24 h of delivery were 72.7 and 84.4%, respectively. - Within 2 months after delivery, exclusive breastfeeding was practised by 82.3% of the mothers. - Breast milk/colostrum was given as the first feed to 332 (86.2%) babies but 17.2% of them were either given expressed breast milk or were put to the breast of another lactating mother. - Pre-lacteal feeds were given to 14% of the babies. The common pre-lacteal feeds given were formula feeds (6.2%), sugar water (5.9%) and cow's milk (2.8%). - Complementary feeds were introduced by 12.7% of the mothers. - Another interesting observation was that 14% of the babies were given breast milk from other lactating mothers as first feed and 47.4% of these babies were breastfed from other lactating mothers when the mother was unable to initiate breastfeeding within 24 h after delivery – similar practice is reported in earlier study - Friends' feeding practices, their mothers/mothers-in-law, type of delivery and baby's first feed were the factors influencing exclusive breast-feeding practice of the mothers. However, there is a need to promote and motivate breastfeeding practice from the family members and community. - Significant differences were found in household income between the EBF and non-EBF groups - Women with lower household income ($\leq 10,000$ Nepalese rupees per month) were more likely to be exclusively breast-feeding their babies compared with those who had a household income of $\geq 10,000$ Nepalese rupees per month.

			<ul style="list-style-type: none"> - Caesarean section decreased exclusive breastfeeding as compared with those who delivered normally. Early initiation of breastfeeding was 4.2% among the mothers who delivered by Caesarean section. - There is lack of publication reporting the BF practices in urban areas in Nepal.
16	<p>Chung et al. (2008)</p> <p>Interventions in Primary Care to Promote Breastfeeding: A Systematic Review</p>	<p>To systematically review evidence for the effectiveness of primary care initiated interventions to promote and support breastfeeding.</p> <p>Data sources: MEDLINE, the Cochrane Controlled Trials Registry, CINAHL, and Cochrane Database of Systematic Reviews for articles from 2001 to 2007.</p>	<ul style="list-style-type: none"> - The Baby Friendly Hospital Initiative is effective in promoting certain health outcomes in infants - experience from Belarus. Whether those findings are applicable to other contexts is unclear. - Indirect evidence suggests that interventions with a component of lay support (e.g., peer support or peer counselling) are more effective than interventions with structured education or professional support in increasing both short- and long-term breastfeeding rate, compared to usual care. - Prenatal combined with postnatal interventions are more effective than usual care in prolonging the duration of breastfeeding.
17	<p>Cleminson et al. (2015)</p> <p>Being baby friendly: evidence-based breastfeeding support</p>	<p>This review summarises the evidence for effective and cost-effective strategies to help women, particularly those in low income groups, make informed choices, overcome barriers and establish and maintain breast feeding. It describes the development and impact of the UNICEF Baby Friendly Initiative (BFI), and the roles and responsibilities, and challenges and opportunities that clinicians have in promoting breast feeding and maintaining a baby-friendly culture and environment.</p>	<ul style="list-style-type: none"> - WHO recommendations that infants should receive only breast milk with no solids or other fluids for the first 6 months after birth, with supplemental breast feeding continuing for 2 years and beyond. This recommendation has been accepted by Governments in the UK. - Although initiation rates in UK hospitals now exceed 70% on average, many women reduce or cease breast feeding during the following days and weeks, often as a result of problems. The prevalence of breast feeding at 6–8 weeks is <50%, and exclusive breast feeding is rare after 3 months. Fewer than 2% of infants are breast fed exclusively at 6 months. - Mothers highlight specifically the lack of skilled advice and support for attachment and latching as a key factor in premature cessation of breast feeding.

			<ul style="list-style-type: none"> - A systematic review of 59 studies evaluating a range of policy, supportive and educational interventions showed the effectiveness of multifaceted packages including targeted, small group, interactive education programmes and peer support for women with low incomes. - BFI aims to embed evidence-based policies and practices that better enable women to breast feed.
18	<p>Colchero et al. (2015)</p> <p>The costs of inadequate breastfeeding of infants in Mexico</p>	<p>To estimate the paediatric costs of inadequate breastfeeding in Mexico associated with the following acute health conditions: respiratory infections, otitis media, gastroenteritis, necrotizing enterocolitis (NEC), and sudden infant death syndrome (SIDS).</p> <p>The authors estimated the economic costs of inadequate breastfeeding as follows: the sum of direct health care costs for diseases whose risk increases when infants are non-exclusively breastfed <6 month or are not breastfed from ages 6 to <11 month, lost future earnings due to premature infant death, and the costs of purchasing infant formula.</p>	<p>The total annual costs of inadequate breastfeeding in Mexico for the studied cohort ranged from \$745.6 million to \$2416.5 million, where the costs of infant formula accounted for 11–38% of total costs.</p> <p>A range of 1.1–3.8 million reported cases of disease and from 933 to 5796 infant deaths per year for the diseases under study are attributed to inadequate infant breastfeeding practices; altogether these represent nearly 27% of the absolute number of episodes of such diseases.</p>

