

How to promote exclusive breastfeeding in Ireland: a qualitative study on views of Chinese immigrant mothers

Haoyue Chen

School of Public Health, Peking University

Qianling Zhou (✉ qianling.zhou@bjmu.edu.cn)

Department of Maternal and Child Health, School of Public Health, Peking University, Beijing, China

Tanya M. Cassidy

Maynooth University

Katherine M. Younger

Technological University Dublin

John M. Kearney

Technological University Dublin

Research

Keywords: recommendations, exclusive breastfeeding, Chinese, immigrant, Ireland, in-depth interview, qualitatively

Posted Date: March 24th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-18400/v1>

License:  This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Version of Record: A version of this preprint was published on January 15th, 2021. See the published version at <https://doi.org/10.1186/s13006-021-00358-4>.

Abstract

Background: The exclusive breastfeeding rate in Ireland is very low with extremely slow annual growth. The population of immigrants in Ireland is increasing. Improving exclusive breastfeeding practice among immigrants may contribute to the overall improvement of exclusive breastfeeding rates in Ireland. This study was conducted to elicit recommendations on improving exclusive breastfeeding rate for six months among Chinese immigrants in Ireland.

Methods: Fourteen semi-structured in-depth individual interviews were conducted with Chinese immigrant mothers resident in Ireland, who breastfed exclusively for four to six months.

Results: Themes generated from thematic content analyses were 1) recommendation for mothers: improve self-intention to breastfeed exclusively and self-efficacy, be financially secure before pregnancy, and obtain breastfeeding information proactively. 2) Recommendation for family members, employers and colleagues, and health care professionals: family members should offer sufficient support. Employers should provide hygienic places for breastmilk storage, and set up breastfeeding rooms and nurseries. Irish hospitals need to advocate exclusive breastfeeding, recruit and train multilingual health care professionals, and combine breastfeeding knowledge with practice in the prenatal education. 3) Recommendation for the government: set up breastfeeding rooms and dedicated rooms for breastfeeding groups, and increase the publicity and visibility of breastfeeding in multiple languages. An independent welfare policy for immigrants was also recommended.

Conclusions: The key findings emerging from this study may be considered in the development of breastfeeding promotion strategies in Ireland. Our findings could also have implications for other English-speaking countries with low rates of exclusive breastfeeding.

Background

It is well recognized that infants and toddlers are at a critical stage of development in physiological function, language and intelligence [1]. Appropriate feeding practices are therefore of vital importance to children's optimal growth and development. Human breast milk, rich in nutrients and easy to digest and absorb, meets the need of infants within six months of age. Evidence has showed that exclusive breastfeeding is the optimal way of infant feeding practice during the first six months of life [2-4]. The World Health Organization (WHO) has recommended exclusive breastfeeding within the first six months of life, and continued breastfeeding until the age of two or above. Complementary feeding should be added timely, reasonably, appropriately and safely at six months [5].

From 2007 to 2014, only 36% of infants under six months of age were exclusively breastfed globally [6]. The Global Breastfeeding Data report released in October 2019 demonstrated that the global exclusive breastfeeding rate at six months had increased to 42% by 2019 [7]. However, the figure is still lower than the WHO global nutrition target of 2025 (*i.e.* 50%) [8]. In Ireland, rates of breastfeeding initiation (at 55.7% in 2010) and exclusive breastfeeding at six months (at 15% in 2013) were among the lowest in Europe [9-

11]. Over the last decade, the proportion of women exclusively breastfed at hospital discharge had increased by 9.9% (from 42.4% in 2004 to 46.6% in 2013) in Ireland [12], with a slow annual increase at 1% [12]. Effective strategies to improve the practice of exclusive breastfeeding are necessary in Ireland.

The prevalence of breastfeeding initiation in the immigrant groups were found to be higher than that of people in the host countries [13]. In Ireland, immigrants from European, African, Asian countries, Australia, New Zealand, Canada, and US were more likely to breastfeed than Irish-born mothers [12, 14, 15]. However, Nolan and Layte have reported a 'healthy immigrant' effect that breastfeeding rates of immigrant mothers decreased significantly and tended to be similar to that of Irish-born mothers with the increase of immigration time [14]. Evidence has showed that migration from a country with a high breastfeeding rate to a country with a low breastfeeding rate had a negative impact on immigrants' breastfeeding practice [16]. Although China has a breastfeeding culture, exclusive breastfeeding rate at six months were only 20.8% in China in 2013 [17]. The Ireland Chinese Mother Survey found that although Chinese immigrants had a high breastfeeding initiation rate (75.6%) and any breastfeeding rate (87.2%), only 5.8% of mothers exclusively breastfed for six months [18, 19].

Immigration has become a vital topic throughout Europe and globally around the world [20]. The number of migrants grew up to 244 million persons worldwide in 2015 [20]. According to the Ireland's census data, the population of immigrants had increased from 53,000 in 2011 to 82,000 in 2016 [21]. The population of Asian immigrants had increased by 27.7%, among which Chinese immigrants had increased by 9.1% [21]. Statistics showed that Chinese immigrants was among the largest ethnic groups in Ireland [22, 23]. Improving exclusive breastfeeding practice among Chinese immigrants might contribute to the overall improvement of exclusive breastfeeding in Ireland.

A review [24] indicated that strategies in varied settings and targeting diverse populations could be effective in improving breastfeeding. Evidence demonstrated that integrated multiple strategies and coherent combinations of strategies work better than single and uncoordinated strategies. The US Centers for Disease Control and Prevention (CDC) had released guideline to promote breastfeeding in an interrelated and complementary manner [25]. In Ireland, *A five-year Strategic Action Plan* in 2005 detailed a series of recommendations and goals at the individual (*e.g.* to develop breastfeeding skills), family (*e.g.* to provide intensive support), health sector (*e.g.* to implement the Baby Friendly Initiative), community (*e.g.* to promote breastfeeding support groups), government (*e.g.* to strengthen maternity protection legislation and policies pertaining to breastfeeding) and social levels (*e.g.* to promote positive images of breastfeeding especially in mass media portrayals) [26]. However, no existing studies have documented ways on promoting exclusive breastfeeding among immigrants in Ireland. To develop effective interventions and formulate a comprehensive strategy to promote exclusive breastfeeding among immigrants in Ireland, the views and opinions from Chinese mothers in Ireland would be useful. Opinions from mothers who had had a successful experience of breastfeeding exclusively might have more practical significance. Therefore, this study was conducted to elicit the ideas of Chinese mothers who had successfully breastfed for at least six months, with exclusive breastfeeding for four to six months in Ireland.

Methods

Study design

Based on the phenomenological framework which exemplifies a constructionist epistemology [27], a qualitative study design was adopted to explore participants' recommendations on exclusive breastfeeding promotion among Chinese immigrant mothers under the Irish social contexts, as such information has not been documented. Thematic analysis provides a flexible research tool that potentially provides rich, detailed and complex data descriptions [28], and was considered appropriate to understand views of Chinese mothers in Ireland. In this study, we used thematic content analysis method, following the guidelines recommended by Morse & Field [29].

The participants

Participants were recruited purposively from the Ireland Chinese Mothers Survey (n=322) [18, 19]. Inclusion criteria included women who 1) were born in China; 2) had been living in Ireland for more than six months at time of the interview; 3) had given birth in Ireland; and 4) had breastfed successfully for more than six months, with exclusive breastfeeding for four to six months in Ireland. Sixteen Chinese mothers who met the inclusion criteria were contacted *via* telephone calls. They were informed the concise study information and asked whether they agreed to take part in the study or not. Fourteen agreed to participate in this study. Two refused to participate due to time constraints.

The research team

The researcher QZ, a female doctoral student in public health nutrition at the time of the study, was the key investigator of this study. She specialized in topics related to breastfeeding. With Chinese nationality, her mother language is Chinese. The researcher TMC, an anthropologist with rich qualitative research experience in breastfeeding, provided good guidance on the development, implementation and data analyses of this study.

The interview guide

The interview schedule was guided by the qualitative in-depth interview approach [30]. A semi-structured interview guide was developed by the research team inspired by a Hong Kong study which explored the relationship between situational variables and primipara mothers' infant feeding behaviours [31, 32]. The guide was tailored to fit our study aims and pilot tested with three Chinese mothers who had given birth in Ireland. The pilot test showed that our questions could be well understood by participants. The main questions were 1) please provide some advice on how to breastfeed exclusively in Ireland; 2) please provide some ideas for the Irish government in improving exclusive breastfeeding rates in Ireland. Timely adjustments of questions were made according to the actual discussion.

Data collection

As an appropriate methodology for immigrant population [33, 34], fourteen semi-structured individual interviews were conducted in Ireland from December 2009 to February 2010. Ethical approval was obtained from the Research Ethics Committee of the Dublin Institute of Technology. The purpose and confidentiality of the study were informed and written consent was obtained from the participant before each interview. Participants had the opportunity to ask questions and to withdraw from the study anytime during the interview.

The interviews were conducted by the researcher QZ, in participants' houses or public cafes in Ireland where were convenient for the participants. Each interview was conducted in Chinese only, recorded by a digital recorder, and lasted 45 to 125 minutes. After each interview, quantitative data about sample characteristics were collected by a brief questionnaire immediately, and field notes were written by QZ. All recordings were transcribed verbatim into Chinese by QZ. HC reviewed the taped interviews and validated the accuracy of the transcription of each interview. In order to ensure accuracy and data integrity, the transcripts were sent back to participants for their confirmation. If there were wrong or incomplete information, they were invited to edit or adjust the transcripts. No problem had been reported by participants.

Data analysis

Common themes were generated by two researchers HC and QZ using thematic content analysis method, following the guidelines recommended by Morse & Field [29]. Two researchers read the transcripts (not including the pilot test data) repeatedly and coded the transcripts independently and systematically. Initial codes were generated, and then organized into categories. A tree diagram was developed to help in organizing these categories into a hierarchical structure [29]. Next, categories were integrated into themes. After that, HC and QZ discussed the codes to verify their application to the data, and reached a consensus on the assignment of all themes and extracted quotations to illustrate typical views. If consensus cannot be reached, the issue will be discussed between QZ and HC to reach an agreement. Field notes were reviewed together with the transcripts during the process of data analyses. Preliminary results were provided to five participants for their verification; and participants were encouraged to revise the results if needed. No problem had been reported by these five participants.