19	<p>Condon (2011)</p> <p>Increasing support for breastfeeding: what can Children's Centres do?</p>	<p>To develop breastfeeding promotion and support within Children's Centres. The specific objectives were:</p> <p>To explore staff and parents' views on existing breastfeeding provision within Children's Centres.</p> <p>To develop suggested interventions and try them out in practice.</p> <p>To explore staff and parents' views on the changes in breastfeeding support offered by the Children's Centres.</p> <p>Action research to involve stakeholders in developing and extending breastfeeding promotion and support within three Children's Centres in Bristol. A total of 10 focus groups were conducted with Children's Centre staff and local parents.</p>	<ul style="list-style-type: none"> - Latent hostility in the local community towards breastfeeding and lack of knowledge about infant feeding among staff were some of the barriers to breastfeeding promotion. - The action research process led to increased support for breastfeeding in the participating Children's Centres. - <i>Some suggested breastfeeding actions for the Children's Centres include:</i> - Make clear that breastfeeding is welcome within the Children's Centre - Providing breastfeeding training for staff - Increase resources to support breastfeeding in the Children's Centre - Strengthen links with health professionals - Involve fathers - Developing outreach into the community and neighbouring Children's Centres
20	<p>Cook et al. (2021)</p> <p>Improving support for breastfeeding mothers: a qualitative study on the experiences of breastfeeding among mothers who reside in a</p>	<p>To explore mothers' experiences of breastfeeding and accessing breastfeeding services offered locally amongst a deprived and culturally diverse community.</p>	<ul style="list-style-type: none"> - Despite wide documentation of benefits of breastfeeding for infants and their mothers with the health, nutritional, and psychological benefits, the UK remains to have one of the lowest breastfeeding rates in Europe. - The most common barriers to breastfeeding irrespective of ethnicity were perceptions surrounding pain and lack of milk.

	deprived and culturally diverse community	<p>A qualitative interpretive study comprising of 63 mothers (white British n= 8, Pakistani n= 13, Bangladeshi n= 10, black African n= 15 and Polish n= 17) who took part in single-sex focus groups, conducted in local community centres across the most deprived and ethnically diverse wards in Luton, UK.</p> <p>The focus groups were audio-recorded, transcribed and analysed thematically using Framework Analysis.</p>	<ul style="list-style-type: none"> - Confidence and motivation were found to be crucial facilitators of breastfeeding; whereby mothers felt that interventions should seek to reassure and support mothers not only during the early stages but throughout the breastfeeding journey. - Mothers particularly valued the practical support provided by health care professions particularly surrounding positioning and attachment techniques. However, many mothers felt that the support from health care professionals was not always followed through. - Future programs and interventions need targeted at reducing breastfeeding inequalities. - Interventions should focus on providing mothers practical support and reassurance not only during the early stages but throughout their breastfeeding journey. - The findings also highlight the need for tailoring services to support diverse communities which acknowledge different traditional and familial practices.
21	<p>Davis & Sclafani (2022)</p> <p>Birth Experiences, Breastfeeding, and the Mother-Child Relationship: Evidence from a Large Sample of Mothers</p>	<p>To examine the relationship between subjective birth experiences and breastfeeding outcomes and explore whether breastfeeding affected mother-infant bonding.</p> <p>3,080 mothers up to three years postpartum completed a cross-sectional survey. Mothers were recruited through mother and baby forums online.</p>	<p>Mothers who had more positive birth experiences were more likely to report breastfeeding their babies and likely to breastfeed their child for a longer period (over 9 months) than those who had more negative experiences. Identifying women who perceive their childbirth as a negative event, practitioners can provide early support, and thus alleviate potential barriers to breastfeeding.</p> <p>In line with recent research, breastfeeding behaviours were not associated with reported mother-infant bonding.</p>

22	<p>Dyson et al. (2009)</p> <p>Policy and public health recommendations to promote the initiation and duration of breast-feeding in developed country settings</p>	<p>To develop policy and public health recommendations for implementation at all levels by individuals and organisations working in, or related to, the field of breastfeeding promotion in developed country settings, where breastfeeding rates remain low.</p> <p>Two research phases, comprising (i) an assessment of the formal evidence base in developed country settings, and (ii) a consultation with UK-based practitioners, service managers and commissioners, and representatives of service users. The evidence base included three systematic reviews and an Evidence Briefing</p>	<ul style="list-style-type: none"> - Twenty-five recommendations emerged within three complementary and necessary categories, i.e. public health policy, mainstream clinical practice and local interventions. - The need for national policy directives was clearly identified as a priority to address many of the barriers experienced by practitioners when trying to work across sectors, organisations and professional groups. - Routine implementation of the WHO/UNICEF Baby Friendly Initiative across hospital and community services was recommended as core to breastfeeding promotion in the UK. - A local mix of complementary interventions is also required - Detailed recommendations: <ul style="list-style-type: none"> Recommendations for public health policy: <ul style="list-style-type: none"> - A comprehensive, coordinated, national, regional and local breast-feeding strategy and policies, including adequate financial incentives and monitoring and evaluation systems which account for maternal ethnicity and deprivation. - National media campaigns and celebrity endorsements promoting breastfeeding. - Inclusion of breastfeeding education in the national curriculum for primary and secondary schools, parenting programmes and child development courses targeting pupils with low academic attainment. - Policy and practice to support breast-feeding in public. - Employment policy and practices to support breast-feeding. - Government endorsement of the WHO Code on Marketing of Breast Milk Substitutes (1981) and subsequent resolutions. Recommendations for mainstream clinical practice: <ul style="list-style-type: none"> - WHO/UNICEF Baby Friendly Initiative in hospital and community services.
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23	<p>Gurung et al. (2021)</p> <p>Predictors for timely initiation of breastfeeding after birth in the hospitals of Nepal- a prospective observational study</p>	<p>To study predictors for timely initiation of breastfeeding within 1 hour of birth in hospitals of Nepal.</p> <p>It is based on a prospective observational study of 6488 woman-infant pair who had normal delivery in four public hospitals. The observation included whether neonates were placed in skin-to-</p>	<ul style="list-style-type: none"> - It is found the timely initiation of breastfeeding among 49.5%. - The mother and baby having no obstetric complication at admission, neonates placed in skin-to-skin contact and delay cord clamping had higher chance for timely initiation of breastfeeding. - An institutional birth, a breastfeeding support program focusing on new mothers and those with obstetric complication, can increase the timely initiation of breastfeeding. - Nepal's Demographic health survey 2016 reported about 55% of the mothers initiated timely breastfeeding in Nepal