Results

Sample characteristics

A total of 14 mothers were interviewed. They were between 24 and 54 years old (mean age: 34 years) and had been living in Ireland from three to 18 years (mean duration: nine years) at time of the study. Most mothers (n=8, 57%) were primiparous; while 43% (n=6) had two children (one had twins). Ten participants had achieved third-level education (71%); while four (29%) obtained education from secondary or training schools. Over half (n=8) of the participants were housewives or had part-time non-professional jobs; while six were self-employed or had professional jobs. The majority (n=11) of the participants had an annual family income over 30,000 euro (before tax); while three had an annual family income of 15,000-

30,000 euro. All participants held positive attitudes towards exclusive breastfeeding because they believed that exclusive breastfeeding for four to six months would benefit babies, mothers and society.

Mothers' personal opinions on exclusive breastfeeding promotion

Results generated from thematic analyses were summarized in Table 1. Three themes were identified, including 1) recommendation for mothers; 2) recommendation for family members, employers and colleagues, and health care professionals; and 3) recommendation for the government.

Theme 1. Recommendation for mothers

- **Maintaining maternal intention and improving self-efficacy**

All participants emphasized that immigrants should maintain intention, appreciation, and confidence towards exclusive breastfeeding, and ignore negative comments received when they breastfeed in public. *"You can complain, but do not give up."* (P5). For this, mothers need to have a high degree of self-efficacy and confidence. *"My advice is not to rely on others. Otherwise, you will feel it (maintaining breastfeeding) to be hard."* (P6)

1.2 Creating suitable condition for exclusive breastfeeding

Some participants suggested immigrants should prepare enough free time and have sufficient finance security, as well as ensure that they have an Irish visa or citizenship for the duration of the lactation period before delivery. *"Some people have to work, making it difficult to breastfeed exclusively."* (P5). For renters, sharing the accommodation with those who also have babies was also considered to be helpful. *"As they were experienced, they could understand your difficulties, tolerance the noise from the baby, and provide timely help when necessary."* (P14)

1.3 Obtaining breastfeeding knowledge

Participants suggested mothers compare breastfeeding information objectively and rationally as there were some conflicting information. For example, a mother reflected that treatments of breast milk jaundice given by Chinese doctors and Irish doctors were completely different. *"My baby had jaundice due to breastfeeding. Chinese doctors advised to stop breastfeeding for one or two weeks. But Irish medical staff advised to increase breastfeeding frequency to promote infant digesting and wetting nappy."* (P6)

Chinese mothers were advised to ask questions proactively in hospitals, not to exclude regular home visits, and to form or join a breastfeeding group (regardless of nationality). A mother compared what she saw in China with her own experience in Ireland, and then she said: *"Don't exclude home visits because you can't speak English well... In Ireland, people pay less attention to breastfeeding (than in China). Thus, you need to ask questions proactively."* (P14)

Theme 2. Recommendation for family members, employers and colleagues, and health care professionals

2.1 Family members' sufficient support

Sufficient family's support given to the mothers while breastfeeding was strongly recommended. Some participants suggested that family members of Chinese mothers could come to Ireland for baby care. Some participants who focused on the important role of husbands suggested husbands adjust their working hours to adhere with the mothers' schedule. *"Family support is indispensable."* (P7)

2.2 Employers' support and colleagues' respect

Some working mothers suggested employers prolong the maternity leave, provide facilities to store breast milk, and set up nurseries within or near the workplace. *"The nurseries near my workplace were convenient for me to breastfeed."* (P13)

They also hoped work colleagues, especially male colleagues, respect and support their breastfeeding decision, by avoiding giving negative comments on breastfeeding. *"I managed to continue breastfeeding exclusively after returning to work because my colleagues understood my situation well."* (P3)

2.3 Health care professionals' support

2.3.1 Encouragement and advocacy

It was suggested that health care professionals in Irish hospitals and health centers should be stronger advocates for breastfeeding and should provide more support to mothers. *"Breastfeeding was seldom mentioned in medical advice. Doctors should encourage mothers to breastfeed."* (P1)

2.3.2 Multilingual specialization

Most participants suggested to train language-specific health care professionals to provide support and prenatal education for language-specific mothers, as many mothers experienced the pain of language barrier, especially difficulties in understanding the professional terminologies. *"In fact, there was still a language barrier. When I communicated with a health care professional, there were many professional terminologies which troubled me. So, I think maybe more Chinese nurses and midwives would be better."* (P6). Some participants suggested health care professionals provide breastfeeding support and consultation more initiatively and patiently. The health care professionals should provide mothers with the solutions to their problems correctly and in sufficient detail. *"I felt that Irish nurses or midwives were deficient in experience and specialty... which made new mothers anxious."* (P14)

2.3.3 Appropriate breastfeeding education combined with practice

Some participants suggested that health care professionals should teach breastfeeding knowledge appropriately to immigrant mothers. Separation of breastfeeding theory and practice was reported by

many participants. They suggested to combine breastfeeding knowledge with practice in prenatal education classes. *"Primipara were taught breastfeeding knowledge, but it's difficult for them to operate in practice... Practice is needed to assist the understanding of theoretical knowledge."* (P14)

Theme 3. Recommendation for the government

3.1 Setting up well-equipped breastfeeding facilities in public places

The majority of participants felt that the Irish governmental agencies should set up more breastfeeding rooms in public places (such as shopping malls), and equip these rooms with seats, water and breast milk heaters. *"There were many places for nappy changing, but breastfeeding facilities were not enough."* (P5). In addition, special groups for mothers to share experiences was also recommended.

3.2 Providing social welfare policies

Some participants suggested the Irish governmental agencies amend the laws and regulations to provide policy guarantees for maternity leave and financial subsidies. *"The government could give appropriate subsidies for breastfeeding, such as dozens of Euros a month."* (P11). Irish governmental agencies were suggested to consider the following new security policies for the Chinese. First, narrow down the gap of social welfare between native residents and immigrants. *"As there is a big gap of social welfare between immigrants and Irish, I do hope that Ireland could provide special social welfare policy for immigrants."* (P14). Second, provide longer-term Irish visas for the Chinese mothers migrating for education-related reasons to ensure that they could breastfeed six months in Ireland after birth. A newly arrived mother said, *"I attained language class in the second month after delivery for student visa which caused difficulties in exclusive breastfeeding."* (P14)

3.3 Publicity

3.3.1 Increasing intensity of publicity

Enhancement of publicity for breastfeeding in clinics, communities and television advertisements was also suggested. *"The government still need to increase the publicity to let more mothers know that breast milk is better than bottles."* (P9)

3.3.2 Enriching contents of publicity

Improvement in the content of the publicity was suggested. Suggestions from participants were as follows. First, publicize that breastfeeding is natural, necessary and worthwhile, rather than as an alternative feeding method. Second, promote the benefits of breastfeeding, correct the misconceptions, and deliver the breastfeeding message *via* the community. Third, provide solutions to breastfeeding problems, such as mothers' taking medication. *"I think you can compare breast milk with formula, and present in a table."* (P9)

3.3.3 Publicizing by various means

Many participants suggested that breastfeeding should be publicized in multiple languages and in various venues. *"Add some Chinese information on breastfeeding."* (P12). *"Publicity can be made through newspapers and television."* (P5). *"Publicizing breastfeeding to Chinese immigrants by brochures may be better, because they don't like to join clubs."* (P6)

Discussion

This is the first study exploring views of the Chinese immigrants on exclusive breastfeeding promotion in Ireland. Targeted recommendations were given for Chinese immigrant mothers (*e.g.* maintaining self-intention), family members (*e.g.* giving sufficient support), employers (*e.g.* providing places for breastmilk storage and breastfeeding), Irish hospitals (*e.g.* training multilingual health care professionals), and Irish governmental agencies (*e.g.* providing independent welfare policies for immigrants). Our findings provide ideas for developing breastfeeding promotion policies for immigrant population.

The important role of maternal psychological status towards breastfeeding has been reported in a number of studies [35-38]. Our findings imply that Chinese mothers' intention and self-efficacy for exclusive breastfeeding are important to the success of optimal feeding practices, and might be targeted in the breastfeeding interventions. Studies in other countries have shown that immigrant women were more likely to return to work early than native women owing to financial reasons, which had impeded their prenatal intention to breastfeed for six months or longer [39, 40]. Therefore, as suggested by our study participants, ensuring good financial status and sufficient maternity leave for lactation before delivery may help to realize immigrants' prenatal intention of breastfeeding. Fortunately, there have been efforts to ensure maternity leave in Ireland for the population more broadly, as progressive maternity leave policies had been considered to be included in the new Early Years Strategy [41]. Data in 2010 showed that the majority of first residence permits issued to Chinese nationals in Ireland were for education-related reasons, and international students represented a growing group of migrants in Ireland [42]. For Chinese students, long-term visa means they need to take more intensive language classes [42], which was reported by our participants to cause difficulties in breastfeeding. Our findings highlighted the positive role of sufficient Irish visa duration/citizenship for mothers who immigrated for education-related reasons on exclusive breastfeeding. In addition, the positive role of comfortable living environment on exclusive breastfeeding was also elicited in our study. These findings have not been reported in the literature, and might be considered by Chinese immigrants in order to adhere to optimal infant feeding practices.

In the acquisition of breastfeeding knowledge, internet, friends and elders have been reported as useful sources among immigrants [40, 43]. Participants in our study recommended learning breastfeeding knowledge through reading books. In addition to handbooks, health care professionals might recommend books related to lactation to mothers through prenatal education. Participating in breastfeeding groups was also regarded as important in our study. Such finding is consistent with an Australian study that Chinese immigrant mothers valued the support of their peers in handling infant feeding problems [40]. Breastfeeding counseling provided by health care professionals is also a useful source of breastfeeding

knowledge and beneficial to breastfeeding [40, 44]. However, language problems made Chinese immigrants seek help from health care professionals inactively [45], and even blocked the transmission of breastfeeding knowledge to Chinese mothers [46]. In the current study, Chinese immigrants were encouraged to consult health care professionals actively, and to welcome regular home visits. Besides, they were suggested to judge information they received according to their own situation. Such idea has not previously been reported in the literature and merits consideration by Chinese immigrants.

The important role of family support in exclusive breastfeeding practice has been recognized [47-49]. This study suggested that immigrants' family members should offer more support during lactation. It was found that most Chinese-Irish families were nuclear families where the husband was the most important source of family support and main source of financial support [18, 49]. The husband having to work contributed to the lack of involvement or support of Chinese-Irish family. Studies have reported that husbands' positive attitudes and support are associated with longer breastfeeding duration [50, 51]. In our study, husbands were recommended to have positive attitudes towards exclusive breastfeeding, and actively encourage and cooperate with mothers during lactation. Prenatal education might consider targeting immigrants' family members, especially their husbands.