		skin contact, delay cord clamping and timely initiation of breastfeeding.	<ul style="list-style-type: none"> - Nepal is implementing BFHI (Baby Friendly Hospital Initiative) and Community Based Newborn Care Package (CB-NCP) to promote breastfeeding in health facilities.
24	Guttman & Zimmerman (2000) Low-income mothers' views on breastfeeding	<p>To develop a conceptual approach to characterize mothers' feelings regarding their choice of infant feeding practice in view of potential social contradictions and tensions associated with breastfeeding, particularly as they are viewed by a low-income population that has been exposed to breastfeeding promotion.</p> <p>Structured interviews with 154 mothers from an urban low-income multi-ethnic population in the United States.</p>	<ul style="list-style-type: none"> - Findings indicate that regardless of their feeding method, mothers tended to attribute higher health benefits to breastfeeding and perceived community norms as pro-breastfeeding. - The mothers who breastfed report their perceptions of social disapproval of breastfeeding in public, reports of ridicule by friends, lack of support from some health providers, and difficulties associated with working. - Mothers' emotional states resulting from such contradictions underscores how some mothers who did not, but would have liked to breastfeed, may be subjected to feelings of guilt and deprivation. - It suggested to amplify prenatal infant feeding consultations and address ways to overcome logistical and apprehension barriers.
25	Henderson et al. (2011) Men and Infant Feeding: Perceptions of Embarrassment, Sexuality, and Social Conduct in White Low-Income British Men	<p>To examine cultural associations and beliefs of men on breastfeeding and formula feeding.</p> <p>Five focus groups with low-income men (n= 28) living in areas of social deprivation in Leeds, north-east of England, and low-income areas of Glasgow, west of Scotland. Participants were white British men, aged between 16 and 45 years, and included fathers, expectant fathers, and potential fathers.</p>	<ul style="list-style-type: none"> - Overarching themes concerning sexuality, embarrassment, and social conduct were identified across all groups. - Participants perceived breastfeeding as "natural" but problematic, whereas formula feeding was mainly considered as convenient and safe. - Participants without direct experience of breastfeeding assumed that it involved excessive public exposure and attracted unwanted male attention. - Underpinning these fears were strong cultural associations between breasts and sexuality and anxieties concerning appropriate gender roles. - Perceptions of breastfeeding as a sexual activity and the dominant mass media emphasis on breasts as a sexual site may present additional obstacles to breastfeeding.

			<ul style="list-style-type: none"> - Antenatal or perinatal education with men should address not only practical issues but also provide advice on tackling problems generated by wider sociocultural issues of sexuality and masculinity.
26	<p>Horta et al. (2007)</p> <p>Evidence on the long-term effects of breastfeeding: Systematic reviews and meta-analysis</p>	<p>To assess the effects of breastfeeding on blood pressure, diabetes and related indicators, serum cholesterol, overweight and obesity, and intellectual performance.</p> <p>Two independent literature searches were conducted at the World Health Organization in Geneva and at the University of Pelotas in Brazil, comprising the MEDLINE (1966 to March 2006) and Scientific Citation Index databases.</p> <p>Fixed and random-effects models were used to pool the effect estimates, and a random-effects regression was used to assess several potential sources of heterogeneity.</p>	<ul style="list-style-type: none"> - Evidence suggests that breastfeeding may have long-term benefits. - The evidence suggests that breastfeeding is related to lower cholesterol levels and this association is not due to publication bias or residual confounding. - Breastfed individuals were less likely to be considered as overweight and/or obese. - Breastfed individuals were less likely to present type-2 diabetes. - Some studies show positive effect on intelligence and school performance.
27	<p>Hunter & Magill-Cuerden (2014)</p> <p>Young mothers' decisions to initiate and continue breastfeeding in the UK: Tensions inherent in the paradox between being, but not</p>	<p>To explore the ways in which a small group of UK adolescent mothers conceptualise their decisions to breastfeed and experience breastfeeding in their communities.</p>	<ul style="list-style-type: none"> - Young UK women are acutely aware of the stigma attached to young motherhood in the UK and consider that breastfeeding can help overcome this through its associations with good mothering. Although some did not initially want to breastfeed, they developed a desire to do so as their pregnancy progressed. - In common with older breastfeeding mothers, young mothers in the UK rarely feel able to breastfeed in public or in front of male family members.