Participants in this study considered employers' support as important to the success of exclusive breastfeeding practices. An unfavorable workplace environment may be associated with the cessation of breastfeeding [32, 52]. Our study suggested employers should set up breastfeeding rooms and nurseries, and should ensure safe and clean places for breast milk storage. In addition, few studies have mentioned colleagues' support of breastfeeding. The cooperation of immigrants' colleagues, especially male colleagues was emphasized in this study, where it was recommended that they respect the intention and practices of breastfeeding colleagues in the work place.

The importance of health care professionals' attitudes and advices on exclusive breastfeeding among Chinese immigrants has been confirmed [40, 53]. Our study suggested that doctors' recommendations on exclusive breastfeeding during routine perinatal checks were helpful. Language barriers among immigrants presented in other studies [18, 40, 45] were also revealed in this study. Training multilingual medical staff was thus suggested. Substantial gaps in the knowledge and skills to support breastfeeding of the Irish health care professionals were reported in this study; and participants suggested strengthening the training on breastfeeding among health care professionals. Such finding has also been reported in many other countries [54, 55]. In 2003, the WHO proposed that the pre-service curriculum for all health workers should provide appropriate information and advice on infant feeding for families [56]. In addition, this study revealed immigrants' anxiety caused by Irish health care professionals' lack of initiative, and participants suggested that they provide counselling from medical staffs. Our finding was supported by an ethnographic study, which showed that the sensitivity of health care professionals towards individual needs of immigrants and provide skilled breastfeeding counseling and assistance are beneficial to breastfeeding [44]. Finally, our participants perceived that there was little breastfeeding knowledge taught and a separation between theory and practice in the prenatal education in Ireland. A

combination of theory and practice of breastfeeding should therefore be considered in prenatal education.

There is a lack of social acceptance of breastfeeding in Ireland [57]. There is no private space for lactation in the public area (manuscript in review). Mothers' feeling of embarrassment to breastfeed in public led to avoidance of breastfeeding in public [58]. Such environmental influence has an impact on breastfeeding practices for both Irish national and non-national mothers. Our participants suggested the Irish governmental agencies set up more well-equipped specific breastfeeding rooms in public places, especially in shopping malls. Although these issues have been improving, these ideas had not previously been documented, and might be of consideration for governmental agencies. In addition, setting up a special place in hospitals or health centers for breastfeeding groups was also suggested in our study, to enhance immigrants' attendance to breastfeeding groups. This proposal was in line with the WHO/ UNICEF Baby Friendly Hospital Initiative for general population breastfeeding promotion in Ireland (*i.e.* to foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic), which was found to be an effective intervention to promote the duration of breastfeeding [59]. It was reported that in 2005, 20 of the 21 maternity hospitals/units in Ireland were participating in this initiative and three had achieved the standard required to receive national 'Baby Friendly' hospital designations [26].

In 2003, the WHO recommend that government should adopt legislation and take related measures to protect the breastfeeding rights of working women [56]. Since returning to work had accounts for the low rate of exclusive breastfeeding of immigrants [60-62], prolonging the current maternity leave to six months might be considered by Irish governmental agencies. Moreover, our participants suggested the Irish government amend laws and regulations, and provide policy guaranteed for immigrants in visas and social welfare. Incentive policies such as financial subsidies to mothers who breastfeed were also suggested.

Nearly half of our participants reflected that there was insufficient publicity on breastfeeding in Ireland, and the existing publicity had little impact on an improvement in breastfeeding practices. Some publicity was even found to have incorrect information and so participants highlighted that importance of publicizing correct breastfeeding information. This is consistent with the WHO's recommendation that educational and media authorities should ensure the provision of accurate and complete information on appropriate infant feeding practices [56]. Previous research has emphasized the importance of using multiple languages in breastfeeding campaigns [63]. Our study corroborates this finding. Few studies have reported cultural diversity in the publicity of breastfeeding. The successful experience in the Chinese-Canadian population suggested that breastfeeding information could be disseminated *via* language-specific telephone hotline [46]. Our participants also suggested publicizing breastfeeding information *via* different means adapting to the culture of targeted audiences (*e.g.* television, language-specific newspapers and brochures). The above approach should be adopted in Ireland in order to enhance the impact of breastfeeding publicity for multicultural community.

The strengths of this study include the fact that this is the first study using individual interviews to elicit ideas about exclusive breastfeeding from Chinese mothers in Ireland. Suggestion obtained in our study might inspire other countries with low breastfeeding rates, as few studies had explored immigrants' opinions in improving exclusive breastfeeding in host country. Furthermore, respondent validation was performed in this study to ensure our findings' validity.

A limitation of this study is that some ideas gained in our study might not be useful or indeed appropriate to other populations. Besides, our results may not be fully comprehensive, because we only included mothers who had breastfed exclusively for at least four months, although the rationale for this was that the opinions were being sought from mothers who had had a successful and positive experience of breastfeeding exclusively. Nonetheless, constructive opinions from immigrants' families and husbands, and immigrants who breastfed for less than four months are warranted in further studies.

Conclusions

This study explored the opinions and recommendations of Chinese immigrant mothers with a successful experience of exclusive breastfeeding in Ireland on exclusive breastfeeding promotion among this ethnic group in Ireland. Chinese mothers' intention and self-efficacy for exclusive breastfeeding are important, and might be targeted in the breastfeeding interventions. Irish hospitals were recommended to train multilingual health professionals, and combine breastfeeding knowledge with practice in prenatal education. Employers were advised to provide hygienic venues for both breastmilk storage and breastfeeding. The Irish governmental agencies were suggested to set up breastfeeding rooms and special places for breastfeeding groups, and enhance the intensity of breastfeeding publicity in multiple languages. Findings from this study could also be considered when designing strategies to promote exclusive breastfeeding for immigrants in other countries, particular those countries with low breastfeeding rates. Although it is important to acknowledge that the experiences of migrants may have specific challenges and consideration, it is also important to recognize that these experiences may also occur among marginalized groups in society, and therefore tell us more about society and how to support breastfeeding mothers in general.

Declarations

WHO — World Health Organization

CDC — Centers for Disease Control and Prevention

The US — The United States

Abbreviations

Ethical approval and consent to participate

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Ethical approval was obtained from the Research Ethics Committee of the Dublin Institute of Technology. All participants were informed of the purpose and confidentiality of the study. Written consent was obtained before each interview.

Consent for publication

Consent for using the qualitative data and publication was obtained from each participant before each interview.

Availability of data and materials

The data supporting the conclusions of this article are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

Funding

Funding of this study was obtained from the Postgraduate R&D Skill, Strand I, Ireland. The funding body had no involvement in the study design, data collection or analyses.

Conflict of interest statement

The authors declare that they have no conflict of interest.

Authors' contributions

QZ conceptualized the study, recruited the participants, conducted and transcribed the interviews, analyzed the data and drafted the manuscript. HC contributed to data analysis and manuscript drafting. KMY, TMC and JMK conceptualized the study and provided critical comments on this paper. All authors have read and approved the final manuscript.

Acknowledgements

We are grateful for the support of the study participants.

References

1. Rang WQ. Maternal and Child Nutrition. China: People's Medical Publishing House(PMPH); 2014.
2. Mosca F, Gianni ML. Human milk: composition and health benefits. *La Pediatria medica e chirurgica: Medical and surgical pediatrics*. 2017;39(2):155.

3. Gartner LM, Morton J, Lawrence RA, Naylor AJ, O'Hare D, Schanler RJ, Eidelman AI. Breastfeeding and the use of human milk. *Pediatrics*. 2005;115(2):496-506.
4. Sankar MJ, Sinha B, Chowdhury R, Bhandari N, Taneja S, Martines J, Bahl R. Optimal breastfeeding practices and infant and child mortality: a systematic review and meta-analysis. *Acta paediatrica*. 2015;104(467):3-13.
5. WHO. Infant and young child feeding: Model chapter. Geneva, Switzerland. 2009. <https://www.who.int/nutrition/publications/infantfeeding/9789241597494/en/>. Accessed 3 Jun 2019.
6. WHO. Infant and young child feeding. Geneva, Switzerland. 2018. https://www.who.int/nutrition/publications/infant_feeding/en/. Accessed 12 Jun 2019.
7. UNICEF. Global breastfeeding data. 2019. <https://data.unicef.org/topic/nutrition/infant-and-young-child-feeding/>. Accessed 16 Mar 2020.
8. WHO. Global Nutrition Targets 2025. Geneva, Switzerland. 2015. <https://www.who.int/nutrition/global-target-2025/en/>. Accessed 12 Jun 2019.
9. Economic & Social Research Institute. Perinatal statistics report 2011. <https://www.esri.ie/pubs/SUSTAT46.pdf>. Accessed 13 Jun 2019.
10. Health Service Executive. National perinatal statistics report 2013. Dublin: Healthcare Pricing Office. http://www.hse.ie/eng/services/publications/Perinatal_Statistics_Report_2013.pdf. Accessed 13 Jun 2019.
11. WHO. World Health Statistics. Geneva, Switzerland. 2013. https://www.who.int/gho/publications/world_health_statistics/2013/en/. Accessed 13 Jun 2019.
12. Health Service Executive. Perinatal Statistics Report 2013. Dublin: Healthcare Pricing Office. 2015. <http://www.hse.ie/>. Accessed 12 Jan 2020.
13. Rio I, Castello-Pastor A, Del Val Sandin-Vazquez M, Barona C, Jane M, Mas R, Rebagliato M, Bolumar F. Breastfeeding initiation in immigrant and non-immigrant women in Spain. *European journal of clinical nutrition* 2011, 65(12):1345-1347.
14. Nolan A, Layte R: The 'healthy immigrant effect': breastfeeding behaviour in Ireland. *European journal of public health* 2015, 25(4):626-631.
15. Brick A, Nolan A: Explaining the increase in breastfeeding at hospital discharge in Ireland, 2004-2010. *Irish journal of medical science*. 2014;183(3):333-339.
16. Choudhry K, Wallace LM. 'Breast is not always best': South Asian women's experiences of infant feeding in the UK within an acculturation framework. *Maternal & child nutrition*. 2012;8(1):72-87.
17. Yang Z, Lai J, Yu D, Duan Y, Pang X, Jiang S, Bi Y, Wang J, Zhao L, Yin S. Breastfeeding rates in China: a cross-sectional survey and estimate of benefits of improvement. *The Lancet*. 2016;388(1):S47.
18. Zhou Q, Younger KM, Kearney JM. Infant Feeding Practices in China and Ireland: Ireland Chinese Mother Survey. *Frontiers in public health*. 2018;6:351.