	being able to be seen to be, a good mother	A total of six focus groups or interviews with 15 mothers aged 16 to 20. Participants were recruited at young parent groups in Oxfordshire, England.	<p>This creates conflict and distress for young mothers, who, as new adults, need to be judged positively, and accepted by and integrated into their families and communities.</p> <ul style="list-style-type: none"> - Young mothers identified a paucity of support for breastfeeding within their social networks, and found maintaining exclusive breastfeeding difficult.
28	Karkee et al. (2014) A community-based prospective cohort study of exclusive breastfeeding in central Nepal	<p>To investigate exclusive breastfeeding rates and factors associated with early cessation of exclusive breastfeeding.</p> <p>It compared the duration of exclusive breastfeeding between rural and urban mothers.</p> <p>It is a prospective cohort community-based study conducted in central Nepal. It used an alternate cohort methodology.</p> <p>Female community health volunteers were trained who collected data through household visits at 4 weeks, 12 weeks and 22 weeks postpartum.</p>	<ul style="list-style-type: none"> - 74% of women received breastfeeding information and 81% were encouraged to breastfeed by health personnel or family members. - 98% of mothers breastfed up to six months, however, exclusive breastfeeding rate declined rapidly from 90.9% at birth to 29.7% at 22 weeks. The main supplementary foods introduced were cow or buffalo milk while 6% to 13% fed their babies formula during the period - About 80% mothers reported that they were encouraged to breastfeed by health workers or family members - Urban mothers cease exclusive breastfeeding earlier than rural mothers. - Breastfeeding problem and caesarean delivery were also significantly associated with exclusive breastfeeding cessation - Nepalese custom of introducing solid food with a cultural ceremony called "pasni" between 5 and 6 months could be one of the major reasons for decline of exclusive breastfeeding by 22 weeks. - Another study on Nepal found that women from Hill origin exclusive breastfeed longer than women residing in Terai (Mullany et al. 2008) - Reports on breastfeeding in Nepal are mainly derived from National Demographic Health Surveys (NDHS) - 'Breastfeeding is traditionally a common practice in Nepalese society' and it facilitated as women in rural areas were mostly housewives.

29	<p>Khanal et al. (2016)</p> <p>Prevalence and factors associated with prelacteal feeding in Western Nepal</p>	<p>To compare the determinants of and trends in exclusive breastfeeding (EBF) in infants 5 months and above from the 2006 and 2011 Nepal Demographic and Health Surveys (NDHS).</p> <p>The NDHS is nationally representative cross sectional study conducted every five years. It used a multistage cluster sampling design and internationally validated instruments.</p>	<ul style="list-style-type: none"> - The EBF rate for 5 months and above was 53.2% in 2006 and 66.3% in 2011 – though the EBF rate is increasing, it is still significantly lower than the WHO/UNICEF recommended level of 90%. - The increase in EBF could be because of introduction of child health programmes such as Community Based Integrated Management of Childhood Illness (CB-IMCI) and Community Based Newborn Care Program (CB-NCP) that focus on breastfeeding (Dawson et al. 2007; KC et al. 2011) and health workers assist mothers by providing knowledge and skills to breastfeed - Looking at the regional figures, the EBF rate among ≤ 5 months infants is higher in Nepal compared to Bangladesh (46%), India (47%) and Pakistan (50%) (International Baby Food Action Network (IBFAN), Sida, 2007). - EBF was higher for the infants who were the age of four months or below. - EBF was higher in hills compared to mountains. It could be because of hardship on women in mountain regions and also due to lack of health facilities to encourage and support women for breastfeeding - Fathers from non-agricultural occupation such as professional, clerical, service, and manual occupations had less EBF rate. This was in contrast to other studies where fathers' increased knowledge helped increase EBF. It could be because of the father's involvement in outside jobs increase work burden on mothers and that lowers EBF. - Father's impact on EBF is an area of further research in developing countries. - Women with vaginal (normal) delivery had higher EBF – it could be due to health condition after caesarean operation and influence of anaesthesia – reported consistently in other studies as well.
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			<ul style="list-style-type: none"> - Interestingly, EBF rate higher among those who delivered at home than in health facilities– need to see why. – it may be because of the cultural factor in Nepal that mother should breastfeed - Second or third time mothers had higher rate of EBF than first time mothers - The mothers who attended four or more ANC visits were more likely to EBF - Wealthier mothers were less likely to EBF – as the poor do not have other option to feed formula milk - Infant mortality rate can be lowered through increasing BF and EBF among the infants - This paper recommends to educate women and their mothers and mothers-in-law as well as to father/husbands to promote and support for breastfeeding
30	<p>Linde et al. (2020)</p> <p>The association between breastfeeding and attachment: A systematic review</p>	<p>The objective is to determine whether breastfeeding is associated with child attachment as well as if maternal attachment is associated with breastfeeding behaviour.</p> <p>A systematic electronic literature search for English language articles published from 1963 to 2019 using the databases Web of Science, PubMed, PsycInfo, and PsycArticles was conducted.</p>	<p>In the popular and scientific literature an association between breastfeeding and attachment is often supposed although this has not been systematically investigated. This is the first review that provides a systematic overview of the current state of research on the association between breastfeeding and attachment.</p> <ul style="list-style-type: none"> - Eleven studies were eligible for inclusion. - Of seven studies examining breastfeeding and child attachment, four found that a longer duration of breastfeeding was significantly associated with higher levels of attachment security after controlling for various covariates. - Of four studies examining maternal attachment and breastfeeding, three found a significant association between secure attachment of the mother and breastfeeding behaviour. Secure attached mothers initiated breastfeeding more often and preferred breast- over bottle-feeding than insecure attached mothers.