19. Zhou Q, Younger KM, Cassidy TM, Wang W, Kearney JM. Breastfeeding practices 2008–2009 among Chinese mothers living in Ireland: a mixed methods study. *BMC pregnancy and childbirth*. 2020;20(1):51.
20. Trost M, Wanke EM, Ohlendorf D, Klingelhofer D, Braun M, Bauer J, Groneberg DA, Quarcoo D, Bruggmann D. Immigration: analysis, trends and outlook on the global research activity. *Journal of global health*. 2018;8(1):010414.
21. Central Statistics Office. 2016 Census Reports. <https://www.cso.ie/en/census/census2016reports/census2016presentations/>. Accessed 10 Feb 2020.
22. Central Statistics Office. Census 2016 Summary Results-Part 1. 2017. <https://www.cso.ie/en/census/>. Accessed 13 Feb 2020.
23. Central Statistics Office. Census 2006 Non-Irish nationals living in Ireland. 2008. <https://www.cso.ie/en/census/>. Accessed 13 Feb 2020.
24. Smith JP, Cattaneo A, Iellamo A, Javanparast S, Atchan M, Hartmann B, et al. Review of effective strategies to promote breastfeeding: an Evidence Check rapid review brokered by the Sax Institute (www.saxinstitute.org.au) for the Department of Health, 2018.
25. McGuire S. Centers for Disease Control and Prevention. 2013. Strategies to Prevent Obesity and Other Chronic Diseases: The CDC Guide to Strategies to Support Breastfeeding Mothers and Babies. Atlanta, GA: U.S. Department of Health and Human Services, 2013. *Advances in Nutrition* 2014, 5(3):291-292.
26. Department of Health and Children. Breastfeeding in Ireland: A five-year strategic action plan. 2005.
27. Feast L, Melles G. Epistemological Positions in Design Research: A Brief Review of the Literature. *Connected*. 2010; doi:<http://hdl.handle.net/1959.3/93971>; swin:18939.
28. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3:77-101.
29. Morse JM, Field PA. *Qualitative Research Methods for Health Professionals*, 2nd edn. Thousand Oaks, California: Sage Publications; 1995.
30. Boyce C, Neale P. *Conducting In-Depth Interviews: A Guide for Designing and Conducting In-Depth Interviews for Evaluation Input*. Watertown, NY, USA: Pathfinder International; 2006.
31. Tarrant M, Dodgson JE, Choi VW. Becoming a role model: the breastfeeding trajectory of Hong Kong women breastfeeding longer than 6 months. *International journal of nursing studies*. 2004;41(5):535-546.
32. Tarrant M, Dodgson JE, Tsang Fei S. Initiating and sustaining breastfeeding in Hong Kong: contextual influences on new mothers' experiences. *Nursing & health sciences*. 2002;4(4):181-191.
33. Yelland J, Gifford SM. Problems of focus group methods in cross-cultural research: a case study of beliefs about sudden infant death syndrome. *Australian New Zealand Journal of Public Health*. 2010;19(3):257-263.

34. Yu L, Gatua MW. Methodological Considerations for Qualitative Research with Immigrant Populations: Lessons from Two Studies. *Qualitative Report*. 2014;19:1-16.
35. Tavoulari EF, Benetou V, Vlastarakos PV, Kreatsas G, Linos A. Immigrant status as important determinant of breastfeeding practice in southern Europe. *Central European journal of public health*. 2015;23(1):39-44.
36. Donath SM, Amir LH. Relationship between prenatal infant feeding intention and initiation and duration of breastfeeding: a cohort study. *Acta paediatrica*. 2003;92(3):352-356.
37. Dodgson JE, Henly SJ, Duckett L, Tarrant M. Theory of planned behavior-based models for breastfeeding duration among Hong Kong mothers. *Nursing research*. 2003;52(3):148-158.
38. Dennis CL, Gagnon A, Van Hulst A, Dougherty G. Predictors of breastfeeding exclusivity among migrant and Canadian-born women: results from a multi-centre study. *Maternal & child nutrition*. 2014;10(4):527-544.
39. Meftuh AB, Tapsoba LP, Lamounier JA. Breastfeeding practices in Ethiopian women in southern California. *Indian journal of pediatrics*. 1991;58(3):349-356.
40. Kuswara K, Laws R, Kremer P, Hesketh KD, Campbell KJ. The infant feeding practices of Chinese immigrant mothers in Australia: A qualitative exploration. *Appetite*. 2016;105:375-384.
41. Department of Children and Youth Affairs. *Right from the Start -The Report of the Expert Advisory Group on the Early Years Strategy*. 2013.
42. Emma Q. *Visa Policy as Migration Channel: Ireland*. 2011.
https://www.academia.edu/37202410/VISA_POLICY_AS_MIGRATION_CHANNEL_IRELAND. Accessed 3 Feb 2020.
43. Thet MM, Khaing EE, Diamond-Smith N, Sudhinaraset M, Ool S, Aung T. Barriers to exclusive breastfeeding in the Ayeyarwaddy Region in Myanmar: Qualitative findings from mothers, grandmothers, and husbands. *Appetite*. 2016;96:62-69.
44. Schmied V, Olley H, Burns E, Duff M, Dennis CL, Dahlen HG. Contradictions and conflict: a meta-ethnographic study of migrant women's experiences of breastfeeding in a new country. *BMC pregnancy and childbirth*. 2012;12:163.
45. Goel KM, House F, Shanks RA. Infant-feeding practices among immigrants in Glasgow. *British Medical Journal*. 1978;2(6150):1498.
46. Janssen PA, Livingstone VH, Chang B, Klein MC. Development and evaluation of a Chinese-language newborn feeding hotline: A prospective cohort study. *BMC pregnancy and childbirth*. 2009;9(1):3.
47. Lindsay AC, Wallington SF, Greaney ML, Hasselman MH, Tavares Machado MM, Mezzavilla RS. Brazilian Immigrant Mothers' Beliefs and Practices Related to Infant Feeding: A Qualitative Study. *Journal of human lactation : official journal of International Lactation Consultant Association*. 2017;33(3):595-605.
48. Flores A, Anchondo I, Huang C, Villanos M, Finch C. "Las Dos Cosas," or Why Mexican American Mothers Breast-Feed, But Not for Long. *Southern medical journal*. 2016;109(1):42-50.