			<ul style="list-style-type: none"> - No significant differences in attachment security between breastfeeding and bottle-feeding were reported, but one study found higher levels of attachment disorganization for bottle-feeding, although mean levels were below a clinically relevant level. - The initiation of breastfeeding directly after childbirth was not related to child attachment. - Mixed results were found for breastfeeding duration. Most studies had limitations regarding adequate sample size, and valid and reliable measurement of breastfeeding. - The findings provide some evidence that breastfeeding might contribute to child attachment security. Furthermore, maternal attachment style might play a role in breastfeeding behaviour.
31	<p>Mullany et al. (2008)</p> <p>Breast-feeding patterns, time to initiation, and mortality risk among newborns in Southern Nepal</p>	<p>To provide an analysis of prospectively collected data on breastfeeding practices and neonatal mortality.</p> <p>This is a study in Sarlahi District (in southern Nepal)</p> <p>Data were collected during a community-based randomized trial of the impact of topical chlorhexidine antiseptics interventions on neonatal mortality and morbidity in southern Nepal. In-home visits were conducted on day 1–4, 6, 8, 10, 12, 14, 21, and 28 to collect longitudinal information on timing of initiation and pattern of breast-feeding. Multivariable</p>	<ul style="list-style-type: none"> - Over 90% of newborns are delivered at home. - Out of 23,662 live-born infants during the study period, there were 759 neonatal deaths (neonatal mortality rate 32.1/1000 live births). The neonatal deaths (409) within 48 hours were excluded from the study. - Breastfeeding was initiated for 99.7% infants - The median time to breastfeeding was 18.4 hours. Only 771 infants (3.4%) were breastfed within the first hour after birth, but breastfeeding within the first 24 hours (56.6%) or first 48 hours (83.1%) was more common. Breastfeeding was established within 72 hours for 97.2% of breastfed infants. - 72.6% of infants were partially breastfed (i.e. combined breastfeeding with other milk-based fluids and/or solids). Goat and/or buffalo milk are often provided to the newborn infants in Sarlahi, especially during the first 24–48 hours after birth. - Partially breastfed infants were at substantially higher mortality risk than those who were exclusively breastfed. Infants who were breastfed in the

		<p>regression modelling was used to estimate the association between death and breast-feeding initiation time.</p>	<p>first 24hours were more likely to be exclusively breast-fed (42.3%) than late initiators (8.0%).</p> <ul style="list-style-type: none"> - Within the same geographical area, both the pattern of breastfeeding (exclusive vs. partial) and initiation time varied substantially between the two major ethnic groups – <i>pahadi</i> households (those originating from the hills region of Nepal) and <i>madeshi</i> households (those originating from the plains region of Nepal). Infants of <i>pahadi</i> households were more likely to be breastfed exclusively and be early initiators than those from <i>madeshi</i> households. Similarly, mothers of pahadi infants were more likely to report feeding their infant(s) colostrum. - Compared with those fed within the first hour after birth, mortality risk was 2.80, 4.08, and 4.19 times higher among infants first breastfed after 1, 2, or 3 day of life, respectively. - Mortality risk was 2.56 times higher comparing all those fed after vs. before 1 hour after birth. Late initiators (≥ 24 h) were 1.74 times more likely to die during the neonatal period than early initiators (≤ 24 h). - This study estimates from the adjusted model that around 41.3% of neonatal deaths after 48 hours might be prevented if breastfeeding was initiated within 1 hour of birth. Assuming that early breastfeeding has no effect on deaths prior to 48 hours (53.9% of deaths), universal initiation within 1 hour might prevent 19.1% of neonatal deaths in this setting. - Another comprehensive prior analyses from Ghana estimated that up to 22 and 16% of all neonatal deaths could be prevented with universal coverage of breast-feeding within 1 and 24 hours of birth, respectively (Edmond KM, Zandoh C, Quigley MA, Amenga-Etego S, Owusu-Agyei S, Kirkwood BR. Delayed breastfeeding initiation increases risk of neonatal mortality. Pediatrics. 2006;117:e380–6).
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			<ul style="list-style-type: none"> - Relationship between breastfeeding patterns and low birth weight rates are not studied/quantified in South Asia - Exclusive breastfeeding of infants for 6 months and continued feeding until 1 year could prevent an estimated 1.3 million child deaths per year (Jones et al. 2003 - Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS, Bellagio Child Survival Study Group. How many child deaths can we prevent this year? Lancet. 2003;362:65–71) - A study in southern Nepal showed that 19% of all neonatal deaths could be averted with early initiation of breastfeeding and that if breastfeeding was delayed for 24 h or more, neonatal mortality increased 1.4 times.
32	<p>Oakley et al. (2014)</p> <p>The role of support and other factors in early breastfeeding cessation: an analysis of data from a maternity survey in England</p>	<p>To investigate the factors associated with breastfeeding cessation at 10 days and six weeks, and to assess the relative contribution of breastfeeding support factors to overall breastfeeding cessation at these two time points.</p> <p>Data from a survey of women ≥ 16 years who gave birth to singleton term infants in 2009 in England (5,333 women (55.1%) returned usable questionnaire); questionnaires were completed approximately three months postnatally.</p>	<ul style="list-style-type: none"> - Of the 3840 women who initiated breastfeeding and reported timing of breastfeeding cessation, 13% had stopped by 10 days; and of the 3354 women who were breastfeeding at 10 days, 17% had stopped by six weeks. - Although multiple factors influence a mother’s likelihood of continuing breastfeeding, socio-demographic factors are strongly associated with breastfeeding continuation. - Women who did not receive feeding advice or support from a parent or peer support group, voluntary organisation, or breastfeeding clinic were more likely to stop breastfeeding by 10 days. - Findings suggested that breastfeeding support may help to prevent breastfeeding cessation in the first few weeks.
33	Oakley et al. (2013)	To identify the sociodemographic factors independently associated with variation in area-based	<ul style="list-style-type: none"> - Striking associations between sociodemographic factors and breastfeeding at the area level explain much of the variation in breastfeeding rates

	<p>Factors associated with breastfeeding in England: an analysis by primary care trust</p>	<p>breastfeeding in England (breastfeeding initiation, any and exclusive breastfeeding rates at 6–8 weeks). The secondary aim was to calculate the predicted area-based breastfeeding rates adjusted for sociodemographic variations.</p> <p>Ecological analysis of routine data from all 151 primary care trusts (PCTs) in England between 2010–2011 using random effects logistic regression.</p>	<p>between areas. These associations were strongest in PCTs outside London; for London PCTs, the associations were less consistent</p> <ul style="list-style-type: none"> - After adjustment for sociodemographic factors, most PCTs have breastfeeding rates in line with those expected given the overall trends; however, the breastfeeding rates are still comparatively low, especially for exclusive breastfeeding. - The findings of this study confirm the importance of the sociodemographic context and support the view that breastfeeding interventions need to be tailored to the needs of a particular setting.
34	<p>Pandey et al. (2013)</p> <p>Maternal and child health in Nepal: The effects of caste, ethnicity, and regional identity</p>	<p>To find reasons of the disparities, in terms of caste, ethnicity, and regional identity, in access to and utilization of health services and in health outcomes by disaggregating the 2011 NDHS data for a selection of maternal and child health services and outcomes. The paper aims to help strengthen the evidence base on existing social disparities as a foundation for policy-making and programmatic decisions in the health sector.</p>	<ul style="list-style-type: none"> - Recognizing breastfeeding as one of the key factors that determine the survival and well-being of an infant, the Breast Milk Substitute Act (B.S. 2049) and Regulation B.S. 2051 promote and protect breastfeeding in Nepal (MoHP, 2004). - The Child Health Division of the Ministry of Health and Population (MoHP) has initiated the Community-Based Newborn Care Program (CB-NCP) in 40 districts, where a number of newborn care initiatives are implemented in order to promote initial breastfeeding within one hour of birth and exclusive breastfeeding throughout the first six months of life. - In Nepal about 45 percent of infants who were born in the two years preceding the 2011 NDHS survey were reported to have been breastfed within one hour of birth. - More than half of the Brahman/Chhetri, Newar, and Hill Janajati women had initiated breastfeeding within an hour, while only 34 percent of Muslim and 31 percent of Terai/Madhesi Other women had done so. There is also

			<p>striking variations in the frequency of this practice between Hill Dalit women (48 percent) and Terai/Madhesi Dalit women (26 percent).</p> <ul style="list-style-type: none"> - Almost 70 percent of Nepali infants are exclusively breastfed for up to six months. - While breastfeeding within one hour of birth is least common among the Terai/Madhesi Dalit, this group has the highest rate of exclusive breastfeeding, at 92 percent. The reasons for this pattern need further investigation; it could result from lack of awareness regarding the benefits of breastfeeding immediately following birth, combined with limited resources to feed children anything but breast milk.
35	<p>Papp (2014)</p> <p>Longitudinal Associations Between Breastfeeding and Observed Mother-Child Interaction Qualities in Early Childhood</p>	<p>To examine associations between trajectories of breastfeeding and observed parent-child interaction qualities of maternal sensitivity, child positivity, and child negativity from 6 months to 3 years of age.</p> <p>Data were drawn from the Early Child Care and Youth Development (N = 1,306 U.S. families). Hierarchical linear modelling accounted for demographic and early characteristics, including home environment, maternal depression, and observed global relationship quality.</p>	<ul style="list-style-type: none"> - Breastfeeding was associated with increases in observed maternal sensitivity over time, even after the effects of demographic and early characteristics were controlled. - Accounting for the covariates, breastfeeding was not associated with child behaviour (i.e., positivity, negativity) in mother-child interaction across early childhood. - Improved relationship through changes in maternal behaviour, may be another advantage experienced by breastfeeding mothers and children.
36	<p>Pérez-Escamilla et al. (2023)</p>	<p>It examines how mother and baby attributes at the individual level interact with breastfeeding determinants at other levels, how</p>	<ul style="list-style-type: none"> - About one in three neonates in low-income and middle-income countries receive prelacteal feeds, and only one in two neonates are put to the breast within the first hour of life.