49. Zhou Q. Global issues of Chinese mothers in Ireland who breastfeed. In: Cassidy TM, editor. *Breastfeeding: Global practices, challenges, maternal and infant health outcomes*. New York: Nova Science Publishers; 2013. p. 137-158.
50. Lok KYW, Bai DL, Chan NPT, Wong JYH, Tarrant M. The impact of immigration on the breastfeeding practices of Mainland Chinese immigrants in Hong Kong. *Birth (Berkeley, Calif)*. 2018;45(1):94-102.
51. Xu F, Qiu L, Binns CW, Liu X. Breastfeeding in China: a review. *International breastfeeding journal*. 2009;4:6.
52. Leung EY, Au KY, Cheng SS, Kok SY, Lui HK, Wong WC. Practice of breastfeeding and factors that affect breastfeeding in Hong Kong. *Hong Kong medical journal*. 2006;12(6):432-436.
53. Chen S, Binns CW, Zhao Y, Maycock B, Liu Y. Breastfeeding by Chinese mothers in Australia and China: the healthy migrant effect. *Journal of human lactation : official journal of International Lactation Consultant Association*. 2013;29(2):246-252.
54. McAllister H, Bradshaw S, Ross-Adjie G. A study of in-hospital midwifery practices that affect breastfeeding outcomes. *Breastfeeding review : professional publication of the Nursing Mothers' Association of Australia*. 2009;17(3):11-15.
55. Leviniene G, Petrauskiene A, Tamuleviciene E, Kudzyte J, Labanauskas L. The evaluation of knowledge and activities of primary health care professionals in promoting breast-feeding. *Medicina (Kaunas, Lithuania)*. 2009;45(3):238-247.
56. WHO, UNICEF. *Global Strategy for Infant and Young Child Feeding*. 2003. https://www.who.int/maternal_child_adolescent/documents/9241562218/en/. Accessed 12 Jun 2019.
57. Tarrant RC, Kearney JM. Breastfeeding practices in Ireland: a review. *Proceedings of the Nutrition Society*. 2008; doi:10.1017/S0029665108008665.
58. Zhou Q, Younger KM, Kearney JM. An exploration of the knowledge and attitudes towards breastfeeding among a sample of Chinese mothers in Ireland. *BMC public health*. 2010;10:722.
59. Health Service Executive. *Health Service Breastfeeding Action Plan 2016 - 2021: Breastfeeding in a Healthy Ireland*. 2016.
60. Rimes KA, Oliveira MIC, Boccolini CS. Maternity leave and exclusive breastfeeding. *Revista de saude publica*. 2019;53:10.
61. Gonzalez-Pascual JL, Ruiz-Lopez M, Saiz-Navarro EM, Moreno-Preciado M. Exploring Barriers to Breastfeeding Among Chinese Mothers Living in Madrid, Spain. *Journal of immigrant and minority health*. 2017;19(1):74-79.
62. Aguilar-Ortega JM, Gonzalez-Pascual JL, Cardenete-Reyes C, Perez-de-Algaba-Cuenca C, Perez-Garcia S, Esteban-Gonzalo L. Adherence to initial exclusive breastfeeding among Chinese born and native Spanish mothers. *BMC pregnancy and childbirth*. 2019;19(1):44.
63. Lindsay AC, Wallington SF, Greaney ML, Hasselman MH, Machado MM, Mezzavilla RS, Detro BM. *Sociocultural and Environmental Influences on Brazilian Immigrant Mothers' Beliefs and Practices*

Table

Table 1. Mothers' personal opinions on exclusive breastfeeding promotion

Theme 1. Recommendation for mothers

1.1 Maintaining maternal intention and improving self-efficacy

1.2 Creating suitable condition for exclusive breastfeeding

1.3 Obtaining breastfeeding knowledge

Theme 2. Recommendation for family members, employers and colleagues, and health care professionals

2.1 Family members' sufficient support

2.2 Employer' support and colleagues' respect

2.3 Health care professionals' support

2.3.1 Encouragement and advocacy

2.3.2 Multilingual specialization

2.3.3 Appropriate breastfeeding education combined with practice

Theme 3. Recommendation for the government

3.1 Setting up well-equipped breastfeeding facilities in public places

3.2 Providing social welfare policies

3.3 Publicity

3.3.1 Increasing intensity of publicity

3.3.2 Enriching contents of publicity

3.3.3 Publicizing by various means