	<p>Breastfeeding: crucially important, but increasingly challenged in a market-driven world</p>	<p>these interactions drive breastfeeding outcomes, and what policies and interventions are necessary to achieve optimal breastfeeding.</p> <p>It uses: (1) analysis of national representative survey data of children younger than 2 years, (2) commissioned systematic reviews, and (3) commissioned case studies.</p>	<ul style="list-style-type: none"> - Prolactal feeds are strongly associated with delayed initiation of breastfeeding. - Self-reported insufficient milk continues to be one of the most common reasons for introducing commercial milk formula (CMF) and stopping breastfeeding. Parents and health professionals frequently misinterpret typical, unsettled baby behaviours as signs of milk insufficiency or inadequacy. - In our market-driven world and in violation of the WHO International Code for Marketing of Breast-milk Substitutes, the CMF industry exploits concerns of parents about these behaviours with unfounded product claims and advertising messages. - A synthesis of reviews between 2016 and 2021 and country-based case studies indicate that breastfeeding practices at a population level can be improved rapidly through multilevel and multicomponent interventions across the socioecological model and settings. - Breastfeeding is not the sole responsibility of women and requires collective societal approaches that take gender inequities into consideration.] - This paper refers to other studies that report longer term benefits of breastfeeding. - Key barriers reported from earlier studies include: gender inequities; harmful sociocultural infant-feeding norms; income growth and urbanisation; corporate marketing practices and political activities that weaken breastfeeding protection policies; labour markets that poorly accommodate women’s reproductive rights and care work, reflecting major gender inequities; and poor health care that continues to undermine breastfeeding, including the medicalisation of birthing and infant care.
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			<ul style="list-style-type: none"> - These barriers exert a powerful influence on the main settings that influence breastfeeding: health systems, workplaces, communities, and households. - Research concentrate more on high and mid income countries and more on health facilities - Community-based interventions could engage health-care providers, community health workers, and family members, particularly fathers and grandmothers, with education and home visits that span the prenatal and postnatal periods. - Evidence indicates that home visits can be effectively provided by both trained health workers and community health workers. Community health workers amplify networks of education and support across health-care, community, and family settings, and - might be particularly helpful in supporting historically marginalised communities and in complex situations like humanitarian emergencies. - Recommendations: <ul style="list-style-type: none"> o Investment in public awareness and education including correction to misconceptions about the equivalence of commercial milk formula (CMF) to breastmilk through extensive health education programmes directed towards the public and policy makers o Skilled counselling and support should be provided prenatally and post partum to all mothers to prevent and address self-reported insufficient milk and avert the introduction of prelacteal feeds or CMF early on o Health professionals, mothers, families, and communities must be provided with better educational support and skill development, free from commercial influence, to understand unsettled baby behaviours as an expected phase of human development.
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			<ul style="list-style-type: none"> ○ Intersectoral policies (eg, health, social development, education, labour, and regulatory sectors) that address multilevel barriers to breastfeeding must be implemented to enable mothers to breastfeed their children optimally for as long as they, or their babies, desire. These policies must be grounded in equity, human rights, and public health principles, and enabled through system-wide political and societal commitment for breastfeeding
37	<p>Pokhrel et al. (2015)</p> <p>Potential economic impacts from improving breastfeeding rates in the UK</p>	<p>To calculate potential cost savings attributable to increases in breastfeeding rates from the National Health Service perspective.</p> <p>Cost savings focussed on where evidence of health benefit is strongest: reductions in gastrointestinal and lower respiratory tract infections, acute otitis media in infants, necrotising enterocolitis in preterm babies and breast cancer (BC) in women. Savings were estimated using a seven-step framework in which an incidence-based disease model determined the number of cases that could have been avoided if breastfeeding rates were increased. Point estimates of cost savings were subject to a deterministic sensitivity analysis.</p>	<ul style="list-style-type: none"> - Treating the four acute diseases in children costs the UK at least £89 million annually. The 2009–2010 value of lifetime costs of treating maternal breast cancer is estimated at £959 million. - Supporting mothers who are exclusively breast feeding at 1 week to continue breastfeeding until 4 months can be expected to reduce the incidence of three childhood infectious diseases and save at least £11 million annually. - Doubling the proportion of mothers currently breast feeding for 7–18 months in their lifetime is likely to reduce the incidence of maternal breast cancer and save at least £31 million at 2009–2010 value. - The economic impact of low breastfeeding rates is substantial. Investing in services that support women who want to breast feed for longer is potentially cost saving.

38	<p>Rollins et al. (2016)</p> <p>Why invest, and what it will take to improve breastfeeding practices?</p>	<p>To identify the determinants of breastfeeding</p> <p>A systematic review of available studies, and reviewed and revised previous conceptual frameworks.</p>	<ul style="list-style-type: none"> - Multifactorial determinants of breastfeeding need supportive measures at many levels, from legal and policy directives to social attitudes and values, women’s work and employment conditions, and health-care services to enable women to breastfeed. - When relevant interventions are delivered adequately, breastfeeding practices are responsive and can improve rapidly. - Success in breastfeeding is not the sole responsibility of a woman—the promotion of breastfeeding is a collective societal responsibility. - The best outcomes are achieved when interventions are implemented concurrently through several channels. - The marketing of breastmilk substitutes negatively affects breastfeeding: global sales in 2014 of US\$44.8 billion show the industry’s large, competitive claim on infant feeding. - Breastfeeding provides short-term and long-term health and economic and environmental advantages to children, women, and society. - To realise these gains, political support and financial investment are needed to protect, promote, and support breastfeeding. <p><i>Six action points are proposed on how would policy makers and programme managers approach the challenge?</i></p> <ul style="list-style-type: none"> - The first is to disseminate the evidence. - Foster positive societal attitudes towards breastfeeding. - Third is to show political will. - Fourth is to regulate the breastmilk-substitute industry. - The fifth action point is to scale up and monitor breastfeeding interventions and trends in breastfeeding practices. - The sixth action point is for political institutions to exercise their authority and remove structural and societal barriers that hinder women’s ability to breastfeed.
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39	<p>Santorelli et al. (2013)</p> <p>Ethnic Differences in the Initiation and Duration of Breast Feeding – Results from the Born in Bradford Birth Cohort Study</p>	<p>To determine if there are ethnic differences in the initiation and duration of any and exclusive breastfeeding.</p> <p>Breastfeeding data were obtained from a subsample of 1,365 women recruited to a multi-ethnic cohort study (Born in Bradford) between August 2008 and March 2009. Poisson regression was used to investigate the impact of socio-economic, lifestyle and birth factors on ethnic differences in the prevalence of breast feeding.</p>	<ul style="list-style-type: none"> - Compared with white British mothers, initiation of breast feeding was significantly higher in all ethnic groups, and this persisted after adjustment for socio-economic, life style and birth factors. - There were no differences in exclusive breast feeding at 4 months. - Any breastfeeding at 4 months was significantly higher in mothers of all non-white British ethnicities. - Health professionals must be made aware that despite higher rates of breast-feeding initiation and continuation to 4 months in minority ethnic groups, there is no evidence that they will continue to exclusively breast feed by the time their babies are 4 months of age.
40	<p>Sharma & Byrne (2016)</p> <p>Early initiation of breastfeeding: A systematic literature review of factors and barriers in South Asia</p>	<p>This review synthesises the evidence on factors and barriers to initiation of breastfeeding within 1 hour of birth in South Asia encompassing Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.</p> <p>Studies published between 1990 and 2013 were systematically reviewed - Twenty-five studies meeting inclusion criteria were included for review.</p>	<ul style="list-style-type: none"> - Factors at geographical, socioeconomic, individual, and health-specific levels, such as residence, education, occupation, income, mother's age and newborn's gender, and ill health of mother and newborn at delivery, affect early or timely breastfeeding initiation in South Asia. - Reported barriers impact through influence on acceptability by traditional feeding practices, priests' advice, prelacteal feeding and discarding colostrum, mother-in-law's opinion; availability and accessibility through lack of information, low access to media and health services, and misperception, support and milk insufficiency, involvement of mothers in decision making. - Review suggests that initiating BF within 1 hour reduced deaths by 19% in Nepal and 22% in Ghana. - Several South Asian countries have some of the worst early initiation of breastfeeding practices in the world; the rates in Pakistan, India, Bangladesh and Nepal are only 29, 41, 47 and 45% respectively (UNICEF. State of the

			<p>World's Children 2014: every child counts. New York: United Nations Children's Fund (UNICEF)</p> <ul style="list-style-type: none"> - Factors associated with early initiation of BF: - Geographical factors: country specific areas have specific patterns of BF in each country. In Nepal it is lower in the Terai region (flat land) - Socioeconomic factors: The social and economic circumstances of a woman and the household have much influence on timing of breastfeeding initiation in the South Asian context, pertinently the education of mother, occupation of mother, household wealth and family size and family type. Delayed initiation of breastfeeding is more prevalent among women who have no formal education in Bangladesh, India, Nepal and Pakistan. In terms of family type and size, women with nuclear families (not residing with the mother-in-law), with fewer children, are more likely to delay initiation in Nepal. - Individual factors: are reported from other countries but not from Nepal – some of these factors reported from other countries include birth order, birth interval, teen aged mother, sex of child. - Health related factors: Studies from Bangladesh, India, Nepal, Pakistan, Maldives and Sri Lanka highlighted delivery by caesarean section as a major factor
41	<p>Twamley et al. (2011)</p> <p>UK-born ethnic minority women and their experiences of feeding their newborn infant</p>	<p>To explore the factors that impact on UK-born ethnic minority women's experiences of and decisions around feeding their infant.</p>	<p>Despite being aware of the benefits of exclusive breast feeding, many women chose to feed their infant with formula. The main barriers to breastfeeding were the perceived difficulties of breast feeding, a family preference for formula feed, and embarrassment about breastfeeding in front of others.</p> <ul style="list-style-type: none"> - Women of South Asian parentage, particularly those who lived with an extended family, suggested that their intentions to breastfeed were

		<p>In-depth semi-structured interviews with 34 UK-born women of Black African, Black Caribbean, Pakistani, Bangladeshi, Indian and Irish parentage and 30 health-care professionals. Women and health-care professionals were recruited primarily from hospitals serving large numbers of ethnic minority women in London and Birmingham.</p>	<p>compromised by the context of their family life. The lack of privacy in these households and grandparental pressure appeared to be key issues.</p> <ul style="list-style-type: none"> - Unlike other participants, Irish women reported an intention to feed their infant with formula before giving birth. - The key facilitators to breastfeeding were the self-confidence and determination of women and the supportive role of health-care professionals. - These findings point to common but also culturally specific mechanisms that may hinder both the initiation and maintenance of breastfeeding in UK-born ethnic minority women. - They signal potential benefits from the inclusion of family members in breastfeeding support programmes.
42	<p>Victora et al. (2016)</p> <p>Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect</p>	<p>To obtain information about the associations between breastfeeding and outcomes in children or mothers.</p> <p>28 systematic reviews and meta-analyses</p>	<ul style="list-style-type: none"> - Meta-analyses indicate protection against child infections and dental problems, increases in intelligence, and probable reductions in overweight and diabetes. - No associations were found with allergic disorders such as asthma or with blood pressure or cholesterol, and noted an increase in tooth decay with longer periods of breastfeeding. - For nursing women, breastfeeding gave protection against breast cancer and it improved birth spacing, and it might also protect against ovarian cancer and type 2 diabetes. - High-income countries have shorter breastfeeding duration than do low-income and middle-income countries. However, even in low-income and middle-income countries, only 37% of infants younger than 6 months are exclusively breastfed. - The scaling up of breastfeeding to a near universal level could prevent 823,000 annual deaths in children younger than 5 years and 20,000 annual deaths from breast cancer.



			<ul style="list-style-type: none">- Breastfeeding promotion is important in both rich and poor countries alike, and might contribute to achievement of the Sustainable Development Goals.
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